

Stybarrow Plug and Abandonment Environment Plan

Stybarrow Decommissioning

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Revision History		
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Terms and Acronyms

Term	Description
μPa	microPascal
ABF	Australian Border Force
AFMA	Australian Fisheries Management Authority
AHO	Australian Hydrographic Office
AIS	Automatic Identification System
ALARP	As low as reasonably practicable
AMOSOC	Australian Marine Oil Spill Centre
AMP	Australian Marine Park
AMSA	Australian Maritime Safety Authority
ANSI	American National Standards Institute
ANZECC	Australian and New Zealand Environment and Conservation Council
API	American Petroleum Institute
APPEA	Australian Petroleum Production and Exploration Association
APU	Australia Production Unit
ARMCANZ	Agriculture and Resource Management Council of Australia and New Zealand
ASBTIA	Australian Southern Bluefin Tuna Industry Association
AWJ	Abrasive water jet
BACI	Before-After-Control-Impact
BIA	Biologically Important Area
BP	Boiling point
BWM	Ballast Water Management
CCG	Cape Conservation Group
CEFAS	Centre for Environment, Fisheries and Aquaculture
CEM	Crisis and Emergency Management

Term	Description
CEO	Chief Executive Officer
CIMT	Corporate Incident Management Team
CFA	Commonwealth Fisheries Association
CHARM	Chemical Hazard and Risk Management
CMT	Crisis Management Team
CRG	Community Reference Group
CSIRO	Commonwealth Scientific and Industrial Research Organisation
CWTS	Controlled Waste Tracking System
DBCA	Department of Biodiversity, Conservation and Attractions
DC	Drill Centre
DCCEEW	Department of Climate Change, Energy, the Environment and Water
DGV	Default Guideline Value
DISER	Department of Industry, Science, Energy and Resources
DMIRS	Department of Mines, Industry Regulation and Safety
DNP	Director of National Parks
DoD	Department of Defence
DoT	Department of Transport
DP	Dynamic Positioning
DPIRD	Department of Primary Industries and Regional Development
DTM	Disconnectable Turret Mooring
EC50	Effective Concentration 50%
ECC	Emergency and Crisis Centre
EFL	Electrical Flying Lead
EMBA	Environment that may be affected

Term	Description
EMT	Emergency Management Team
ENVID	Environmental Hazard Identification
Environment Regulations	Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2009
EP	Environment Plan
EPA	Environmental Protection Authority
EPBC Act	Environment Protection and Biodiversity Conservation Act 1999
EPO	Environmental Performance Outcome
EPS	Environmental Performance Standard
ESD	Ecologically Sustainable Development
FIFO	Fly-in Fly-out
FOB	Forward Operating Base
FPIC	Free, Prior and Informed Consent
FPSO	Floating Production, Storage and Offloading
FRT	Field Response Team
FSO	Floating Storage and Offloading
GHG	Greenhouse Gas
GIS	Geographic information system
HazPlan	Western Australia State Hazard Plan for Maritime Environmental Emergencies
HFL	Hydraulic Flying Lead
HLV	Heavy Lift Vessel
HMA	Hazard Management Agency
HR	Human Resources
HSE	Health, Safety and Environment
HSEC	Health Safety Environment Committee
IAP	Incident Action Plan
IAPP	International Air Pollution Prevention

Term	Description
IGN	Industry Guidance Note
IMCRA	Integrated Marine and Coastal Regionalisation of Australia
IMO	International Maritime Organization
IMS	Invasive Marine Species
IMT	Incident Management Team
IOPP	International Oil Pollution Prevention
ISPP	International Sewage Pollution Prevention
IT	Information Technology
IUCN	International Union for the Conservation of Nature
JRCC	Joint Rescue Coordination Centre
JSA	Job Safety Assessment
JSCC	Joint Strategic Coordination Committee
JSS	Jumper Stroking System
KEF	Key Ecological Feature
kHz	Kilohertz
LACHS	Local Aboriginal Cultural Heritage Service
LC50	Lethal Concentration 50%
LED	Light emitting diode
MARPOL	International Convention for the Prevention of Pollution from Ships
MBES	Multi-beam echo sounder
MC	Measurement Criteria
MDO	Marine diesel oil
MEE	Maritime Environmental Emergencies
MEECC	Maritime Environmental Emergency Coordination Centre
MEER	Maritime Environmental Emergency Response
MEPS	Marine Environmental Protection Services

Term	Description
MFO	Marine Fauna Observer
MNES	Matters of National Environmental Significance
MODU	Mobile Offshore Drilling Unit
MOP	Marine Oil Pollution
MOSES	Marine Oil Spill Equipment System
MoU	Memorandum of Understanding
MPA	Marine Protected Area
MSIC	Marine Security Identification Card
MTWA	Marine Tourism Western Australia
NatPlan	National Plan for Maritime Environmental Emergencies
NCWHAC	Ningaloo Coast World Heritage Advisory Committee
NEBA	Net Environmental Benefit Analysis
NEC	No Effect Concentration
NGERS	National Greenhouse and Energy Reporting
NLPG	National Light Pollution Guidelines for Wildlife Including Marine Turtles, Seabirds and Migratory Shorebirds
NM	Nautical Mile
NMFS	National Marine Fisheries Service
NOAA	National Ocean and Atmospheric Administration
NOPSEMA	National Offshore Petroleum Safety and Environmental Management Authority
NOPTA	National Offshore Petroleum Titles Administrator
NORM	Naturally Occurring Radioactive Material
NOTAM	Notice to Airmen
NOTMAR	Notice to Mariners
NOx	Nitrous oxides
NPI	National Pollutant Inventory
NRT	National Response Team

Term	Description
NT	Northern Territory
NWS	North West Shelf
NWXA	North West Exercise Area
OCNS	Offshore Chemical Notification Scheme
ODS	Ozone Depleting Substance
OPEP	Oil Pollution Emergency Plan
OPGGs Act	Offshore Petroleum and Greenhouse Gas Storage Act 2006
OSPAR	Convention for the Protection of the Marine Environment of the North-East Atlantic
OSRA	Oil Spill Response Agency
OSRC	Oil Spill Response Coordination
OSRL	Oil Spill Response Limited
OWR	Oiled Wildlife Response
PEC	Predicted Effect Concentration
PLONOR	Pose Little or No Risk to the Environment
PMS	Preventative Maintenance System
PMST	Protected Matters Search Tool
POLREP	Pollution Report
PoW	octanol/water partition coefficient
PPA	Pearl Producers Association
PPE	Personal protective equipment
PROWRP	Pilbara Region Oiled Wildlife Response Plan
PS	Performance Standard
PSZ	Petroleum Safety Zone
PTS	Permanent Threshold Shift
PTW	Permit to Work
RCC	Rescue Coordination Centre
ROV	Remotely Operated Vehicle
RS	Response Strategy

Term	Description
RWOCS	Remote Work Over Control System
SCAT	Shoreline Clean-up and Assessment Technique
SDU	Subsea Distribution Unit
SEEMP	Ship Energy Efficiency Management Plan
SEL24h	Sound Exposure Level over 24 hours
SHP	State Hazard Plan
SIMAP	Spill Impact Mapping and Analysis Program
SITREP	Situation Report
SMEEC	State Maritime Environmental Emergency Coordinator
SOLAS	International Convention for the Safety of Life at Sea
SOPEP	Shipboard Oil Pollution Emergency Plan
SOx	Sulphur oxides
SPL	Sound Pressure Level
SSS	Side-scan Sonar
STCW95	International Convention on Standards of Training, Certification and Watchkeeping for Seafarers
TBOSIET	Tropical Basic Offshore Safety Induction and Emergency Training
TRP	Tactical Response Plan
TTS	Temporary Threshold Shift
UK	United Kingdom
UNDRIP	United Nations Declaration on the Rights of Indigenous Peoples
UTA	Umbilical Termination Assembly
UXO	Unexploded ordnance
WA	Western Australia State Hazard Plan for Maritime Environmental Emergencies
WAFIC	Western Australian Fishing Industry Council
WALGA	WA Local Government Association

Term	Description
WAOWRP	Western Australian Oiled Wildlife Response Plan
WI	Water Injection
WOCS	Work Over Control System
YMAC	Yamatji Marlpa Aboriginal Corporation

1 Introduction

1.1 Overview of Proposed Activity

Woodside Energy (Australia) Pty Ltd (Woodside), as Titleholder under the Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2009 (Commonwealth) (referred to as the Environment Regulations), proposes to undertake permanent plug and abandonment (P&A) activities of the Stybarrow development wells within offshore Permit Area WA-32-L. The petroleum activities include the P&A of ten subsea wells including production, gas injection and water injection wells and removal of all well infrastructure above the mudline.

These activities will hereafter be referred to as the Petroleum Activity and forms the scope of this Environment Plan (EP). A detailed description of the Petroleum Activity is provided in **Section 3**. Infrastructure associated with the Stybarrow wells is defined in **Section 3.5**. Other subsea infrastructure within WA-32-L will continue to be managed under the Stybarrow Cessation of Production EP. This is described further in **Section 3.6**.

This EP has been prepared to meet the Commonwealth *Offshore Petroleum and Greenhouse Gas Storage Act 2006* (OPGGS Act) as administered by the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA).

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 from planned (routine and non-routine) activities and unplanned events (including emergency situations) of the Petroleum Activity are identified and described.
- 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 are performed 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)).

The EP describes the process used by Woodside to identify and evaluate potential environmental impacts and risks arising from the petroleum activities and defines activity specific Environmental Performance Outcomes (EPOs), Performance Standards (PSs) and Measurement Criteria (MCs) to be applied to manage the impacts and risks to ALARP and acceptable levels.

These form the basis of the implementation strategy, defined in **Section 11** for monitoring, auditing, and managing the petroleum activities to be performed by Woodside and its contractors. This EP documents and considers consultation with relevant authorities, persons, and organisations.

1.3 Scope of this Environment Plan

A detailed description of the Petroleum Activity is provided in **Section 3**. The spatial boundary of the Petroleum Activity has been described and assessed using the Operational Area, which is described in **Section 3.3**.

The petroleum activity described in this EP forms part of the decommissioning of all property within the Stybarrow field in WA-32-L. Other activities relevant to the decommissioning of the Stybarrow field are covered under the following EPs and include:

- Ongoing field management and removal of the majority of subsea infrastructure associated with the Stybarrow field in WA-32-L, addressed in the Stybarrow Decommissioning and Field Management EP.
- Abandonment *in situ* of the disconnectable turret mooring anchors, suction piles and a historic exploration wellhead (Eskdale-1) within WA-32-L, addressed in the Stybarrow Field Decommissioning EP.

A summary of the holistic decommissioning planning and execution for the Stybarrow field, including an indicative schedule, is provided in **Section 3.6**. The Stybarrow Decommissioning and Field Management EP

is intended to be the final decommissioning EP for the Stybarrow field and will therefore address the requirement of Section 270 and final title relinquishment.

The scope of this EP does not include the movement of the mobile offshore drilling unit (MODU) and support vessels outside of the Operational Area. These activities will be performed in accordance with other relevant maritime and aviation legislation, most notably the Commonwealth *Navigation Act 2012* and Commonwealth *Civil Aviation Act 1988*.

1.4 Woodside/BHP Merger

BHP Petroleum (Australia) Pty Ltd (BHP Petroleum) and Woodside announced their intention to merge in 2021, which became effective on 1 June 2022. Prior to the 1 June 2022, BHP Petroleum and Woodside acted as independent companies, thus planning activities for this decommissioning Environment Plan were conducted originally by BHP Petroleum. The merger consisted of a change of control of BHP Petroleum International Pty Ltd (holding company for BHP global petroleum business) via a share sale to Woodside Petroleum Ltd. All BHP Petroleum entities holding Australian Petroleum titles transferred to Woodside parent company control with this change in ownership.

All BHP Petroleum policies, standards, processes and procedures were included in the merger agreement and remain valid. Harmonisation of processes between BHP Petroleum and Woodside commenced planning upon the completion of the merger and will be conducted in a staged manner. The BHP Petroleum HSE Management system (herein referred to as the Woodside (PetDW) HSE Management System) will continue to be used by 'heritage' BHP operations until potential changes have been assessed.

The Titleholder name change from BHP Petroleum (Australia) Pty Ltd to Woodside Energy (Australia) Pty Ltd was made on 11 July 2022.

1.5 Overview of HSE Management System

All Woodside controlled activities associated with the Petroleum Activity will be conducted in line with:

- Woodside "Our Values" (Appendix A),
- Woodside Environment and Biodiversity Policy,
- Woodside Wells and Seismic Delivery Management System,
- Woodside (PetDW) Management System,
- Woodside (PetDW) Health, Safety and Environment (HSE) Standard,
- any specific commitments laid out in this EP.

All Woodside sites must maintain up-to-date practices that adhere to the requirements contained in the Woodside (PetDW) HSE Management System and Standard. Activity-specific environmental management measures specific to the petroleum activity are implemented through this EP.

Whilst HSE Management Systems apply to the manner in which Woodside execute their responsibilities under this EP, operational control of the MODU remains the responsibility of the MODU Contractor and shall be managed in accordance with Contractor Management Systems as detailed within the NOPSEMA accepted Safety Case for the facility.

1.6 Environment Plan Summary

An EP summary has been prepared based on material provided in this EP. **Table 1-1** summarises the items as required by Regulation 11(4) of the Environment Regulations.

Table 1-1: EP Summary

EP Summary Material Requirement	Relevant Section of the EP
The location of the activity	Section 3.2
A description of the receiving environment	Section 0 Appendix A
A description of the activity	Section 3
Details of the environmental impacts and risks	Section 1 Section 8
The control measures for the activity	Section 1 Section 8
The arrangements for ongoing monitoring of the titleholder's environmental performance	Section 1 Section 8 Section 10 Section 11
Response arrangements in the Oil Pollution Emergency Plan	Section 10 Section 11 Appendix A
Consultation already undertaken and plans for ongoing consultation	Section 5 Section 11
Details of the titleholder's nominated liaison person for the activity	Section 1.8

1.7 Structure of the Environment Plan

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

Table 1-2: EP content requirements from the Environment Regulations and relevant sections of the EP demonstrating the requirements are met

Criteria for Acceptance	Content Requirements / Relevant Regulations	Elements	Section of EP
Regulation 10A(a): <i>is appropriate for the nature and scale of the activity</i>	Regulation 13 <i>Environmental Assessment</i>	The principle of 'nature and scale' applies throughout the EP	Section 1
	Regulation 14 <i>Implementation strategy for the environment plan</i>		Section 3 Section 5 Section 6 Section 7 Section 8
	Regulation 16 <i>Other information in the environment plan</i>		Section 11
Regulation 10A(b): <i>demonstrates that the</i>	Regulation 13(1)–13(7): <i>13(1) Description of the activity</i>	<ul style="list-style-type: none"> Set the context (activity and existing environment) 	Section 1

Criteria for Acceptance	Content Requirements / Relevant Regulations	Elements	Section of EP
<p><i>environmental impacts and risks of the activity will be reduced to as low as reasonably practicable</i></p> <p>Regulation 10A(c): <i>demonstrates that the environmental impacts and risks of the activity will be of an acceptable level</i></p>	<p>13(2)(3) <i>Description of the environment</i></p> <p>13(4) <i>Requirements</i></p> <p>13(5)(6) <i>Evaluation of environmental impacts and risks</i></p> <p>13(7) <i>Environmental performance outcomes and standards</i></p> <p>Regulation 16(a)–16(c): <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></p>	<ul style="list-style-type: none"> 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 	<p>Section 2</p> <p>Section 3</p> <p>Section 4</p> <p>Section 5</p> <p>Section 6</p> <p>Section 7</p> <p>Section 8</p> <p>Appendix A</p>
<p>Regulation 10A(d): <i>provides for appropriate environmental performance outcomes, environmental performance standards and measurement criteria</i></p>	<p>Regulation 13(7): <i>Environmental performance outcomes and standards</i></p>	<ul style="list-style-type: none"> Environmental Performance Outcomes Environmental Performance Standards Measurement Criteria 	<p>Section 1</p> <p>Section 8</p> <p>Section 10</p>
<p>Regulation 10A(e): <i>includes an appropriate implementation strategy and monitoring, recording and reporting arrangements</i></p>	<p>Regulation 14: <i>Implementation strategy for the environment plan</i></p>	<p>Implementation strategy, including:</p> <ul style="list-style-type: none"> systems, practices, and procedures, performance monitoring, Oil Pollution Emergency Plan (OPEP) and scientific monitoring, and ongoing consultation 	<p>Section 6</p> <p>Section 10</p> <p>Section 11</p> <p>Appendix D (OPEP)</p>
<p>Regulation 10A(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></p>	<p>Regulation 13 (1)–13(3):</p> <p>13(1) <i>Description of the activity</i></p> <p>13(2) <i>Description of the environment</i></p> <p>13(3) <i>Without limiting [Regulation 13(2)(b)], particular relevant values and sensitivities may include any of the following:</i></p> <p>(a) <i>the world heritage values of a declared World Heritage property within the meaning of the EPBC Act</i></p> <p>(b) <i>the national heritage values of a National Heritage place within the meaning of that Act</i></p> <p>(c) <i>the ecological character of a declared Ramsar wetland within the meaning of that Act</i></p> <p>(d) <i>the presence of a listed</i></p>	<p>No activity, or part of the activity, undertaken in any part of a declared World Heritage property.</p>	<p>Section 0</p> <p>Section 3</p> <p>Section 8</p> <p>Section 9</p>

Criteria for Acceptance	Content Requirements / Relevant Regulations	Elements	Section of EP
	<p><i>threatened species or listed threatened ecological community within the meaning of that Act</i></p> <p><i>(e) the presence of a listed migratory species within the meaning of that Act</i></p> <p><i>(f) any values and sensitivities that exist in, or in relation to, part or all of:</i></p> <p><i>(i) a Commonwealth marine area within the meaning of that Act; or</i></p> <p><i>(ii) Commonwealth land within the meaning of that Act.</i></p>		
<p>Regulation 10A(g):</p> <p><i>(i) the titleholder has carried out the consultations required by Division 2.2A</i></p> <p><i>(ii) the measures (if any) that the titleholder has adopted, or proposes to adopt, because of the consultations are appropriate</i></p>	<p>Regulation 11A:</p> <p><i>Consultation with relevant authorities, persons and organisations, etc.</i></p> <p>Regulation 16(b):</p> <p><i>A report on all consultations between the titleholder and any relevant person</i></p>	Consultation in preparation of the EP	Section 5
<p>Regulation 10A(h):</p> <p><i>complies with the Act and the regulations</i></p>	<p>Regulation 15:</p> <p><i>Details of the Titleholder and liaison person</i></p> <p>Regulation 16(c):</p> <p><i>Details of all reportable incidents in relation to the proposed activity.</i></p>	All contents of the EP must comply with the <i>Offshore Petroleum and Greenhouse Gas Storage Act 2006</i> and the Environment Regulations	Section 1.8

1.8 Titleholder Details

Woodside Energy (Australia) Pty Ltd is the operator and nominated titleholder of WA-32-L along with Woodside Energy Ltd..

Woodside's mission is to deliver affordable energy solutions and superior outcomes for stakeholders. Wherever Woodside works, it is committed to living its values of integrity, respect, working sustainably, ownership, courage and working together. Woodside's operations are characterised by strong safety and environmental performance in remote and challenging locations.

Woodside has an excellent 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 with the aim of being a partner of choice. Further information about Woodside can be found at <http://www.woodside.com>.

In accordance with Regulation 15(1) of the Environment Regulations, details of the titleholder are provided in **Table 1-3**. In accordance with Regulation 15(2) of the Environment Regulations, details of the titleholder's nominated liaison person are provided in **Table 1-4**.

In the event of any change in the titleholder, titleholder parent company, a change in the titleholder's nominated liaison person or a change in the contact details for either the titleholder or the liaison person, Woodside will notify NOPSEMA in writing in accordance with Regulation 15(3) of the Environment Regulations

Table 1-3: Titleholder details

Name	Woodside Energy (Australia) Pty Ltd
Business address	11 Mount St, Perth, Western Australia 6000
Telephone number	1800 442 997
Email address	mhairi.glover@woodside.com
Australian Company Number	006 923 879

Table 1-4: Titleholder's nominated liaison person

Name	Steve Jeffcote
Position	Australian Operations Environment Manager
Business address	11 Mount St, Perth, Western Australia 6000
Telephone number	1800 442 997
Email address	steve.jeffcote@woodside.com

2 Legislative Framework

2.1 Commonwealth Legislation

Environmental aspects of the Petroleum Activity in Commonwealth waters are subject to the Commonwealth *Offshore Petroleum and Greenhouse Gas Storage Act 2006* (OPGGGS Act) and the EPBC Act. Each of these, as applicable to the Petroleum Activity, is described in the next sections. There are also additional applicable Commonwealth legislation, international agreements and conventions, and other applicable standards, guidelines, and codes that may apply to the Petroleum Activity. These are summarised in **Appendix A** of this EP.

2.1.1 Offshore Petroleum and Greenhouse Gas Storage Act 2006

The *Offshore Petroleum and Greenhouse Gas Storage Act 2006* (OPGGGS Act) provides the regulatory framework for all offshore exploration and production activities in Commonwealth waters (those areas beyond three nautical miles from the territorial sea baseline and in the Commonwealth Petroleum Jurisdiction Boundary). The Environment Regulations have been made under the OPGGS Act to ensure “...any Petroleum Activity or greenhouse gas activity carried out in an offshore area is:

- carried out in a manner consistent with the principles of ecologically sustainable development set out in section 3A of the *Environment Protection and Biodiversity Act 1999* (EPBC Act)
- carried out in a manner by which the environmental impacts and risks of the activity will be reduced to as low as reasonably practicable
- carried out in a manner by which the environmental impacts and risks of the activity will be of an acceptable level”.

This EP meets the requirements of the Environment Regulations by providing a plan that:

- is appropriate for the nature and scale of the activity
- demonstrates the environmental impacts and risks of the activity will be reduced to as low as reasonably practicable
- demonstrates the environmental impacts and risks of the activity will be of an acceptable level
- provides for appropriate Environmental Performance Outcomes (EPOs), Environmental Performance Standards (EPSs) and Measurement Criteria (MC)
- includes an appropriate implementation strategy and monitoring, recording and reporting arrangements
- does not involve the activity or part of the activity, other than arrangements for environmental monitoring or for responding to an emergency, being performed in any part of a declared World Heritage property within the meaning of the EPBC Act
- demonstrates that:
 - an appropriate level of consultation, as required by Division 2.2A of the Environment Regulations, has been performed
 - the measures (if any) adopted, or proposed to adopt, because of consultations are appropriate
 - complies with the OPGGS Act and the Environment Regulations.

The OPGGS Act and supporting regulations address licensing, health, safety and environmental matters for offshore petroleum and gas exploration and production operations in Commonwealth waters. Obligations in relation to the maintenance and removal of equipment and property brought onto title are provided under subsection 572(3) of the OPGGS Act.

Under subsection 572(3) of the OPGGS Act, a titleholder must remove from the title area all structures that are, and all equipment and other property that is neither used nor to be used in connection with the operations. Under subsection 572(7), property removal requirements are subject to any other provision of the OPGGS Act, the regulations, directions given by NOPSEMA or the responsible Commonwealth Minister, and any other law. Section 572(3) requires the removal of property when it is no longer used, unless NOPSEMA has accepted alternative arrangements where justification is appropriate and with regard to the Guideline: Offshore Petroleum Decommissioning (Department of Industry, Science and Resources, 2022).

Under subsection 270(3) of the OPGGS Act, before title surrender, all property brought into the surrender area must be removed to the satisfaction of NOPSEMA, or arrangements that are satisfactory to NOPSEMA must be made relating to the property.

Field management covered under the Stybarrow Decommissioning and Field Management EP evaluates the infrastructure integrity and applies applicable measures, based on risk, to ensure well and subsea infrastructure may be removed in accordance with Section 572(3) of the OPGGS Act. All Stybarrow subsea and well infrastructure within WA-32-L will be removed before 31 March 2025, in accordance with General Direction 833 (**Section 2.1.2**) and Section 572(3) of the OPGGS Act, unless NOPSEMA approves and is satisfied that an alternative decommissioning approach delivers equal or better environmental outcomes compared with complete removal.

2.1.2 General Direction 833

On 30 August 2021, NOPSEMA issued Woodside with a General Direction (General Direction 833) under Section 574 of the OPGGS Act in relation to decommissioning of infrastructure relating to the Stybarrow field within WA-32-L. **Table 2-1** outlines the directions in General Direction 833, and Woodside's intention for addressing each of these directions, either under this EP or under other separate Stybarrow decommissioning EPs.

This EP will address requirements under this General Direction related to the P&A of the Stybarrow wells and removal of well infrastructure above the mudline. Requirements relating to the decommissioning of other subsea infrastructure within WA-32-L is covered under the following separate EPs:

- Stybarrow Decommissioning and Field Management EP (BHPB-00SC-N000-003), currently under assessment by NOPSEMA (submitted 14 April 2022)
- Stybarrow End State Decommissioning EP (BHPB-00SC-N000-0007), currently under assessment by NOPSEMA (submitted 31 July 2022)

Currently inspection and maintenance activities on subsea infrastructure (including well infrastructure) within WA-32-L is managed under the accepted Stybarrow Operation Cessation EP (in force). Once accepted, the Stybarrow Decommissioning and Field Management EP, will cover ongoing inspection and maintenance of this infrastructure until final decommissioning. The Stybarrow Decommissioning and Field Management EP is also intended to be the final decommissioning EP for the Stybarrow field and will therefore address the requirement of Section 270 and title relinquishment. Further detail on the decommissioning EPs for the Stybarrow field is provided in **Section 3.6**.

Table 2-1: General Direction 833

Direction	Woodside's Intentions relating to Direction
<p>Direction 1</p> <p>Plug or close off, to the satisfaction of NOPSEMA, all wells made in the title area by any person engaged or concerned in operations authorised by the title as soon as practicable and no later than 30 September 2024.</p>	<p>Woodside has a total of 17 wells within WA-32-L, all of which are subject to Direction 1. Ten of the wells are associated with the production of the Stybarrow field and require permanent plug and abandonment as described in this EP (refer to Section 3). It is intended that this activity will be completed no later than the 30 September 2024.</p> <p>Seven of the wells are historical exploration/appraisal wells drilled between 2002 to 2014 and were permanently plugged upon completion of the drilling activities at that time (details provided in Table 3-2. No further work is required on these seven wells to comply with Direction 1.</p>
<p>Direction 2</p> <p>Remove, or cause to be removed, to the satisfaction of NOPSEMA, from the title area all property brought into that area by any person engaged or concerned in the operations authorised by the title as soon as practicable and no later than 31 March 2025.</p>	<p>Well infrastructure above the mudline (wellheads, subsea trees) will be recovered under this EP following permanent plugging of the Stybarrow development wells. Activities relating to well infrastructure removal are defined in Section 3.8.8.</p> <p>The Stybarrow Decommissioning and Field Management EP covers the removal of the Stybarrow infrastructure within WA-32-L by no later than 31 March 2025. The Stybarrow Field Decommissioning EP covers infrastructure proposed for <i>in situ</i> abandonment. Section 3.6 provides further details on the holistic decommissioning approach for the Stybarrow Field including timeframes for decommissioning activities.</p>
<p>Direction 3</p>	<p>Currently, inspection and maintenance activities for all subsea wells and</p>

Direction	Woodside's Intentions relating to Direction
<p>Until such time as Direction 1 and 2 are complete, maintain all property on the title to NOPSEMA's satisfaction, to ensure removal of the property is not precluded.</p>	<p>infrastructure within petroleum title WA-32-L are managed under the accepted Stybarrow Operation Cessation EP (in force).</p> <p>Once accepted, the Stybarrow Decommissioning and Field Management EP will cover ongoing inspection and maintenance activities on all subsea infrastructure (including wells) until wells have been permanently plugged for abandonment and decommissioning of subsea infrastructure commences.</p>
<p>Direction 4</p> <p>Provide, to the satisfaction of NOPSEMA, for the conservation and protection of the natural resources in the title area within 12 months after property referred to in direction 2 is removed.</p>	<p>Woodside applies the same definition for the term "natural resources"¹ as is used in policy <i>Section 270 Consent to surrender title - NOPSEMA advice</i> (NOPSEMA, 2022).</p> <p>Details on how Woodside will ensure the conservation and protection of natural resources in petroleum title WA-32-L will be addressed in the Stybarrow Decommissioning and Field Maintenance EP and Stybarrow Field Decommissioning EP, which covers final decommissioning activities for infrastructure within the Stybarrow field.</p> <p>Furthermore, Section 6 of this EP assesses risks and impacts to natural resources in the title area specifically relating to plugging and abandonment activities.</p>
<p>Direction 5</p> <p>Make good, to the satisfaction of NOPSEMA, any damage to the seabed or subsoil in the title area caused by any person engaged or concerned in the operations authorised by the title within 12 months after the property referred to in direction 2 is removed.</p>	<p>Details on how Woodside will address requirement to make good any damage to the seabed or subsoil within petroleum title WA-32-L will be addressed in the Stybarrow Decommissioning and Field Maintenance EP which covers final removal activities as required under Direction 2</p> <p>Section 7 of this EP assesses the potential impacts of the petroleum activity on the seabed and lists controls that will be implemented to ensure impacts are ALARP and acceptable.</p>
<p>Direction 6</p> <p>Submit to NOPSEMA on an annual basis, until all direction have been met, a progress report detailing planning towards and process with undertaking the actions required by directions 1, 2, 3, 4 and 5.</p> <p>The report submitted under Direction 6(a) must be to the satisfaction of NOPSEMA and submitted to NOPSEMA no later than 31 December each year.</p> <p>Publish the report on the registered titleholders' website within 14 days of obtaining NOPSEMA satisfaction under Direction 6(b).</p>	<p>The Stybarrow Decommissioning and Field Management EP is intended to be the final decommissioning EP for the Stybarrow Field and therefore provides Woodside's external reporting obligations required under Direction 5. Further detail is provided in Section 11.7.2</p>

2.1.3 Environment Protection and Biodiversity Conservation Act 1999

The EPBC Act aims to protect and manage nationally and internationally important flora, fauna, ecological communities, and heritage places in Australia. These are defined in the EPBC Act as Matters of National Environmental Significance (MNES). NOPSEMA, through the Streamlining Offshore Petroleum Environmental Approvals Program, implements these requirements with respect to offshore Petroleum Activities in Commonwealth waters. The Streamlining Offshore Petroleum Environmental Approvals Program is applicable to all offshore petroleum activities authorised under the OPGGS Act and requires the petroleum activities to be conducted in accordance with an accepted EP, consistent with the principles of Ecologically Sustainable Development (ESD). The definition of 'environment' in the Streamlining Offshore Petroleum Environmental

¹ The Section 270 NOPSEMA advice - Consent to surrender title (NOPSEMA 2022) applies the same meaning to "natural resources" as in Article 77 of the United Nations Convention on the Law of the Sea 1982, which states "The natural resources referred to in this Part consist of the mineral and other non-living resources of the seabed and subsoil together with living organisms belonging to sedentary species, that is to say, organisms which, at the harvestable stage, either are immobile on or under the seabed or are unable to move except in constant physical contact with the seabed of the subsoil".

Approvals Program is consistent with that used in the EPBC Act and encompass all matters protected under Part 3 of the EPBC Act.

The development of the Stybarrow field was referred for assessment as an action under the EPBC Act (Referral 2004/1469) and the assessment was subsequently set at the level of an Environmental Impact Statement (EIS). The action was approved by the Commonwealth Minister for the Environment following an assessment of the EIS, with a number of conditions set for the action, which were consolidated in 2015. The consolidated conditions are provided in **Appendix A**, with conditions that apply to the Petroleum Activity described in this EP summarised in **Table 2-2**.

Table 2-2: EPBC 2004/1469 conditions relevant to the Petroleum Activity considered in this EP

EPBC 2004/1469 Conditions	Relevance to activities described in this EP
<p>1 The person taking the action must submit, for the Minister's approval, a plan (or plans) for managing the offshore impacts of the action. The plan (or plans) must include measures for:</p> <ul style="list-style-type: none"> a) Drilling operations: <ul style="list-style-type: none"> i. Drilling fluid type and disposal method ii. Drill cuttings disposal method iii. Fuel and chemical handling and transfer procedures iv. Cetacean interaction procedures for supply vessels and aircraft that are consistent with Part 8 of the Environment Protection and Biodiversity Conservation Regulations 2000 v. Cetacean and whale shark sightings reporting 	<p>The petroleum activity described in this EP is plug and abandonment of wells, which is a drilling activity. Hence EPBC 2004/1469 Condition 1(a) applies to the Petroleum Activity.</p> <ul style="list-style-type: none"> • Drilling fluids (e.g. cement) are described in Section 3.8 and measures to manage the environmental impacts of these fluids are described in Section 7.6. • Disposal of drill cuttings, including produced sand, are described in Section 7.6. • Fuel and chemical handling procedures are described in Section 7.5, Section 7.6, Section 8.3 and Section 8.6. • Cetacean interaction procedures and cetacean and whale shark sighting reporting procedures are described in Section 8.4.
<p>2 The person taking the action must submit for the Minister's approval an oil spill contingency plan to mitigate the environmental effects of any hydrocarbon spills. The oil spill contingency plan must include:</p> <ul style="list-style-type: none"> • The types of dispersants, protective booms, clean up gear, and related equipment to be used in the event of an oil spill and their storage arrangements • A demonstrated capacity to deploy oil spill response equipment within 12 hours • Training of staff in oil spill response measures • Identification of sensitive areas, in particular, Ningaloo Marine Park, and the specific response measures for these areas • The reporting of oil spill incidents. 	<p>The Stybarrow Plug and Abandonment Oil Pollution Emergency Plan (OPEP) (Appendix A) and this EP constitute the Oil Spill Contingency Plan required by EPBC 2004/1469 Condition 2.</p>
<p>3 At least twelve months before the expiry of the period for which this approval has effect, the person taking the action must submit a decommissioning plan for approval by the Minister that considers the removal of all structures and components above the sea floor, including floating production, storage and offtake vessels, subsea wells, flowlines, and any other associated infrastructure.</p> <p>Decommissioning may not commence until the plan is approved. The approved plan must be implemented.</p>	<p>The Decommissioning Plan required by EPBC 2004/1469 is met by:</p> <ul style="list-style-type: none"> • Stybarrow Decommissioning and Field Management EP • Stybarrow Plug and Abandonment EP (this EP) • Stybarrow Field Decommissioning EP <p>In combination, these plans consider the maintenance and decommissioning of property relating to the Stybarrow Field in WA-32-L (Section 3.6).</p>

EPBC 2004/1469 Conditions	Relevance to activities described in this EP
<p>7 The person taking the action may choose to revise a management plan approved by the Minister under Conditions 1, 2, 3 or 6 without submitting it for approval under Section 143A of the EPBC Act, if the taking of the action in accordance with the revised plan would not be likely to have a new or increased impact. If the person taking the action makes this choice they must:</p> <ul style="list-style-type: none"> • Notify the Department in writing that the approved plan has been revised and provide the Department with an electronic copy of the revised plan • Implement the revised plan from the date that the plan is submitted to the Department • For the life of this approval, maintain a record of the reason the person taking the action considers that taking the action in accordance with the revised plan would not be likely to have a new or increased impact. 	<p>The management of change process that will be applied to this EP is described Section 11.6. This process considers triggers for submission of a revision of this EP to NOPSEMA in accordance with Regulation 17 of the Environment Regulations, including:</p> <ul style="list-style-type: none"> • Significant modification or new stage of activity • New or increased environmental impact or risk • Change in titleholder

Under Section 139(1)(b) of the EPBC Act, the Minister must not act inconsistently with a recovery plan or threat abatement plan. Similarly, under Section 268 of the EPBC Act:

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

In respect to offshore petroleum activities in Commonwealth waters, these requirements are implemented by NOPSEMA via the commitments included in the *Streamlining Offshore Petroleum Environmental Approvals Program*. These commitments relating to listed threatened species and ecological communities are included in the Program Report:

- NOPSEMA will not accept an Environment Plan that proposes activities that will result in unacceptable impacts to a listed threatened species or ecological community.
- NOPSEMA will not accept an Environment Plan that is inconsistent with a recovery plan or threat abatement plan for a listed threatened species or ecological community.
- NOPSEMA will have regard to any approved conservation advice in relation to a threatened species or ecological community before accepting an Environment Plan.

Species recovery and threat abatement management plans relevant to this EP are outlined in **Section 9**.

2.2 State Legislation

In the event of a hydrocarbon release from a loss of well containment (**Section 8.2**), or tank rupture from a vessel collision (**Section 8.3**), there is the potential for the release to impact State waters and shorelines. Relevant state legislation is listed in **Appendix A**.

2.3 Environmental Guidelines, Standards and Codes of Practice

Multiple international codes of practice and guidelines are relevant to environmental management of the Petroleum Activity. Those considered most relevant are listed in Appendix A.

3 Description of the Activity

3.1 Overview

This section has been prepared in accordance with Regulation 13(1) of the Environment Regulations, and describes the Petroleum Activity to be performed under this EP.

Woodside proposes to undertake the permanent plug and abandonment (P&A) of ten Stybarrow subsea wells within offshore petroleum licence WA-32-L. The P&A activity will be conducted within Commonwealth waters approximately 55 km north-west (NW) of Exmouth, Western Australia, in water depths between 790 m – 850 m.

The Stybarrow Development produced crude oil from the Stybarrow and Eskdale fields via a network of subsea wells tied back to the Stybarrow Venture MV16 Floating Production, Storage and Offloading (FPSO). The subsea production system consisted of six production wells, one gas injection well and three water injection wells located within four drill centres (DC-A, DC-B, DC-C, DC-D) (**Table 3-1**). The Stybarrow field ceased production in June 2015 and subsequently the subsea wells were shut in and are currently in a state of preservation with a wellhead and horizontal xmas tree in place.

Woodside proposes to undertake the following petroleum activities under this EP, including:

- Vessel based activities to prepare wells for P&A prior to MODU mobilisation. Activities include cleaning and inspection of well infrastructure, pressure and function testing subsea trees, verification of subsea tree barriers, disconnection of ancillary equipment to subsea trees as required to enable clear access and installation of temporary equipment for P&A (including mooring pre-lay, tethering system, mud mats, clump weights as required).
- Permanent plug and abandonment of the ten Stybarrow wells using a MODU.
- Removal and recovery of the well infrastructure above the mudline, including subsea trees and wellheads using the MODU or a project support vessel.
- Recovery of any installed ancillary equipment following completion of the P&A activity using a project support vessel.

Table 3-1: Location of the Stybarrow Subsea Development Wells

Well Name	Well Type	Latitude	Longitude	Water Depth (m LAT)
DC-A Drill Centre				
Stybarrow-5 (I-3)	Water Injection	21° 28' 07.305" S	113° 50' 45.529" E	801
Stybarrow-6 (I-2)	Water Injection	21° 28' 08.871" S	113° 50' 46.358" E	799
Stybarrow-12H (H-5)	Production	21° 28' 11.340" S	113° 50' 47.310" E	800
DC-B Drill Centre				
Stybarrow-9 (I-1)	Water Injection	21° 28' 28.613" S	113° 49' 32.639" E	835
Stybarrow-10H (H-3)	Production	21° 28' 29.263" S	113° 49' 30.047" E	835
Stybarrow-11H (H-4)	Production	21° 28' 26.281" S	113° 49' 30.891" E	835
DC-C Drill Centre				
Stybarrow-7H L1 (H-2)	Production	21° 29' 42.163" S	113° 49' 44.270" E	854
Stybarrow-8H (H-1)	Production	21° 29' 44.388" S	113° 49' 43.867" E	855
DC-D Drill Centre				
Eskdale-3H Well (EH-1)	Production	21° 22' 51.529" S	113° 49' 06.378" E	809
Eskdale-4 Well (EG-1)	Gas Injection	21° 22' 52.381" S	113° 49' 04.953" E	809

In addition to the Stybarrow production wells listed in **Table 3-1**, General Direction 833 describes seven exploration wells within WA-32-L, as listed in **Table 3-2**. These exploration wells have previously been permanently plugged and abandoned and six of the wellheads have been removed, as outlined in **Table 3-2**. The wellhead on Eskdale-1 exploration well remains *in situ*, following repeated unsuccessful recovery attempts in April 2004 after the well was permanently plugged for abandonment. *In situ* abandonment of the Eskdale-1 wellhead will be covered under the Stybarrow End State Decommissioning EP currently under assessment with NOPSEMA.

Table 3-2: Permanently Abandoned Exploration and Appraisal Wells Listed in General Direction 833

Well Name	Well Location	Water Depth (m LAT)	Well Status
Stybarrow 1/1CH	21° 28' 40.127" S 113° 50' 3.551" E	825	Stybarrow-1/1CH exploration well drilled in February 2003. Upon completion, the well was permanently plugged and abandoned. The wellhead was recovered on 6 March 2003.
Stybarrow 2	21° 29' 32.993" S 113° 49' 19.991" E	862	Stybarrow-2 appraisal well was drilled in June 2003. Upon completion, the well was permanently plugged and abandoned. The wellhead was recovered on 20 June 2003.
Stybarrow 3/4	21° 27' 53.647" S 113° 51' 00.426" E	792	Stybarrow-3/4 appraisal well was drilled in May 2004. Upon completion, the well was permanently plugged and abandoned. The wellhead recovered on 25 June 2004.
Knott 1	21° 28' 48.103" S 113° 54' 41.488" E	681	Knott-1 exploration well was drilled in June 2004. Upon completion, the well was permanently plugged and abandoned as a dry hole. The wellhead was recovered on 9 July 2004.
Eskdale 1	21° 21' 49.009" S 113° 49' 36.571" E	798	Eskdale-1 exploration well was drilled in March 2003. Upon completion, the well was permanently plugged and abandoned. The Eskdale-1 wellhead remains <i>in situ</i> after repeated unsuccessful recovery attempts were made over the 10 – 11 April 2003, following completion of the drilling program. BHP Petroleum (Operator at the time) subsequently informed the Western Australian Department of Industry and Resources (the administrator of the petroleum title at the time) that recovery of the wellhead was not feasible, and BHP Petroleum intended to abandon the wellhead <i>in situ</i> .
Eskdale 2/2CH	21° 22' 31.802" S 113° 48' 31.414" E	824	Eskdale-2/2CH exploration well was drilled in April 2004. Upon completion, the well was permanently plugged and abandoned. The wellhead was recovered on 15 May 2004.
Skiddaw 1/2	21° 29' 06.856" S 113° 51' 55.363" E	803	Skiddaw-1/2 exploration well was drilled May 2003. Upon completion, the well was permanently plugged and abandoned. The wellhead was recovered on 1 June 2003.

3.2 Location

The Stybarrow field is located within Production Licence WA-32-L, located in Commonwealth waters, around 55 km north-west of Exmouth, Western Australia and in water depths of about 790 m – 850 m (**Figure 3-1**). The coordinates and water depth of the Stybarrow production wells subject to P&A activities are presented in **Table 3-1**.

The nearest point of the Stybarrow Operational Area (defined in **Section 3.3**) to the mainland (North West

Cape) is approximately 41 km. The relative distances between key onshore features (islands/mainland) and the Operational Area are provided in **Table 3-3**.

Table 3-3: Distance from Operational Area to Key Onshore Features

Key Onshore Features	Distance and Direction from Operational Area
Ningaloo World Heritage Area	23 km south
Muiron Islands	51 km east-south-east
Exmouth	55 km south-south-east
Serrurier Island	83 km east
Thevenard Island	113 km east
Onslow	129 km east
Barrow Island	162 km east-north-east

3.3 Operational Area

The Operational Area shown in **Figure 3-2** defines the spatial boundary of the Petroleum Activity as described, risk assessed and managed by this EP, including MODU and vessel related petroleum activities. The Operational Area is defined by a 3,000 m radius around each of the drill centres for the Stybarrow development wells within the scope of this EP. This radius allows for the installation of a temporary mooring system for a moored semi-submersible MODU and cannot reasonably be reduced.

The Operational Area includes a temporary 500 m radius exclusion zone around the MODU during the petroleum activity to manage vessel movements.

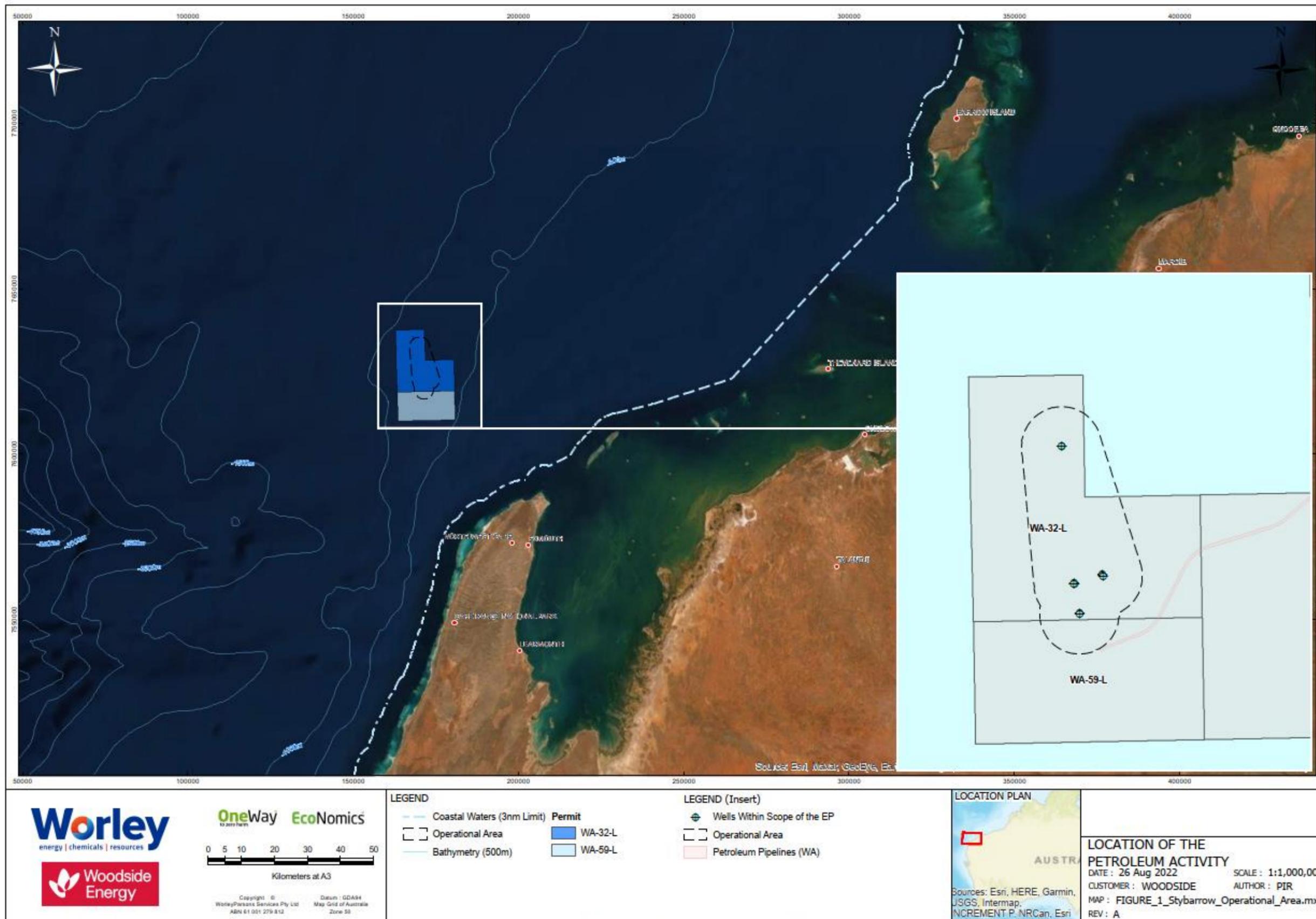


Figure 3-1 Location of the Petroleum Activity and Operational Area

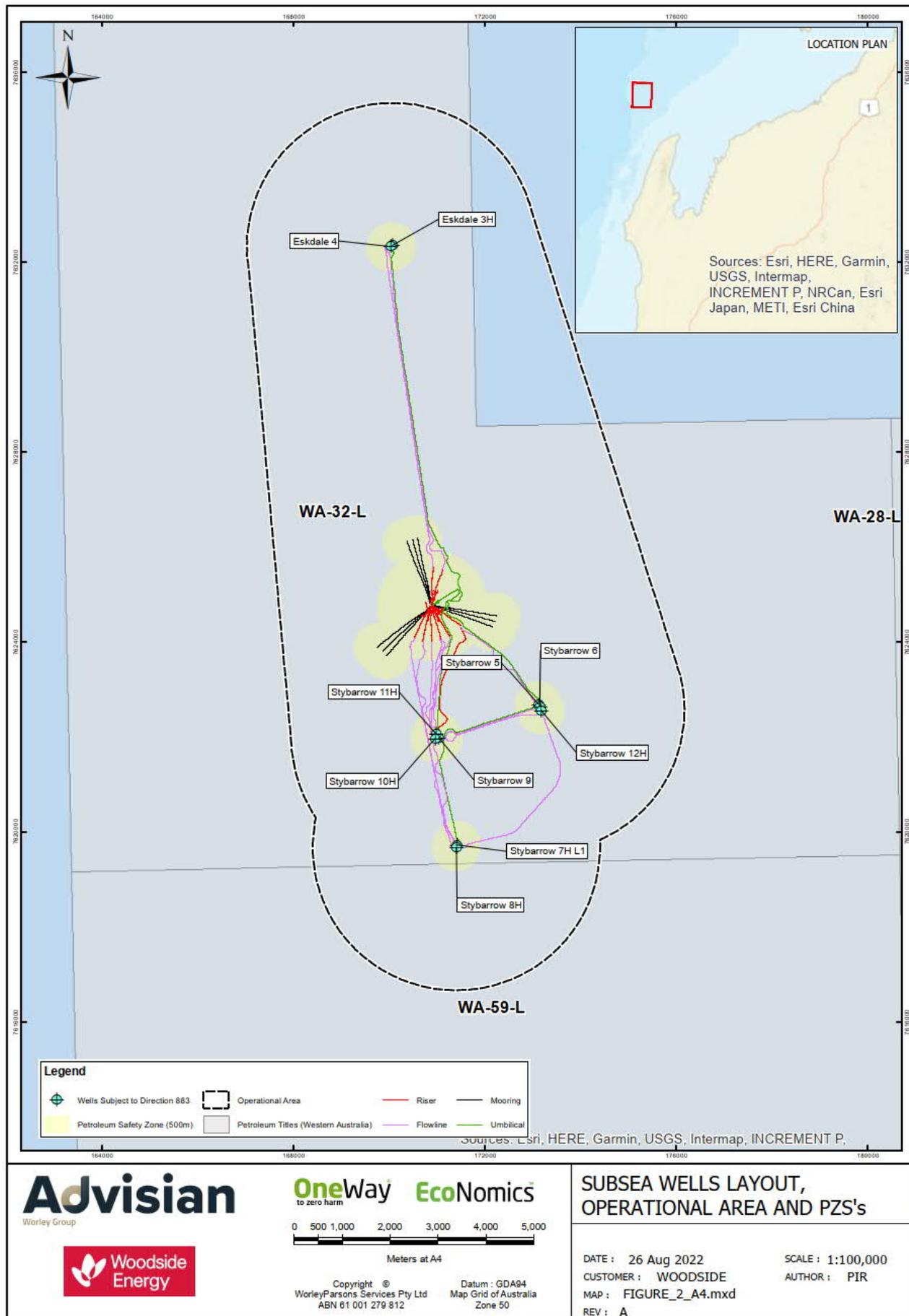


Figure 3-2: Petroleum Activity Location and Operational Area

3.4 Timing and Duration

The proposed timing for the petroleum activity is outlined in **Table 3-4**. P&A activities are dependent on the availability of a suitable MODU. The earliest the Petroleum Activity may commence is Q3 2023 (subject to acceptance of this EP by NOPSEMA).

The permanent plugging of the Stybarrow wells within WA-32-L is required to be completed no later than the 30 September 2024, pursuant to Direction 1 of General Direction 833 (**Table 2-1**). It is intended the well infrastructure above the mudline will either be recovered using the MODU directly following the plugging of the wells, or alternatively may be temporarily wet stored and recovered using a project vessel as part the Stybarrow subsea infrastructure removal campaign. Well infrastructure above the mudline is required to be recovered no later than 31 March 2025, under Direction 2 of General Direction 833.

Decommissioning planning and timing for other decommissioning activities, including ongoing inspection and maintenance activities of infrastructure until decommissioning related to WA-32-L are outlined in (**Section 3.6**).

Table 3-4: Indicative timing of the proposed Petroleum Activity

Activity	Cumulative Duration	Approximate Timing	Indicative Vessel(s)
Preparatory activities, including cleaning, inspection and testing of subsea trees, hydrate remediation, verification of barriers, disconnection of ancillary equipment (as required) and installation of temporary equipment for P&A (mooring pre-lay, tether installation) as required.	~ 7 to 10 days per well	Conducted approximately one to six months prior to plug and abandonment activities. Some preparatory activities may be ongoing once the MODU arrives on location. Estimated for around Q3 2023 – Q3 2024	One project vessel, either a Light Construction Vessel (LCV) or Multi-Purpose Support Vessel (MPSV)
Permanent plug and abandonment	~ 18 to 24 days per well	Estimated to be around Q3 2023 – Q3 2024	MODU supported by 2 – 3 support vessels
Removal of well infrastructure (subsea trees and wellheads)	~ 1 to 5 days per well (included in above duration if performed as part of the plug and abandonment scope on the MODU)	Estimated to be between around Q1 2024 – Q1 2025 Optionality retained to take advantage of available vessels and/or opportunities for efficiencies with other Stybarrow removal activities.	Removal conducted from either MODU or support vessel (LCV or MPSV)
Recovery of ancillary equipment including pre-laid moorings and BOP tether system (if used)	~ 1 to 2 days per well	Within about one month following MODU demobilisation Estimated to be around Q1 2024 - Q4 2024	Support vessel

The MODU and support vessels are expected to remain within the Operational Area for approximately eight months if activities are undertaken in a single campaign (including contingency time). When ongoing, activities will be undertaken 24 hours per day, seven days per week.

The indicative timings of provided in **Table 3-4** are subject to change due to project schedule requirements, MODU/vessel availability, unforeseen circumstances and weather. This EP has risk assessed P&A activities throughout the year (all seasons) to provide operational flexibility. All the above timeframes are subject to change and, as no particular time periods have been nominated, changes to the above will not be interpreted as 'new stages' against Regulation 17(5) if within the lifetime of this EP.

3.4.1 SIMOPS

No simultaneous P&A operations (i.e., more than one MODU in the Operational Area simultaneously) are planned. There is potential some preparatory activities conducted on a project vessel may still be ongoing once the MODU mobilises and commences plugging activities within the Operational Area. There is also potential for simultaneous

operations (SIMOPS) to occur with the Petroleum Activity and other decommissioning activities, such as subsea removal activities defined in the Stybarrow Equipment Removal and Field Management EP within WA-32-L, if vessel and equipment availabilities permit. Should any SIMOPs occur, Woodside would implement a SIMOPS Management Plan to identify and manage any cumulative impacts and risks appropriately.

3.5 Stybarrow Infrastructure Overview

The Stybarrow and Eskdale fields within petroleum permit WA-32-L were jointly developed as the Stybarrow Development. The development produced hydrocarbons via a cluster arrangement of ten wells connected to subsea flexible flowlines and risers tied back to the Stybarrow Venture MV16 FPSO, moored to a disconnectable mooring riser system (DTM). The Stybarrow wells included:

- Five production wells in the Stybarrow field - Sty-8H (H-1), Sty-7H L1 (H-2), Sty-10H (H-3), Sty-11H (H-4) and Sty-12H (H-5);
- One production well in the Eskdale field – Esk-3H (EH-1);
- Three water injection wells to provide reservoir pressure maintenance and reinjection of produced water in the Stybarrow field - Sty-5 (I-3), Sty-6 (I-2) and Sty-9 (I-1); and
- One gas injection well in Eskdale for storage for excess produced gas from the Stybarrow Development as well as pressure maintenance in the Eskdale field - Esk-4 (EG-1).

The Stybarrow development ceased production in 2015, having produced more than 60 MMstb of crude oil since coming on stream in 2007. Following cessation of production (CoP), an initial cessation program was conducted via the FPSO facility and included:

- The depressurisation of the subsea production system, including flushing and cleaning of flowlines and risers to displace residual hydrocarbons back into the formation using treated seawater;
- Nine of the wells (all except Sty-11) were back flushed with treated seawater (bull-headed via gas lift annuli and tubulars) to the surface controlled subsurface safety valves (SCSSV), then closed and pressure above the subsurface safety valves (SCSSV) was bled off;
- The subsea tree valves were closed and pressure tested to verify integrity of barriers; and
- The DTM was ballasted and then lowered to normal ballast level (approximately 30 m water depth).

Following these activities, the FPSO was able to permanently disconnect and depart the field. In early 2016, a subsequent vessel-based program was conducted to disconnect the production and annulus flowlines from the subsea tree flow bases that run to the production platform or between drill centres (some interconnectors within the drill centres remain installed), providing additional assurance of infrastructure integrity during CoP and prior to final decommissioning.

3.5.1 Stybarrow Subsea Wells

A summary of the ten Stybarrow development wells is provided in **Table 3-5**. Each well is completed with a subsea horizontal xmas tree (HXT) incorporating wellhead controls for opening and closing hydraulically operated ‘fail safe’ control valves to isolate and regulate flow. The primary down-hole safety system is SCSSV on each well, which are installed in the production tubing approximately 400 - 500 m below the mudline.

Since CoP, all wells were permanently shut in via SCSSV and subsea tree valve closure. Final valve inflow and pressure tests were performed to a defined acceptance criteria specified in the Well Integrity Management System as part of cessation requirements. Prior to wells being shut in and where feasible, wells were flushed and bull headed with treated seawater containing 800 ppm of Hydrosure chemical.

Table 3-5: Description of the Stybarrow development wells

Well Name	Well History		Current Status and Residual Fluids			Well Infrastructure
	Well Description	Drilling Fluids	Current Status	Production Tubing Contents	Production Annulus ² Contents	
Stybarrow-7HL1 (H-2)	Stybarrow 7H L1 is a horizontal gas-lifted oil production well. The well was spudded on the 14 November 2006 and produced from 2007 to 2015.	The well was drilled with predominately water-based mud systems, with the 12.25" section drilled with a synthetic based mud.	The well was shut in via SCSSV and subsea tree valve closure, with testing completed to verify barriers. Subsea control hydraulics are de-energised and disabled and well is disconnected from flowline at flowbase connector.	Predominately reservoir fluids with potential for residual treated seawater (800 ppm Hydrosure).	Predominately treated seawater (800 ppm Hydrosure) with residual hydrocarbons and completion brine.	5" x 2" horizontal production xmas tree / flowbase / 18-3/4" high pressure wellhead and 30" wellhead housing
Stybarrow-8H (H-1)	Stybarrow-8H is a horizontal gas-lifted oil production well. The well was spudded on the 13 November 2006 and produced from 2007 to 2015.	The well was drilled with predominately water-based mud systems, with the 12.25" section drilled with a synthetic based mud.	The well was shut in via SCSSV and subsea tree valve closure, with testing completed to verify barriers. Subsea control hydraulics are de-energised and disabled and well is disconnected from flowline at flowbase connector.	Predominately reservoir fluids with potential for residual treated seawater (800 ppm Hydrosure).	Predominately treated seawater (800 ppm Hydrosure) with residual hydrocarbons and completion brine.	5" x 2" horizontal production xmas tree / flowbase / 18-3/4" high pressure wellhead and 30" wellhead housing
Stybarrow 10H (H-3)	Stybarrow-10H is a horizontal gas-lifted oil production well. The well was spudded on 17 March 2007 and	The well was drilled with predominately water-based mud systems, with the 12.25" section drilled	The well was shut in via SCSSV and subsea tree valve closure, with testing completed to verify barriers. Subsea control hydraulics are de-	Predominately reservoir fluids with potential for residual treated seawater (800 ppm Hydrosure)	Predominately treated seawater (800 ppm Hydrosure) with residual hydrocarbons and completion brine.	5" x 2" horizontal production xmas tree / flowbase / 18-3/4" high pressure wellhead and 30" wellhead housing

² The production annulus refers to the a-annulus space behind the production tubing.

Well Name	Well History		Current Status and Residual Fluids			Well Infrastructure
	produced from 2007 to 2015.	with a synthetic based mud.	energised and disabled and well is disconnected from flowline at flowbase connector			
Stybarrow-11H (H-4)	Stybarrow-11H is a gas-lifted oil producer. The well was spudded on the 18 March 2007 and produced through to August 2010, when a significant failure of the lower completion led to a sand production event. The well was shut in from production and remained offline thereafter.	The well was drilled with predominately water-based mud systems, with the 12.25" section drilled with a synthetic based mud.	Shut in via tree valve closure. Valves inflow tested to acceptance in August 2010 and in situ leak tested in June 2015.	Predominately reservoir fluids. Possible sand plug at unknown depth.	Completion brine with residual hydrocarbon.	5" x 2" horizontal production xmas tree / flowbase / 18-3/4" high pressure wellhead and 30" wellhead housing
Stybarrow-12H (H-5)	Stybarrow-12H is a gas-lifted oil producer. The well was spudded on the 27 July 2010 and produced from 2010 to February 2014, when it was shut in due to restricted flowrates.	The well was drilled with predominately water-based mud systems, with the 12.25" section drilled with a synthetic based mud. The 16" section was also drilled with SBM which was displaced to WBM prior to cementing the 13-3/8" casing.	Shut in via valve closure. Valves inflow tested to acceptance. The gas lift and production choke of the well were known to be seized in an open position, and consequently were unable to be closed as part of cessation activities.	Predominately reservoir fluids with potential for residual treated seawater (800 ppm Hydrosure)	Predominately treated seawater (800 ppm Hydrosure) with residual hydrocarbons and completion brine.	5" x 2" horizontal production xmas tree / flowbase / 18-3/4" high pressure wellhead and 30" wellhead housing. Subsea tree is non drill through tree.
Eskdale-3H (EH-1)	Eskdale-3H is a gas lifted oil producer. The well was spudded on the 5 April 2007 and produced from 2007 to	The well was drilled with predominately water-based mud systems, with the 12.25" section drilled	The well was shut in via SCSSV and subsea tree valve closure, with testing completed to verify barriers.	Predominately reservoir fluids with potential for residual treated seawater (800 ppm Hydrosure)	Predominately treated seawater (800 ppm Hydrosure) with residual	5" x 2" horizontal production xmas tree / flowbase / 18-3/4" high pressure wellhead and 30" wellhead housing.

Well Name	Well History		Current Status and Residual Fluids			Well Infrastructure
	<p>2015.</p> <p>Throughout the production life, the well produced under natural flow, and gas lift was not required.</p>	<p>with a synthetic based mud.</p> <p>The 17.5" section was also drilled with SBM which was partially displaced to WBM prior to cementing the 13-3/8" casing.</p>	<p>Subsea control hydraulics are de-energised and disabled and well is disconnected from flowline at flowbase connector</p>		<p>hydrocarbons and completion brine</p>	<p>Subsea tree is non drill through tree.</p>
Stybarrow-5 (I-3)	<p>Stybarrow-5 is a water injection well.</p> <p>The well was spudded on the 13 September 2006. Water injection commenced in 2007 initially using treated seawater and later using produced water. Well injected significant water volumes from 2007 to 2015.</p>	<p>The well was drilled with water-based mud systems.</p>	<p>In August 2015, the well was closed in as part of production cessation, with a column of treated inhibited seawater in the tubing.</p> <p>Shut in via valve closure. Valves inflow tested to acceptance.</p>	<p>Predominately treated seawater (with 800 ppm Hydrosure) and completion brine.</p>	<p>Annulus is closed and contains a water-based packer fluid.</p>	<p>5" x 2" horizontal water injection xmas tree / flowbase / 18-3/4" high pressure wellhead and 30" wellhead housing</p>
Stybarrow-6 (I-2)	<p>Stybarrow-6 is a water injection well.</p> <p>The well was spudded on the 15 September 2006. Water injection commenced in 2007 initially using treated seawater and later using produced water. Well injected significant water volumes from 2007 to 2015.</p>	<p>The well was drilled with water-based mud systems.</p>	<p>In August 2015, the well was closed in as part of production cessation, with a column of treated inhibited seawater in the tubing.</p> <p>Shut in via valve closure. Valves inflow tested to acceptance.</p>	<p>Predominately treated seawater (with 800 ppm Hydrosure) and completion brine.</p>	<p>Annulus is closed and contains a water-based packer fluid.</p>	<p>5" x 2" horizontal water injection xmas tree / flowbase / 18-3/4" high pressure wellhead and 30" wellhead housing</p>

Well Name	Well History		Current Status and Residual Fluids			Well Infrastructure
Stybarrow-9 (I-1)	<p>Stybarrow-9 is a water injector well.</p> <p>The well was spudded on 15 September 2007. Water injection commenced in 2007 initially using treated seawater and later using produced water. Well injected significant water volumes from 2007 to 2015</p>	<p>The well was drilled with water-based mud systems.</p>	<p>In August 2015, the well was closed in as part of production cessation, with a column of treated inhibited seawater in the tubing.</p> <p>Shut in via valve closure. Valves inflow tested to acceptance. At cessation of production trees valves were closed, and controls were de-energised.</p>	<p>Treated seawater (with 800 ppm Hydrosure) and completion brine.</p>	<p>Annulus is closed and contains a water-based packer fluid.</p>	<p>5" x 2" horizontal water injection xmas tree / flowbase / 18-3/4" high pressure wellhead and 30" wellhead housing</p>
Eskdale-4 (EG-1)	<p>Eskdale-4 is a gas injector well to provide pressure maintenance of the Eskdale reservoir.</p> <p>The well was spudded on the 6 April 2007 and came on stream in 2007 to support production through to 2015.</p>	<p>The well was drilled with predominately water-based mud systems, with 12.25" section drilled with synthetic based mud. The 17.5" section was also drilled with SBM which was partially displaced to WBM prior to cementing the 13-3/8" casing.</p>	<p>In August 2015, the well was closed in as part of production cessation, Treated seawater was injected into the well gas lift annuli and tubulars.</p>	<p>Predominately treated seawater (with 800 ppm Hydrosure) with potential for trace residual hydrocarbons.</p>	<p>Annulus is closed and contains a water-based packer fluid.</p>	<p>5" x 2" horizontal gas injection xmas tree / flowbase / 18-3/4" high pressure wellhead and 30" wellhead housing.</p> <p>Subsea tree is non drill through tree.</p>

3.6 Holistic Stybarrow Decommissioning and Timing

3.6.1 Decommissioning Planning

Decommissioning planning for the Stybarrow field is underway, with scope of work and tender/contract documents in a mature state.

Stybarrow infrastructure within petroleum title WA-32-L is required to be removed before 31 March 2025, in accordance with General Direction 833, unless NOPSEMA accepts and is satisfied that an alternative decommissioning approach delivers equal or better environmental outcomes.

The activities being undertaken to meet the requirements of Section 572, Section 270 and General Direction 833 are covered by three separate Environment Plans. Prior to acceptance of the Stybarrow Equipment Removal and Field Management EP, the accepted Stybarrow Operation Cessation EP remains in force. The scope of each is detailed in **Table 3-6** and their expected scheduling is shown in **Figure 3-3**.

The Stybarrow Decommissioning and Field Management EP is the overarching permissioning document under which the decommissioning requirements of General Direction 833 are captured. It is planned to be the final EP for the Stybarrow field and anticipated to remain in force until such time all decommissioning activities are completed, and the petroleum title can be relinquished.

Table 3-6: Summary of EPs related to the decommissioning of the Stybarrow Field

EP	Scope	EP Initiation	EP Termination	EP Status ¹
Stybarrow Operation Cessation EP	Preservation <i>in situ</i> of subsea equipment. Vessel-based activities (e.g., subsea inspections and interventions).	Currently in force, accepted by NOPSEMA 28 April 2017.	On acceptance by NOPSEMA of the Stybarrow Equipment Removal and Field Management EP. The EP will end when Woodside notify NOPSEMA that the petroleum activity has ended, all obligations under the EP have been completed, and NOPSEMA accept the notification in accordance with Regulation 25A of the Environment Regulations.	In force
Stybarrow Decommissioning and Field Management EP	Removal of subsea equipment in the Stybarrow field (WA-32-L), excluding infrastructure proposed for abandonment <i>in situ</i> (assessed under the Stybarrow Field Decommissioning EP). Field management activities (e.g., inspections) for all infrastructure within WA-32-L as required until final decommissioning.	From acceptance of the EP, covering all infrastructure removal and field management activities.	The EP will end when Woodside notify NOPSEMA that the petroleum activity has ended, all obligations under the EP have been completed, and NOPSEMA has accepted the notification in accordance with Regulation 25A of the Environment Regulations. (estimated to be completed by 2025)	Under assessment
Stybarrow P&A EP (<i>this EP</i>)	P&A of wells subject to Direction 1 of General Direction 833 that have not been accepted by NOPSEMA as plugged and abandoned. Removal of well infrastructure above the mudline (wellheads and	On notification to NOPSEMA for commencement of activities relating to the P&A of the Stybarrow development wells.	The EP will end when Woodside notify NOPSEMA that the petroleum activity has ended, all obligations under the EP have been completed, and NOPSEMA has accepted the notification in accordance with Regulation 25A of the Environment Regulations. (estimated to be completed by	Under assessment (<i>this EP</i>)

EP	Scope	EP Initiation	EP Termination	EP Status ¹
	subsea trees).		2025)	
Stybarrow Field Decommissioning EP	The proposed abandonment <i>in situ</i> for Stybarrow infrastructure including the DTM anchors, suction piles and Eskdale-1 wellhead.	From acceptance of EP, covering abandonment <i>in situ</i> of infrastructure (no activities required)	The EP will end when Woodside notify NOPSEMA that the petroleum activity has ended, all obligations under the EP have been completed, and NOPSEMA has accepted the notification in accordance with Regulation 25A of the Environment Regulations. (estimated to be completed within four months following acceptance of the EP).	Under assessment

Note 1. Status as of 1 May 2023

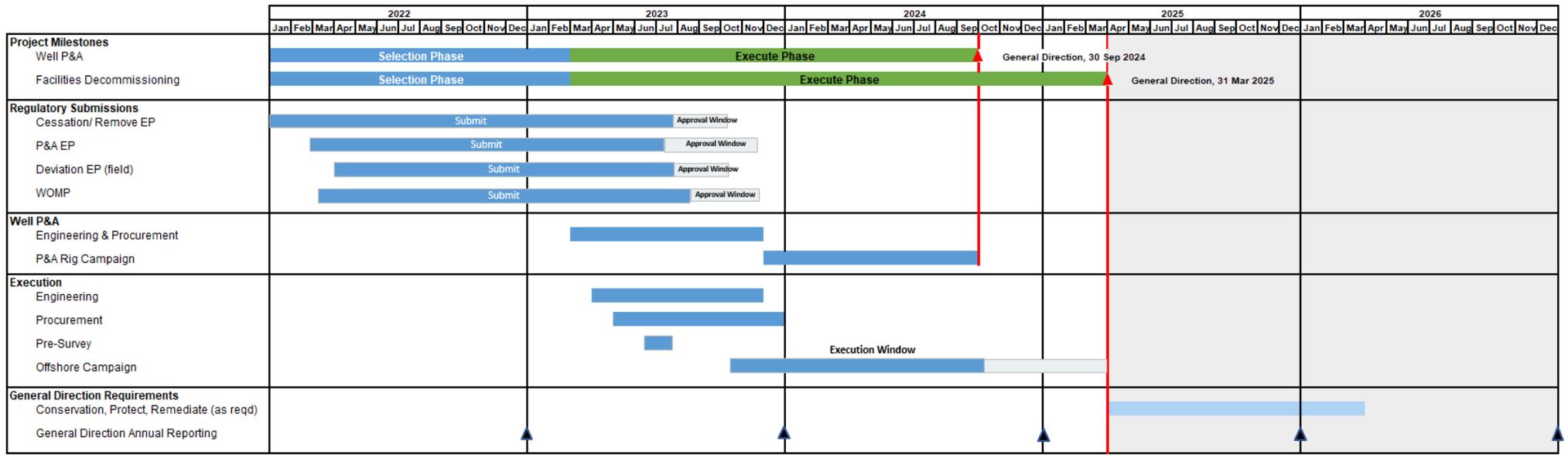


Figure 3-3: Indicative schedule for submission of permissioning documents and planning for Stybarrow Field decommissioning

3.6.2 Plug and Abandonment Contracting Process

Woodside has in-house expertise in well design, including P&A. Woodside relies on contractors to implement the P&A designs that will be developed by Woodside. Woodside will engage the market to select an appropriate suite of service providers to undertake P&A activity under Woodside’s supervision. Woodside’s process to engage the market comprises:

- Expression of interest (EOI) – service providers likely to have, or can develop, the capability to execute elements of the P&A activity are invited by Woodside to express their interest in implement the P&A of wells. Through the EOI process, contractors are asked to submit details of relevant experience, basic methodology for execution, and resource availability (e.g., MODU and support vessel availability). EOI submissions are assessed against the requested details to create a short-list of service providers who should be invited to respond to tender.
- Invitation to tender and evaluation – documents defining the required services are released to short-listed service providers, who are invited to submit a tender for evaluation. The tender will detail particulars, such as schedule, methodology, equipment and cost.
- Contract Award – Woodside will then evaluate tenders and select a preferred tender to undertake the work. Woodside supervises tender work and undertakes compliance activities to ensure work by tenders meets Woodside’s specifications.

3.6.3 Surveys or Studies Undertaken to Support the Decommissioning Program

A baseline environmental survey was conducted in 2018 to inform background levels of contaminants in the sediment and water column (Cardno, 2019). These survey results will be utilised as a comparison basis for the post decommissioning environmental survey described in the Stybarrow Decommissioning and Field Management EP.

Remotely Operated Vehicle (ROV) surveys have also been completed to inform the infrastructure condition and removal methods. These surveys will support P&A planning, infrastructure removal planning and a Sea Dumping Permit application for infrastructure proposed to be abandoned *in situ* (not part of this EP scope).

Woodside will undertake final environmental surveys described in the Stybarrow Decommissioning and Field Management EP. Results from these decommissioning surveys will be collated with relevant historical survey data, ROV images and other sediment sampling conducted over the operational life of the field to demonstrate Woodside has provided for the conservation and protection on natural resources and made good any damage to the seabed as per s. 270 of the OPGGS Act and Directions 4 and 5 in General Direction 833. Refer to the Stybarrow Decommissioning and Field Management EP for further detail, including Woodside’s reporting obligations under both the OPGGS Act and General Direction 833.

3.7 Project Vessels

Several vessel types will be required to complete the petroleum activities as summarised in **Table 3-7**.

All project vessels (including MODU and support vessels) will be subject to Woodside’s Marine Management procedure and review of the Offshore Vessel Inspection Database (OVID). All required audits and inspections will assess compliance with the laws of the international shipping industry, which include safety and environmental management requirements, and maritime legislation including International Convention for the Prevention of Pollution from Ships 1973 as modified by the Protocol of 1978 (MARPOL) and other International Maritime Organization (IMO) standards.

For power generation, vessels may use diesel-powered generators and/or LNG. All vessels will display navigational lighting and external lighting on a 24-hour basis, as required for safe operations. Lighting levels will be determined primarily by operational safety and navigational requirements under relevant legislation, specifically the Navigation Act 2012.

Table 3-7 Project Vessels Overview

Vessel Type	Activities
MODU	A moored or dynamically positioned (DP) MODU will be used to permanently plug the wells and depending on availability, may be used to cut and recover infrastructure. Typical specifications for a MODU are provided in Table 3-8 and Table 3-9

Vessel Type	Activities
Offshore Support Vessels	<p>Offshore Support Vessels may include:</p> <ul style="list-style-type: none"> • Anchor handling vessel (AHV) to set anchors, prepare the wells for P&A and support the MODU during operations • AHVs or Light Construction Vessel (LCV) with ROV capability may be used to remove and recover well infrastructure above the mudline (if not removed using the MODU) • General support vessels including cargo vessels and barges for transporting equipment and materials from port/staging area to the Operational Area (e.g. equipment, fluids and cement) and for general resupply and support for the MODU. <p>Offshore support vessels will not anchor within the Operational Area due to water depth and therefore, the vessels will use DP.</p> <p>Typical specifications for support vessels are provided in Table 3-10.</p>

3.7.1 Mobile Offshore Drilling Unit

A MODU will be required to undertake the petroleum activities. The MODU that will undertake the plug and abandonment activities has not yet been determined. The MODU will be either moored or dynamically positioned (either a semi-submersible or a drillship) – both types have been considered in this EP. Use of the term MODU in this EP may refer to any of the types described above. Indicative specifications for a moored MODU and a dynamically positioned MODU are provided in **Table 3-8** and **Table 3-9**. At least one support vessel will be in the Stybarrow field on standby duties near the MODU at all times.

If a moored MODU is used, a detailed mooring analysis will be undertaken for each drill centre and may use pre-laid moorings. The standard mooring system aboard an indicative moored MODU consists of eight (3 ¼") x 4,200 ft. RQ5 chains, eight (3 ¾") x 8,800 ft. wires, and eight 15T Stevpris MK6 anchors with an individual footprint of approximately 30 m².

The capacity of the standard mooring system may be expanded to a 12-point mooring system, depending on the outcomes of the mooring analysis. Each of the mooring lines will be tethered to drum winches aboard the MODU enabling the tensioning of individual moorings to compensate for MODU movement during the activity. Multiple mooring spreads may be installed concurrently to facilitate efficient use of the MODU (i.e., "leap-frogging" to pre-laid moorings when moving between drill centres).

The MODU will have a well fluid handling package, enabling the recovery, treatment and storage of fluids containing residual hydrocarbons. Residual liquid hydrocarbons will either be retained onboard for onshore disposal or flared. Residual gas will be either flared or cold vented. All hydrocarbons recovered from wells will be managed in accordance with the MODU Safety Case.

Combustion engines onboard the MODU (e.g., generators, cranes, etc.) will use diesel fuel.

The petroleum activity will result in discharges to the marine environment, in accordance with relevant requirements, which include:

- Utility discharges, such as sewage, grey water, cooling water, reverse osmosis brine and putrescible wastes
- Drainage water that conforms to discharge standards
- Ballast water
- Fluids recovered from wells, such as water, brine, production tubing and annulus fluids
- Excess drilling fluids and related materials that meet discharge standards, such as:
 - Excess cement slurry (including cement unit test slurry)
 - Excess brine and water-based drilling fluids
 - Excess dry bulk cement, bentonite and barite
 - Sands recovered from wells

Materials that do not meet the discharge standards described in this EP will be disposed of onshore.

Table 3-8: Typical moored MODU specifications (based on *Ocean Apex*)

Parameter	Indicative Values
Rig Type	Deep-water semi-submersible MODU
Accommodation	140 persons (maximum persons on board)
Station Keeping	Moored
Bulk Mud and Cement Storage Capacity	765 m ³
Liquid Mud Storage Capacity	1,706 m ³
Fuel Oil Storage Capacity	Approximately 4,000 m ³
Drill Water Storage Capacity	2,457 m ³

Table 3-9: Typical DP MODU specifications (based on *Valaris DPS-1*)

Parameter	Indicative Values
Rig Type	Ultra-deep-water semi-submersible MODU
Accommodation	189 persons (maximum persons on board)
Station Keeping	Dynamically positioned
Bulk Mud and Cement Storage Capacity	1,000 m ³
Liquid Mud Storage Capacity	2,663 m ³
Fuel Oil Storage Capacity	3,640 m ³
Drill Water Storage Capacity	3,482 m ³

3.7.2 Offshore Support Vessels

The MODU will be accompanied by at least one, but up to three, Offshore Support Vessels. Support vessels will primarily be used to deploy and recover anchors (if a moored MODU is used), towing, and supply (e.g., fuel, provisions, consumables etc.), but may perform other duties as required (e.g., well infrastructure removal and recovery, emergency response).

Support vessels are expected to transit to and from the Operational Area to ports in the region (most likely to be Dampier or Exmouth), however at least one support vessel will remain with the MODU at all times on standby duties. Support vessel activities outside the Operational Area are beyond the scope of this EP. Support vessels will use dynamic positioning when working in proximity to the MODU.

Support vessels will make routine discharges to the sea in accordance with relevant requirements, such as:

- Utility discharges, such as sewage, grey water, cooling water, reverse osmosis brine and putrescible wastes
- Deck drainage
- Bilge water
- Cooling water
- Ballast water

Table 3-10: Typical vessel specifications for Offshore Support Vessels

Parameter	Indicative Offshore Support Vessel
Draft (max) (m)	8 to 9
Length (m)	110 to 130
Berths (persons)	130
Gross tonnage (t)	3,000
Fuel type	MDO
Total fuel volume (m ³)	3,000
Volume of largest fuel tank (m ³)	800

3.7.3 Refuelling and Bulk Transfer

All vessels and MODU will utilise diesel-powered generators for power generation and will be refuelled via support vessels, approximately weekly during activities within the Operational Area. Other fuel transfers may occur within the Operational Area including refuelling of cranes, helicopters or other equipment as required. All project vessels will run on Marine Diesel Oil (MDO); no intermediate or heavy fuel oils will be used.

Bulk transfers of chemicals (e.g. barite, bentonite, cement and other drill fluid chemicals) may also be undertaken between vessels and between a vessel and the MODU within the Operational Area. Support vessels may undertake transfers of equipment, material and consumables to and from the MODU, or between support vessels.

3.7.4 Dynamic Positioning

DP uses satellite navigation and radio transponders in conjunction with thrusters to maintain position at the required location. Information about the position of the vessel/MODU is provided via a number of seabed transponders, which emit signals detected by receivers on the vessel and used to calculate position. The transponders are typically deployed in an array on the seabed, using clump weights comprising concrete, for the duration of permanent plugging activities at each well, and are recovered at the end, generally by ROV.

3.7.5 Remotely Operated Vehicles

Work-class ROVs will be used throughout the Petroleum Activity and may be deployed from the MODU and support vessels. ROVs will be deployed, operated and recovered using a tether management system. ROVs may be used for:

- visual inspections and observations
- seabed and hazard survey
- anchor hold testing
- Blow Out Preventer (BOP) installation, testing, operation and recovery (including tether deployment and recovery, if required).
- Installation of subsea equipment (e.g. HXT controls system, lightweight H4 corrosion cap, flowline hub caps)
- xmas tree valve operation and pressure testing
- testing of electrical and hydraulic controls on subsea trees
- subsea tree barrier testing (bleeding off residual hydrocarbon from SCSSV control line and tree cavity)
- Hydrate remediation of HXT and flowline cavities
- marine growth removal and cleaning
- sediment relocation
- subsea rigging, handling and cutting

- manual valve functioning
- wellhead tooling and cutting
- De-coupling of existing flowline and flying leads (hydraulic and electrical)
- recovery of dropped objects
- as-left seabed surveys

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.

3.7.6 Helicopters

Crew changes for the MODU and support vessels may be performed using helicopters, with transfers occurring as required, depending on crew requirements. Helicopter operations within the Operational Area will be limited to landing on, and take-off from, the helidecks.

3.8 Well Plug and Abandonment Activities

3.8.1 Well Abandonment Design Standards

The goal of a permanent abandonment is to reduce the possibility fluid will escape from the wellbore, or develop harmful flow below the surface, to as low as reasonably practicable. The design of the wells and P&A activities, including applicable standards, are described in detail in the Stybarrow / Eskdale Well Operations Management Plan (WOMP). P&A activities will be undertaken in accordance with the accepted WOMP.

3.8.2 Plug and Abandonment Preparatory Activities

Prior to the MODU arrival to conduct rig-based P&A, an offshore support vessel will be mobilised to the field to conduct preparatory activities. The purpose of this campaign is to prepare the wells to facilitate an efficient and informed approach to rig based P&A activities.

The following preparatory activities that may be conducted include:

- Inspections and as found visual surveys to validate condition of well infrastructure prior to P&A
- Marine growth removal, cleaning of mineral deposits and sediment relocation as required around the well infrastructure in preparation for the MODU to secure access to the well
- Disconnection of hydraulic flying leads and electrical flying leads from subsea trees to enable clear access for P&A.
- Disconnection of existing flexible jumpers from the subsea tree flow bases and installation of pressure retaining plugs (where required).
- Installation of subsea tree control hardware.
- Subsea tree function and pressure testing.
- Validate well barriers by bleeding off residual hydrocarbons from tree cavities and SCSSV control lines to the marine environment.
- Interrogating Subsea Control Modules to confirm functionality and gauge communications.
- Optional deployment of mud mats for temporary placement of subsea trees during P&A as required.
- Optional deployment of pre-laid moorings for the MODU (moored MODU only) and BOP tether system (if required).

These activities may occur between about one to six months prior to the MODU mobilising to the Operational Area and may be ongoing once the MODU commenced plugging activities.

All project vessels and MODUs used to undertake the Petroleum Activity will be subject to pre-mobilisation checks as part of Woodside's Marine Management Procedure.

3.8.2.1 Visual Inspection

An as-found survey using an ROV may be conducted on the well infrastructure prior to P&A. This survey aims to

identify any issues with the infrastructure (e.g., burial, integrity) which have the potential to affect the approach to P&A and final removal. The as-found survey may also identify miscellaneous debris for recovery. ROVs may also be used to conduct an as-left survey as discussed in **Section 3.8.7**.

3.8.2.2 Marine Growth Removal and Cleaning

Excess marine growth and mineral deposits may need to be removed from well infrastructure using an ROV before performing permanent plugging activities. Marine growth removal may also be required for the MODU throughout the campaign. **Table 3-11** lists the different cleaning techniques that may be used. Sulfamic (or equivalent) acid may be used to clean any calcium deposits that may have built up over time on the subsea tree interfaces.

Table 3-11: Marine growth removal methods

Activity/Equipment	Description
Water jetting	Uses high-pressure water to remove marine growth
Brush systems	Uses brushes attached to an ROV to physically remove marine growth
Acid (typically sulfamic acid)	Chemically dissolves calcium deposits

3.8.2.3 Sediment Relocation

If sediment build up around well infrastructure has the potential to impede permanent plugging activities, a water jet or ROV-mounted suction pump may be used to move small amounts of sediment in the immediate vicinity of the infrastructure (i.e., within the existing footprint), to allow inspection/intervention works to be performed.

3.8.2.4 Disconnection of Jumpers and Flying Leads

Disconnection of any remaining equipment attached to the subsea trees may be required in order to facilitate safe and effective P&A and removal of well infrastructure. The majority of flowlines and jumpers have been flushed and disconnected from the subsea trees as part of the cessation of production flushing campaign. There are however several lines that are still connected to the trees including:

- three (3) 4" gas lift jumpers,
- one (1) 7" production jumper; and
- one (1) 9" water injector.

These flowlines have previously been flushed with raw seawater. Once disconnected from the subsea tree, the fluid retained within the lines will drain to the marine environment. The gas lift and water injection jumpers contain raw seawater, whilst the production jumper contains raw seawater with negligible volumes of residual hydrocarbon (<30 ppm).

In addition, there is a hydraulic flying lead and an electrical flying lead attached to each of the subsea trees that require disconnection. During disconnection of the hydraulic flying leads, negligible volumes of water based hydraulic fluid may be discharged to the surrounding environment, with the majority of the fluid contents remaining within the leads as they contain self-sealing plugs. There is no fluid retained within the electrical flying leads, therefore no discharge associated with their disconnection.

3.8.2.5 Subsea Tree Preparation

The well infrastructure has been left in a state of preservation and certain inspections and testing activities will need to be conducted to verify well barriers and ensure infrastructure is prepared for efficient and successful P&A. Preparatory activities are defined in **Table 3-12** below including any relevant discharges. Further details on the associated discharges of these activities are assessed in **Section 7.6**.

Table 3-12: Summary of the subsea preparatory activities required for well P&A

Activity	Description
Removal or replacement of subsea tree cap	When the tree cap is removed, there may be some gas, residual well fluids and residual chemicals from the well vented to the environment due to the swab valves passing minor quantities of fluids.
Installation of Remote Work Over Control System (RWOCs)	Installation RWOCs onto HXT workover production plate and testing of functionality – Hydraulic testing to be conducted by ROV HPU
Valve testing and barrier validation	Pressure testing the subsea trees via the RWOCs system
Function testing of SCSSV	Function testing the SCSSV via the subsea tree hot stab receptacles
Function testing SCM	Function testing the subsea control module on the subsea trees (hydraulic and electrical testing). The SCMs may require recovery and replacement. A typical release of control fluid is estimated to be 10 L
Flow base testing and preservation	Testing the subsea tree flowline hubs and installing protective caps where require for preservation.
Hydrate remediation	Hydrate remediation of the subsea trees where required.
Mud mat installation	Three of the subsea trees are no drill through trees and therefore require removal prior to rig based P&A activities. Three mud mats may be temporarily installed on the seabed adjacent to the subsea trees, to store the subsea trees on once they have been disconnected by the MODU. The mud mats are used to provide stability to wet parked structures due to the nature of seafloor sediments. The carbon steel mud mats are approximately 3.5 m x 3.5 m. The mud mats, if deployed to support a subsea tree, will be recovered at the same time the other well infrastructure is being recovered.

3.8.2.6 Blow Out Preventer Tether System Installation

To manage wellhead fatigue during P&A activities, a BOP tether system may be required to limit BOP movement. A typical BOP tether system uses about four to eight clump weights or similar anchoring system, weighing about 25–47 tonnes each, although final number and weight of the clump weights may differ depending on seabed and current conditions. These clump weights are deployed to the seabed about 20 to 40 m away from the wellhead, usually from an anchor handler tug. A ROV will then connect tethers between the clump weights and the BOP, which are subsequently tensioned to limit BOP movement. Suction piles may be used instead of clump weights, with typically four 160” diameter piles used per tether system. Both types of BOP tether will be removed at the end of the activity along with any pre-laid moorings.

3.8.2.7 MODU Mooring Installation and Anchor Hold Testing

In the event a moored MODU is used for the Petroleum Activity, the MODU mooring system, which includes chains/ropes and anchors, may be pre-laid before the MODU arrives at the location. Prior to the MODU arriving in the permit area a ‘Rig Move and Positioning Plan’ will be developed outlining the appropriate mooring configuration necessary to keep the MODU securely on location for the duration of the P&A activity. The final mooring configuration and design will be dependent on the outcome of this assessment.

Mooring may require an 8 to 12 point pre-laid mooring system at each well location, depending on the time of year. Moorings are typically placed in a radius around the well of up to approximately 4000 m. Transponders may be required to inform anchor positioning. The expected frequency (Hz) and source level (dB re 1 µPa @ 1 m) of the signal from transponders is 18 – 36 kHz, 196 dB (ref. 1 µPa @ 1 m).

Installation and proof tensioning of anchors involves some disturbance to the seabed. Anchor Handling Vessels (AHVs) are used in the deployment and recovery of the mooring system. As part of mooring preparations, anchor holding testing may be conducted at the well locations. An ROV may also be utilised to judge how deeply the anchor has embedded and independently verify the seabed condition. Anchor holding testing activities would occur prior to the MODU arriving on location.

Soil analysis may also be necessary to provide data about composition and rock/substrate strength, as an input into the mooring or conductor design, and to verify seabed conditions for anchor hold. Soil analysis could include taking

a physical sample of the seabed using ROV or other tools or using measuring devices such as a cone penetrometer. All mooring equipment will be removed from the seabed upon completion of the P&A activity.

3.8.3 MODU Mobilisation and Positioning

The MODU will be mobilised to the Operational Area for P&A activities and commence positioning. If a moored MODU is used, it will either deploy anchors or connect to the pre-laid moorings, as described in **Section 3.6.2.4**. If a dynamically positioned (DP) MODU is used, the MODU will undertake DP testing to confirm the MODU is holding station at the correct location.

3.8.3.1 Cement Unit Test

Upon arrival at the Operational Area, the MODU is typically required to perform a cement unit test to test the functionality of the cement unit and the MODU bulk cement delivery system before performing an actual cement job. Proper functioning of the cement system is important for ensuring well integrity. A cement unit test involves mixing a cement slurry at surface, and once functionality of the cement unit and delivery system has been confirmed, the slurry is discharged through the usual cement unit discharge line (which may be either below sea level or up to 10 m above the sea level) or through drill pipe below sea level.

The slurry is usually a mix of cement and water; however, may contain stabilisers or chemical additives in low concentrations. Cementing fluids will generally consist of Portland cement with additives (such as inorganic salts, lignins, bentonite, barite, silicates, defoamers and surfactants).

Cementing fluids are not routinely discharged to the marine environment, however, volumes of about 5 m³ per well will be released when surplus fluids require disposal after cementing operations at the surface.

3.8.4 MODU Based Plug and Abandonment Activities

The permanent plugging for abandonment activities, including designing a permanent well barrier and installation of the barriers, will be completed in accordance with the NOPSEMA accepted Well Operational Management Plan (WOMP) as required under the OPPGS (Resource Management and Administration) Regulation 2011.

Once in position, the MODU will prepare to carry out P&A of wells. The nominal P&A program comprises of the following steps:

- Deploy ROV and perform calcium washes – this involves the discharge of calcium wash;
- Validate well barriers (which involves bleeding off residual hydrocarbons in tree cavities as SCSSV control line to sea);
- Remove debris cap, clean seal faces on the subsea tree and confirm well condition;
- Install, latch and pressure and function test BOP to subsea tree – this involves the discharge of water-soluble biodegradable ROV / BOP control fluids;
- Recover internal tree cap and a landing string / subsea test tree will be run inside the riser and a surface flow tree installed
- Conduct wireline operations to recover production tubing hanger plug
- Perform well kill by injecting well kill fluids (weighted brine) into well to bullhead residual hydrocarbons back into the reservoir.
- Where bullheading is not possible or additional circulation is required, lubricate and bleed operations or circulation options will be performed to remove any remaining residual hydrocarbon fluids from the well. A dedicated bleed off package will be installed on the MODU to manage fluid recovery, as described in **Section 3.6.6**
- Stybarrow-11 (H-4), which experienced sand control failure during production, maybe require a coiled tubing intervention in order to circulate out formation sand above the planned suspension plug setting depth and allow plug and abandonment activities. Sand clean-out is described in **Section 3.8.5.1**.
- Install a mechanical deep-set suspension plug in the production tubing to isolate the reservoir and form the base for the cement plug
- Cut production tubing/packer and recover production tubing from well
- Conduct wireline logging if necessary to confirm annular isolation and determine the placement of the cement

barrier

- Install cement plugs to form permanent barrier isolating the production reservoir. The characteristics of the cement barrier (e.g., cement specification, barrier length etc.) will be verified and made in accordance with the accepted WOMP.
- Recover casing hanger seal assembly of well to release any potential gas and hydrocarbons that may have migrated into the annulus between the wellbore and production casing. Any hydrocarbons released will be recovered to the MODU and flared, vented or stored for disposal onshore via the bleed off package.
- Where synthetic based mud (SBM) was used to drill the 12-1/4" hole section and remains within the B-annulus, the casing will be perforated below the base oil / brine interface to allow the base oil component to be circulated out. Recovered base oil will be stored for disposal onshore. SBM remediation is described in **Section 3.8.4.6**.
- Where required, recover the 9-5/8" casing to allow for placement of shallow cement plugs to meet permanent barrier requirements to isolate the production reservoir and/or any shallower water bearing formations, where required. This may require the recovery of the subsea tree to allow for the recovery of the casing in the wells without drill through trees installed.
- The BOP is unlatched from the subsea tree and recovered to the MODU, along with the riser
- Option to cut and recover the well infrastructure (subsea tree and wellhead) above the mudline from the MODU directly following permanent plugging of the well. If the well infrastructure is not recovered using the MODU, it will remain *in situ*, either connected to the wellbore or severed and placed on a mud mat adjacent to the well and will be recovered using a project vessel. Recovery of the subsea trees and wellheads is described in **Section 3.8.8**.

The P&A activities described above (along with contingent activities as required described in **Section 3.8.5**) will be repeated for each well, where relevant, within the scope of this EP.

The MODU will demobilise from the Operational Area on completion of the permanent plugging for abandonment of all ten wells. All moorings will be recovered upon completion of P&A activities. Excess brine and cement (including dry bulk cement, barite and bentonite) may be discharged to sea from the MODU following completion of the P&A activities (**Section 3.8.4.9**).

3.8.4.1 BOP and Subsea Control Systems

Permanent plugging of the Stybarrow wells commences with the installation of a BOP run on a marine riser. The BOP and marine riser provide a physical connection between the well and MODU. This enables a closed circulation system to be maintained, where fluids can be circulated from the wellbore back to the MODU, resulting in no unplanned discharges directly to sea. A subsea test tree and landing string is run inside the marine riser and BOP which connects to the internal tree cap or tubing hanger to facilitate primary well control during the well kill and abandonment. In addition, the subsea test tree inside the BOP provides a way to seal, control and monitor the well during permanent plugging activities.

The operation of the BOP components uses open hydraulic systems, using water-based BOP control fluids. The BOP will be tested on the surface prior to installation and will also routinely be tested once installed in accordance with the accepted WOMP.

The following tests are performed after the subsea BOP stack is initially installed on each well:

- A BOP function-test (including ROV test for closure of rams), and wellhead connector pressure-test; and
- A full pressure-test no later than 21 days from previous BOP pressure test.
- After the initial test, and for the duration of the activity, all BOP components (excluding hydraulic connectors and shear rams) shall be function tested every seven (7) days and pressure tested at intervals not exceeding 21 days.
- Function testing is undertaken by activating the hydraulic control system aboard the MODU to confirm functionality of the BOP systems, whilst a pressure test is undertaken to verify seals on the BOP stack.

The estimated volume of water-based BOP control fluid released to the marine environment per test is approximately 90 L. The functioning of subsea test tree valves and controls will discharge control fluid into the marine riser contained and returned to the MODU tanks.

Standard operations through the landing string and subsea test tree also include running logging and/or evaluation tools and removal of crown plugs and drifting tubing. During these operations the control system for the subsea tree

operates in open loop, meaning control fluid is discharged to sea. Approximately 10 m³ of control fluid is expected to be discharged per well.

Greater detail on the performance standards for the BOP and Subsea Control Systems, inclusive of design, functionality, and preventative maintenance, is provided in the WOMP.

3.8.4.2 Well Kill

The wells will be killed by perforating the production tubing and pumping weighted well kill fluid into the wellbore. This is to control the pressure from the formation and to bullhead residual well fluids in the production tubing and A-annulus into the reservoir. The well kill fluid will be a weighted water-based brine. Loss control material (LCM) may also be used to reduce losses post well kill. MEG may also be added to the brine if required to inhibit hydrate formation.

If unable to kill the well by bullheading into the formation or where additional circulation may be required, the well pressure will be bled off at the MODU via a dedicated fluid and gas handling bleed off package. Subsequent operations such as “lubricate and bleed” will be used to kill the well. A dedicated bleed off package on the MODU will be used to direct residual wellbore fluids (including hydrocarbons) for separation and disposal/discharge, as described in **Section 7.6**. During well kill operations, the volumes returned to the MODU will depend on how much can be bullheaded into the formation successfully. Once the formation pressure is controlled, a mechanical deep-set suspension plug may be installed and verified to isolate the reservoir.

Fluids returned to the MODU during well kill operations will pass through a fluid handling bleed off package. The bleed off package is designed to take fluids through a choke and into a liquid knock out vessel or a surge tank (pressure rated). The knock-out vessel includes a separator which allows for gas and liquids to be separated. The gas, dependant on pressures and volumes, will be flared via the burner boom or cold vented from a safe location overboard. Liquids from the knock-out vessel or surge tank can be pumped to the burner head and burned via air atomisation or be diverted to a water treatment package. Fluids able to be treated via the water filtration package to less than 30 ppm oil in water content will be discharged overboard. Where 30 ppm is not achievable, fluids will be toted into tanks for onshore disposal.

During well kill operations, the volumes returned to the MODU will depend on how much can be bullheaded into the formation successfully. The maximum volume of residual well fluid returned to the MODU are up to about 1.55 MMscf of gas per well which may be flared/vented from the MODU, and up to about 155 m³ of produced liquid per well may be returned for processing through the fluid handling and bleed off package. All flaring would occur at limited volumes given the activity is to permanently plug the well (e.g. in comparison to well unloading operations).

3.8.4.3 Tubular Recovery

Once the formation pressure is controlled, production tubing and/or packer will be cut and recovered to the MODU. Tubulars recovered to the surface will be assessed for contamination (e.g. NORM and mercury). In the case contamination is identified, the tubing will be managed as per Woodside procedures appropriate for the contamination type.

Recovered tubing will be disposed of onshore. The tubing may require special management and treatment during the surface handling, transport and disposal process, depending on the level of contamination. All waste will be handled and disposed of in accordance with Federal, State and International requirements.

3.8.4.4 Well Clean Out

As required throughout activities with the marine riser connected, wells may be displaced from one fluid system to another (e.g. well kill brine to milling fluid) or cleaned. Wells will be cleaned out by displacing the tubing and casing annulus spaces to clean out brine. Well clean out brine may contain fluid pills/spacers (high viscosity pills or surfactants) to improve displacement efficiency, depending on the residual fluids remaining the tubing and annular spaces. Fluid returns will include displacement fluid and residual wellbore fluids contained in the tubing and annular spaces. Recovered fluids will be captured in mud pits and discharged if content is less than 1% by volume oil. If discharge specification cannot be met (i.e. is greater than 1% by volume oil content), the fluid will be returned to shore.

3.8.4.5 Installation of Permanent Barriers

Installation of the permanent barriers involves downhole casing and annulus cement integrity being verified via wireline logging if required. If required to remediate poor or insufficient annulus cement, casing may be perforated,

and cement circulated behind the casing or the casing may be cut or milled (refer to **Section 3.8.5.2**). Following this, permanent abandonment cement plugs will be installed and verified.

Cement will be pumped into the wellbore at specified depths to act as permanent barriers. These cement plugs are intended to isolate potential flow zones within the formation and will eliminate the possibility of potential hydrocarbon exposure to the marine environment. The characteristics of the cement barrier (e.g., cement specification, barrier length etc.) will be verified in accordance with the accepted WOMP.

Cementing fluids will generally consist of Portland cement with additives (such as inorganic salts, lignins, bentonite, barite, silicates, defoamers and surfactants). Cementing fluids are not routinely discharged to the marine environment, however, volumes may be discharged to the environment for the following reasons:

- After performing a cement job, the cement unit, surface lines and work string will be flushed to prevent cement curing.
- Any excess cement slurry may require disposal if not used after cementing operations.
- Small amounts of dry cement may be vented and blown overboard during the pneumatic transfer process (onboard transfer operations).
- Excess dry bulk cement or cement additives (bentonite, barite) following completion of the P&A campaign (refer to **Section 3.8.4.9**)

3.8.4.6 Residual Synthetic Based Mud Clean Out

Mobile fluids positioned above the uppermost plug in the wellbore or trapped within the uppermost section of the 9-5/8" casing annulus (B-annulus) or 13-3/8" casing annulus (C-annulus), will become open and free to exchange with the marine environment once the wellhead has been cut and recovered. Seven of the Stybarrow wells are anticipated to contain residual SBM remaining in the B-annulus, while both of the Eskdale wells may potentially have a relatively small amount of SBM remaining in the C-annulus. Woodside will conduct remediation of the mobile (free base oil) component of the residual SBM within the annuli to prevent it releasing to the marine environment following wellhead removal. Once access to the annuli is achieved, a series of fluid pills (high viscosity, surfactants) are pumped ahead of displacement brine to improve displacement efficiency, minimise the contamination interface and minimise residual SBM on the downhole casing. Recovered base oil will be circulated back to the MODU's mud system and returned to shore for treatment and disposal. Further description is provided in **Section 7.6**.

In the event the base oil is unable to be circulated from the casing annulus, an environment cement plug will be installed to create a barrier to the annulus preventing release of the fluid within the annulus once the wellhead is cut.

3.8.4.7 Wireline and Slickline Operations

Wireline or slickline activities may occur for permanent plugging activities including gamma ray and casing collar locator logging for depth correlation, ultrasonic imaging and cement bond logging to verify presence of cement and running of other tools in hole such as SCSSV hold-open sleeves, drifts, plugs, punch perforators/cutters etc., plug removal and installation. Wireline and slickline work will be performed within the riser through the subsea test tree or BOP with appropriate isolation barriers in place. If wireline work is required to occur where there is a risk of barrier failure, the operation will be performed with full pressure control equipment at the surface.

3.8.4.8 Mud Pits

There are typically mud pits (tanks) on the MODU that provide a capacity to mix, maintain and store fluids required for drilling and permanent well plugging activities. The mud pits form part of the fluid circulation system. The mud pits and associated equipment/infrastructure are cleaned out at the completion of operations. Mud pit wash residue is operationally discharged with less than 1% by volume of oil. Mud pit residue over 1% by volume of oil is sent to shore for disposal.

3.8.4.9 Cement, Barite and Bentonite Discharge

Excess cement, barite and bentonite (dry bulk) after well operations are completed, will either be held onboard and used for subsequent wells, provided to another operator at the end of the program, or discharged to the marine environment. Excess cement, barite and bentonite that does not meet technical requirements during the Petroleum Activities Program may also be bulk discharged to the environment. Bulk discharges of cement may occur as a slurry through the usual cement discharge line or blown as dry bulk and discharged.

3.8.5 Contingent Planned Activities

3.8.5.1 Sand Removal and Discharge

Stybarrow-11 (H-4), which experienced sand control failure during production, maybe require a Coiled Tubing intervention in order to circulate out formation sand above the planned suspension plug setting depth and allow plug and abandonment activities.

High rate well bullhead operation, using a fluid train of brine, surfactants/solvents and viscous pill will be used to bullhead hydrocarbon, breaks up and disperses oil residue, leaving tubular surfaces and its content clean and water-wet whilst flushing formation sand away from the target suspension plug setting depth.

The Coiled Tubing spread will be utilised if required (i.e., sand is above the intended plug setting depth), to remove the residual sand using gel and/or brine sweeps which will be processed on surface using the temporary production system (TPS) equipment, also referred to as the MODU bleed off package.

The bleed off package will be required to be operational to process any residual hydrocarbon. A Dual Pot Sand Filter or a Cyclonic Desander will be installed within the bleed off package upstream of the well test choke manifold to separate the sand from the hydrocarbons and the clean out fluid.

Sand recovered at the Dual Pot Sand Filter / Cyclonic Desander shall be tested to measure hydrocarbon contamination entrained in the sand, should the level of contamination be above the required limit for discharge the sand can be cleaned by re-circulating the solids through process equipment on a closed loop cycle until they meet the required discharge specification. If residual oil on sand is reduced to below the oil on dry sand concentration outlined in **Section 7.6** and **7.6.2.7**, the sand will be discharged to sea from the MODU. Sand that does not meet discharge requirements will be retained and disposed of onshore.

3.8.5.2 Casing Cutting / Milling

If the cement on the outside of the casing does not meet well barrier requirements, casing may need to be removed either by cutting and pulling or milling. These operations are done through the marine riser with milling debris (i.e. steel swarf, cement, formation) returned to the MODU and will only be performed if needed.

Milling operations involve removing steel casing, potentially annulus cement and formation to provide access to intervals whereby cement plugs can be installed. The methods used include milling tools that create chips or ribbons of steel (swarf), chips of cement and chips of formation. Milling is typically performed at a controlled rate (1 to 1.5 m/hr), to enable steel swarf to be removed effectively from the milling site to minimise the risk of 'birds nesting' of steel swarf, which may block fluid returns and jam equipment. Milling tools may become worn during milling operations and could require tripping for new/redressing about every 30 to 50 m. As a result, the rate of milling is slower than normal drilling operations.

As the steel swarf within the milling fluids is hard and sharp, the fluids from the well will be passed through specific swarf handling equipment, which generally include magnets, that liberate steel from the fluid before being processed through the conventional solids control equipment on the MODU such as shale shakers. The milling fluids, including up to an additional 2 m³ of swarf, 3 m³ of drilled cement and 3.5 m³ of formation rock, will be discharged overboard per 100 m interval if milling is required. As a result of restricted milling speeds, the rate of swarf and cement will be generated over several days (the rate is expected to be about 50 m per 18 hours).

3.8.5.3 Drilling of Cement Plugs

Woodside's design of the cement plugs for well P&A provides a very high confidence in the integrity and effectiveness of the plug. In the very unlikely event that a cement plug does not meet the design requirements, the plug may be drilled out to set a subsequent plug.

If required, drilling of cement plugs would be done with a riser in place using a viscosified brine or water-based drill mud (WBM). Drilling fluids will be selected in accordance with the chemical assessment process described in **Section 3.9**. The WBM and cement cuttings will be processed through the drilling muds processing equipment on board the MODU and discharged overboard. This will generate about 25 m³ of cement cuttings per plug and use approximately 250 m³ of WBM.

3.8.5.4 Marine Riser Clean-out

Woodside and industry experience has shown that horizontal xmas tree systems can be susceptible to rust and other build up in the marine risers and BOP. This can lead to multiple deployments of subsea test trees or other large diameter pulling tools, as this type of debris, albeit small volumes, can prevent successful land out of tools. To mitigate potential debris issues, the following activities may be performed as required:

- Ensuring riser is clean prior to initial deployment for the P&A of the first well.
- Running of riser brushes while the riser and BOP are suspended (open water).
- Implementing a BOP flushing sequence prior to landing the BOP on the subsea tree.
- Once the BOP and riser are landed out, cleaning tools are available to clean the interface surfaces where debris build-up might take place.
- In the event of significant debris issues, the marine riser may be recovered to the deck and inspected. Equipment will be available on the MODU to enable cleaning of the riser joints before being redeployed. Cleaning will be done over a banded area, with fluids returned to tanks on the MODU.

Should debris continue to be a problem after brushing and circulation to the mud pits, then the riser may be disconnected from the subsea tree and an ROV used to flush the remaining debris from around the top of the tree cap.

3.8.6 Unplanned Contingent Activities

3.8.6.1 Emergency Disconnect Sequence

An Emergency Disconnect Sequence (EDS) may be implemented if the intervention vessel/MODU is required to rapidly disengage from the well. The EDS closes the BOP (i.e., shutting in the well) and disconnects the riser to break the conduit between the BOP and MODU. Common examples of when this system may be initiated include when the MODU moves outside of its operating circle (e.g., failure of one or more of the moorings) or moves to avoid a vessel collision (e.g., third-party vessel on collision course with the MODU). The EDS aims to leave the well in a secure condition but will result in the loss of the fluids in the riser after disconnection.

3.8.6.2 Temporary Well Suspension

During permanent plugging activities, a well may need to be temporarily suspended (e.g., in the case of adverse weather or unexpected well outcomes requiring additional time to plan the next operation). Suspension involves establishing suitable barriers, removing the riser and disconnecting the MODU from the well. The BOP may be left in place to act as a barrier or removed if sufficient barriers are present in the well itself. On return to a well after suspension, the MODU reconnects to the well via the riser and well plugging activities resume.

3.8.7 Post MODU Activities

After the departure of the MODU, a support vessel with ROV capability will complete demobilisation activities, which may include:

- Recovery of pre laid anchors and mooring chain
- Recovery of BOP tether system and associated weights
- Recovery of any marine debris or equipment as required if not recovered by the MODU; and
- As left visual inspections of the seabed

3.8.8 Removal of Well Infrastructure

Well infrastructure above the mudline is planned to be removed as part of the Stybarrow decommissioning activities. The cutting and recovery of well infrastructure may occur directly after P&A activities either using the MODU or project vessels in field at the time, or alternatively may be completed separately as part of the Stybarrow subsea removal campaign as defined under the Stybarrow Decommissioning and Field Management EP, currently under assessment with NOPSEMA.

While use of the MODU is a feasible option, there are technical, safety, cost and schedule benefits from utilising a subsea support vessel. In the event well infrastructure is not recovered directly following P&A activities, the infrastructure will be temporarily wet stored (either in a connected state attached to the wellhead or temporarily stored on a mud mat on the seabed) until removal.

Options for removing and recovering the wellheads are described in **Table 3-13**. The wellheads are planned to be cut below the seabed using mechanical cutting method. Once the wellheads are cut, the well infrastructure will be recovered to the MODU or vessel and transported to shore for reuse or disposal in an acceptable manner.

Table 3-13 Wellhead Cutting Methods

Method	Description	MODU / Vessel Type	Preference
Mechanical internal cutting	Method: Method uses mechanical cutting knives that are inserted into the inner well casing and rotated. Uses: Suitable for wells with multiple casing strings and within all water depths.	MODU or subsea support vessel with ROV capability	Preferred method given water depths within Operational Area.
Abrasive water jet cutting	Method: Method uses a system of high pressure water entrained with grit and flocculant pumped via an umbilical from a vessel to a subsea cutting tool that is inserted into the inner well casing. Uses: Suitable where an internal cut can be achieved, generally within water depths shallower than approximately 300 - 350 m due to requirement for high pressure jetting. Not restricted by number of casing strings.	Subsea support vessel with ROV capability	Not feasible option given wells are deeper than the normal requirements for this method to work effectively.
External cutting using diamond wire saw	Method: Method uses a hydraulically driven motor and pulley system to operate an industrial diamond cutting wire via a vessel or ROV. Uses: Suitable for wells within all water depths. Not restricted by number of casing strings. May require up to 1m of well infrastructure to be left in situ above the mud line due to external cut.	Subsea support vessel with ROV capability	Contingency option if preferred option is unsuccessful.

The confirmed method and timing for removal and recovery of well infrastructure will be dependent on technical considerations, vessel availability, opportunities for efficiencies with other decommissioning activities, suitable weather windows and health safety and environmental considerations. Although infrastructure may be left *in situ* temporarily following P&A activities, this is considered to be acceptable given:

- Woodside is committed to recovery of Stybarrow well infrastructure above the mudline by no later 31 March 2025. Well infrastructure would therefore only be temporarily wet stored following P&A activities less than a year (based on completion of the P&A activity in around Q3 2024)
- Temporarily wet storing infrastructure will not affect future removal (e.g., cathodic protection systems will be in place if required);
- There are no new or increased impacts / risks to the environment from infrastructure remaining *in situ* for this temporary period (see **Section 7**).

This flexibility in the method and timing for removal and recovery of infrastructure provides cost efficiencies as well as reduced impacts and risks to the environment (e.g., reduced time and emissions/discharges across projects and reduced risk for dropped objects through additional feasibility assessment).

3.9 Chemical Assessment Process

The chemicals that may be used operationally for the petroleum activities described in this EP include:

- Chemicals for P&A activities including weighted brines, water-based fluids, lost circulation material, high viscosity pills, H₂S scavenger, MEG, cement, cement spacers and other chemical and cement additives as required.
- Chemicals for preparatory activities for P&A including marine growth removal and cleaning, such as acids (note there is very little marine growth on Stybarrow well infrastructure due to water depth not being conducive for substantial fouling)
- Chemicals used for cutting of subsea infrastructure such as flocculants and lubricants

Chemicals will be stored on-board the MODU and support vessels as required within dedicated holding tanks for liquid chemicals / chemical mixtures and the sack room for dry chemicals. Hazardous chemicals are stored within bunds or in secure areas to prevent accidental overboard discharges. All chemicals that may be operationally released or discharged to the marine environment from either planned activities or unplanned events are accompanied with relevant Safety Data Sheets (SDS).

3.9.1 Chemical Assessment

All chemicals that may be operationally released or discharged to the marine environment for the petroleum activities described in this EP will be evaluated using a defined framework and set of tools, to ensure the potential impacts are acceptable, ALARP and meet Woodside's expectation for environmental performance. This excludes legacy chemicals including residual water-based drilling fluids and brines that are currently present in the wellbore, which have been assessed for discharge in **Section 7.6**. All previously approved P&A and drilling chemicals are included on the Woodside Drilling and Completions Chemical Assessment Register, which is reviewed as per the Chemical Selection and Assessment Environment Guideline.

The chemical assessment process follows the principles outlined in the Offshore Chemical Notification Scheme (OCNS), which manages chemical use and discharge in the United Kingdom and the Netherlands. It applies the requirements of the 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 ranked list of registered products have an assigned ranking based on toxicity and other relevant parameters, such as biodegradation and bioaccumulation, in accordance with one of the two schemes (as shown in **Figure 3-4**).

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

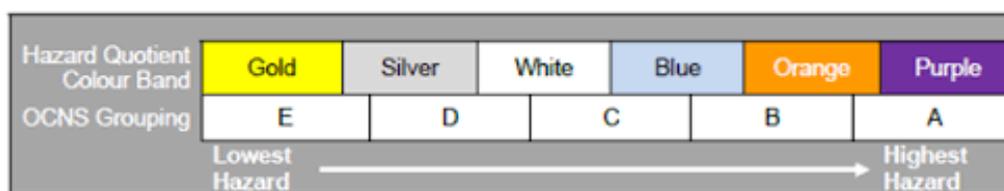


Figure 3-4: OCNS Ranking Scheme

Chemicals fall into the following assessment types:

- No further assessment: Chemicals with a HQ band of Gold or Silver or an OCNS ranking of E or D with no substitution or product warnings do not require further assessment. Such chemicals do not represent a significant impact on the environment under standard use scenarios and are, therefore, considered ALARP and acceptable.
- Further assessment/ALARP justification required: The following types of chemicals require further assessment to understand the environmental impacts of discharge into the marine environment:
 - Chemicals with no OCNS ranking
 - Chemicals with a HQ band of White, Blue, Orange, Purple or OCNS ranking of A, B or C

- Chemicals with an OCNS product or substitution warning

3.9.2 Further Assessment/ALARP Justification

This includes assessing the ecotoxicity, biodegradation and bioaccumulation of the chemicals in the marine environment in accordance with the Centre for Environment, Fisheries and Aquaculture Science (CEFAS) Hazard assessment and the Department of Mine and Petroleum (DMP) Chemical Assessment Guide: Environmental Risk Assessment of Chemicals used in WA Petroleum Activities Guideline.

3.9.2.1 Ecotoxicity

Chemical ecotoxicity is assessed using the criteria used by CEFAS to group chemicals based on ecotoxicity results (Table 3-14). If a chemical has an aquatic or sediment toxicity within the criteria for the OCNS grouping of D or E, this is considered acceptable in terms of ecotoxicity.

Table 3-14: CEFAS OCNS grouping based on ecotoxicity results

Initial Grouping	A	B	C	D	E
Results for aquatic-toxicity data (ppm)	<1	>1-10	>10-100	>100-1,000	>1,000
Results for sediment toxicity data (ppm)	<10	>10-100	>100-1,000	>1,000-10,000	>10,000

Note: Aquatic toxicity refers to the Skeletonema costatum EC50, Acartia tonsa LC50 and Scophthalmus maximus (juvenile turbot) LC50 toxicity tests; sediment toxicity refers to Corophium volutator LC50 test.

3.9.2.2 Biodegradation

The biodegradation of chemicals is assessed using the CEFAS biodegradation criteria, which align with the categorisation outlined in the DMP Chemical Assessment Guide: Environmental Risk Assessment of Chemicals used in WA Petroleum Activities Guideline.

CEFAS categorises biodegradation into the following groups:

- **Readily biodegradable:** results of more than 60% biodegradation in 28 days to an OSPAR harmonised offshore chemical notification format (HOCNF) accepted ready biodegradation protocol.
- **Inherently biodegradable:** results more than 20% and less than 60% to an OSPAR HOCNF accepted ready biodegradation protocol or result of more than 20% by OSPAR accepted inherent biodegradation study.
- **Not biodegradable:** results from OSPAR HOCNF accepted biodegradation protocol or inherent biodegradation protocol are less than 20%, or half-life values derived from aquatic simulation test indicate persistence.

Chemicals with more than 60% biodegradation in 28 days to an OSPAR HOCNF accepted ready biodegradation protocol are considered acceptable in terms of biodegradation.

3.9.2.3 Bioaccumulation

The bioaccumulation of chemicals is assessed using the CEFAS bioaccumulation criteria, which align with the categorisation outlined in the DMP Chemical Assessment Guide: Environmental Risk Assessment of Chemicals used in WA Petroleum Activities Guideline.

The following guidance is used by CEFAS:

- **Non-bioaccumulative:** LogPow < 3, or BCF ≤ 100 and molecular weight is ≥ 700.
- **Bioaccumulative:** LogPow ≥ 3 or BC > 100 and molecular weight is < 700.

Chemicals that meet the non-bioaccumulative criteria are considered acceptable.

If a product has no specific ecotoxicity, biodegradation or bioaccumulation data available, options to be considered are as follows:

- 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

3.9.2.4 Alternatives

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 will be investigated, with preference for options with a HQ band of Gold or Silver, or OCNS ranking of 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) will be considered for the specific context and implemented where relevant to ensure the risk is ALARP and acceptable.

3.9.2.5 Decision

Once the further assessment/ALARP justification has been completed, concurrence is required from the relevant environment advisor that the environmental risk as a result of chemical use is ALARP and acceptable.

4 Description of the Environment

4.1 Overview

In accordance with Regulations 13(2) and 13(3) of the Environment Regulations, this section describes the existing environment that may be affected (EMBA) by the activity (planned and unplanned, as described in **Section 7** and **Section 8**), including details of the particular relevant values and sensitivities of the environment, which were used for the risk assessment.

The description of the environment applies to two spatial areas:

- the Operational Area – the area where planned activities will occur and includes the area encompassing a 3,000 m radius around the Stybarrow wells.
- the wider EMBA. This is the Environment That May Be Affected by the worst-case hydrocarbon spill scenario identified as relevant to the activity (**Figure 4-1**).

The information contained in this section has been used to inform the evaluation and assessment of the environmental impacts and risks presented in **Section 7** and **Section 8** of this EP. The level of detail is appropriate to the nature and scale of the impacts and risks to the particular values and sensitivities. A detailed and comprehensive description of the environment in the Operational Area and EMBA is provided in Appendix A.

4.2 Determination of the Environment that May Be Affected

Stochastic hydrocarbon dispersion and fate modelling (described in **Section 8.1**) has been performed on the worst-case hydrocarbon releases, which were determined to be a loss of well control at the seabed and a 1,000 m³ marine diesel oil (MDO) release from a vessel collision (described in **Section 8.1.1**). The results of modelling studies from both of these scenarios have been used to inform the spatial extent of the EMBA and the socio-cultural EMBA. The direct environmental impacts and risks from all other aspects of the Petroleum Activity will occur within the EMBA and/or socio-cultural EMBA. The EMBA (**Figure 4-1**) encompasses the outer most boundary of the worst-case spatial extent of four hydrocarbon phases where ecological impact could occur and the socio-cultural EMBA encompasses the outer most boundary of the worst-case spatial extent where social, cultural or economic impacts could occur (refer **Table 4-1**). The exposure threshold values used to define the EMBA are presented in **Table 4-1** and have been justified in **Section 8.1.3**.

Table 4-1: Hydrocarbon components and EMBA exposure thresholds

Hydrocarbon Component	EMBA Exposure Value
Socio-cultural EMBA	
Surface hydrocarbons	1 g/m ²
Shoreline hydrocarbons	10 g/m ²
Entrained hydrocarbons	100 ppb
Dissolved aromatic hydrocarbons	50 ppb
EMBA	
Surface hydrocarbons	10 g/m ²
Shoreline hydrocarbons	100 g/m ²
Entrained hydrocarbons	100 ppb
Dissolved aromatic hydrocarbons	50 ppb

Hydrocarbon contact below the defined thresholds may occur outside the EMBA and socio-cultural EMBA; however, the effects of these low exposure values are unlikely to result in ecological impacts.

The EMBA and socio-cultural EMBA presented does not represent the predicted coverage of any one hydrocarbon spill or a depiction of a slick or plume at any point in time. Rather, the areas are a composite of many theoretical paths, integrated over the full duration of the simulations under various metocean conditions.

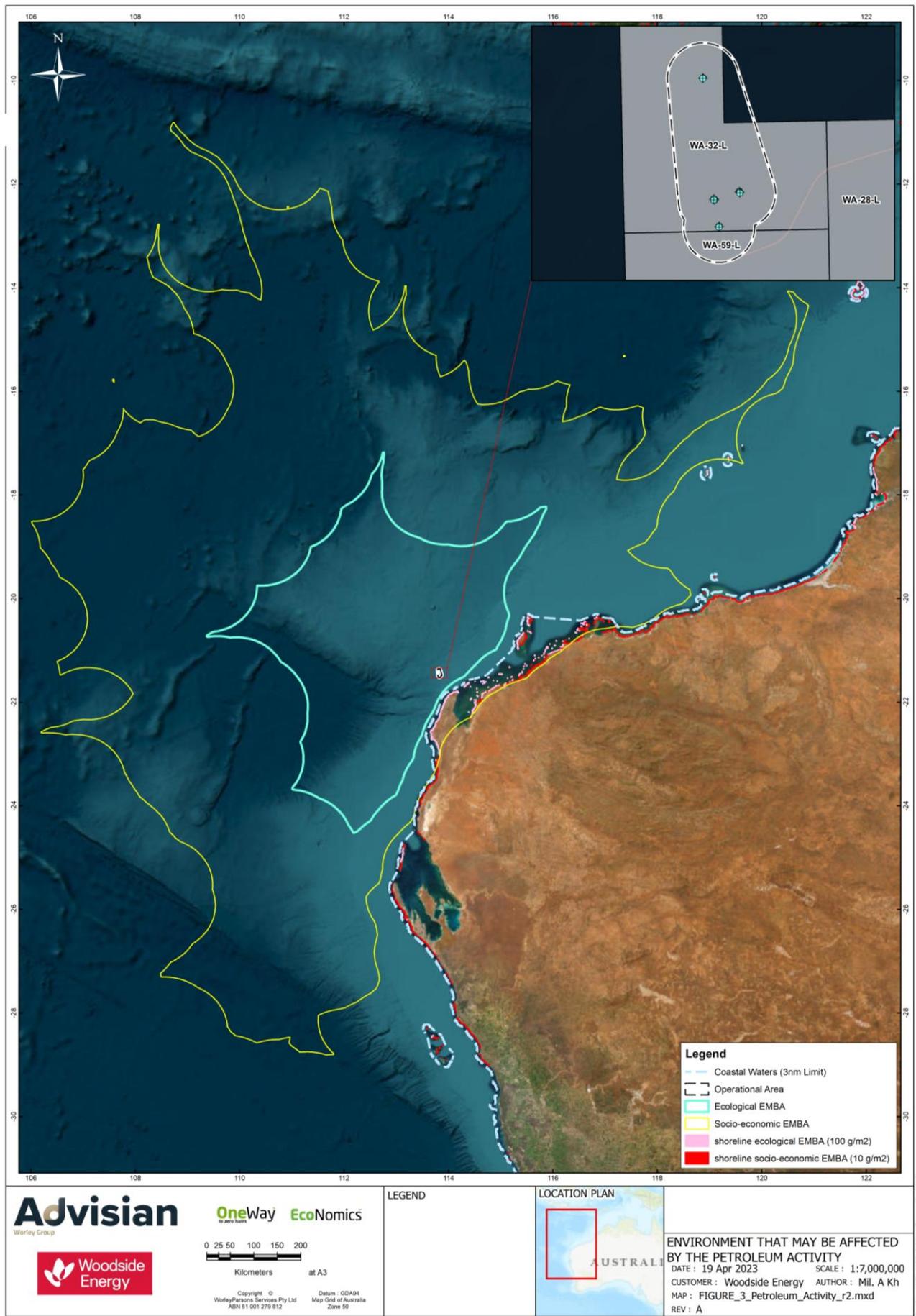


Figure 4-1: Environment that May Be Affected by the Petroleum Activity

4.3 Relevant Environmental Values and Sensitivities

Regulation 13(2) of OPGGS ((E) Regulations states that “*the environment plan must:*

- 13(2)(a) Describe the existing EMBA by the activity; and
- 13(2)(b) Include details of the particular relevant values and sensitivities (if any) of that environment”.

Regulation 13(3) of the OPGGS (E) Regulations states that “Without limiting paragraph 13(2)(b), particular relevant values and sensitivities may include any of the following:

- 13(3)(f) Any values and sensitivities that exist in, or in relation to, part or all of:
 - (i) A Commonwealth marine area within the meaning of that Act; or
 - (ii) Commonwealth land within the meaning of that Act”.

This section summarises environmental values and sensitivities, including physical, biological, socio-economic and cultural features in the marine and coastal environment that are relevant to the Operational Area and the EMBA. Searches for Matters of National Environmental Significance (MNES) and other matters protected by the EPBC Act were undertaken for the Operational Area and the EMBA using the Protected Matters Search Tool (PMST).

A full description of the values and sensitivities relevant to the Operational Area and EMBA is provided in Appendix A, along with the PMST Search Reports.

4.3.1 Bioregions

The Operational Area is located approximately 55 km north-west of Exmouth, Western Australia and within Commonwealth waters. The EMBA overlaps the following Integrated Marine and Coastal Regionalisation of Australia (IMCRA) Provincial Bioregions:

- Northwest Province (overlaps Operational Area)
- Central Western Shelf Transition (23 km from Operational Area)
- Northwest Shelf Province (30 km from Operational Area)
- Central Western Transition (57 km from Operational Area)
- Northwest Transition (270 km from Operational Area)
- Central Western Shelf Province (301 km from Operational Area)

Appendix A summarises the characteristics of these marine bioregions.

4.3.2 Matters of National Environmental Significance

Table 4-2 and **Table 4-3** summarise the MNES identified as potentially occurring within the Operational Area and EMBA, respectively, as determined by the PMST results (Appendix A). Additional information on identified MNES are provided throughout this Section and in Appendix A, Section 2.4.

Table 4-2: Summary of MNES within the Operational Area

MNES	Number	Relevant Section
World Heritage Properties	None	Not applicable
National Heritage Places	None	Not applicable
Wetlands of International Importance (Ramsar)	None	Not applicable
Marine Parks ¹	None	Not applicable
Listed Threatened Ecological Communities	None	Not applicable
Listed Threatened Species	20	Section 4.7.1
Listed Migratory Species ²	31	Section 4.7.1

1. The PMST search identifies that the Operational Area overlaps the Gascoyne Marine Park, however when the spatial data was interrogated it found that the Gascoyne Marine Park is located 4 km from the Operational Area.
2. The EPBC Act categorises migratory and threatened species independently, therefore migratory species can also be threatened.

Table 4-3: Summary of MNES within EMBA

MNES	Number	Relevant Section
World Heritage Properties	2	Section 4.6.2
National Heritage Places	5	Section 4.6.3
Wetlands of International Importance (Ramsar)	2	Not applicable
Marine Protected Areas (Commonwealth and State)	11	Section 4.6.5
Listed Threatened Ecological Communities	0	Not applicable
Listed Threatened Species ¹	34	Section 4.7.1
Listed Migratory Species ^{1, 2}	51	Section 4.7.1

1. Terrestrial species (such as terrestrial mammals, reptiles and bird species) that appear in the PMST results and do not have habitats along shorelines are not relevant to the Petroleum Activity impacts and risks and are not included in these numbers.
2. The EPBC Act categorises migratory and threatened species independently, therefore migratory species can also be threatened.

4.4 Stybarrow Field Environmental Surveys

Woodside commissioned an environmental survey of the Stybarrow field (Cardno, 2019), the results of which are summarised in **Section 4.5.1** below. Woodside commissioned a study of the canyon systems in the region (BMT Oceanica, 2016), which includes the Canyons linking the Cuvier Abyssal Plain and the Cape Range Peninsula Key Ecological Feature (KEF) (refer **Section 4.5.1** and **Section 4.5.2**). One of the canyons constituting this KEF overlaps the Operational Area.

4.5 Biological Environment

This sub-section focuses on the biological environment in the Operational Area. Refer to Appendix A, Section 2.3 for description of the biological environment in the EMBA.

4.5.1 Sediments

Sampling by Cardno (2019) indicated sediments within the Stybarrow field are characterised by silt-sized (3.9 mm to 62.5 µm) particles, which is typical of sediments in similar water depths in the region (Baker et al., 2008).

Analysis of potential contaminants in sediments indicated concentrations of metals, radionuclides, and hydrocarbons within the Stybarrow field were generally not significantly higher than concentrations observed at reference sites. Elevated concentrations of some metals were observed at sites within the Stybarrow field – concentrations of lead, barium, boron, arsenic and mercury were higher at some impacted sites within the field, although barium was the only metal in which concentrations between sample sites and reference sites was statistically significant (Cardno, 2019). Increased barium concentrations may be due to historical discharges of drilling fluids, which commonly contain barium sulphate (barite) as a weighting agent. Concentrations of lead, mercury and arsenic were above the default guideline values (DGVs) for sediment quality stated in the *Australian and New Zealand guidelines for Fresh and Marine Water Quality* (Commonwealth of Australia and New Zealand Government, 2018), although none exceeded the upper guideline values (GV-high) at which toxicity-related effects may be expected to be observed.

An environmental survey and literature review of canyons in the region by BMT Oceanica (2016) concluded the following:

- The seabed in most of the region is featureless with sediments dominated by silty clays. Outcropping rock and consolidated or coarser sediment habitats were otherwise minor components of the seabed.
- Large areas of soft ooze and fine mud sediments were observed between water depths of 600 to 900 m.
- The small particle size of the sediments may influence the diversity of infauna (Etter and Grassle, 1992), and the retention of contaminants (Burdige, 2006; Fukue et al., 2006), with finer particles potentially having a greater retention capacity.
- Metals were below Interim Sediment Quality Guidelines outlined in the *Australian and New Zealand Guidelines for Fresh and Marine Water Quality: Volume 1* (ANZECC and ARMCANZ, 2000).

4.5.2 Benthic Habitats and Infauna

Cardno (2019) observed only unconsolidated sediment within WA-32-L, with no areas of hard substrate (with the exception of the Stybarrow infrastructure). Few epifauna and demersal or benthic fish were observed by Cardno (2019), which is consistent with similar deep water habitats in the region, with heart urchins, grenadier fish and decapods the most commonly observed taxa.

Infauna sampling by ROV cores yielded very few infauna at sample sites and control sites in WA-32-L, indicating low density but widely distributed infauna assemblages (Cardno, 2019). This is consistent with other surveys in the region (e.g., RPS, 2013).

An environmental survey and literature review of canyons in the region by BMT Oceanica (2016) concluded the following:

- The North and South Enfield Canyons are regarded as bathyal which is defined as 200-2,000 m, ~1% gravel, ~70% mud, ~ 5 °C temperature at the seabed, and a 1° slope.
- Typical benthic habitats within the region was bare, unconsolidated, muddy, soft substrate and typically support sparse assemblages of filter and deposit-feeding epibenthic fauna.
- Outcropping rock and consolidated or coarser sediment habitats appeared to be minor components of the seabed.
- Distribution of biota was patchy, with crustaceans, molluscs, echinoderms, cnidarians and poriferans recorded. Motile scavengers were regarded as the dominant group including crabs and shrimps. Echinoderms were less abundant and consisted of ophiuroids, holothurians, echinoids and asteroids.

Two Key Ecological Features (KEFs) occur within the Operational Area and are considered to be of regional importance for either a region's biodiversity or its ecosystem function and integrity. The two KEFs are:

- Continental Slope Demersal Fish Communities
- Canyons linking the Cuvier Abyssal Plain and the Cape Range Peninsula

Further description of these KEFs is provided in **Section 4.6.1**.

4.5.3 Water Quality

Cardo (2019) sampled surface waters in WA-32-L and found no evidence of contaminants. Given the depth of the infrastructure in the Stybarrow field, it is very unlikely that water from near the seabed would mix to the surface. The deeper parts of the water column below the thermocline are typically poorly mixed compared to surface waters and hence form an extensive barrier between water at the seabed and water at the surface (**Figure 4-2**).

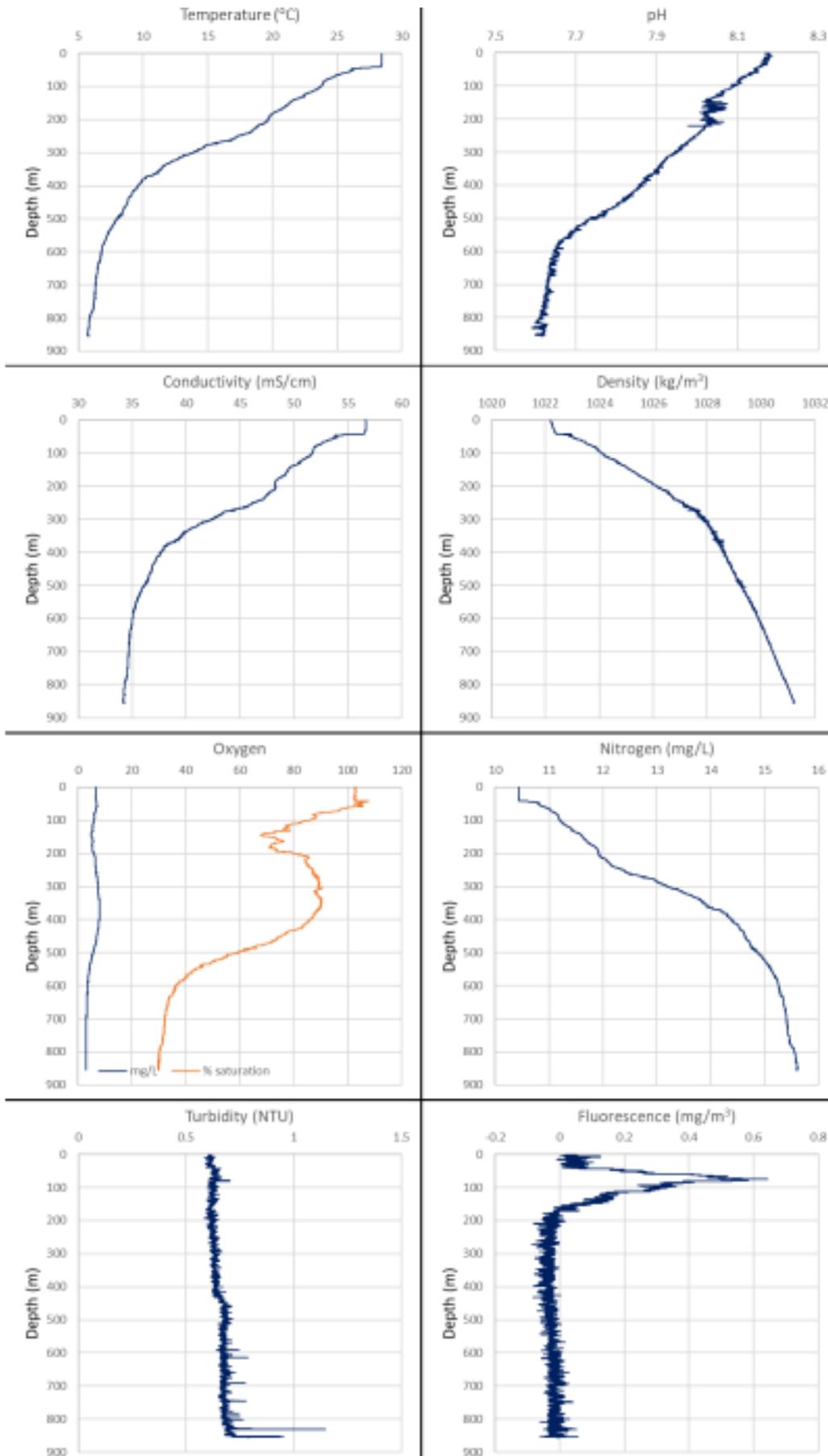


Figure 4-2: Selected physical and chemical profiles of the water column in the Stybarrow field (Cardno 2019)

4.6 Protected or Significant Areas

4.6.1 Key Ecological Features

Key Ecological Features (KEFs) are areas of regional importance for either biodiversity or ecosystem function and integrity within the Commonwealth marine environment and have been identified through the marine bioregional planning process.

The presence of KEFs within the Operational Area and EMBA is summarised in **Table 4-4** and a detailed description of these KEFs is provided in Appendix A, Section 2.9.3. KEFs within the Operational Area and EMBA are presented in **Figure 4-3**.

Table 4-4: Key Ecological Features in the Operational Area and EMBA

KEF	Operational Area	EMBA	Distance from Operational Area (km)
Continental Slope Demersal Fish Communities	✓	✓	overlaps
Canyons linking the Cuvier Abyssal Plain and the Cape Range Peninsula	✓	✓	overlaps
Commonwealth waters adjacent to Ningaloo Reef	-	✓	23 km
Exmouth Plateau	-	✓	52 km
Ancient coastline at 125 m depth contour	-	✓	95 km

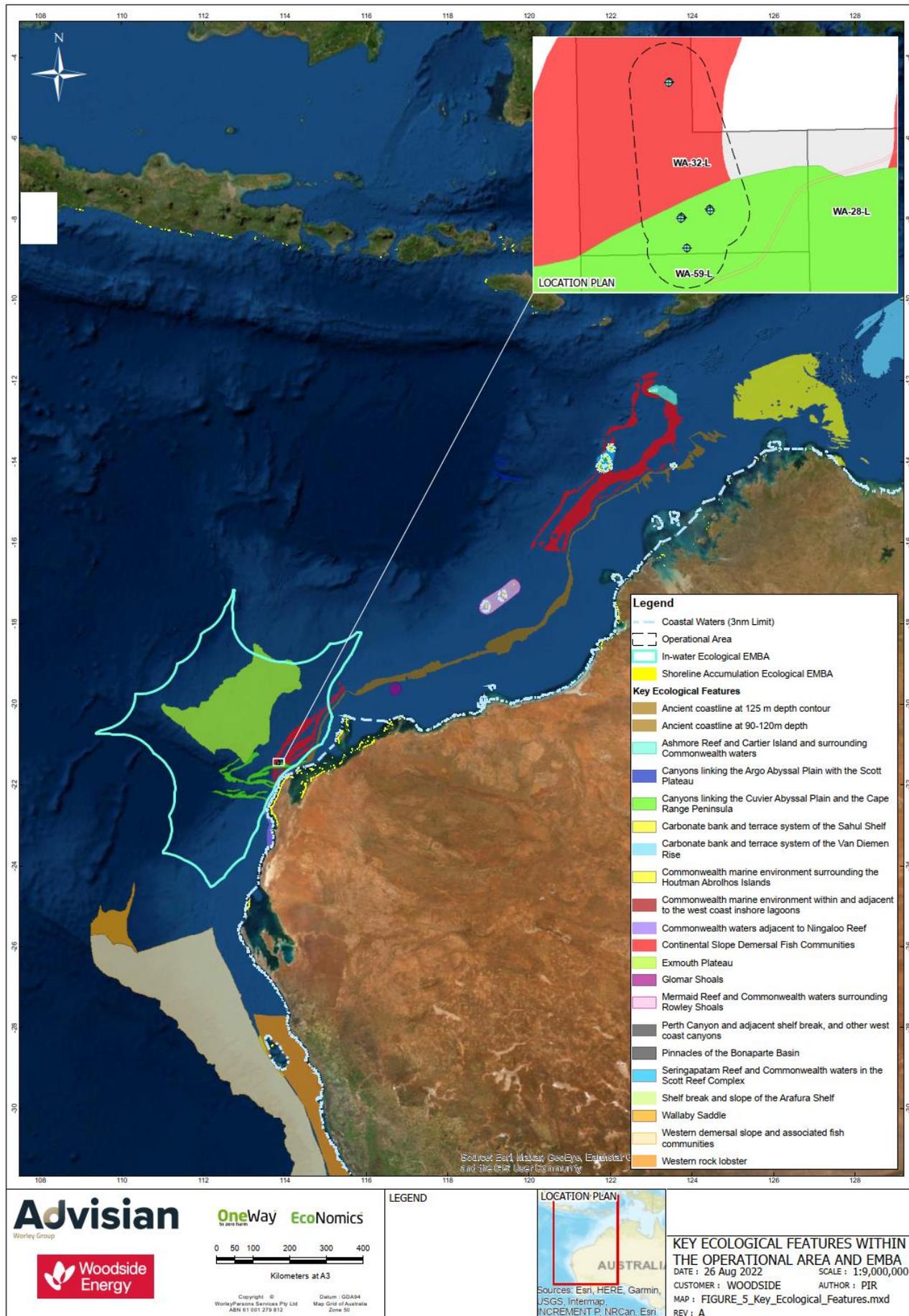


Figure 4-3: Key Ecological Features within the Operational Area and EMBA

4.6.2 World Heritage Properties

World Heritage Properties represent the best examples of the world's cultural and natural heritage. There are no World Heritage Properties within the Operational Area. The EMBA overlaps two World Heritage Properties:

- the Ningaloo Coast, approximately 23 km from the Operational Area at the closest point; and
- Shark Bay, Western Australia, approximately 285 km from the Operational Area at the closest point

Further description of the World Heritage properties is provided in Appendix A, Section 2.4.2.

4.6.3 National Heritage Properties

Australia's national heritage comprises exceptional natural and cultural places that contribute to Australia's national identity. There are no National Heritage Places within the Operational Area. Five National Heritage Properties lie within the EMBA (refer Appendix A, Section 2.4.3):

- The Ningaloo Coast (approximately 23 km from the Operational Area)
- Dampier Archipelago (including Burrup Peninsula) (approximately 285 km from the Operational Area)
- Shark Bay, Western Australia (approximately 372 km from the Operational Area)
- Batavia Shipwreck Site and Survivor Camps Area 1629 – Houtman Abrolhos (approximately 767 km from the Operational Area)
- The West Kimberley (approximately 883 km from the Operational Area)

4.6.4 Wetlands of International Importance

Two Wetlands of International Importance (RAMSAR) were identified within the EMBA:

- Roebuck Bay; and
- Ashmore Reef National Nature Reserve.

These sites were identified as potentially having shoreline accumulation of hydrocarbons from a worst-case loss of well control. Both sites are important resting and foraging areas for migratory shorebirds using the East Asian-Australasian Flyway (Bamford et al., 2008).

4.6.5 Marine Protected Areas

One Australian marine park (Gascoyne) (e.g., Marine Parks, Marine Management Areas etc.) overlaps the Operational Area. No State Marine Protected Areas (e.g., Marine Parks, Marine Management Areas etc.) overlaps the Operational Area.

Four Australian Marine Parks and ten State marine parks, marine management areas and national parks fall within the EMBA (**Table 4-5** and **Table 4-6** respectively). A detailed description of these Australian Marine Parks and State marine protected areas is provided in Appendix A, Section 2.9.1 and Section 2.9.2, respectively.

Australian Marine Parks and State marine protected areas within the EMBA are presented in **Figure 4-4** Commonwealth and State Marine Protected Areas within the EMBA and Socio-cultural EMBA

Table 4-5 Australian marine parks within the Operational Area and EMBA

Australian Marine Park	IUCN Category or Relevant Park Zone	Operational Area	Distance from Operational Area (km)	EMBA
Gascoyne	VI – Multiple Use Zone	✓	0	✓
	IV – Habitat Protection Zone	-	101	✓
	II – National Park Zone	-	195	✓
Ningaloo	IV – Recreational Use Zone	-	23	✓
	II – National Park Zone	-	23	✓
Carnarvon Canyon	IV – Habitat Protection Zone	-	319	✓
Shark Bay	VI – Multiple Use Zone	-	320	✓

Table 4-6: State Marine Protected Areas and National Parks within the Operational Area and EMBA

State Protected Area	IUCN Category or Relevant Park Zone	Operational Area	Distance from Operational Area (km)	EMBA
Ningaloo Marine Park	VI – Protected Area with Sustainable Use of Natural Resources	-	40	✓
	II – National Park	-	108	✓
Cape Range National Park	II – National Park	-	48	✓
Muiron Islands Marine Management Area	IV – Habitat or Species Management Area	-	50	✓
Barrow Island Marine Management Area	IV – Habitat or Species Management Area	-	159	✓
Barrow Island Marine Park	VI – Protected Area with Sustainable Use of Natural Resources	-	168	✓
Montebello Islands Marine Park	VI – Protected Area with Sustainable Use of Natural Resources	-	198	✓
Rowley Shoals Marine Park	VI – Protected Area with Sustainable Use of Natural Resources	-	678	✓
	II – National Park	-	736	✓
Lalang-garram / Horizontal Falls Marine Park	VI – Protected Area with Sustainable Use of Natural Resources	-	1,226	✓
Lalang-garram / Camden Sound Marine Park	VI – Protected Area with Sustainable Use of Natural Resources	-	1,227	✓
North Kimberley Marine Park	VI – Protected Area with Sustainable Use of Natural Resources	-	1,348	✓

In addition to the marine protected areas within the EMBA, the following WA State protected areas fall within the socio-cultural EMBA, these areas are described in Appendix A:

- Bardi Jawi Gaarra Marine Park
- Barrow Island Nature Reserve
- Bernier and Dorre Island Nature Reserve
- Coulomb Point Nature Reserve
- Dirk Hartog Island National Park
- Eighty Mile Beach Marine Park
- Jarrkumpungu Nature Reserve
- Jurabi Coastal Park
- Jurien Bay Marine Park
- Maiyalam Marine Park
- Mayala Marine Park
- North Laalang-garram Marine Park
- Nynggulu Coastal Reserve
- Shark Bay Marine Park
- Tent Island Nature Reserve
- Yawuru Nagulagun/Roebuck Bay Marine Park

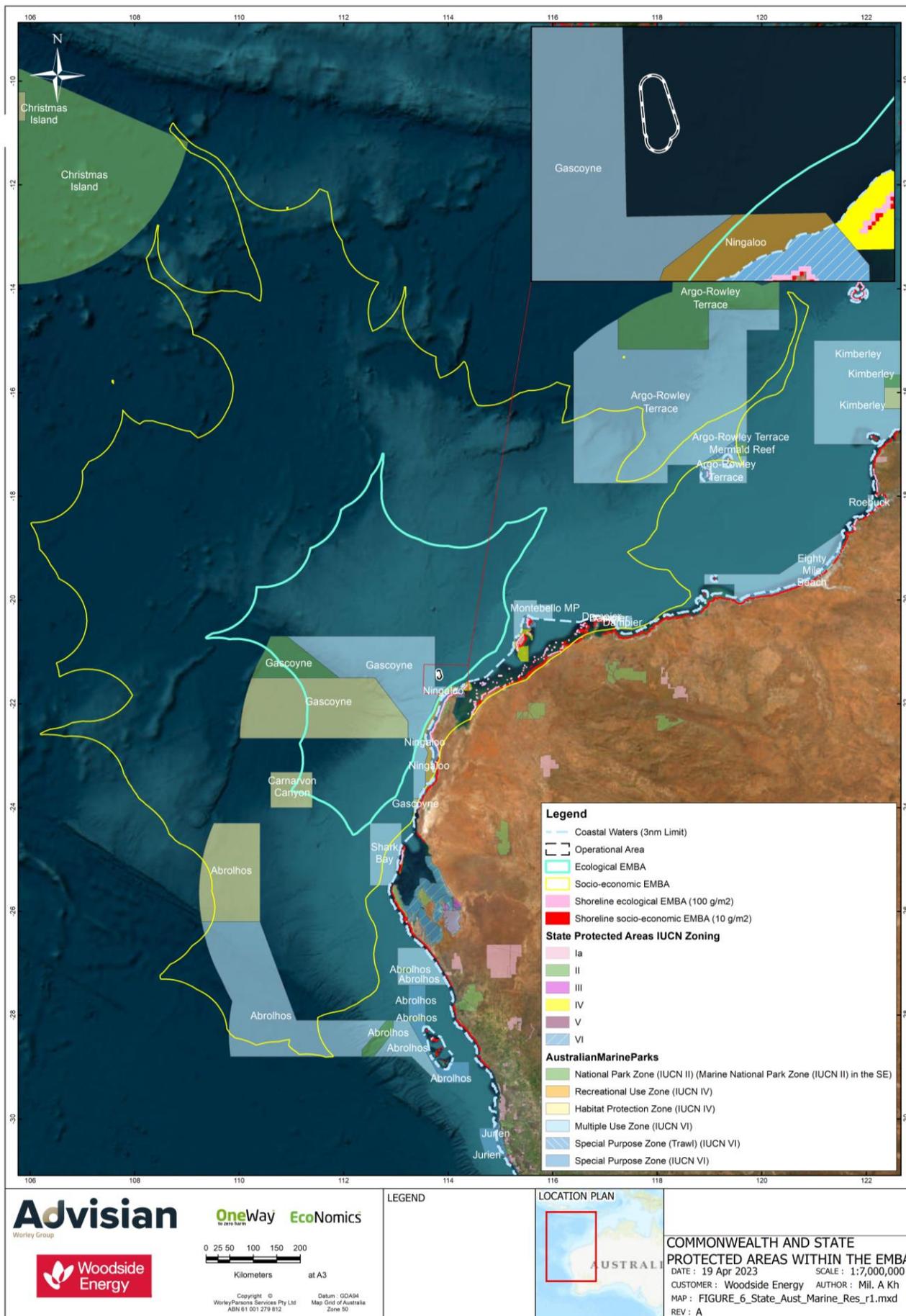


Figure 4-4 Commonwealth and State Marine Protected Areas within the EMBA and Socio-cultural EMBA

4.7 Marine Fauna

4.7.1 Threatened and Migratory Species

Table 4-7 presents the threatened and migratory species within the Operational Area and the EMBA. These include all relevant MNES protected under the EPBC Act, as identified in the PMST search for the Operational Area and EMBA (PMST search results are provided in Appendix A). For each species identified, the extent of likely presence is noted.

The PMST results identified 20 marine fauna species listed as threatened species and 31 marine fauna species listed as migratory within the Operational Area. Within the EMBA, the PMST results identified 33 species listed as threatened species and 50 species listed as migratory.

Terrestrial species (such as terrestrial mammals, reptiles and bird species) that appear in the PMST results of the EMBA and do not have habitats along shorelines are not relevant to the Petroleum Activity impacts and risks and have therefore been excluded from **Table 4-7**.

A description of the identified threatened and migratory species is included in Appendix A, Section 2.4 to Section 2.8.

Species with designated biologically important areas (BIAs) and Habitat Critical to their Survival (critical habitat) overlapping the Operational Area and EMBA have been identified in **Section 4.7.2**.

Table 4-7: Threatened and migratory species predicted to occur within the Operational Area and EMBA

Value/Sensitivity Common Name	Scientific Name	Threatened Status	Migratory Status	Operational Area Presence	Sensitivities within Operational Area	EMBA Presence	Sensitivities within EMBA
Fish, Sharks and Rays							
Narrow Sawfish, Knifetooth Sawfish	<i>Anoxypristis cuspidata</i>	-	Migratory	-	NA	✓	Species or species habitat likely to occur within area
Oceanic Whitetip Shark	<i>Carcharhinus longimanus</i>	-	Migratory	✓	Species or species habitat may occur within area	✓	Species or species habitat likely to occur within area
Grey Nurse Shark (west coast population)	<i>Carcharias taurus</i> (west coast population)	Vulnerable	-	-	NA	✓	Species or species habitat known to occur within area
White Shark, Great White Shark	<i>Carcharodon carcharias</i>	Vulnerable	Migratory	✓	Species or species habitat may occur within area	✓	Species or species habitat known to occur within area
Southern Dogfish, Endeavour Dogfish, Little Gulper Shark	<i>Centrophorus zeehaani</i>	Conservation Dependent	-	-	NA	✓	Species or species habitat likely to occur within area
Shortfin Mako, Mako Shark	<i>Isurus oxyrinchus</i>	-	Migratory	✓	Species or species habitat likely to occur within area	✓	Species or species habitat likely to occur within area
Longfin Mako	<i>Isurus paucus</i>	-	Migratory	✓	Species or species habitat likely to occur within area	✓	Species or species habitat likely to occur within area
Porbeagle, Mackerel Shark	<i>Lamna nasus</i>	-	Migratory	-	NA	✓	Species or species habitat may occur within area
Reef Manta Ray, Coastal Manta Ray	<i>Mobula alfredi</i>	-	Migratory	-	NA	✓	Species or species habitat known to occur within area
Giant Manta Ray	<i>Mobula birostris</i>	-	Migratory	✓	Species or species habitat likely to occur	✓	Species or species habitat known to occur within area

Value/Sensitivity Common Name	Scientific Name	Threatened Status	Migratory Status	Operational Area Presence	Sensitivities within Operational Area	EMBA Presence	Sensitivities within EMBA
					within area		
Dwarf Sawfish, Queensland Sawfish	<i>Pristis clavata</i>	Vulnerable	Migratory	-	NA	✓	Species or species habitat known to occur within area
Freshwater Sawfish, Largetooth Sawfish, River Sawfish, Leichhardt's Sawfish, Northern Sawfish	<i>Pristis pristis</i>	Vulnerable	Migratory	-	NA	✓	Species or species habitat likely to occur within area
Green Sawfish, Dindagubba, Narrowsnout Sawfish	<i>Pristis zijsron</i>	Vulnerable	Migratory	-	NA	✓	Species or species habitat known to occur within area
Whale Shark	<i>Rhincodon typus</i>	Vulnerable	Migratory	-	NA	✓	Foraging, feeding or related behaviour known to occur within area
Scalloped Hammerhead	<i>Sphyrna lewini</i>	Conservation Dependent	-	✓	Species or species habitat may occur within area	✓	Species or species habitat known to occur within area
Southern Bluefin Tuna	<i>Thunnus maccoyii</i>	Conservation Dependent	-	✓	Species or species habitat likely to occur within area	✓	Breeding known to occur within area
Marine Mammals							
Antarctic Minke Whale, Dark-shoulder Minke Whale	<i>Balaenoptera bonaerensis</i>	-	Migratory	✓	Species or species habitat likely to occur within area	✓	Species or species habitat likely to occur within area
Sei Whale	<i>Balaenoptera borealis</i>	Vulnerable	Migratory	✓	Species or species habitat likely to occur within area	✓	Foraging, feeding or related behaviour likely to occur within area
Bryde's Whale	<i>Balaenoptera edeni</i>	-	Migratory	✓	Species or species habitat likely to occur	✓	Species or species habitat likely to occur within area

Value/Sensitivity Common Name	Scientific Name	Threatened Status	Migratory Status	Operational Area Presence	Sensitivities within Operational Area	EMBA Presence	Sensitivities within EMBA
					within area		
Blue Whale	<i>Balaenoptera musculus</i>	Endangered	Migratory	✓	Migration route known to occur within area	✓	Migration route known to occur within area
Fin Whale	<i>Balaenoptera physalus</i>	Vulnerable	Migratory	✓	Species or species habitat likely to occur within area	✓	Foraging, feeding or related behaviour likely to occur within area
Dugong	<i>Dugong dugon</i>	-	Migratory	-	NA	✓	Breeding known to occur within area
Southern Right Whale	<i>Eubalaena australis</i>	Endangered	Migratory	✓	Species or species habitat may occur within area	✓	Species or species habitat likely to occur within area
Humpback Whale	<i>Megaptera novaeangliae</i>	-	Migratory	✓	Species or species habitat likely to occur within area	✓	Breeding known to occur within area
Killer Whale, Orca	<i>Orcinus orca</i>	-	Migratory	✓	Species or species habitat may occur within area	✓	Species or species habitat may occur within area
Sperm Whale	<i>Physeter macrocephalus</i>	-	Migratory	✓	Species or species habitat may occur within area	✓	Species or species habitat may occur within area
Australian Humpback Dolphin	<i>Sousa sahalensis</i>	-	Migratory	-	NA	✓	Species or species habitat may occur within area
Spotted Bottlenose Dolphin (Arafura/Timor Sea populations)	<i>Tursiops aduncus</i> (Arafura/Timor Sea populations)	-	Migratory	✓	Species or species habitat may occur within area	✓	Species or species habitat known to occur within area
Marine Reptiles							
Short-nosed Seasnake	<i>Aipysurus apraefrontalis</i>	Critically	-	-	NA	✓	Species or species habitat

Value/Sensitivity Common Name	Scientific Name	Threatened Status	Migratory Status	Operational Area Presence	Sensitivities within Operational Area	EMBA Presence	Sensitivities within EMBA
		Endangered					likely to occur within area
Leaf-scaled Seasnake	<i>Aipysurus foliosquama</i>	Critically Endangered	-	-	NA	✓	Species or species habitat known to occur within area
Loggerhead Turtle	<i>Caretta caretta</i>	Endangered	Migratory	✓	Species or species habitat known to occur within area	✓	Congregation or aggregation known to occur within area
Green Turtle	<i>Chelonia mydas</i>	Vulnerable	Migratory	✓	Species or species habitat known to occur within area	✓	Congregation or aggregation known to occur within area
Leatherback Turtle, Leathery Turtle	<i>Dermochelys coriacea</i>	Endangered	Migratory	✓	Species or species habitat known to occur within area	✓	Species or species habitat known to occur within area
Hawksbill Turtle	<i>Eretmochelys imbricata</i>	Vulnerable	Migratory	✓	Species or species habitat known to occur within area	✓	Congregation or aggregation known to occur within area
Olive Ridley Turtle	<i>Lepidochelys olivacea</i>	Endangered	Migratory	-	NA	✓	Species or species habitat known to occur within area
Flatback Turtle	<i>Natator depressus</i>	Vulnerable	Migratory	✓	Species or species habitat known to occur within area	✓	Congregation or aggregation known to occur within area
Marine Birds							
Abbott's Booby	<i>Papasula abbotti</i>	Endangered	-	-	NA	✓	Species or species habitat may occur within area
Australian Fairy Tern	<i>Sternula nereis nereis</i>	Vulnerable	-	✓	Foraging, feeding or related behaviour likely to occur within area	✓	Breeding known to occur within area
Black-browed Albatross	<i>Thalassarche</i>	Vulnerable	Migratory	-	NA	✓	Species or species habitat

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Description of the Environment

Value/Sensitivity Common Name	Scientific Name	Threatened Status	Migratory Status	Operational Area Presence	Sensitivities within Operational Area	EMBA Presence	Sensitivities within EMBA
	<i>melanophris</i>						may occur within area
Campbell Albatross, Campbell Black-browed Albatross	<i>Thalassarche impavida</i>	Vulnerable	Migratory	-	NA	✓	Species or species habitat may occur within area
Christmas Island White- tailed Tropicbird, Golden Bosunbird	<i>Phaethon lepturus fulvus</i>	Endangered	-	✓	Species or species habitat may occur within area	✓	Species or species habitat may occur within area
Common Noddy	<i>Anous stolidus</i>	-	Migratory	✓	Species or species habitat may occur within area	✓	Species or species habitat may occur within area
Common Sandpiper	<i>Actitis hypoleucos</i>	-	Migratory	✓	Species or species habitat may occur within area	✓	Species or species habitat may occur within area
Curlew Sandpiper	<i>Calidris ferruginea</i>	Critically Endangered	Migratory	✓	Species or species habitat may occur within area	✓	Species or species habitat may occur within area
Eastern Curlew, Far Eastern Curlew	<i>Numenius madagascariensis</i>	Critically Endangered	Migratory	✓	Species or species habitat may occur within area	✓	Species or species habitat may occur within area
Flesh-footed Shearwater, Fleshy-footed Shearwater	<i>Ardenna carneipes</i>	-	Migratory	-	NA	✓	Species or species habitat likely to occur within area
Fork-tailed Swift	<i>Apus pacificus</i>	-	Migratory	-	NA	✓	Species or species habitat likely to occur within area
Great Frigatebird, Greater Frigatebird	<i>Fregata minor</i>	-	Migratory	-	NA	✓	Species or species habitat may occur within area
Indian Yellow-nosed Albatross	<i>Thalassarche carteri</i>	Vulnerable	Migratory	✓	Species or species habitat may occur within area	✓	Species or species habitat may occur within area

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Description of the Environment

Value/Sensitivity Common Name	Scientific Name	Threatened Status	Migratory Status	Operational Area Presence	Sensitivities within Operational Area	EMBA Presence	Sensitivities within EMBA
Lesser Frigatebird, Least Frigatebird	<i>Fregata ariel</i>	-	Migratory	✓	Species or species habitat may occur within area	✓	Species or species habitat likely to occur within area
Osprey	<i>Pandion haliaetus</i>	-	Migratory	-	NA	✓	Species or species habitat known to occur within area
Pectoral Sandpiper	<i>Calidris melanotos</i>	-	Migratory	✓	Species or species habitat may occur within area	✓	Species or species habitat may occur within area
Red Knot, Knot	<i>Calidris canutus</i>	Endangered	Migratory	✓	Species or species habitat may occur within area	✓	Species or species habitat may occur within area
Roseate Tern	<i>Sterna dougallii</i>	-	Migratory	-	NA	✓	Breeding likely to occur within area
Sharp-tailed Sandpiper	<i>Calidris acuminata</i>	-	Migratory	✓	Species or species habitat may occur within area	✓	Species or species habitat may occur within area
Shy Albatross	<i>Thalassarche cauta</i>	Endangered	Migratory	-	NA	✓	Species or species habitat may occur within area
Soft-plumaged Petrel	<i>Pterodroma mollis</i>	Vulnerable	-	✓	Species or species habitat may occur within area	✓	Foraging, feeding or related behaviour likely to occur within area
Southern Giant Petrel	<i>Macronectes giganteus</i>	Endangered	Migratory	✓	Species or species habitat may occur within area	✓	Species or species habitat may occur within area
Streaked Shearwater	<i>Calonectris leucomelas</i>	-	Migratory	-	NA	✓	Species or species habitat likely to occur within area
White-capped Albatross	<i>Thalassarche steadi</i>	Vulnerable	Migratory	-	NA	✓	Species or species habitat may occur within area

Woodside | Stybarrow Plug and Abandonment Environment Plan

Description of the Environment

Value/Sensitivity Common Name	Scientific Name	Threatened Status	Migratory Status	Operational Area Presence	Sensitivities within Operational Area	EMBA Presence	Sensitivities within EMBA
White-tailed Tropicbird	<i>Phaethon lepturus</i>	-	Migratory	✓	Species or species habitat may occur within area	✓	Species or species habitat known to occur within area

4.7.2 Biologically Important Areas and Critical Habitats

Biologically important areas (BIAs) are those locations where aggregations of members of a species are known to undertake biologically important behaviours, such as breeding, resting, foraging or migration. BIAs have been identified using expert scientific knowledge about species abundance, distribution and behaviours. BIAs are not recognised by the EPBC Act but are identified by the Department of Climate Change, Energy, the Environment and Water (DCCEEW) to aid in the management and protection of threatened fauna.

Habitats critical for the survival of a species, referred to as critical habitats, are recognised under the EPBC Act. Critical habitats may be identified in species recovery plans made under the EPBC Act or listed on the register of critical habitat maintained by the minister under the EPBC Act. Woodside considers critical habitats carry greater weight than BIAs.

Relevant BIA's and Critical Habitat areas identified within the Operational Area and EMBA are presented in **Table 4-8** and **Table 4-9** respectively.

Figure 4-5 to **Figure 4-12** show the spatial overlap with relevant BIAs and Critical Habitat areas and the Operational Area and EMBA.

Table 4-8: Biologically Important Areas within the Operational Area and EMBA

Value / Sensitivity	BIA Type	Operational Area	EMBA	Closest Distance to Operational Area (km)
Fish, Sharks and Rays				
Whale Shark	Foraging	-	✓	24
Marine Mammals				
Humpback Whale	Migration (north and south)	-	✓	4
Pygmy Blue Whale	Migration	✓	✓	overlaps
	Distribution	✓	✓	overlaps
	Foraging	-	✓	18 (south)
Australian Sea Lion	Foraging (male)	-	✓	766
Marine Reptiles				
Flatback Turtle	Interesting buffer	-	✓	17
	Nesting	-	✓	82
	Foraging	-	✓	152
	Mating	-	✓	159
	Migration corridor	-	✓	284
	Interesting	-	✓	284
Green Turtle	Interesting buffer	-	✓	23
	Nesting	-	✓	45
	Foraging	-	✓	152
	Aggregation	-	✓	152

Value / Sensitivity	BIA Type	Operational Area	EMBA	Closest Distance to Operational Area (km)
	Interesting	-	✓	159
	Basking	-	✓	159
	Mating	-	✓	159
	Migration corridor	-	✓	284
Hawksbill Turtle	Interesting buffer	-	✓	18
	Nesting	-	✓	40
	Foraging	-	✓	152
	Mating	-	✓	159
	Interesting	-	✓	191
	Migration corridor	-	✓	284
Loggerhead Turtle	Interesting buffer	-	✓	18
	Nesting	-	✓	40
	Foraging	-	✓	537
Marine Birds				
Brown Booby	Breeding	-	✓	1,001
Fairy Tern	Breeding	-	✓	31
Greater Frigatebird	Breeding	-	✓	1,124
Lesser Crested Tern	Breeding	-	✓	92
Lesser Frigatebird	Breeding	-	✓	537
Little Tern	Resting	-	✓	678
	Breeding	-	✓	894
Red-footed Booby	Breeding	-	✓	1,124
Roseate Tern	Breeding	-	✓	80
Wedge-tailed Shearwater	Breeding	✓	✓	overlaps
White-tailed Tropicbird	Breeding	-	✓	678

Table 4-9: Critical habitats within the Operational Area and EMBA

Value / Sensitivity	Critical Habitat Type	Operational Area	EMBA	Closest Distance to Operational Area (km)
Flatback Turtle	Nesting	-	✓	18
Green Turtle	Nesting	-	✓	21
Hawksbill Turtle	Nesting	-	✓	52
Loggerhead Turtle	Nesting	-	✓	21
Olive Ridley Turtle	Nesting	-	✓	1,278

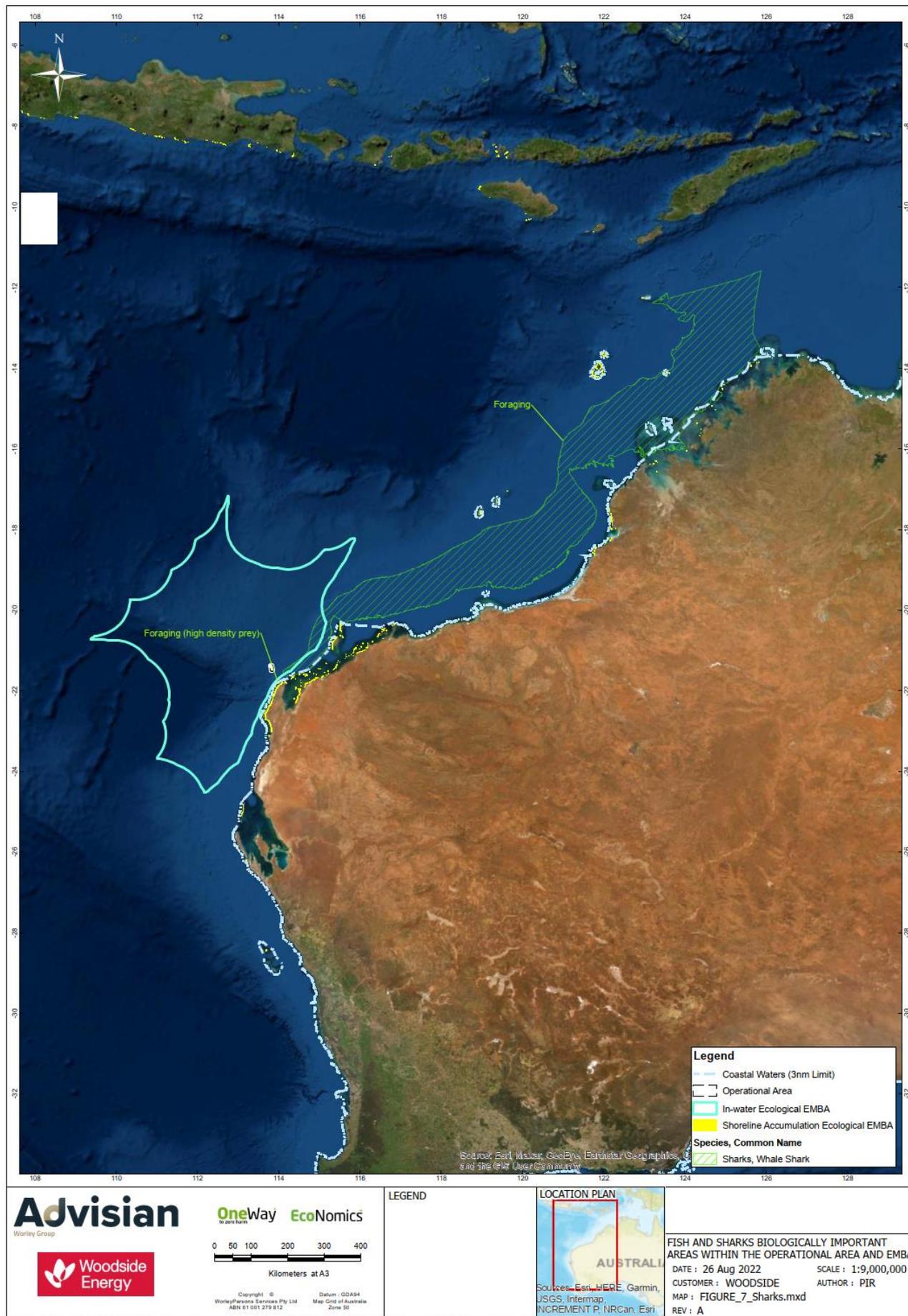


Figure 4-5: Fish and Shark BIAs within the Operational Area and EMBA

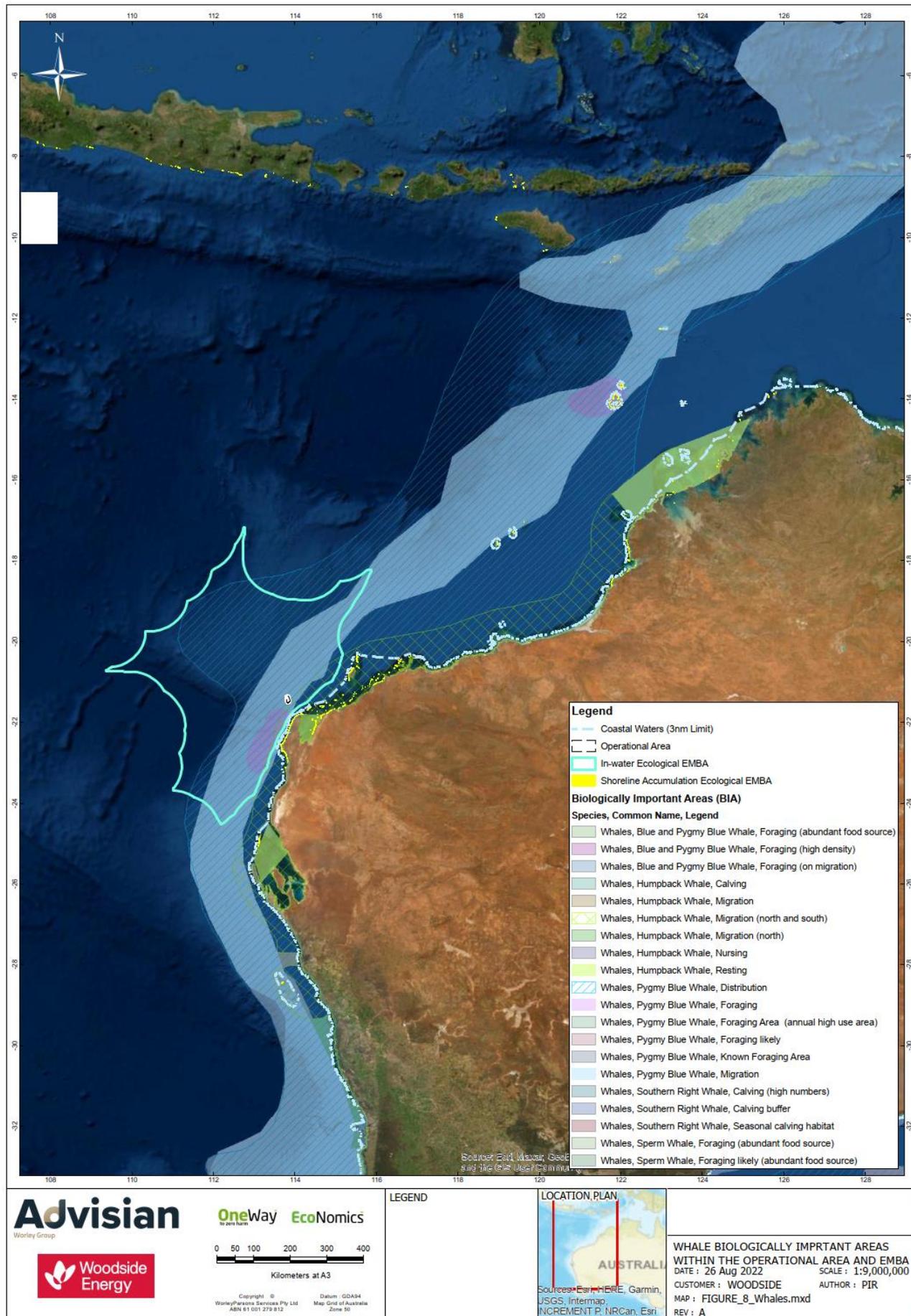


Figure 4-6: Whale BIA within the Operational Area and EMBA

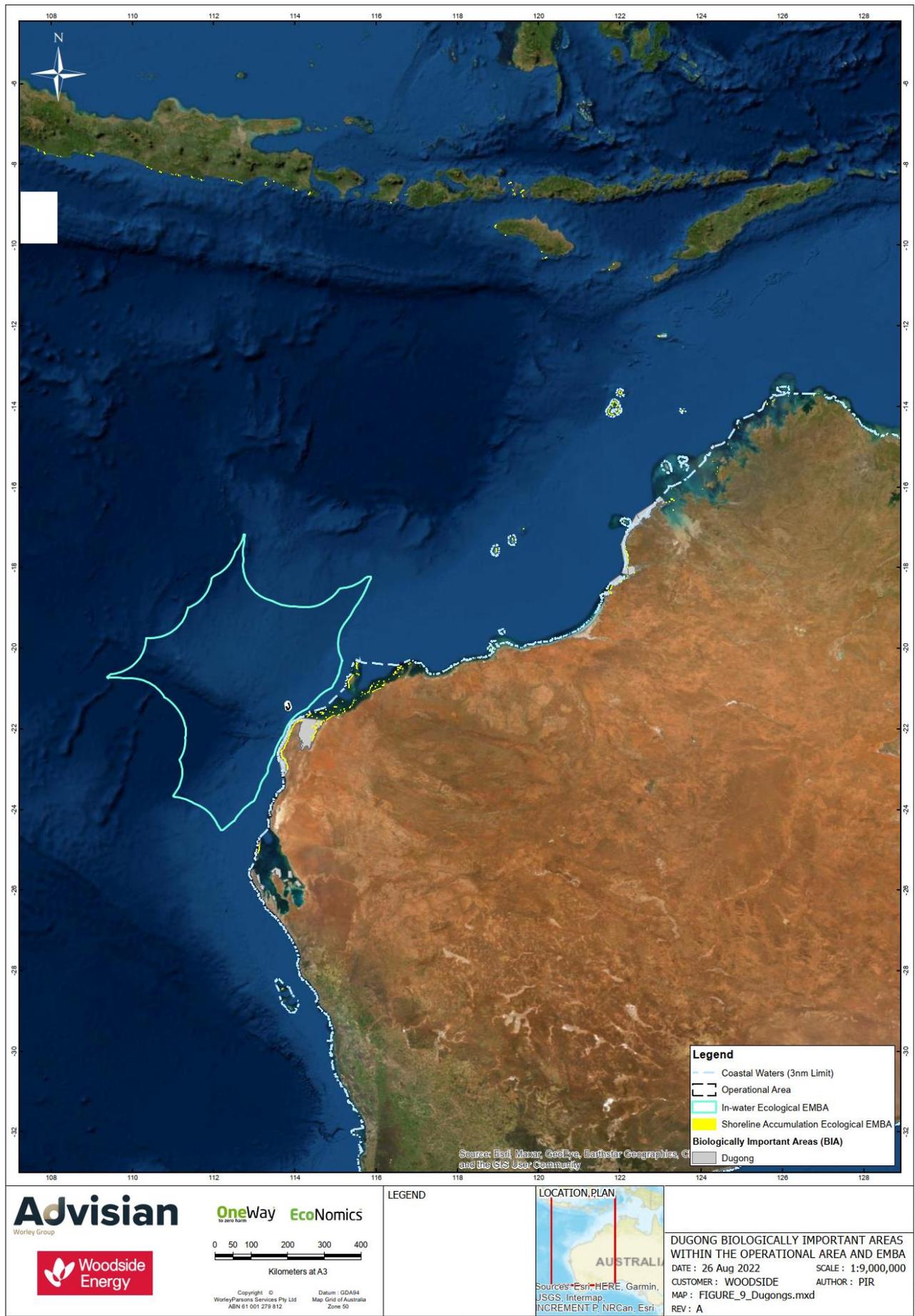


Figure 4-7: Dugong BIAs within the Operational Area and EMBA

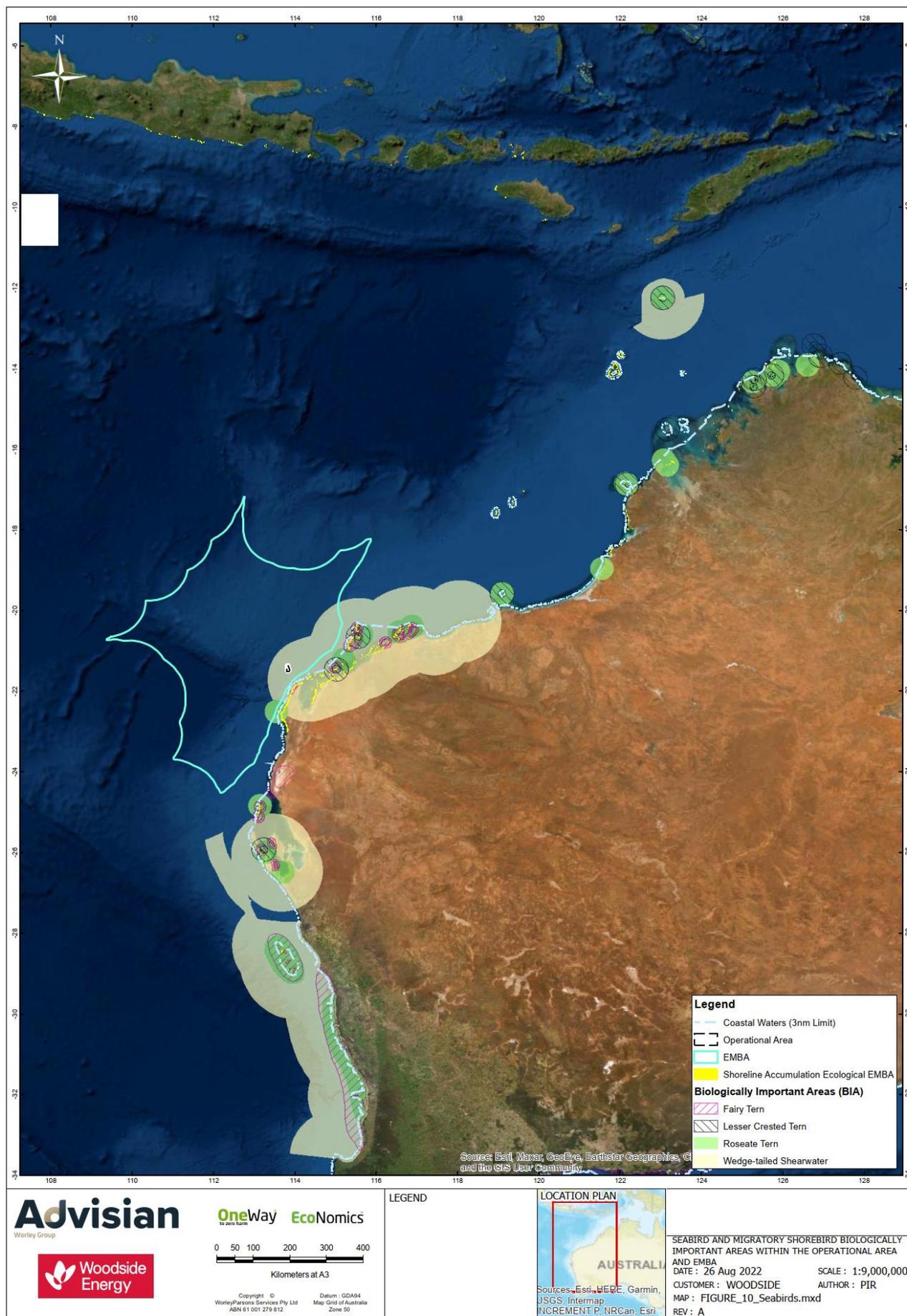


Figure 4-8: Seabird BIAs within the Operational Area and EMBA

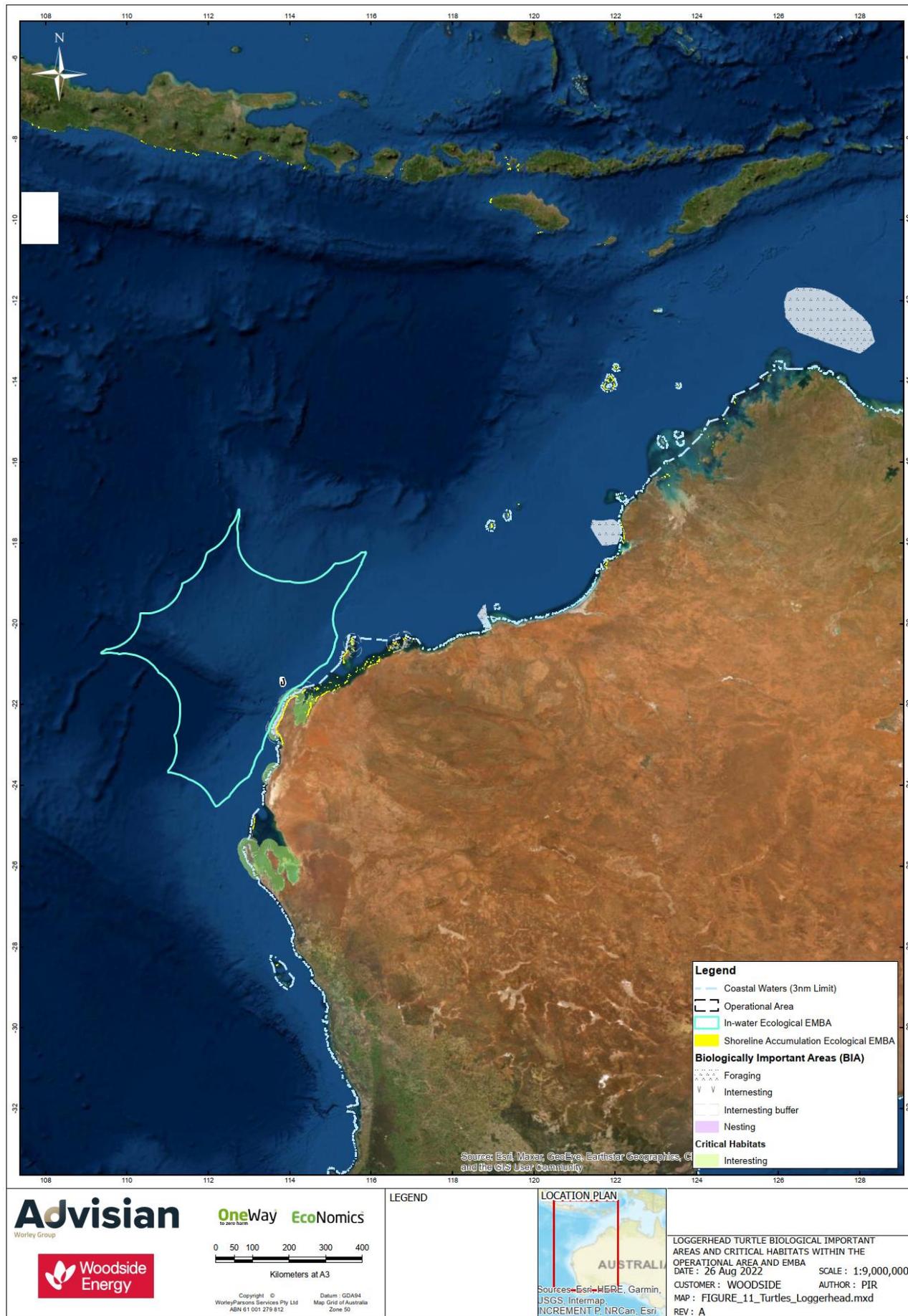


Figure 4-9: Loggerhead Turtle BIA's and Critical Habitats within the Operational Area and EMBA

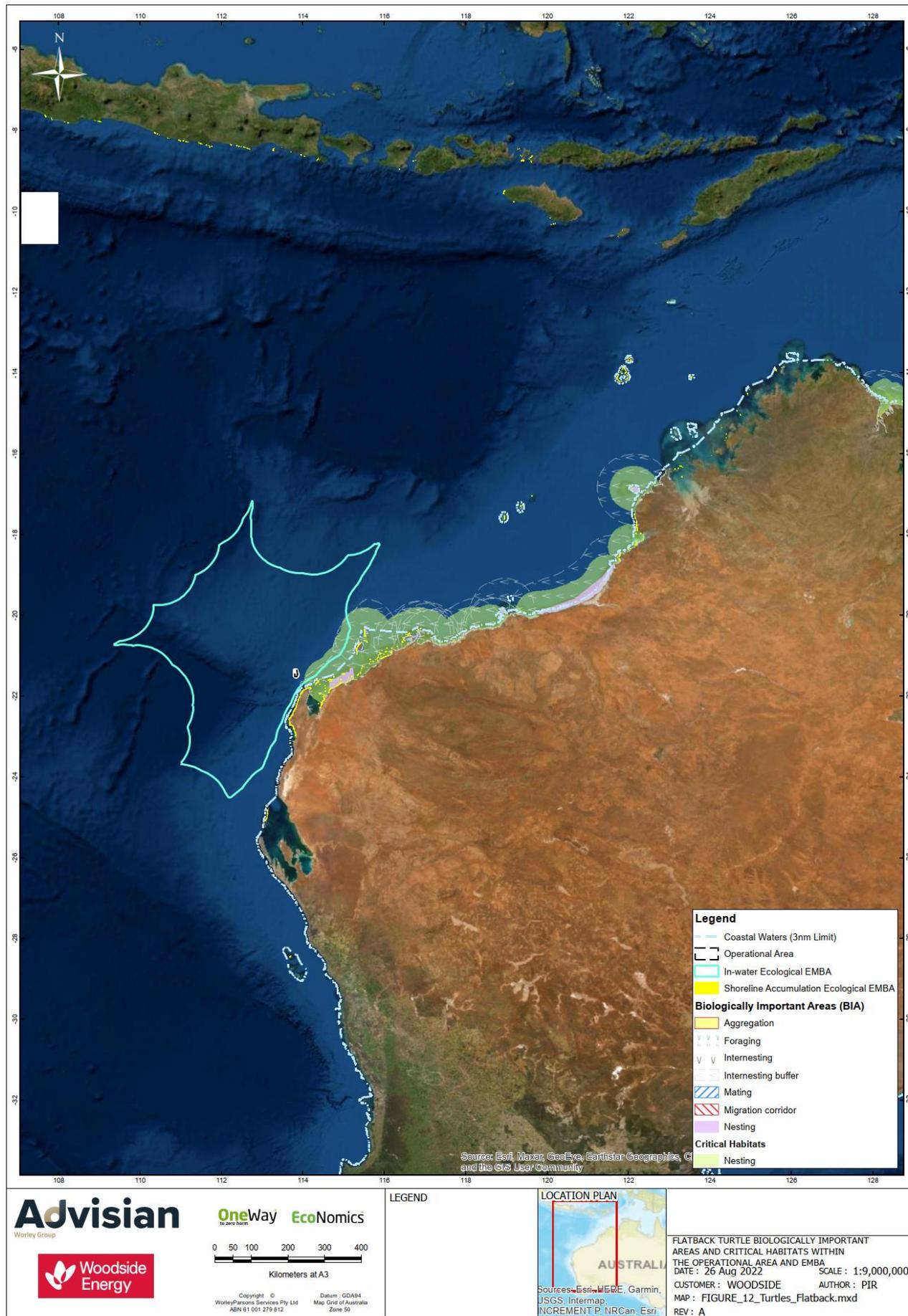


Figure 4-10: Flatback Turtle BIAs and Critical Habitats within the Operational Area and EMBA

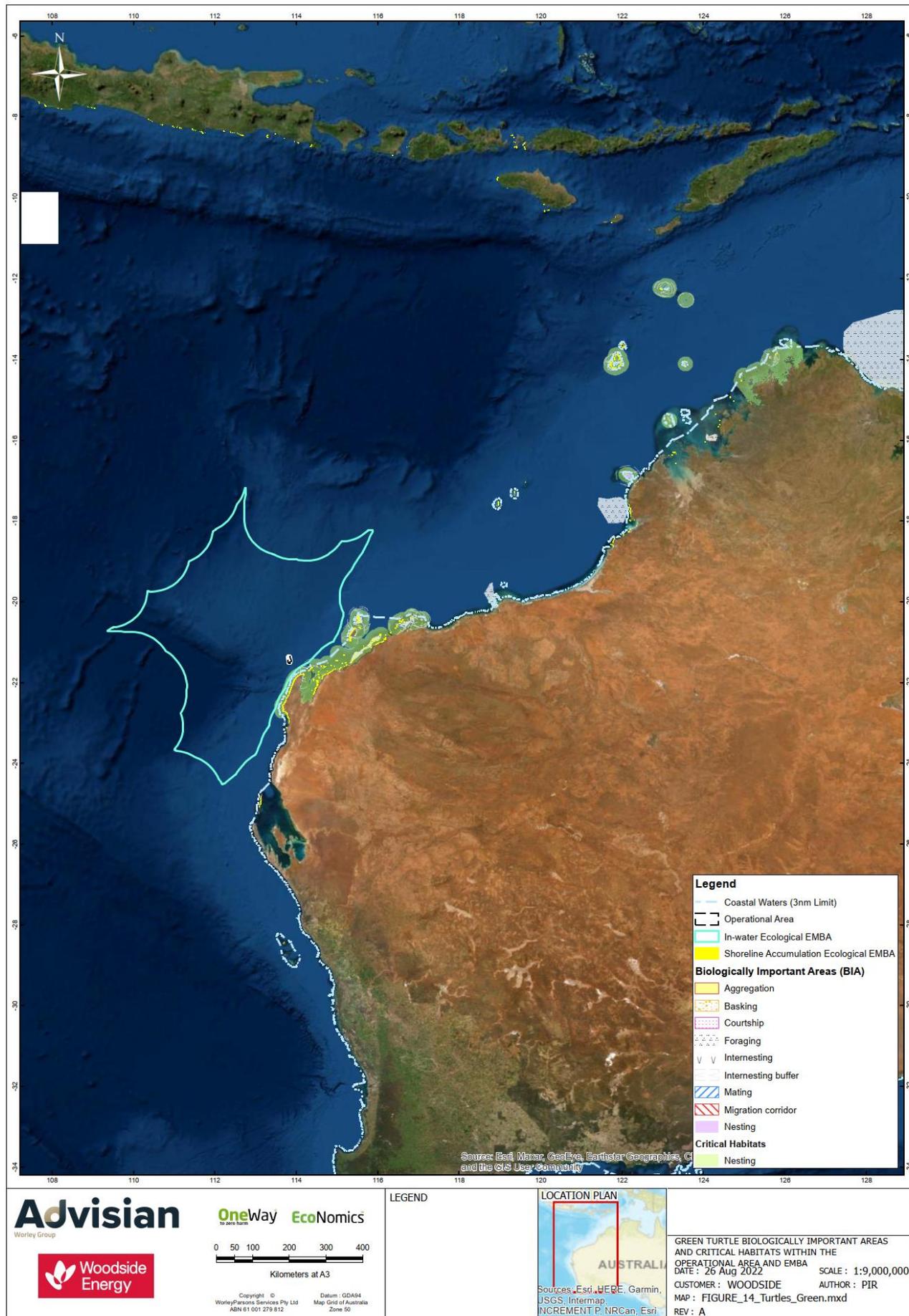


Figure 4-12: Green Turtle BIAs and Critical Habitats within the Operational Area and EMBA

4.7.3 Species Recovery Plans, Conservation Advice and Threat Abatement Plans

Woodside considered recovery plans, conservation management plans, threat abatement plans or approved conservation advice in place for EPBC Act-listed threatened species that may potentially occur or use habitat within the EMBA (**Table 4-10**).

Recovery plans set out the research and management actions necessary to stop the decline of and support the recovery of listed threatened species. In addition, threat abatement plans provide for the research, management and any other actions necessary to reduce the impact of a listed key threatening process on native species and ecological communities. The Minister decides whether a threat abatement plan is required for key threatening processes listed under Section 183 of the EPBC Act. **Table 4-10** provides information about the specific requirements of the relevant conservation advice, species recovery plans and threat abatement plans that applies to the petroleum activities, and demonstrates how current management requirements have been taken into account while preparing the EP. Through implementing relevant control measures, performance outcomes and performance standards, potential risks and impacts of the petroleum activities are managed to ALARP and acceptable levels.

Table 4-10 summarises the actions relevant to the Petroleum Activity, with more information about the specific requirements of the relevant plans of management (including Conservation Advice and Conservation Management Plans) applicable to the Petroleum Activity and demonstrates where management requirements have been addressed.

Table 4-10: Recovery plans, Conservation Advice and Threat Abatement Plans relevant to the Petroleum Activity

Common Name	Recovery Plan / Conservation Advice / Management Plan	Threats identified that may arise from the Petroleum Activity	Relevant EP Section
All Vertebrate Fauna			
All vertebrate fauna	Threat abatement plan for the impacts of marine debris on the vertebrate wildlife of Australia's coasts and oceans (Commonwealth of Australia, 2018)	Marine debris	Section 8.7
Fishes, Sharks and Rays			
Dwarf Sawfish, Queensland Sawfish	Sawfish and River Sharks Multispecies Recovery Plan (Commonwealth of Australia, 2015a)	Habitat degradation and modification	Section 8.2
	Approved conservation advice for <i>Pristis clavata</i> (dwarf sawfish) (Threatened Species Scientific Committee, 2009)		Section 8.3
White Shark, Great White Shark	Recovery Plan for the White Shark (<i>Carcharodon carcharias</i>) (Department of Sustainability, Environment, Water, Population and Communities, 2013)	Ecosystem effects from habitat modification	Section 8.2 Section 8.3
Whale Shark	Conservation Advice <i>Rhincodon typus</i> whale shark (Threatened Species Scientific Committee, 2015a)	Marine debris	Section 8.7
Grey Nurse Shark (west coast population)	Recovery Plan for the Grey Nurse Shark (<i>Carcharias taurus</i>) (Department of the Environment, 2014)	Ecosystem effects from habitat modification	Section 8.2 Section 8.3
Freshwater Sawfish, Largetooth Sawfish, River Sawfish, Leichhardt's Sawfish, Northern Sawfish	Sawfish and River Sharks Multispecies Recovery Plan (Commonwealth of Australia, 2015a)	Habitat degradation and modification	Section 8.2
	Approved conservation advice for <i>Pristis pristis</i> (largetooth sawfish) (Threatened Species Scientific Committee, 2014a)		Section 8.3
Green Sawfish, Dindagubba, Narrowsnout Sawfish	Sawfish and River Sharks Multispecies Recovery Plan (Commonwealth of Australia, 2015a)	Habitat degradation and modification	Section 8.2
	Approved conservation advice for green sawfish (Threatened Species Scientific Committee, 2008a)		Section 8.3
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, 2015b)	Noise interference	Section 7.3
		Vessel disturbance	Section 8.4

Common Name	Recovery Plan / Conservation Advice / Management Plan	Threats identified that may arise from the Petroleum Activity	Relevant EP Section
Sei Whale	Conservation Advice <i>Balaenoptera borealis</i> sei whale (Threatened Species Scientific Committee, 2015b)	Noise interference	Section 7.3
		Vessel disturbance	Section 8.4
Fin Whale	Conservation Advice <i>Balaenoptera physalus</i> fin whale (Threatened Species Scientific Committee, 2015c)	Noise interference	Section 7.3
		Vessel disturbance	Section 8.4
Southern Right Whale	Conservation management plan for the southern right whale: a recovery plan under the <i>Environment Protection and Biodiversity Conservation Act 1999</i> 2011-2021 (Department of Sustainability, Environment, Water, Population and Communities, 2012)	Noise interference	Section 7.3
		Vessel disturbance	Section 8.4
Marine Reptiles			
Leaf-scaled Seasnake	Approved Conservation Advice for <i>Aipysurus foliosquama</i> (Leaf-scaled Sea Snake) (Threatened Species Scientific Committee, 2010a)	Marine debris	Section 8.7
		Habitat degradation	Section 8.2 Section 8.3
Short-nosed Seasnake	Approved Conservation Advice for <i>Aipysurus apraefrontalis</i> (Short-nosed Sea Snake) (Threatened Species Scientific Committee, 2010b)	Marine debris	Section 8.7
		Habitat degradation	Section 8.2 Section 8.3
Loggerhead Turtle	Recovery Plan for Marine Turtles in Australia 2017-2027 (Commonwealth of Australia, 2017)	Light pollution	Section 7.2
		Noise interference	Section 7.3
		Oil pollution	Section 8.2 Section 8.3
		Vessel disturbance	Section 8.4
		Marine debris	Section 8.7
Leatherback Turtle,	Recovery Plan for Marine Turtles in Australia 2017-2027 (Commonwealth of Australia, 2017)	Light pollution	Section 7.2

Common Name	Recovery Plan / Conservation Advice / Management Plan	Threats identified that may arise from the Petroleum Activity	Relevant EP Section
Leathery Turtle, Luth		Noise interference	Section 7.3
		Oil pollution	Section 8.2 Section 8.3
		Vessel disturbance	Section 8.4
		Marine debris	Section 8.7
	Approved conservation advice for <i>Dermochelys coriacea</i> (Leatherback Turtle) (Threatened Species Scientific Committee, 2008b)	Vessel disturbance	Section 8.4
		Marine debris	Section 8.7
Hawksbill Turtle	Recovery Plan for Marine Turtles in Australia 2017-2027 (Commonwealth of Australia, 2017)	Light pollution	Section 7.2
		Noise interference	Section 7.3
		Oil pollution	Section 8.2 Section 8.3
		Vessel disturbance	Section 8.4
		Marine debris	Section 8.7
Green Turtle	Recovery Plan for Marine Turtles in Australia 2017-2027 (Commonwealth of Australia, 2017)	Light pollution	Section 7.2
		Noise interference	Section 7.3
		Oil pollution	Section 8.2 Section 8.3
		Vessel disturbance	Section 8.4
		Marine debris	Section 8.7
Flatback Turtle	Recovery Plan for Marine Turtles in Australia 2017-2027 (Commonwealth of Australia, 2017)	Light pollution	Section 7.2

Common Name	Recovery Plan / Conservation Advice / Management Plan	Threats identified that may arise from the Petroleum Activity	Relevant EP Section
		Noise interference	Section 7.3
		Oil pollution	Section 8.2 Section 8.3
		Vessel disturbance	Section 8.4
		Marine debris	Section 8.7
Olive Ridley Turtle	Recovery Plan for Marine Turtles in Australia 2017-2027 (Commonwealth of Australia, 2017)	Light pollution	Section 7.2
		Noise interference	Section 7.3
		Oil pollution	Section 8.2 Section 8.3
		Vessel disturbance	Section 8.4
		Marine debris	Section 8.7
Seabirds and Migratory Shorebirds			
All seabirds	Wildlife Conservation Plan for Seabirds (Commonwealth of Australia, 2020a)	Light pollution	Section 7.2
		Marine pollution	Section 8.2 Section 8.3
		Marine debris	Section 8.7
All shorebirds	Wildlife conservation plan for migratory shorebirds (Commonwealth of Australia, 2015c)	Marine pollution	Section 8.2 Section 8.3
Curlew Sandpiper	Conservation Advice <i>Calidris ferruginea</i> curlew sandpiper (Threatened Species Scientific Committee, 2015d)	Habitat degradation / modification	Section 8.2 Section 8.3

Common Name	Recovery Plan / Conservation Advice / Management Plan	Threats identified that may arise from the Petroleum Activity	Relevant EP Section
Eastern Curlew, Far Eastern Curlew	Conservation Advice <i>Numenius madagascariensis</i> eastern curlew (Threatened Species Scientific Committee, 2015e)	Habitat degradation / modification	Section 8.2 Section 8.3
Southern Giant-Petrel, Southern Giant Petrel	National Recovery Plan for Threatened Albatrosses and Giant Petrels 2011-2016 (Department of Sustainability, Environment, Water, Population and Communities, 2011)	Marine pollution	Section 8.2 Section 8.3 Section 8.7
Abbott's Booby	Conservation advice for Abbott's Booby - <i>Papasula abbotti</i> (Threatened Species Scientific Committee, 2020a)	Marine pollution	Section 8.2 Section 8.3 Section 8.7
Red Knot, Knot	Conservation advice <i>Calidris canutus</i> red knot (Threatened Species Scientific Committee, 2016)	Marine pollution	Section 8.2 Section 8.3
Christmas Island White-tailed Tropicbird, Golden Bosunbird	Conservation advice <i>Phaethon lepturus fulvus</i> white-tailed tropicbird (Christmas Island) (Threatened Species Scientific Committee, 2014b)	Marine pollution	Section 8.2 Section 8.3
Shy Albatross	National Recovery Plan for Threatened Albatrosses and Giant Petrels 2011-2016 (Department of Sustainability, Environment, Water, Population and Communities, 2011)	Marine pollution	Section 8.2 Section 8.3 Section 8.7
	Conservation advice <i>Thalassarche cauta</i> shy albatross (Threatened Species Scientific Committee, 2020b)	Marine pollution	Section 8.2 Section 8.3 Section 8.7
Black-browed Albatross	National Recovery Plan for Threatened Albatrosses and Giant Petrels 2011-2016 (Department of Sustainability, Environment, Water, Population and Communities, 2011)	Marine pollution	Section 8.2 Section 8.3 Section 8.7
White-capped Albatross	National Recovery Plan for Threatened Albatrosses and Giant Petrels 2011-2016 (Department of Sustainability, Environment, Water, Population and Communities, 2011)	Marine pollution	Section 8.2 Section 8.3 Section 8.7

Common Name	Recovery Plan / Conservation Advice / Management Plan	Threats identified that may arise from the Petroleum Activity	Relevant EP Section
Indian Yellow-nosed Albatross	National Recovery Plan for Threatened Albatrosses and Giant Petrels 2011-2016 (Department of Sustainability, Environment, Water, Population and Communities, 2011)	Marine pollution	Section 8.2 Section 8.3 Section 8.7
Campbell Albatross, Campbell Black-browed Albatross	National Recovery Plan for Threatened Albatrosses and Giant Petrels 2011-2016 (Department of Sustainability, Environment, Water, Population and Communities, 2011)	Marine pollution	Section 8.2 Section 8.3 Section 8.7
Australian Fairy Tern	Conservation advice for <i>Sternula nereis nereis</i> (Fairy tern) (Threatened Species Scientific Committee, 2011)	Marine pollution	Section 8.2 Section 8.3 Section 8.7
Soft-plumaged Petrel	Conservation advice <i>Pterodroma mollis</i> soft-plumage petrel (Threatened Species Scientific Committee, 2015f)	No credible threats arising from Petroleum Activity	Not applicable

4.8 Socio-economic Environment

Socio-economic activities that may occur within the Operational Area, ecological EMBA and socio-economic EMBA include commercial fishing, oil and gas exploration and production, and to a lesser extent, recreational fishing and tourism as summarised below. As the socio-economic EMBA covers a greater extent than the ecological EMBA it has been used to inform the socio-economic values and sensitivities relevant to this EP.

More detailed descriptions of socio-economic considerations are provided in Appendix C.

4.8.1 Cultural Heritage

4.8.1.1 Background

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

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

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

4.8.1.2 Native Title Rights and Interests

As a starting point for understanding social and cultural features of the environment for Indigenous groups, Woodside identifies native title claims, determinations and Indigenous Land Use Agreements (ILUAs) which the EMBA overlaps. Native title claims, determinations and ILUAs are defined under the Native Title Act 1993 (Cth). Woodside considers this to be the broadest extent over which Indigenous groups have claimed native title rights and interests, while acknowledging that cultural features and heritage values may exist outside of the native title framework.

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

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

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

Therefore, Woodside understands that native title rights and interests are held communally by an organised society, that native title claims are understood to represent the area over which Indigenous 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.

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.

For the activity in this EP, there are 4 native title claims or determinations and 11 coastal ILUAs overlapping the in-water EMBA, and an additional 20 native title claims or determinations and 26 coastal ILUAs overlapping areas with potential for shoreline accumulation (see Figure 4-13 and Table 4-11).

4.8.1.3 Coastally Adjacent Native Title Claims, Determinations and ILUAs

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 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 Table 5 2).

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

A summary of native title claims, determinations and ILUAs overlapping or coastally adjacent to the EMBA is set out in Table 4 11. Claims and determinations have not been differentiated in this table, as it is acknowledged that either of these may indicate the existence of rights and interests.

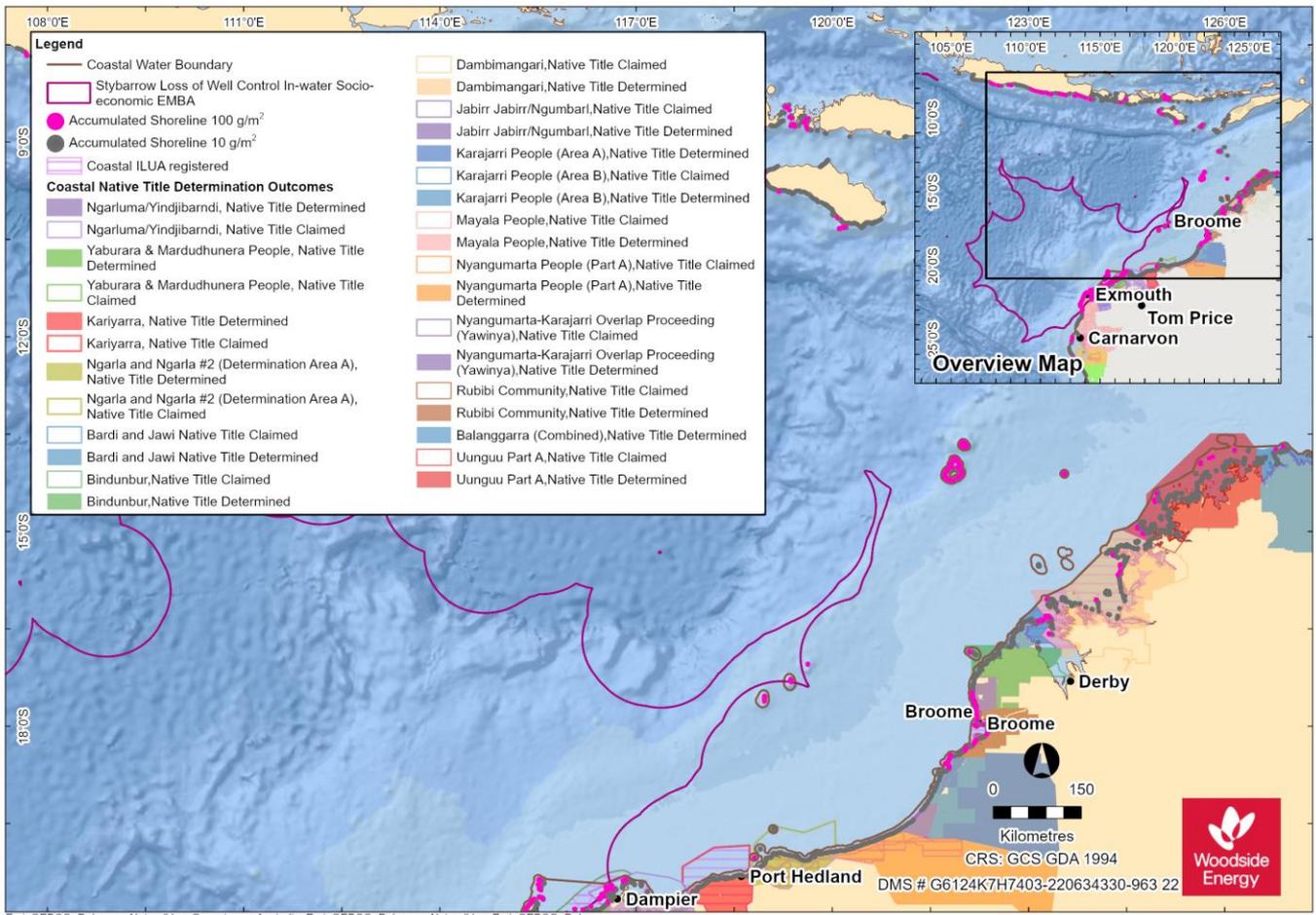


Figure 4-13: Operational Area and EMBA in relation to native title claims, determinations and ILUAs (1 of 2).

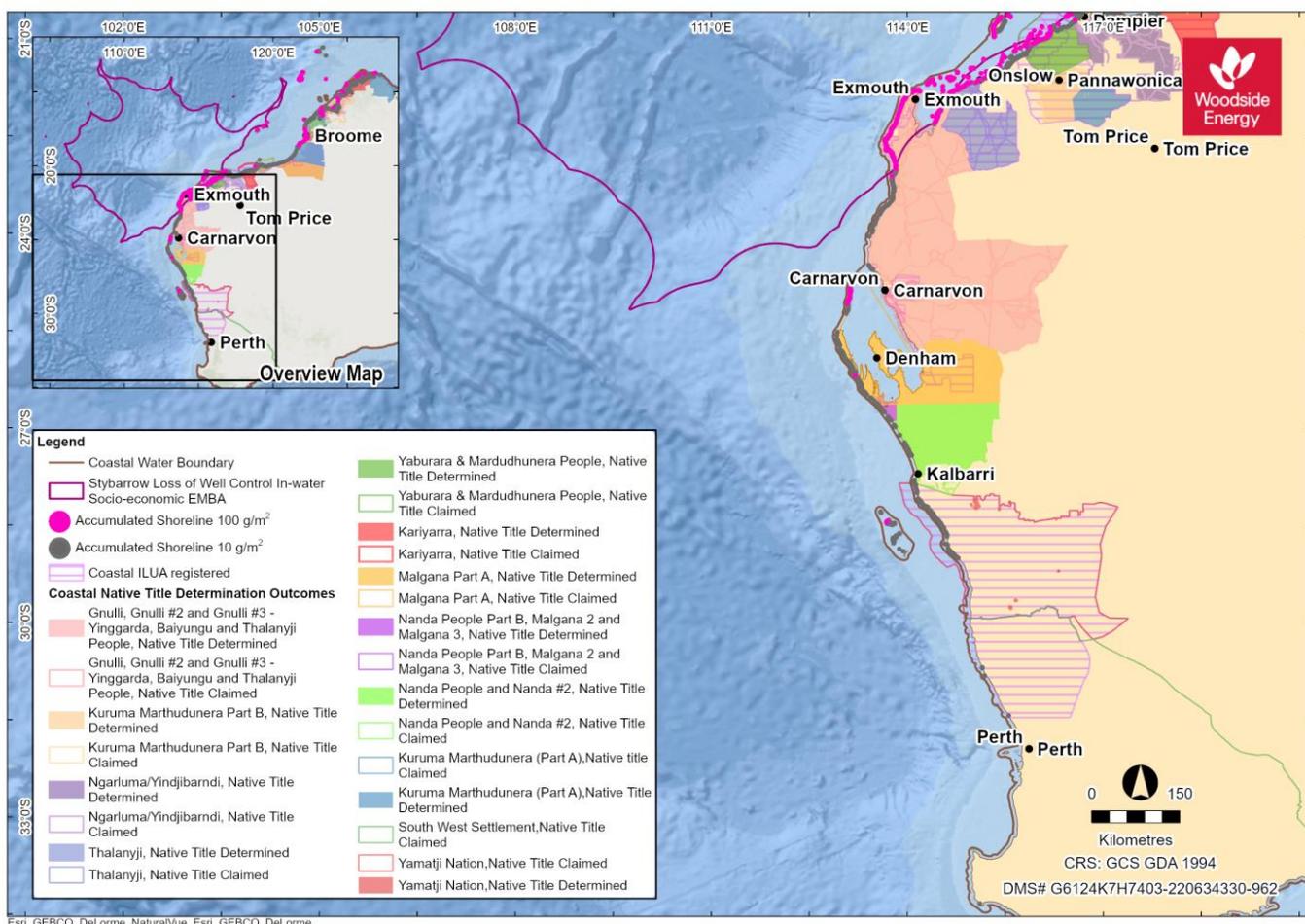


Figure 4-14: Operational Area and EMBA in relation to native title claims, determinations and ILUAs (2 of 2).

Table 4-11: Summary of Native Title Claims, Determinations and ILUAs which overlap or are coastally adjacent

Claim / Determination / ILUA	Registered Native Title Body Corporate	Overlap with EMBA	Coastally Adjacent to the EMBA
Claim / Determination			
Balanggarra (Combined)	Balanggarra Aboriginal Corporation	Shoreline accumulation only	No
Bardi and Jawi Native Title Determination	Bardi and Jawi Niimidiman Aboriginal Corporation	Shoreline accumulation only	No
Bindunbur	Gogolanyngor Aboriginal Corporation, Nimanburr Aboriginal Corporation, Nyul Nyul PBC Aboriginal Corporation	Shoreline accumulation only	No

Claim / Determination / ILUA	Registered Native Title Body Corporate	Overlap with EMBA	Coastally Adjacent to the EMBA
Dambimangari	Wanjina-Wunggurr (Native Title) Aboriginal Corporation	Shoreline accumulation only	No
Gnulli, Gnulli #2 and Gnulli #3 - Yinggarda, Baiyungu and Thalanyji People	Nganhurra Thanardi Garrbu Aboriginal Corporation (NTGAC), Yinggarda Aboriginal Corporation (YAC)	Yes	Yes
Jabirr Jabirr/Ngumbarl	Gogolanyngor Aboriginal Corporation	Shoreline accumulation only	No
Karajarri People (Area A)	Karajarri Traditional Lands Association (Aboriginal Corporation)	Shoreline accumulation only	No
Karajarri People (Area B)	Karajarri Traditional Lands Association (Aboriginal Corporation)	Shoreline accumulation only	No
Kariyarra	Kariyarra Aboriginal Corporation	Shoreline accumulation only	Yes
Malgana Part A	Malgana Aboriginal Corporation	Shoreline accumulation only	Yes
Mayala People	Mayala Inninalang Aboriginal Corporation	Shoreline accumulation only	No
Nanda People and Nanda #2	Nanda Aboriginal Corporation	Shoreline accumulation only	Yes
Nanda People Part B, Malgana 2 and Malgana 3	Malgana Aboriginal Corporation, Nanda Aboriginal Corporation	Shoreline accumulation only	Yes
Ngarla and Ngarla #2 (Determination Area A)	Wanparta Aboriginal Corporation	Shoreline accumulation only	Yes
Ngarluma People	Ngarluma Aboriginal Corporation (NAC)	Shoreline accumulation only	Yes
Ngarluma/Yindjibarndi	NAC, Yindjibarndi Aboriginal Corporation	Yes	Yes
Nyangumarta People (Part A)	Nyangumarta Warrarn Aboriginal Corporation	Shoreline accumulation only	Yes

Claim / Determination / ILUA	Registered Native Title Body Corporate	Overlap with EMBA	Coastally Adjacent to the EMBA
Nyangumarta-Karajarri Overlap Proceeding (Yawinya)	Nyangumarta Karajarri Aboriginal Corporation	Shoreline accumulation only	No
Rubibi Community	Yawuru Native Title Holders Aboriginal Corporation	Shoreline accumulation only	No
South West Settlement	No representative body specified	Shoreline accumulation only	No
Thalanyji	Buurabalayji Thalanyji Aboriginal Corporation (BTAC)	Yes – in water EMBA	Yes
Uunguu Part A	Wanjina-Wunggurr (Native Title) Aboriginal Corporation	Shoreline accumulation only	No
Yaburara & Mardudhunera People	Wirrawandi Aboriginal Corporation (WAC)	Yes – in water EMBA	Yes
Yamatji Nation	Bundi Yamatji Aboriginal Corporation	Shoreline accumulation only	Yes
ILUA			
Alinta-Kariyarra Electricity Infrastructure ILUA	No representative body specified.	Yes – in water EMBA	Yes
Anketell Port, Infrastructure Corridor and Industrial Estates Agreement	NAC	Yes – in water EMBA	Yes
BAC KSCS Indigenous Land Use Agreement	Balangarra Aboriginal Corporation	Shoreline accumulation only	No
Bardi Jawi Conservation Estate Indigenous Land Use Agreement	Bardi and Jawi Niimidiman Aboriginal Corporation	Shoreline accumulation only	No
Brickhouse and Yinggarda Aboriginal Corporation ILUA	YAC	No	Yes
Cape Preston Project Deed (YM Mardie ILUA)	WAC	Yes – in water EMBA	Yes
Cape Preston West Export Facility	WAC	Yes – in water EMBA	Yes

Claim / Determination / ILUA	Registered Native Title Body Corporate	Overlap with EMBA	Coastally Adjacent to the EMBA
Dambimangari KSCS Marine Parks ILUA	Wanjina-Wunggurr (Native Title) Aboriginal Corporation, Dambimangari Aboriginal Corporation	Shoreline accumulation only	No
Eco Beach ILUA	Yawuru Native Title Holders Aboriginal Corporation	Shoreline accumulation only	No
FMG - Kariyarra Land Access ILUA	No representative body specified.	Yes – in water EMBA	Yes
Gnaraloo Indigenous Land Use Agreement	NTGAC	No	Yes
Great Sandy Desert Project ILUA - Infrastructure	Karajarri Traditional Lands Association (Aboriginal Corporation)	Shoreline accumulation only	No
Karajarri Traditional Lands Association KSCS Eighty Mile Beach ILUA	Karajarri Traditional Lands Association (Aboriginal Corporation)	Shoreline accumulation only	No
Kariyarra and State ILUA	Kariyarra Aboriginal Corporation	Shoreline accumulation only	Yes
KM & YM Indigenous Land Use Agreement 2018	WAC, Robe River Kuruma Aboriginal Corporation	Yes – in water EMBA	Yes
Kuruma Marthudunera and Yaburara and Coastal Mardudhunera Indigenous Land Use Agreement	No representative body specified.	Yes – in water EMBA	Yes
Macedon ILUA	BTAC	Yes – in water EMBA	Yes
Malgana Tamala Pastoral Lease Agreement	Malgana Aboriginal Corporation	Shoreline accumulation only	Yes
Malgana Woodleigh Carbla Pastoral Lease Agreement	Malgana Aboriginal Corporation	No	Yes
Malgana Wooramel Pastoral Lease Agreement	Malgana Aboriginal Corporation	No	Yes

Claim / Determination / ILUA	Registered Native Title Body Corporate	Overlap with EMBA	Coastally Adjacent to the EMBA
Mayala Country Marine Park Indigenous Land Use Agreement	Mayala Inninalang Aboriginal Corporation	Shoreline accumulation only	No
Ngarla Pastoral ILUA	Wanparta Aboriginal Corporation	Shoreline accumulation only	Yes
Ngarla PBC KSCS ILUA	Wanparta Aboriginal Corporation	Shoreline accumulation only	Yes
Ningaloo Conservation Estate ILUA	NTGAC	Yes – in water EMBA	Yes
NKAC KSCS Eighty Mile Beach ILUA	Nyangumarta Karajarri Aboriginal Corporation	Shoreline accumulation only	No
Nyangumarta Karajarri and Anna Plains Station ILUA	Nyangumarta Karajarri Aboriginal Corporation	Shoreline accumulation only	No
Nyangumarta Karajarri and Mandora Station ILUA	Nyangumarta Karajarri Aboriginal Corporation	Shoreline accumulation only	No
Nyangumarta PBC KSCS ILUA	Nyangumarta Warrarn Aboriginal Corporation	Shoreline accumulation only	Yes
Nyangumarta Warrarn Aboriginal Corporation & Mandora Pastoral Lease ILUA	Nyangumarta Warrarn Aboriginal Corporation	Shoreline accumulation only	Yes
Nyangumarta Warrarn Aboriginal Corporation & Wallal Downs Pastoral Lease ILUA	Nyangumarta Warrarn Aboriginal Corporation	Shoreline accumulation only	Yes
Quobba – Yinggarda Pastoral ILUA	YAC	Shoreline accumulation only	Yes
RTIO Kuruma Marthudunera People ILUA	Robe River Kuruma Aboriginal Corporation	Yes – in water EMBA	Yes
RTIO Ngarluma Indigenous Land Use Agreement (Body Corporate Agreement)	NAC	Shoreline accumulation only	Yes
South West Boojarah #2 Indigenous Land Use Agreement	Karri Karrak Aboriginal Corporation	Shoreline accumulation only	No

Claim / Determination / ILUA	Registered Native Title Body Corporate	Overlap with EMBA	Coastally Adjacent to the EMBA
Thalanyji	BTAC	Yes – in water EMBA	No
The Cockatoo Island Co-Existence Indigenous Land Use Agreement	Wanjina-Wunggurr (Native Title) Aboriginal Corporation, Dambimangari Aboriginal Corporation	Shoreline accumulation only	No
Yamatji Nation Agreement	Bundi Yamatji Aboriginal Corporation	Shoreline accumulation only	Yes
Yawuru Area Agreement ILUA	No representative body specified.	Shoreline accumulation only	No
Yawuru Nagulagun / Roebuck Bay Marine Park ILUA	Yawuru Native Title Holders Aboriginal Corporation	Shoreline accumulation only	No
Yawuru Prescribed Body Corporate ILUA - Broome	Yawuru Native Title Holders Aboriginal Corporation	Shoreline accumulation only	No
Yued Indigenous Land Use Agreement	Yued Aboriginal Corporation	Shoreline accumulation only	No

4.8.1.4 Marine Parks

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

The Operational Area does not overlap any AMPs or State Marine Parks. The EMBA overlaps features of 11 AMPs under the South-West Marine Parks Network Management Plan 2018 and North-West Marine Parks Network Management Plan 2018 and 21 State Marine Parks. Where these plans specify identifiable representative bodies who may hold knowledge of heritage values or cultural features—including but not limited to Registered Native Title Bodies Corporate—these bodies are consulted. Consultation with these groups may identify heritage values and cultural features beyond those addressed in the marine park management plans. Twelve identifiable representative bodies were specified for the marine parks overlapped by the EMBA (see Table 4-12).

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

Table 4-12: Summary of Commonwealth and State Marine Park Management Plan EMBA overlap

Marine Park Management Plan	Operational Area Overlap	EMBA Overlap	Specified Bodies
Commonwealth Marine Park			
Abrolhos AMP	No	Yes	No identifiable body specified.
Argo-Rowley Terrace AMP	No	Yes	No identifiable body specified.
Ashmore Reef AMP	No	Yes	No identifiable body specified.
Carnarvon Canyon AMP	No	Yes	No identifiable body specified.
Cartier Island AMP	No	Yes	No identifiable body specified.
Dampier AMP	No	Yes	NAC, Yindjibarndi Aboriginal Corporation
Gascoyne AMP	No	Yes	No identifiable body specified.
Mermaid Reef AMP	No	Yes	No identifiable body specified.
Montebello AMP	No	Yes	No identifiable body specified.
Ningaloo AMP	No	Yes	No identifiable body specified.
Shark Bay AMP	No	Yes	No identifiable body specified.
State Marine Park			
Barrow Island Marine Management Area	No	Yes	No identifiable body specified.
Barrow Island Marine Park	No	Yes	No identifiable body specified.
Cape Range National Park	No	Yes	No identifiable body specified.
Dirk Hartog Island National Park	No	Yes	No identifiable body specified.
Eighty Mile Beach Marine Park	No	Yes	Karajarri Traditional Lands Association, Nyangumarta Warrarn Aboriginal Corporation, Wanparta Aboriginal Corporation and Nyangumarta Karajarri Aboriginal Corporation
Jinmarnkur Kulja Nature Reserve	No	Yes	Karajarri Traditional Lands Association, Nyangumarta Warrarn Aboriginal Corporation, Wanparta Aboriginal

Marine Park Management Plan	Operational Area Overlap	EMBA Overlap	Specified Bodies
			Corporation and Nyangumarta Karajarri Aboriginal Corporation
Jurien Bay Marine Park	No	Yes	No identifiable body specified.
Kalbarri National Park	No	Yes	No identifiable body specified.
Lalang-garram / Camden Sound Marine Park	No	Yes	Dambimangari Aboriginal Corporation
Lalang-garram / Horizontal Falls Marine Park	No	Yes	Dambimangari Aboriginal Corporation
Leeuwin-Naturaliste National Park	No	Yes	No identifiable body specified.
Montebello Islands Conservation Park	No	Yes	No identifiable body specified.
Montebello Islands Marine Park	No	Yes	No identifiable body specified.
Muiron Islands Marine Management Area	No	Yes	No identifiable body specified.
Ngari Capes Marine Park	No	Yes	No identifiable body specified.
Ningaloo Marine Park	No	Yes	NTGAC
North Kimberley Marine Park	No	Yes	Wunambal Gaambera Aboriginal Corporation, Balangarra Aboriginal Corporation, Wilinggin Aboriginal Corporation, Yawoorroong Miriwoong Gajirwoong Yirrgb Noong Dawang Aboriginal Corporation
North Lalang-garram Marine Park	No	Yes	Dambimangari Aboriginal Corporation
Prince Regent National Park	No	Yes	No identifiable body specified.
Rowley Shoals Marine Park	No	Yes	No identifiable body specified.
Shark Bay Marine Park	No	Yes	No identifiable body specified.

In the management plans for all 11 AMPs it is noted that “Sea country is valued for Indigenous cultural identity, health and wellbeing.” Cultural identity is understood to refer to the fact that “essence of being a 'Saltwater' person is ontological rather than merely technological. That is, it is about how people relate spiritually to the sea and engage

with spiritual forces that created it, the marine flora and fauna and people.” (McDonald and Phillips, 2021) This connection 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), however no impacts of this nature are considered to arise from this Petroleum Activities Program.

The South-West Marine Parks Network Management Plan 2018 also notes that cultural features of the Abrolhos AMP include strong stories that connect ocean and land. No impact pathway that may disrupt the preservation of stories or other intangible heritage from this Petroleum Activities Program has been identified. The plan also references artefacts located outside of the AMP and the EMBA on islands in State waters.

Both management plans for the AMPs note shipwrecks within the AMPs and overlap with World, National and Commonwealth heritage lists. These are addressed in sections 4.8.1.8 and 4.8.1.9 below.

The Eighty Mile Beach Marine Park management plan 2014-2024 (relating to the state Eighty Mile Beach Marine Park) notes that:

- Reefs, coastal creeks, mangroves and intertidal flats in and adjacent to the marine park are particularly important for resource usage. Fish traps and shell middens along the coast show the historical importance of saltwater resources
- Customary use of the area includes camping, nature appreciation, fishing and other harvesting activities. Limited hunting of turtle (predominantly collection of turtle eggs) also occurs.
- Under traditional law, traditional owners are responsible for and obliged to protect, preserve and manage areas, sites and objects of significance associated with their country, and the traditional knowledge pertaining to them.

The Lalang-gaddam Marine Park Joint Management Plan 2022 (relating to Lalang-garram / Camden Sound Marine Park, Lalang-garram / Horizontal Falls Marine Park and North Lalang-garram Marine Park) notes that customary activities to preserve country and culture “include hunting for food, visiting important cultural places, making medicines, keeping rock art fresh, passing on La Lai narratives, managing country through fire at the right time of year and engaging in artistic and ceremonial events.” The plan also notes “There are many stone arrangements of high cultural significance to Dambeemangarddee people in and around the islands and mainland.”

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

The Parks and reserves of the south-west Kimberley and north-west Pilbara joint management plan 2019 (relating to Jinmarnkur Kulja Nature Reserve) notes that “The emu (*Dromaius novaehollandiae*) and the Australian bustard or bush turkey (*Ardeotis australis*) are two species that are culturally important to the area’s traditional owners” and “More generally, permanent and seasonal/temporary water sources, especially the wetlands of the planning area, hold great cultural and spiritual significance.”

A number of management plans for the state marine parks also note Indigenous and maritime heritage within the marine parks. These are addressed in sections 4.8.1.6 and 4.8.1.8 below.

4.8.1.5 Marine Ecosystems

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 an Indigenous 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, 2023).

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). The process for identifying Indigenous groups who may have interests and connection in Sea Country are set out in Section 5. The scope of advice Traditional Custodians were encouraged to provide through project consultation was not limited by reference to any particular boundaries or limits of sea country.

Cultural features of coastal areas may include marine species (e.g., humpback whales, turtles and dugongs) that may travel many thousands of kilometres through areas with similar cultural values to multiple Indigenous language groups. For example, a humpback whale may travel 5,000 km from Antarctica to the Kimberley region of Western Australia (Double et al., 2010, 2012), passing Indigenous language groups along the entire west coast of Australia. As set out above, an impact to marine ecosystems has the potential to impact cultural values where the impact is detectable within Sea Country. Woodside considers that impact to cultural values of marine species will be adequately managed in areas of traditional Sea Country, and therefore management of the environmental values will preserve the cultural values of environmental receptors, as assessed in Section 6.

During consultation, BTAC advised it has a cultural obligation to care for the environmental values of sea country (See Section 5). BTAC has not provided further detail regarding heritage value of places or cultural features of the Operational Area or the EMBA. Malgana Aboriginal Corporation noted the ecological importance of Shark Bay, including stromatolites and seagrass beds (See Table 5-4), which Woodside understands may therefore include cultural values. Shark Bay is outside of the in-water EMBA. Nanda Aboriginal Corporation indicated that the shoreline holds particular cultural significance, however shorelines within or adjacent to Nanda Native Title claims or determinations are outside the in-water EMBA.

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 (see Section 11.6.4).

No other cultural features or heritage values related to marine species within the Operational Area or EMBA were raised by Traditional Custodians in the course of preparing the EP

4.8.1.6 Indigenous 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; UWA 2021). The Ancient Coastline KEF at 125 m depth contour represents the lowest sea level during Indigenous occupation (O'Leary et al 2020; see also Williams et al 2018; 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; see Ward et al 2021 for an opposing view).

In recognition of this, Woodside considers the Ancient Landscape between the mainland and the Ancient Coastline KEF (see Table 4-19) 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 heritage places specified by declaration or otherwise included on a statutory list. Woodside understands that there is no Indigenous archaeology known to exist anywhere within Commonwealth waters and no declarations or prescriptions under these Acts are located within the EMBA.

For this EP, a search of DPLH's Aboriginal Heritage Inquiry System was undertaken, which showed no Registered Aboriginal Sites or Other Heritage Places in the Operational Area but did identify 404 sites in the EMBA (see Appendix H). The Operational Area intersects part of the Ancient Landscape but also extends beyond the furthest extent of the Ancient Landscape.

Archaeological material on the Ancient Landscape is a relevant matter for the proposed activity as there is overlap between the Operational Area and the Ancient Landscape, and potential for seabed disturbance from planned activities and therefore potential for impacts to archaeological material.

The Shark Bay Terrestrial Reserves and Proposed Reserve Additions Management Plan 2012 notes the existence of middens on Dirk Hartog Island. The Shark Bay Marine Reserves management plan notes the presence of middens, quarries, rock shelters, artefacts, burials and stone arrangements around Shark Bay generally.

No archaeological sites within the Operational Area or EMBA were identified by Traditional Custodians during the course of preparing the EP (see Table 5-4). Woodside engages in ongoing consultation throughout the life of an EP. 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 11.6.4).

Where Indigenous archaeological material is identified within the EMBA, Woodside will discuss the management of this material with appropriate Traditional Custodian group(s), starting with any overlapping or adjacent Native Title Body Corporate.

4.8.1.7 Historic Sites of Significance

There are no known sites of historic heritage of significance within the Operational Area. Appendix C describes cultural heritage sites within the EMBA.

4.8.1.8 Underwater Heritage

A search of the Australasian Underwater Cultural Heritage Database, which records all known Maritime Cultural Heritage (shipwrecks, aircraft, relics and other underwater cultural heritage) in Australian waters does not contain records of sites within the Operational Area but does include 11 sites within the in-water EMBA. The closest Underwater Cultural Heritage site is the wreck of the Lady Ann a sailing vessel wrecked in 1982 approximately 40km km east of the Operational Area.

4.8.1.9 World, National and Commonwealth Heritage Listed Places

No listed world, national or commonwealth heritage places overlap the Operational Area. Three world, national or commonwealth heritages places overlap the EMBA as shown in Table 4-13.

Table 4-13: World, National and Commonwealth Heritage Listed Places within the EMBA

Listed Place	Distance from Operational Area to Listed Place
World Heritage Places (WHP)	
Ningaloo Coast World Heritage Property	25 km
National Heritage Places (NHP)	
Ningaloo Coast National Heritage Place	25 km
Commonwealth Heritage Places (CHP)	
Ningaloo Coast Commonwealth Heritage Place	25 km

4.8.2 Commercial Fisheries

A number of Commonwealth and State fishery management areas are located within the Operational Area EMBA

and socio-cultural EMBA. **Table 4-14** identifies the Commonwealth and State commercial fisheries overlapping the Operational Area and socio-cultural EMBA and provides an assessment of the potential interaction based on the nature of the fishery and historic DPIRD catch data.

Table 4-14: Commonwealth and State Managed Fisheries within the Operational Area and Socio-cultural EMBA

Fishery Name	Operational Area	Socio-cultural EMBA	Potential Interaction	Description ¹
Commonwealth Fisheries				
Western Deepwater Trawl Fishery	✓	✓	Yes	The Western Deepwater Trawl Fishery operates in Commonwealth waters off the coast of Western Australia. Effort in recent years has been localised in the area offshore and slightly south of Shark Bay. Catch in the 2019–20 season was 31 t in total. Whilst the EMBA overlaps with the fishery management area, there is very little potential for interaction given the current distribution of target species and fishing effort.
Western Tuna and Billfish Fishery	✓	✓	No	Fishing effort has concentrated off south-west Western Australia, with occasional activity off South Australia. Whilst there is an overlap with the fishery management area, there is no potential for interaction given the current distribution of fishing effort.
Southern Bluefin Tuna Fishery	✓	✓	No	Fishing effort has concentrated off southern and eastern Australia. Whilst there is an overlap with the fishery management area, there is no potential for interaction given the current distribution of fishing effort.
Skipjack Tuna Fishery	✓	✓	No	There has been no fishing in the since 2008–09. Whilst the Operational Area and EMBA overlaps with the fishery management area, there is no potential for interaction given the current distribution of fishing effort.
North West Slope Trawl Fishery	✓	✓	No	The North West Slope Trawl Fishery operates off north-western Australia, roughly between the 200 m isobath and the outer boundary of the Australian Fishing Zone. The fishery extends beyond the Operational Area. The North West Slope Trawl Fishery has predominantly been a scampi fishery using demersal trawl gear. In 2020 there were six active fishing vessels.
State Fisheries				
Pilbara Crab Managed Fishery	✓	✓	No	Blue swimmer crabs are targeted by the Pilbara Crab Managed Fishery using hourglass traps, primarily within inshore waters around Nickol Bay and Dampier. Water depths in the Operational Area too deep to support the target species and the fishery is not active in the Operational Area.
Pilbara Line Fishery	✓	✓	No	The Pilbara Line Fishery encompasses all of the 'Pilbara waters', extending from a line commencing at the intersection of 21°56'S latitude and the boundary of the Australian Fishing Zone and north to longitude 120°E. There are no stated depth

Fishery Name	Operational Area	Socio-cultural EMBA	Potential Interaction	Description ¹
				limits of the fishery. The fishing vessels primarily target demersal Lutjanid species such as goldband snapper, which typically occur in < 200 m water depth. Given the depth preferences of target species, no fishing in this fishery will occur in the Operational Area, although it is expected to occur within the EMBA.
West Coast Deep Sea Crustacean Fishery	✓	✓	Yes	The West Coast Deep Sea Crustacean Fishery is a 'pot' fishery using baited pots operated in a long-line formation in the shelf edge waters (>150 m) of the West Coast and Gascoyne Bioregions. The fishery primarily targets crystal crabs. There are no landings in the last 10 years within the Operational Area, but it may operate within the EMBA.
Mackerel Managed Fishery	✓	✓	Yes	The Mackerel Managed Fishery targets Spanish mackerel (<i>Scomberomorus commerson</i>) using near-surface trawling gear from small vessels in coastal areas around reefs, shoals and headlands. The commercial fishery extends from Geraldton to the Northern Territory border. No interaction is expected given the known fishing effort. There have been no landings from within the Operational Area for this fishery in the last 10 years, but the fishery may operate within the EMBA.
Marine Aquarium Managed Fishery	✓	✓	No	The Marine Aquarium Managed Fishery operates within Western Australian waters. The fishery is primarily a dive-based fishery that uses hand-held nets to capture the desired target species and is restricted to safe diving depths (typically < 30 m). The fishery is typically active from Esperance to Broome, with popular areas including the coastal waters of the Cape Leeuwin/Cape Naturaliste region, Dampier and Exmouth. Water depths in the Operational Area are not conducive for this fishery. There have been no landings from within the Operational Area for this fishery in the last 10 years, but the fishery may operate within the EMBA.
South West Coast Salmon Managed Fishery	✓	✓	No	The commercial salmon fishery use beach seine net to catch fish. There are two commercial salmon fisheries operating in Western Australia - the South Coast Salmon Managed Fishery (18 licences) and South West Coast Salmon Managed Fishery (six licences). The target species is restricted to temperate waters and will not occur in the Gascoyne or Pilbara. There have been no landings from within the Operational Area for this fishery in the last 10 years and it very unlikely to operate within the EMBA.
Abalone Managed Fishery	-	✓	No	The Western Australian Abalone Managed Fishery includes all coastal waters from the Western Australian and South Australian border to the Western Australian and Northern Territory border. The fishery is concentrated on the south coast (greenlip and brownlip abalone) and the west coast (Roe's abalone). Abalone are harvested by divers, limiting the fishery to shallow waters (typically < 30 m). The target

Fishery Name	Operational Area	Socio-cultural EMBA	Potential Interaction	Description ¹
				species are restricted to temperate waters and are unlikely to occur in the Gascoyne or Pilbara. There have been no landings from within the Operational Area for this fishery in the last 10 years and it very unlikely to operate within the EMBA.
Specimen Shell Managed Fishery	-	✓	No	The Specimen Shell Managed Fishery can be conducted anywhere within Western Australia waters and targets the collection of specimen shells for display, collection, cataloguing and sale. The Specimen Shell Managed Fishery encompasses the entire WA coastline but effort is concentrated in areas adjacent to the largest population centres such as: Broome, Karratha, Shark Bay, Mandurah, Exmouth, Capes area, Albany and Perth. The fishery does not overlap the Operational Area, but fishing may occur within the EMBA.
Pilbara Fish Trawl Managed Fishery	-	✓	No	The Pilbara Trawl Managed Fishery is divided into two zones and waters inside of the 50 m isobath are permanently closed to fish trawling. Trawling generally occurs in waters between 50-100 m deep. The fishery does not overlap the Operational Area, but fishing may occur within the EMBA.
Pilbara Trap Managed Fishery	-	✓	No	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. The fishery targets high value species such as red emperor (<i>Lutjanus sebae</i>) and goldband snapper (<i>Pristipomoides multidens</i>). The fishery does not overlap the Operational Area, but fishing may occur within the EMBA.
West Coast Rock Lobster Managed Fishery	-	✓	No	The West Coast Rock Lobster Managed Fishery targets the western rock lobster (<i>Panulirus cygnus</i>), on the west coast of Western Australia between Shark Bay and Cape Leeuwin. The majority of the West Coast Rock Lobster populations use algal covered limestone reefs as their habitat to a depth of 150 m. The fishery does not overlap the Operational Area, but fishing may occur within the EMBA.
Pearl Oyster Fishery	-	✓	No	The Western Australian Pearl Oyster Fishery is the only remaining significant wild-stock fishery for pearl oysters in the world. Pearl oysters (<i>Pinctada maxima</i>) are collected by divers in shallow coastal waters (< 30 m) along the North West Shelf and Kimberley, which are mainly for use in the culture of pearls. The fishery does not overlap the Operational Area, but fishing may occur within the EMBA.
Onslow Prawn Managed Fishery	-	✓	No	The Onslow Prawn Managed Fishery encompasses a portion of the continental shelf off the Pilbara. The fishery targets a range of penaeids (primarily king prawns) which typically inhabit soft sediments < 45 m water depth. Fishing is carried out using trawl gear over unconsolidated sediments (sand and mud). The fishery does

Fishery Name	Operational Area	Socio-cultural EMBA	Potential Interaction	Description ¹
				not overlap the Operational Area, but fishing may occur within the EMBA.
Gascoyne Demersal Scalefish Fishery	-	✓	No	The Gascoyne Demersal Scalefish resource includes 60+ demersal species inhabiting marine waters deeper than 20 m in the Gascoyne Coast Bioregion. Commercial vessels in the fishery fish with mechanised handlines and target pink snapper (<i>Chrysophrys auratus</i>) and goldband snapper (<i>Pristipomoides multidens</i>). The fishery does not overlap the Operational Area, but fishing may occur within the EMBA.
Shark Bay Scallop Managed Fishery	-	✓	No	The Shark Bay Scallop Managed Fishery is currently in a recovery phase resulting from the marine heat wave in 2010/11. The stock has fully recovered in Denham Sound but is recovering more slowly in northern Shark Bay. The fishery does not overlap the Operational Area, but fishing may occur within the EMBA.
Shark Bay Prawn Managed Fishery	-	✓	No	The Shark Bay Prawn Managed Fishery uses low opening, otter prawn trawl systems within inner Shark Bay to target western king prawns (<i>Penaeus latisulcatus</i>), brown tiger prawns (<i>Penaeus esculentus</i>) and lesser quantities of endeavour (<i>Metapenaeus endeavouri</i>) and coral prawns (<i>Metapenaeopsis</i> sp.). The fishery does not overlap the Operational Area, but fishing may occur within the EMBA.
Abrolhos Islands and Mid-West Trawl Managed Fishery	-	✓	No	The Abrolhos Islands and Mid-West Trawl Managed Fishery exclusively targets a single species of scallop (<i>Ylistrum balloti</i>) using demersal otter trawl methods. The fishery does not overlap the Operational Area, but fishing may occur within the EMBA.
Broome Prawn Managed Fishery	-	✓	No	The Broome Prawn Managed Fishery uses demersal otter trawl net systems to target Western king prawns (<i>Penaeus latisulcatus</i>) and coral prawns (<i>Parapenaeopsis cornuta</i> and <i>Metapenaeopsis crassissima</i>) in nearshore waters between 30 and 60 m deep. The fishery does not overlap the Operational Area, but fishing may occur within the EMBA.
Exmouth Gulf Prawn Managed Fishery	-	✓	No	The Exmouth Gulf Prawn Managed Fishery targets the brown tiger prawn (<i>Penaeus esculentus</i>) and the Western king prawn (<i>Penaeus latisulcatus</i>) using low-opening demersal otter trawl nets in deeper waters of the Exmouth Gulf. The fishery does not overlap the Operational Area, but fishing may occur within the EMBA.
Kimberly Crab Managed Fishery	-	✓	Yes	The Kimberley Crab Managed Fishery primarily targets the blue swimmer crab (<i>Portunus pelagicus</i>) and mud crab (<i>Scylla serrata</i>) using trap methods. The fishery

Fishery Name	Operational Area	Socio-cultural EMBA	Potential Interaction	Description ¹
				does not overlap the Operational Area, but fishing may occur within the EMBA.
Kimberley Gillnet and Barramundi Managed Fishery	-	✓	Yes	The Kimberley Gillnet and Barramundi Managed Fishery operates in nearshore and estuarine zones from the Northern Territory border with Western Australia to the top end of Eighty Mile Beach, south of Broome targeting threadfin species.
Kimberley Prawn Managed Fishery	-	✓	No	The Kimberley Prawn Managed Fishery predominantly targets banana prawns (<i>Penaeus merguensis</i>) but also catches tiger prawns (<i>Penaeus esculentus</i>), endeavour prawns (<i>Metapenaeus endeavouri</i>) and western king prawns (<i>Penaeus latisulcatus</i>) using trawl fishing methods between Kolan Island and Cape Londonderry in northern Western Australia.
Nickol Bay Prawn Managed Fishery	-	✓	No	The Nickol Bay Prawn Managed Fishery operates along the western part of the Northwest shelf of Western Australia and primarily targets banana prawns (<i>Penaeus merguensis</i>) using trawl fishing methods. The fishery does not overlap the Operational Area, but fishing may occur within the EMBA.
Northern Demersal Scalefish Managed Fishery	-	✓	No	The Northern Demersal Scalefish Managed Fishery uses predominantly small-scale trap systems and also handline/dropline methods to target mostly red emperor (<i>Lutjanus sebae</i>) and goldband snapper (<i>Pristipomoides multidens</i>) beyond the 30 m depth contour. The fishery does not overlap the Operational Area, but fishing may occur within the EMBA.
Octopus Interim Managed Fishery	-	✓	Yes	The Octopus Interim Managed Fishery uses shelter pot and trigger trap methods to target the Western Australian Common Octopus (<i>Octopus aff. tetricus</i>) in water depths shallower than 20 m to prevent loss and burying of fishing gear in sediments by wave action. Whilst the EMBA overlaps with the fishery management area, there is very little potential for interaction given the current distribution of target species and distance from operational area.
Shark Bay Crab Managed Fishery	-	✓	No	The Shark Bay Crab Managed Fishery primarily targets the blue swimmer crab (<i>Portunus pelagicus</i>) using trap methods. The fishery does not overlap the Operational Area, but fishing may occur within the EMBA.
South West Trawl Managed Fishery	-	✓	No	The South West Trawl Managed Fishery uses trawling methods to target various prawn, scallop and finfish species along the continental shelf of the south west of Western Australia. The fishery does not overlap the Operational Area, but fishing may occur within the EMBA.

Fishery Name	Operational Area	Socio-cultural EMBA	Potential Interaction	Description ¹
Southern Demersal Gillnet and Demersal Longline Managed Fishery	-	✓	No	The Southern Demersal Gillnet and Demersal Longline Managed Fishery operates in continental shelf waters along the south and lower west coasts of Western Australia primarily targeting shark species and to a lesser extent other scalefish species using demersal gillnet and power-hauled reel fishing systems. The fishery does not overlap the Operational Area, but fishing may occur within the EMBA.
West Coast Beach Bait Managed Fishery	-	✓	Yes	The West Coast Beach Bait Managed Fishery uses seine net fishing methods to primarily target whitebait (<i>Hyperlophus vittatis</i>), but blue sprat (<i>Spratelloides robustus</i>), sea mullet (<i>Mugil cephalus</i>), yellow-finned whiting (<i>Sillago schomburgkii</i>), southern sea garfish (<i>Hyporamphus malnochir</i>) and yellow-eye mullet (<i>Aldrichetta forsteri</i>). Whilst the EMBA overlaps with the fishery management area, there is very little potential for interaction given the current distribution of target species and distance from operational area.
West Coast Demersal Gillnet and Demersal Longline Managed Fishery	-	✓	No	The West Coast Demersal Gillnet and Demersal Longline Managed Fishery operates in continental shelf waters along the south and lower west coasts of Western Australia primarily targeting shark species and to a lesser extent other scalefish species using demersal gillnet and power-hauled reel fishing systems. The fishery does not overlap the Operational Area, but fishing may occur within the EMBA.
West Coast Demersal Scalefish Managed Fishery	-	✓	No	The West Coast Demersal Scalefish Managed Fishery primarily uses wetline hook methods to target the West Australian dhufish (<i>Glaucosoma hebraicum</i>) and pink snapper (<i>Chrysophrysauratus</i>) species in waters 20 – 250 m deep. The fishery does not overlap the Operational Area, but fishing may occur within the EMBA.
West Coast Estuarine Managed Fishery	-	✓	Yes	The West Coast Estuarine Managed Fishery operates in the Swan-Canning and Peel-Harvey estuaries and in the Hardy Inlet using trap methods to target blue swimmer crabs (<i>Portunus pelagicus</i>) and gillnets and seine nets to target various finfish species. Whilst the EMBA overlaps with the fishery management area, there is very little potential for interaction given the current distribution of target species and distance from operational area.
West Coast Purse Seine Managed Fishery	-	✓	No	The West Coast Purse Seine Managed Fishery primarily targets pilchards (<i>Sardinops sagax</i>) and the tropical sardine (<i>Sardinella lemuru</i>) by purse seine methods in the West Coast Bioregion. The fishery does not overlap the Operational Area, but fishing may occur within the EMBA.

3. Fisheries descriptions derived from Fishery Status Reports 2021 (Patterson et al., 2021) and Status Report of the Fisheries and Aquatic Resources of Western Australia 2018/2019 - State of the Fisheries (Gaughan and Santoro, 2020) unless cited otherwise.

4.8.3 Traditional Fisheries

There are no traditional fisheries within the Operational Area. Traditional fisheries are typically restricted to coastal waters and/or areas with suitable fishing structures such as reefs. However, it is possible traditional fisheries may use the coastal waters of the socio-cultural EMBA, including coastal areas of Indonesia where there is predicted to be shoreline accumulation above socio-economic threshold levels. Specifically, traditional fishing associated with Indonesia is expected around Scott Reef, where shoreline accumulation about the socio-economic threshold may occur. This area is known as the MoU Box, which is subject to a bilateral agreement between Australia and Indonesia and permits Indonesian traditional fishers operating within that specific area of Australian waters.

Appendix A, Section 2.10.3 provides further information on traditional fisheries and traditional fishing activities expected within the EMBA.

4.8.4 Tourism and Recreation

While relatively close to the Ningaloo Coast, which supports extensive nature-based tourism, the Operational Area is in deep water (>800 m) with no significant natural attractions and is a considerable distance from the nearest boat-launching facilities. Given the depth of the Operational Area and distance from shore, significant recreational fishing and tourism are not expected in this area.

The socio-economic EMBA extends close to shore and presents as shoreline accumulation at a number of locations. It is expected recreation and tourism activities may occur within the EMBA where it extends close to, or on, shorelines. In particular accumulation around Scott Reef, Broome, Ningaloo and Shark Bay host a number of recreational and tourism activities including diving, fishing, swimming, camping and wildlife tourism. Appendix A, Section 2.10.4 provides detail on recreational fishing and tourism within the EMBA.

4.8.5 Oil and Gas Activities

The NWS is Australia's most prolific oil and gas production area, largely responsible for WA accounting for 66% of the country's oil production, 76% of the country's condensate production and 37% of the country's gas production in 2013 (Australian Petroleum Production and Exploration Association (APPEA), 2014).

Oil and gas production facilities close to the Operational Area include:

- Woodside's Ngujima-Yin FPSO (approximately 20 km east of the Operational Area)
- Santos' Ningaloo Vision FPSO (approximately 23 km east of the Operational Area), and
- Woodside's Pyrenees Venture FPSO (approximately 26 km east-south-east of the Operational Area).

The Laverda field within title WA-59-L, directly to the south of WA-32-L, is produced back to the Ngujima-Yin FPSO. Some subsea equipment associated with the Laverda field lies in proximity to the Operational Area. A very small portion of the Laverda export pipeline licence (WA-28-PL) partially overlaps the Operational Area.

Appendix A provides further information on oil and gas activities within the socio-cultural EMBA.

4.8.6 Commercial Shipping

The Operational Area hosts very low levels of commercial shipping. A fairway designed by AMSA lies to the west and north of the Operational Area, approximately 21 km from the Operational Area at the closest point. Commercial shipping is concentrated within this fairway (Figure 4-15). The production facilities to the east of the Operational Area will intermittently host tankers for offtakes, however all these facilities lie well beyond the Operational Area.

Appendix A provides further information on commercial shipping activities within the socio-cultural EMBA.

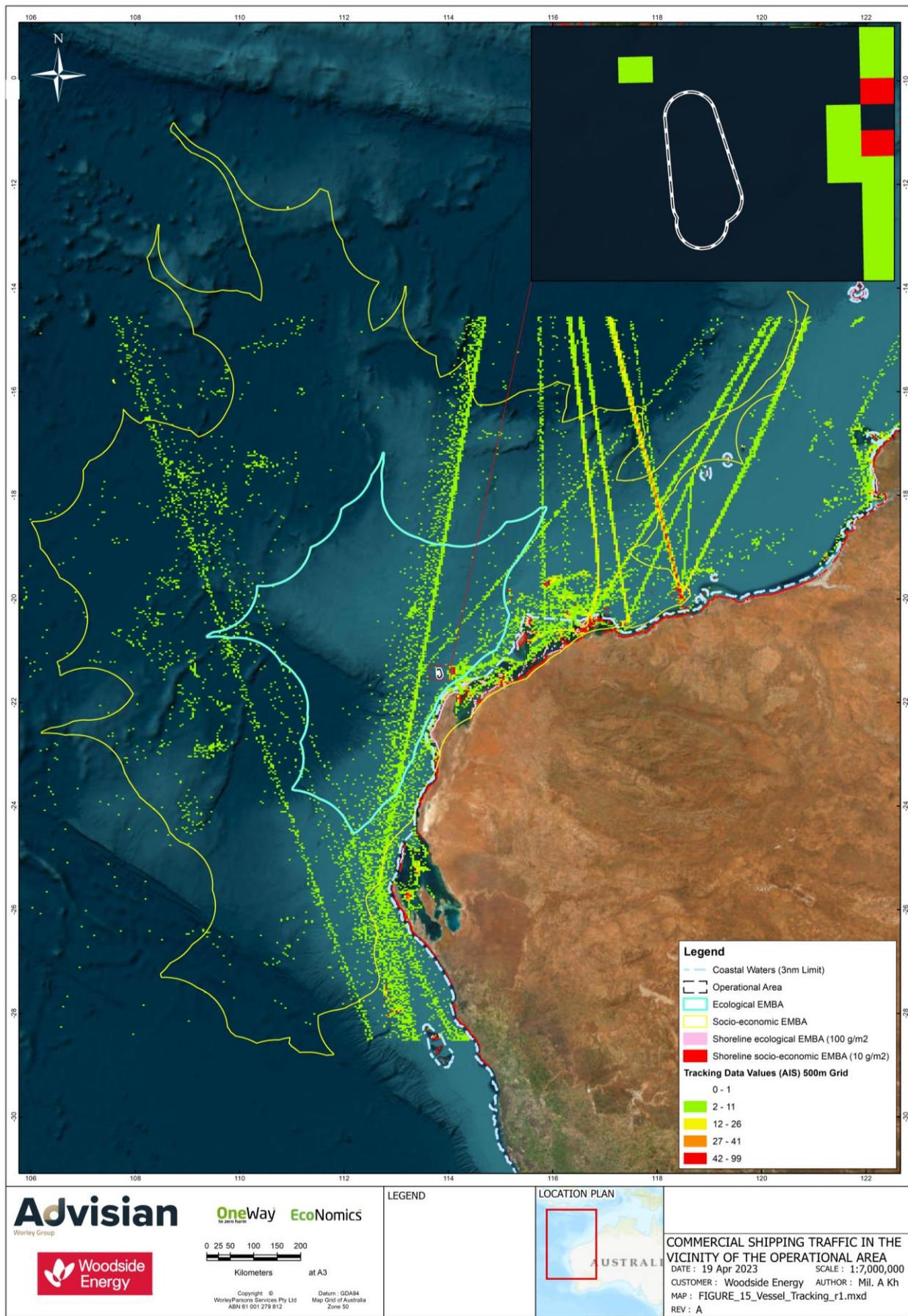


Figure 4-15: Commercial shipping traffic in the vicinity of the Operational Area, EMBA and Socio-cultural EMBA

4.8.7 Defence

No defence areas or infrastructure intersects the Operational Area. Military exercise areas are located at Exmouth associated with Royal Australian Air Force Base Learmonth, approximately 80 km south of the Operational Area. The Operational Area is within the North Western Training Area and military restricted airspace (R8541A) a designated defence exercise area which encompasses waters and airspace off the North West Cape (Figure 4-16). When activated by a Notice to Airmen (NOTAM), the restricted airspace can operate down to sea level.

Appendix A provides further information on defence activities within the socio-cultural EMBA.

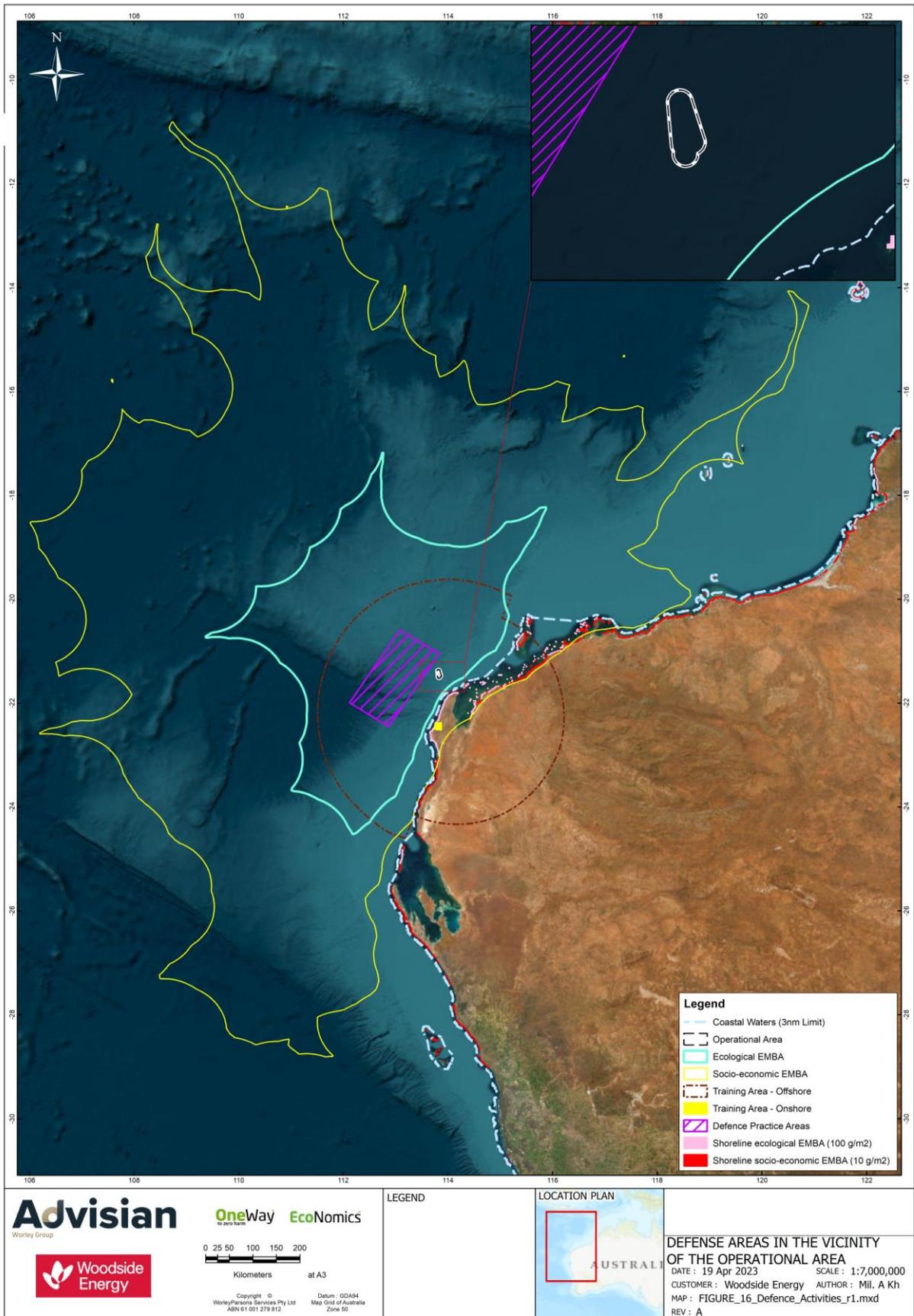


Figure 4-16: Defence areas in the vicinity of the Operational Area, EMBA and Socio-cultural EMBA

5 Engagement

5.1 Summary

Woodside consults relevant persons in the course of preparing an EP in accordance with regulation 11A of the Environment Regulations. Woodside acknowledges that consultation is designed to ensure that relevant persons are identified and given sufficient information and a reasonable period to allow them to make an informed assessment of the possible consequences of the proposed activity on them and, to ensure that Titeholders can consider and adopt appropriate measures in response to the matters raised by relevant persons. Consistent with regulation 3 of the Environment Regulations, consultation also supports Woodside's objective to ensure that the environmental impacts and risks of the activity are reduced to ALARP and an acceptable level.

Woodside acknowledges that a titleholder's approach to consultation must be informed by both the Environment Regulations and the findings of the Full Federal Court in the Santos NA Barossa Pty Ltd v Tipakalippa [2022] FCAFC 193 (see Section 5.2) delivered on 2 December 2022.

For this activity, Woodside has considered both the 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 the PAP (see Section 4).

Woodside's consultation methodology is divided into three parts:

- The first section (Section 5.2 to 5.6) provides an overview of Woodside's consultation methodology for its EPs, including how we apply regulation 11A(1) of the Environment Regulations to identify relevant persons.
- The second section (Section 5.7) explains Woodside's application of the consultation methodology and Woodside's assessment of relevant persons for this EP.
- The third section (Section 5.8) details the:
 - opportunities provided to persons or organisations to be aware of Woodside's proposed EP and participate in consultation, including individual Traditional Custodians.
 - consultation information provided to relevant persons, feedback received and Woodside's assessment of the merits of objections or claims.
 - Engagement with persons or organisations that Woodside chose to contact who are not relevant persons for the purposes of regulation 11A(1) of the Environment Regulations (see Section 5.3.4).

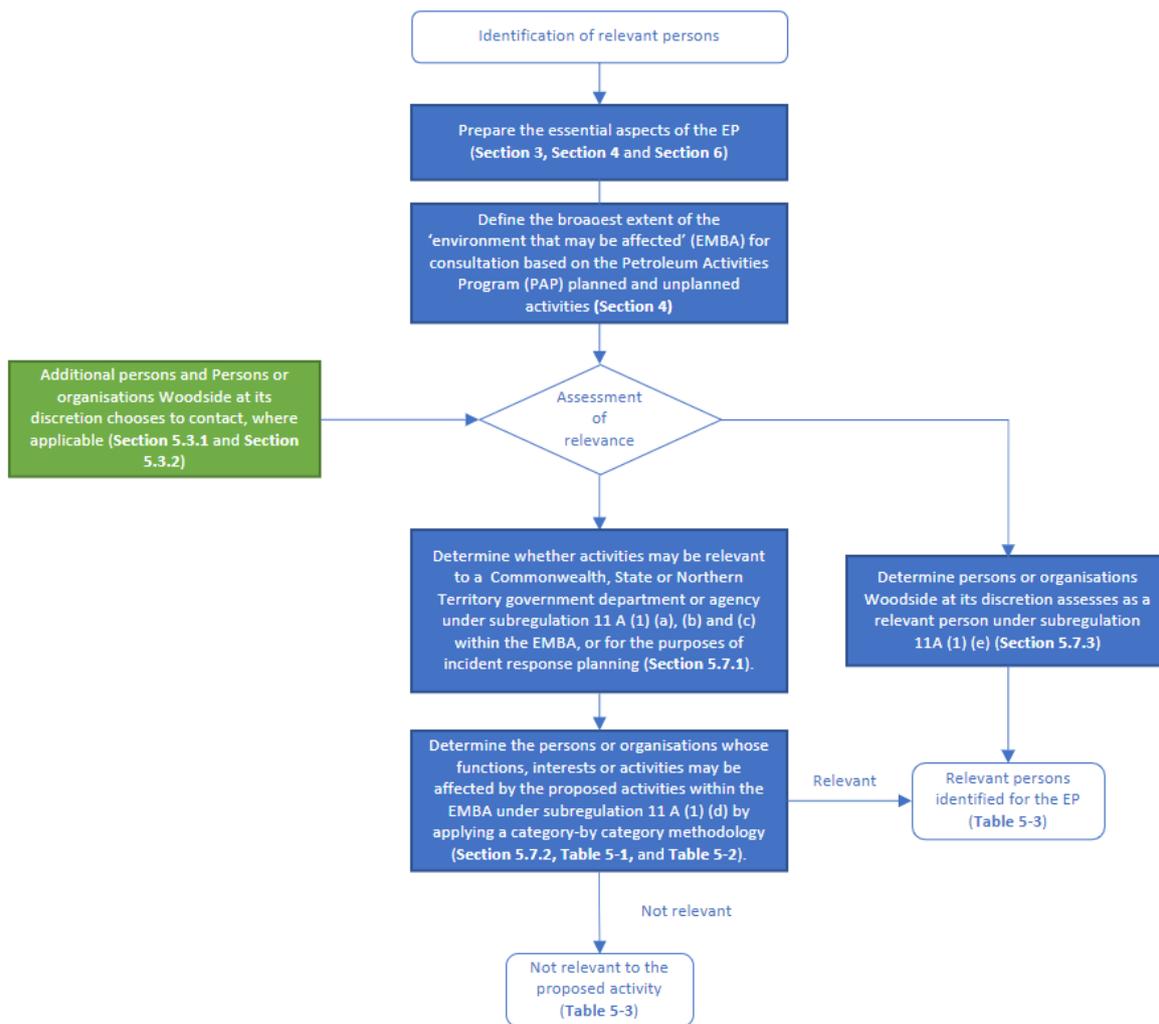


Figure 5-1: Overview of Woodside’s methodology to identify relevant persons

5.2 Consultation – General Context

Woodside has a portfolio of quality oil and gas assets and more than 30 years of operating experience. We have a strong history of working with local communities, the relevant regulators and a broad range of persons and organisations to understand the potential risks and impacts from 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 proposed petroleum activity. 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 recent judicial guidance (in the Full Federal Court’s decision in *Santos NA Barossa Pty Ltd v Tipakalippa* [2022] FCAFC 193) 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.*

In order to undertake consultation, Woodside has developed a methodology for identifying relevant persons, in accordance with regulation 11A(1) of the Environment Regulations. This methodology reflects NOPSEMA's recent guideline and demonstrates that, in order to meet the requirements of regulation 10A (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 3.3.2**); and
- 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 6.8).

Woodside has undertaken consultation in the course of preparing this EP in compliance with regulation 11A of the Environment Regulations, which requires a titleholder to:

- consult with each of the following (a **relevant person**) in the course of preparing an environment plan:
 - each Department or agency of the Commonwealth to which the activities to be carried out under the environment plan, or the revision of the environment plan, may be relevant;
 - each Department or agency of a State or the Northern Territory to which the activities to be carried out under the EP, or the revision of the EP, may be relevant;
 - the Department of the responsible State Minister, or 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, or the revision of the EP; and
 - any other person or organisation that the titleholder considers relevant (regulation 11A(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 the their functions, interests or activities (regulation 11A(1)(2));
- allow a relevant person a reasonable period for the consultation (regulation 11A(1)(3)); and
- 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 11A(1)(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;
- seeks to ensure that the environmental impacts and risks of the activity will be of an acceptable level;

- 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 that the petroleum activity may otherwise cause;
- is collaborative; Woodside respects that for a relevant person, consultation is voluntary. Where the relevant person seeks to engage, Woodside collaborates with the relevant person with the aim of seeking genuine and meaningful two-way dialogue; and
- provides opportunities for relevant persons to provide feedback throughout the life of the EP through its ongoing consultation process (refer to **Section 5.6** and **Section 11.7.2.1**).

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

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](#)

NOPSEMA:

- [GL2086 – Consultation in the course of preparing an environment plan – May 2023](#)
- [GN1847 - Responding to public comment on environment plans - July 2022](#)
- [GN1344 - Environment plan content requirements - September 2020](#)
- [GL1721 - Environment Plan Decision Making Guideline - December 2022](#)
- [GN1488 - Oil pollution risk management - July 2021](#)
- [GN1785 – Petroleum activities and Australian Marine Parks – June 2020](#)
- [GL1887 – Consultation with Commonwealth agencies with responsibilities in the marine area – January 2023](#)
- [PL2098 – Draft Policy for managing gender-restricted information](#)
- [Consultation on offshore petroleum environment plans – Information for the community](#)

Department of Climate Change, Energy, the Environment and Water:

- [Sea Countries of the North-West; Literature review on Indigenous connection to and uses of the North West Marine Region](#)

Australian Fisheries Management Authority:

- [Petroleum industry consultation with the commercial fishing industry](#)

Commonwealth Department of Agriculture and Water Resources:

- [Fisheries and the Environment – Offshore Petroleum and Greenhouse Gas Act 2006](#)
- [Offshore Installations Biosecurity Guide](#)

WA Department of Primary Industries and Regional Development:

- [Guidance statement for oil and gas industry consultation with the Department of Fisheries](#)

WA Department of Transport:

- [Offshore Petroleum Industry Guidance Note](#)

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 11A(1)(a), (b) and (c)

The relevant inquiry for determining relevant persons within the description of regulations 11A(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. These government departments and agencies are listed in Table 5-3 below. In accordance with regulation 11A(1)(c), Woodside consults with the department of the relevant State Minister, which for this EP is the Department of Mines, Industry Regulation and Safety (DMIRS).

5.3.2 Regulation 11A(1)(d)

In order to identify a relevant person for the purposes of subregulation 11A(1)(d), the meaning of “functions, interests or activities” needs to be understood. In subregulation 11A(1)(d), the terms “functions, interests or activities” is to be construed broadly and consistently with the regulatory objects of the OPGGS Regs (Regulation 3) and the objects of the EPBC Act (Section 3A).

In developing its methodology for consultation, Woodside acknowledges that the current guidance on the definition of functions, interests and activities is as follows:

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 4 of the Environment Regulations and is likely be directed to what the relevant person is already doing.

As discussed in **Section 5.1** and **Section 5.2**, Woodside’s methodology for determining ‘relevant persons’ for the purpose of regulation 11A(1)(d) of the Environment Regulations includes consideration of:

- whether a person or organisation has functions interests or activities that overlap with the Operational Area and EMBA; and
- whether a person or organisation’s functions, interests or activities may be affected by Woodside's proposed planned or unplanned activities.

5.3.3 Regulation 11A(1)(e)

In addition to assessing relevance under regulation 11A(1)(d), Woodside has discretion to categorise any other person or organisation as a relevant person under regulation 11A(1)(e).

5.3.4 Persons or organisations Woodside chooses to contact

In addition to undertaking consultation with relevant persons under regulation 11A(1) there are persons or organisations that Woodside chooses to contact, from time to time, in relation to a proposed activity. For example, these are persons or organisations:

- that are ‘not relevant’ pursuant to regulation 11A(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 11A(1) but have been contacted as a result of consultation requirements changing or updated guidance from the Regulator; and
- 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 required 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 5.7). The result of Woodside’s assessment of relevance during the development of the EP is outlined at Table 5-3.

- Engagement undertaken with persons or organisations Woodside assessed as not relevant but chose to contact are summarised at Appendix F, Table 2.

5.4 Consultation Material and Timing

Subregulation 11A(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. Subregulation 11A(3) provides that the titleholder must allow a relevant person a reasonable period for the consultation Woodside prepares, and takes feedback on, its consultation material in a manner which is consistent with the intended outcome of consultation (as set out in **Section 5.2**).

As set out in **Section 5.2**, Woodside notifies relevant person or additional persons, where applicable, of the proposed activities, respecting that consultation is voluntary and collaborates on a consultation approach where further engagement is sought by the relevant person.

Woodside understands that the consultation process should be appropriate for the category of relevant persons and, that 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 petroleum activity. Woodside recognises published guidance for good practice consultation relevant to different sectors and disciplines (see **Section 5.2**). 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 (**Appendix F, reference 1.1, reference 2.1 and reference 2.90**). 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 where the activity will take place, the timing and duration of the activity, a location map of the Operational Area and EMBA, a description of the EMBA, relevant exclusion zones as well as a summary of relevant risks and mitigation and/or management control measures relevant to the proposed petroleum activity. It also sets out contact details to provide feedback to Woodside.

Woodside recognises that 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, also 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, for example as a result of temporary displacement due to exclusion zones, may require more targeted information relevant to their functions, interests or activities. Woodside also acknowledges NOPSEMA's brochure entitled *Consultation on offshore petroleum environment plans information for the community*, which advises consultees 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 a selected local, state and national newspaper. This typically includes the name of the EP Woodside is seeking feedback on, an overview of the activity, the consultation feedback date and 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* for native title applications. Woodside typically aligns advertisement feedback timeframes with the timing described below. Feedback received is assessed in accordance with **Section 5.7** to determine relevance and evidenced in **Appendix F, Table 1** as appropriate.

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

- Consultation Information Sheet available on Woodside's website (**Appendix F, reference 2.1 and 2.90**);
- Bespoke Consultation Information Sheet, presentations or summaries specific to a particular relevant person group (**Appendix F, reference 2.88 and 2.89**);
- 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;
- Maps outlining a persons or organisations defined area of responsibility in relation to the proposed activity, for example a fisheries management area or defence training area; and
- Community meetings, as appropriate.

Woodside recognises that information may need to be provided to relevant persons in an iterative manner during the consultation process. Woodside considers that in line with the intent of consultation (see **Section 5.2**), the threshold for genuine two-way engagement is met via feedback on incorporation of controls, where applicable, being provided to the relevant person to ensure the relevant persons understands how their input has been considered in the development of the EP.

Information which is provided to relevant persons for the purposes of consultation on this EP is summarised at **Appendix F, Table 1**.

Appendix F, Table 2 sets out the information which is provided to persons or organisations that are not relevant for the purposes of regulation 11A but which Woodside has chosen to contact (see **Section 5.3.4**).

When engaging in consultation, Woodside notifies relevant persons that, in accordance with regulation 11A(4), the relevant person may request 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.

5.4.2 Sufficient Time

Woodside seeks feedback in order to support preparation of its environment plan. 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's typical approach is as follows:

- advertising in a selected local, state and national newspapers (see **Appendix F, reference 2.87**) 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 (see **Section 5.3.4**), 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; and
- engaging in two-way dialogue with relevant persons or organisations where feedback is received.

The specific consultation materials and engagements for this EP are set out in **Section 5.8, Appendix F, Table 1 and Table 2**.

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 an alternative form of communication is expressed by a person or organisation. Woodside acknowledges that there might be limitations in how it 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 in line with <u>GL1887 – Consultation with Commonwealth agencies with responsibilities in the marine area – January 2023</u> 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 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 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	<p>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.</p> <p>Community reference/liaison groups and chambers of commerce: Email is 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.</p>
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.
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As detailed in **Section 5.6** and **Section 11.7.2.1**, if comments and feedback are received after the EP has been submitted, Woodside will consider those comments and update controls as appropriate, at all stages during the life of the EP.

5.5 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.

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 environment plan and approval process, for example, statements of fundamental objection to offshore petroleum activities or information containing personal threats or profanities.

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 5.3.4**). 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 9(8) of the Environment Regulations, sensitive information (if any) in an EP, and the full text of any response by a relevant person to consultation under regulation 11A, must be contained in the sensitive information part of the plan and not anywhere else in the plan.

5.6 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 11.7.2.1**), 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 (as set out in **Section 5.2**).

Should consultation feedback be received following the acceptance of an EP that identifies a measure or control that requires implementation or updates to meet the intended outcome of consultation (see **Section 5.2**), Woodside will apply its Management of Change and Review process as appropriate (see **Section 7.6**).

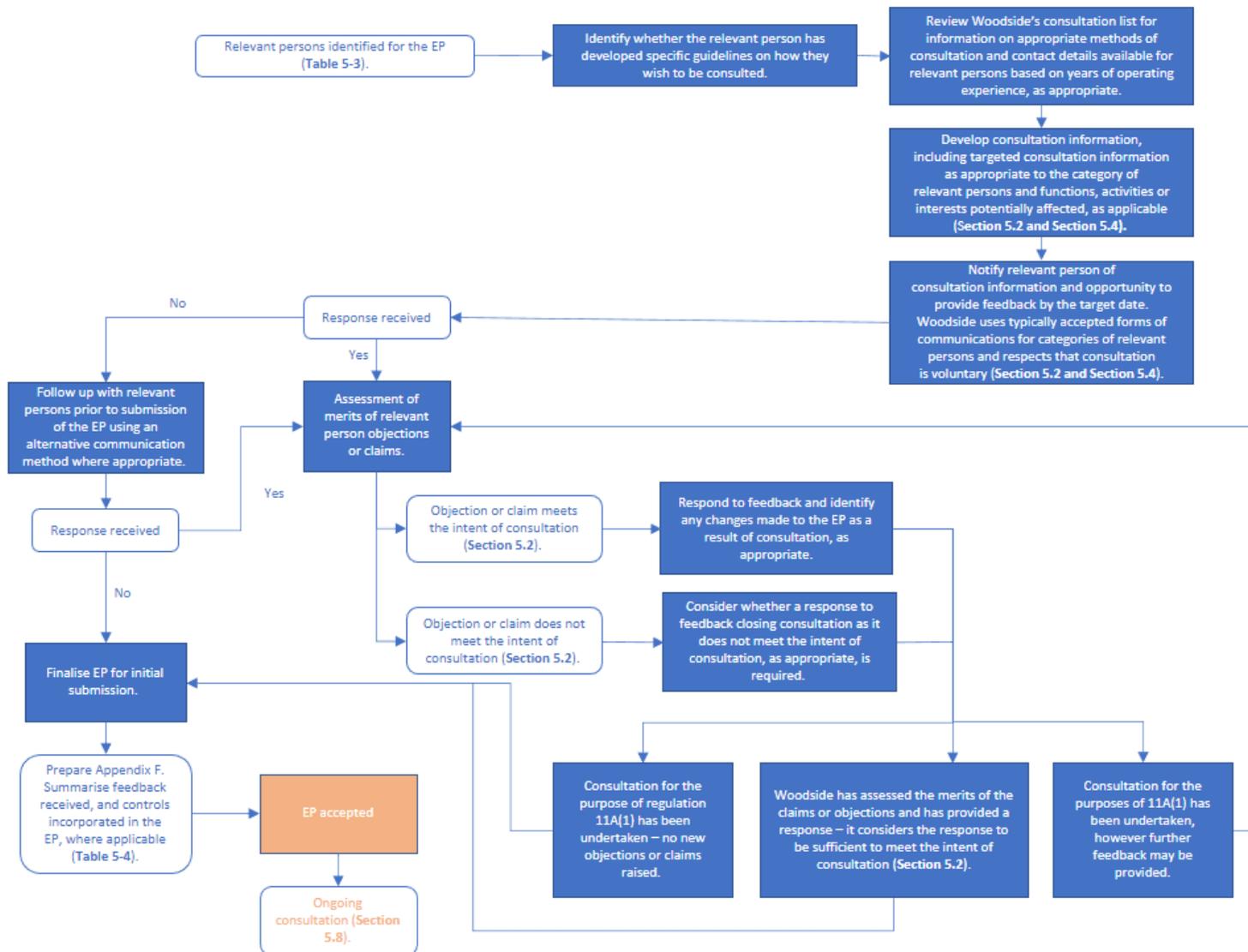


Figure 5-2: Overview of Woodside's consultation approach

5.7 Identification of Relevant Persons for this EP

5.7.1 Identification of relevant persons under subregulation 11A(1)(a)(b) and (c)

The relevant inquiry for determining relevant persons within the description of subregulation 11A(1)(a)(b) and (c) is whether the activities to be carried out under the EP may be relevant to one of the government departments or agencies in those subregulations.

Woodside's methodology for identifying relevant persons under these categories is as follows:

- Woodside considers the defined responsibilities of each of the departments and agencies to which the activities in the EMBA to be carried out under the EP may be relevant. This list of relevant department 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 (March 2022) 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 in relation to the departments and agencies which Woodside has historically consulted over the years. This list is revised from time to time for example to accommodate government restructures, renaming of departments, shifting portfolios and 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 marine environment.
Government departments / agencies – industry	The legislated Department of the responsible Commonwealth, State or Northern Territory Minister for industry.

- Woodside considers each of the responsibilities of the departments and agencies and determines whether those responsibilities overlap with potential risks and impacts specific to the proposed petroleum activity 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 petroleum activity 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 petroleum activity. Feedback received, if any, is assessed in accordance with the intended outcome of consultation (as set out in **Section 5.2**).
- The list of those government departments and agencies assessed as relevant is set out in **Table 5-3**.
- Feedback received, if any, is assessed in accordance with the intended outcome of consultation (as set out in **Section 5.2**) and summarised at **Appendix F, Table 1** and **Table 2** as appropriate to the relevance assessment.

Woodside does not consult with departments or agencies with interests that do not overlap with risks and impacts specific to the proposed petroleum activity in the EMBA or would not be involved in incident response planning. For instance, in this EP, Woodside has not consulted with the department for the Minister of the Northern Territory because there is no overlap given that the proposed activities are in Commonwealth waters offshore of Western Australia.

5.7.2 Identification of relevant persons under subregulation 11A(1)(d)

Relevant persons under regulation 11A (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, or a revision of the EP. In identifying relevant persons, Woodside considers:

- the planned activities to be carried out under this EP (described in **Section 3**); and
- the EMBA by unplanned activities (identified in **Section 4** and assessed in **Section 8**).

To identify relevant persons who fall within regulation 11A(1)(d), Woodside adopts the following methodology, and then undertakes consultation with relevant persons which is set out further in **Section 5.8**.

- 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 or that overlap with the PAA and EMBA; and
 - whether a person or organisation's functions, interests or activities may be affected by Woodside's proposed planned or unplanned activities.
- This assessment will include applying professional judgement, knowledge and current literature.
- Further, 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. For this 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 and persons or organisations Woodside chose to contact is set out in Table 5-3.
- Feedback received, if any, is assessed in accordance with the intended outcome of consultation (as set out in Section 5.2) 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 1. Feedback from persons assessed as not relevant but whom Woodside chooses to contact or self-identified and Woodside assessed as not relevant are summarised at Appendix F, Table 2.

Table 5-1: Categories of relevant persons

Category	Explanation
Commercial fisheries and peak representative bodies	Commonwealth or State Commercial Fishery with a fishery management plan recognised under the Commonwealth <i>Fisheries Management Act 1991</i> (Cth) and Western Australian <i>Fish Resources Management Act 1994</i> (WA), 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 governed by the <i>OPGGGS Act</i> and associated regulations.
Peak industry representative bodies	Recognised peak organisation(s) for the oil and gas sector.
Traditional Custodians and nominated representative corporations	Traditional Custodians are persons who are descended from Indigenous peoples, who self-identify and are recognised by the Traditional Custodian group. Nominated representative corporations are Traditional Custodians' nominated representative institutions such as Prescribed Body Corporates (PBC). The PBC is the body incorporated by native title holders to hold their native title rights and interests in perpetuity for them and is recognised by the Federal Court in its determination of native title as the appropriate representative body. Thereby the PBC becomes the governing and representative body for the native title group (Traditional Owner society) through which decisions relating to communal interests are made.
Native Title Representative Bodies	A Representative Aboriginal/Torres Strait Islander Bodies (RATSIB) is a regional organisation appointed under the Native Title Act 1993 (NTA) with prescribed functions, set out in Part 11 of the Native Title Act 1993, 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 recognised local community reference/liaison groups or organisations	Local government governed by the <i>Local Government Act 1995</i> (WA) which is responsible for representing the local community. Recognised local community reference/liaison group or organisation in relation to oil and gas matters.
Other non-government groups or organisations	Non-government organisation with public website material targeting the proposed activity.

Table 5-2: Methodology for identifying relevant persons within the EMBA undertaken under subcategory 11A(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 4.1). • Woodside acknowledges WAFIC’s consultation guidance³ (accessed on 2 February 2023), that titleholders develop separate consultation strategies for significant unplanned events (for example oil spill) where titleholders can demonstrate the likelihood of such events occurring is extremely low. WAFIC’s guidance is that consultation on unplanned events resulting in an emergency scenario should only be undertaken if an incident occurs (see Appendix D). • 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 4.8.2). <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 4.8.2) are assessed as relevant to the proposed activity. Woodside acknowledges WAFIC’s consultation guidance¹ (see above) and applies this by: <ul style="list-style-type: none"> • directly consulting fishery licence holders that are assessed as having a potential for interaction in the Operational Area; and • consulting fisheries that are assessed as having a potential for interaction in the EMBA via WAFIC. • Commonwealth commercial fisheries that have been assessed as having a potential for interaction within the Operational Area or EMBA (see Section 4.8.2) 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.
Recreational marine users and peak representative bodies	<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"> • From Woodside knowledge and operating experience, 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>

a. ³ [Consultation Approach for Unplanned Events - WAFIC](#)

Category	Relevant person identification methodology
	<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 next steps in its methodology:</p> <ul style="list-style-type: none"> Using WA Petroleum Titles (DMIRS-011) to determine overlap with other Titleholders or Operators permit areas within the EMBA. From Woodside knowledge and operating experience, 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 next steps in its methodology:</p> <ul style="list-style-type: none"> Review of peak industry representative bodies responsibilities that Woodside actively participates in, with consideration of overlap between industry focus area and Woodside's proposed activities within the EMBA. Review of Woodside's existing consultation list. 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.
Traditional Custodians and nominated representative corporations	<p>Consistent with its understanding of the matters discussed in Section 4.8.1, Woodside assesses relevance for Traditional Custodians using the following steps in its methodology:</p> <ul style="list-style-type: none"> In line with the "tri-partite test", Traditional Custodians are persons descended from Indigenous peoples, who self-identify and are recognised by the Traditional Custodian group. The "tripartite test" was described by Justice Brennan in the High Court case of <i>Mabo v Queensland (No. 2)</i> [1992] HCA 23 and has continued to be accepted and applied broadly, most recently by the High Court in a case that <i>Love v Commonwealth of Australia</i> [2020] HCA 3. As Woodside has more than 30 years of operating experience, over the years, it has undertaken extensive engagement with recognised Traditional Custodians for its operations. Using the database of the National Native Title Tribunal to determine whether there are any Native Title Claims (historical or current) or Determinations overlapping or coastally adjacent to the EMBA. The original Native Title Claims are understood to represent the lands and waters over which Indigenous groups claim or claimed rights (including rights to conduct activities) and interests, and Native Title Determinations are understood to represent the lands and waters over which Indigenous groups have determined rights and

Category	Relevant person identification methodology
	<p>interests and their representative institutions have certain functions (see Section 4 and below).</p> <ul style="list-style-type: none"> • Where there is a positive determination of native title, contacting the PBC. • Where appropriate, contacting the relevant Native Title Representative Body to request a list of any Traditional Custodian groups asserting Traditional Custodianship over an area of coastline adjacent to the EMBA who do not and have never had a native title claim or determination of which the land council or Native Title Representative Body are aware. • Review of relevant Indigenous Land Use Agreements (ILUA), or similar agreements which Woodside has entered into or are publicly available, by which Aboriginal organisations or Traditional Custodian Groups have made a voluntary agreement regarding the use or management of areas of land or water overlapping or coastally adjacent to the EMBA (see Section 4). ILUAs are registered with the Native Title Tribunal and may identify Traditional Custodians or representative bodies to contact regarding potential cultural values. • 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. • Woodside applies the principles of self-determination when consulting with Traditional Custodians through consulting with representative institutions utilising traditional decision-making mechanisms. • Where the native title group is not clear or there is no representative institution, Woodside may seek guidance from the Native Title Representative Body as to the Traditional Custodian group whose rights and interests may overlap with the EMBA. Woodside may have reference to maps of native title claims and determinations produced by the National Native Title Tribunal, registered Indigenous Land Use Agreements, heritage databases and Indigenous Protected Areas. • Woodside will consult with individual Traditional Custodians where we have been directed to do so by the representative institution or the native title representative body. This may occur when for cultural reasons, and as recognised by the broader group, a person is regarded as having particular obligations in relation to a site or area that are distinct from that of the broader group. • Woodside provides the opportunity for individual Traditional Custodians to participate in consultation in response to broader notification and advertising, or at community information sessions (see Section 5.8). <p>Assessment of relevance:</p> <ul style="list-style-type: none"> • Where there is a positive determination or claim of native title overlapping the EMBA or coastally adjacent to the EMBA, the representative institution will be the PBC (also referred to as the Registered Native Title Body Corporate) for the native title group and assessed as relevant. • Where a relevant Native Title Representative Body provides advice that any Traditional Custodian groups are asserting Traditional Custodianship over an area of coastline adjacent to the EMBA who do not and, have never had a native title claim or determination of which land council or Native Title Representative Body are aware, Woodside will engage with the group to determine relevance. • Where there is an Indigenous Land Use Agreements (ILUA) whereby Aboriginal organisations or Traditional Custodian groups have made a voluntary agreement regarding the use or management of areas of land or water overlapping or coastally adjacent to the EMBA, the PBC for the native title group (where a determination of native title has been made) or the Native Title Representative Body (where a determination has not yet been made) are assessed as relevant. Where there is more than one Traditional Custodian group that is party to an ILUA, the Traditional Custodian group whose native title

Category	Relevant person identification methodology
	<p>claim/determination overlaps the EMBA, where applicable, is assessed as relevant.</p> <ul style="list-style-type: none"> • Where Woodside has entered into an agreement with an Aboriginal organisation or Traditional Custodian group or there is an agreement publicly available regarding the use or management of areas of land or water overlapping or coastally adjacent to the EMBA, Woodside will engage with the organisation or group to determine relevance. • In the WA context, when an Aboriginal Corporation is appointed as a Local Aboriginal Cultural Heritage Service (LACHS) under the Aboriginal Cultural Heritage Act 2021 for an area that overlaps the EMBA, the LACHS will be the representative institution for the group and assessed as relevant. • Where a Traditional Custodian group is referenced as having traditional rights and interests in a marine park management plan overlapping the EMBA, Woodside will consult the organisation or group to determine whether there is any intersect of the organisation or group's functions, interests and activities with risks and impacts from the proposed petroleum activity and assess feedback, if any, to determine relevance. • Where Woodside has been provided guidance from the native title representative body or land council as to the appropriate Traditional Custodian group to be consulted, Woodside will assess feedback from the group or groups, if any, to assess and determine relevance. <ul style="list-style-type: none"> – Where Woodside receives feedback from a person or organisation that identifies as a Traditional Custodian for an area overlapping the EMBA, including via an advertisement, Woodside will assess the feedback provided including whether the person(s) functions, interests and activities are represented by virtue of their membership of a PBC, and determine relevance. Where it is not clear whether the person(s) is a member of a PBC or native title group that Woodside has determined relevant in line with the above methodology, Woodside will engage the PBC or native title group to determine whether the person(s) membership.
<p>Native Title Representative Bodies</p>	<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 Bodies (RATSIB) is a regional organisation appointed under the Native Title Act 1993 (NTA) with prescribed functions set out in Part 11 of the Native Title Act 1993, 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 Native Title Act 1993, overlaps with the EMBA or is coastally adjacent to the EMBA, Woodside will assess the Native Title Representative Body as relevant.
<p>Historical heritage groups or organisations</p>	<p>Woodside assesses relevance for groups or organisations whose responsibilities are focused on historical heritage using the following next steps in its methodology:</p> <ul style="list-style-type: none"> • Using the Australasian Underwater Cultural Heritage Database to assess any known records Maritime Cultural Heritage sites (shipwrecks, aircraft and relics) within the EMBA (see Section 4.9.1). <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
<p>Local government and recognised local community reference/liaison groups or organisations</p>	<p>Woodside assesses relevance for local government and recognised local community reference/liaison groups or organisations using the following next 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 any 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 any 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.
<p>Other non-government groups or organisations</p>	<p>Woodside assesses relevance for other non-government groups or organisations using the following next 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 material specific to the proposed activity at the time of development of the EP. Organisation has a publicly available mission statement (or purpose) that clearly describes their collective functions, interests or activities. Review of current website material to identify targeted information which demonstrates functions, interests or activities relevant to the potential risks and impacts associated with planned activities. <p>Assessment of relevance:</p> <ul style="list-style-type: none"> Registered non-government groups or organisations with current targeted public website material specific to the proposed activity at the time of developing the EP and who have demonstrated functions, interests or activities relevant to the potential risks and impacts associated with planned activities in accordance with the intended outcome of consultation (as set out in Section 5.2) will be assessed as relevant.
<p>Research institutes and local conservation groups or organisations</p>	<p>Woodside assesses relevance for research institutes and local conservation groups or organisations using the following next 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.

Category	Relevant person identification methodology
	<ul style="list-style-type: none"> • 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.

5.7.3 Identification of relevant persons under subregulation 11A(1)(e)

Woodside adopts a case-by-case approach for each EP to assess relevance under regulation 11A(1)(e).

5.7.4 Assessment of Relevant Persons and Additional Persons for the Proposed Activity

The result of Woodside's assessment of relevant persons in accordance with regulation 11A(1) is outlined at Table 5-3 and Appendix F, Table 1.

Persons or organisations that Woodside assessed as not relevant but nonetheless chose to contact at its discretion in accordance with Section 5.3.4 are outlined at Table 5-3 and Appendix F, Table 2.

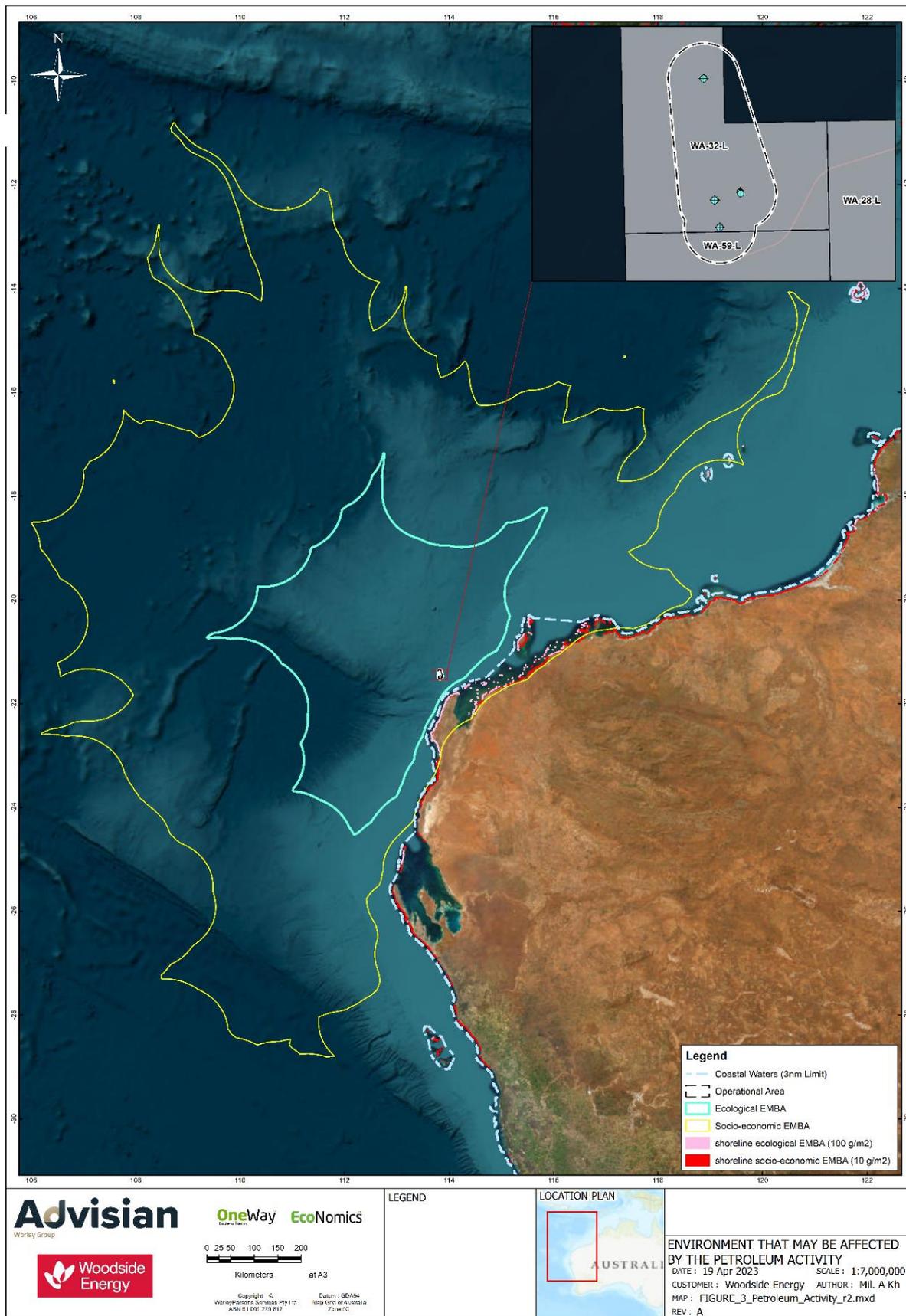


Figure 5-3: The Operational Area and EMBA for this EP

Table 5-3: 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 11A(1)(a). ABF’s responsibilities may be relevant to the activity as there are proposed vessel activities.	Yes
Department of Foreign Affairs and Trade (DFAT)	Responsible for promoting and protecting Australia’s interests internationally and contributes to global stability and economic growth. DFAT manages Australia’s relationships and interaction with the governments of our neighbouring countries.	Woodside has applied its methodology for ‘Government departments / agencies – marine’ under regulation 11A(1)(a). DFAT has no direct role in the management of the Commonwealth marine area, but has an interest in ensuring that consultation with foreign entities, both private and government, is effective and is aligned with Australia’s interests. DFAT manages Australia’s relationships and interaction with the governments of our neighbouring countries. The proposed activity has the potential to impact DFAT’s functions, interests or activities as the EMBA overlaps Indonesian waters.	Yes
Australian Fisheries Management Authority (AFMA)	Responsible for managing Commonwealth fisheries	Woodside has applied its methodology for ‘Government departments / agencies – marine’ under regulation 11A(1)(a). The Western Deepwater Trawl Fishery is active in the Operational Area. The North West Slope and Trawl Fishery, Western Deepwater Trawl Fishery and Western Tuna and Billfish Fishery are active in the EMBA. The Northern Prawn Fishery has been active where shoreline accumulation may occur. AFMA’s responsibilities may be relevant to the activity as the Western Deepwater Trawl Fishery is active in the Operational Area and EMBA, the North West Slope and Trawl Fishery and Western Tuna and Billfish Fishery are active in the EMBA, and the Northern Prawn Fishery has been active where shoreline accumulation may occur.	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 11A(1)(a). AHO’s responsibilities may be relevant to the activity as there are proposed vessel activities.	Yes
Australian Maritime Safety Authority (AMSA) – Marine Safety	Statutory agency for vessel safety and navigation	Woodside has applied its methodology for ‘Government departments / agencies – marine’ under regulation 11A(1)(a).	Yes

Person or Organisation	Summary of responsibilities and/or functions, interests or activities	Assessment of relevance	Relevant person
		AMSA – Marine Safety’s responsibilities may be relevant to the activity as there are proposed vessel activities.	
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 11A(1)(a). AMSA – Marine Pollution’s responsibilities may be relevant to the activity as the proposed activity has a hydrocarbon spill risk which may require AMSA response in Commonwealth waters.	Yes
Department of Agriculture, Fisheries and Forestry (DAFF) – Fisheries (formerly DAWE)	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 11A(1)(a). The Western Deepwater Trawl Fishery is active in the Operational Area. The North West Slope and Trawl Fishery, Western Deepwater Trawl Fishery and Western Tuna and Billfish Fishery are active in the EMBA. The Northern Prawn Fishery has been active where shoreline accumulation may occur. DAFF – Fisheries responsibilities may be relevant to the activity as the Western Deepwater Trawl Fishery is active in the Operational Area and EMBA, the North West Slope and Trawl Fishery and Western Tuna and Billfish Fishery are active in the EMBA, and the Northern Prawn Fishery has been active where shoreline accumulation may occur.	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 11A(1)(a). DoD’s responsibilities may be relevant to the activity as defence training areas lie within the EMBA.	Yes
Department of Primary Industries and Regional Development (DPIRD)	Responsible for managing State fisheries	Woodside has applied its methodology for ‘Government departments / agencies – environment’ under regulation 11A(1)(b). No State fisheries are active in the Operational Area. The Exmouth Gulf Beach Seine and Mesh Net Managed Fishery, Exmouth Gulf Prawn Managed Fishery, Gascoyne Demersal Scalefish Fishery, Land Hermit Crab Fishery, Mackerel Managed Fishery (Area 1, 2 and 3), Marine Aquarium Managed Fishery, Nickol Bay Managed Fishery, Onslow Prawn Managed Fishery, Pilbara Crab Managed Fishery, Pilbara Trawl Fishery, Pilbara Line Fishery, Pilbara Trap Fishery, Specimen Shell Managed Fishery, Western Australian Sea Cucumber Fishery, West Coast Deep Sea Crustacean Managed Fishery, West Coast Demersal Scalefish Fishery and West Coast Rock Lobster Managed Fishery are active in the EMBA. Abalone Managed Fishery, Abrolhos Islands and Mid West Trawl Managed Fishery, Joint Authority Southern Demersal Gillnet & Demersal Longline	Yes

Person or Organisation	Summary of responsibilities and/or functions, interests or activities	Assessment of relevance	Relevant person
		<p>Limited Entry Fishery, Kimberley Crab Managed Fishery, Kimberley Gillnet and Barramundi Managed Fishery, Kimberley Prawn Managed Fishery, Northern Demersal Scalefish Fishery, Octopus Interim Managed Fishery, Pearl Oyster Managed Fishery, Purse Seine Developing Fishery, Shark Bay Beach Seine and Mesh Net Managed Fishery, Shark Bay Crab Managed Fishery, Shark Bay Prawn Managed Fishery, Shark Bay Scallop Managed Fishery, South-West Coast Salmon Fishery, West Coast Demersal Gillnet & Demersal Longline Interim Managed Fishery, West Coast Estuarine Managed Fishery, West Coast Purse Seine Managed Fishery, West Coast Rock Lobster Managed Fishery have been active where shoreline accumulation may occur.</p> <p>DPIRD's responsibilities may be relevant to the activity as the government department responsible for State fisheries.</p>	
Department of Transport (DoT)	Legislated responsibility for oil pollution response in State waters	<p>Woodside has applied its methodology for 'Government departments / agencies – environment' under regulation 11A(1)(b).</p> <p>The proposed activity has a hydrocarbon spill risk, which may require DoT response in State waters.</p>	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.	<p>Woodside has applied its methodology for 'Government departments / agencies – environment' under regulation 11A(1)(b).</p> <p>There is known Maritime Cultural Heritage overlapping the EMBA.</p>	Yes
Pilbara Ports Authority	Responsible for the operation of the Port of Dampier.	<p>Woodside has applied its methodology for 'Government departments / agencies – environment' under regulation 11A(1)(b).</p> <p>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.</p>	Yes
Commonwealth and WA State Government Departments or Agencies – Environment			
Department of Agriculture, Fisheries and Forestry (DAFF) – Biosecurity (marine pests, vessels, aircraft and personnel) (formerly DAWE)	DAFF administers, implements and enforces the Biosecurity Act 2015. The Department requests to be consulted where an activity has the potential to transfer marine pests. DAFF also has inspection and reporting requirements to	<p>Woodside has applied its methodology for 'Government departments / agencies – environment' under regulation 11A(1)(a).</p> <p>DAFF – Biosecurity's (formerly DAWE) responsibilities may be relevant to the proposed activities in the EMBA in the prevention of introduced marine species.</p>	Yes

Person or Organisation	Summary of responsibilities and/or functions, interests or activities	Assessment of relevance	Relevant person
	<p>ensure that all conveyances (vessels, installations and aircraft) arriving in Australian territory comply with international health regulations and that any biosecurity risk is managed.</p> <p>The Department requests to be consulted where an activity involves the movement of aircraft or vessels between Australia and offshore petroleum activities either inside or outside Australian territory.</p>		
Department of Climate Change, Energy, the Environment and Water (DCCEEW) (formerly DAWE)	<p>Responsible for implementing Commonwealth policies and programs to support climate change, sustainable energy use, water resources, the environment and our heritage. Administers the Underwater Cultural Heritage Act 2018 in collaboration with the States, Northern Territory and Norfolk Island, which is responsible for the protection of shipwrecks, sunken aircraft and other types of underwater heritage and their associated artefacts in Commonwealth waters.</p>	<p>Woodside has applied its methodology for 'Government departments / agencies – environment' under regulation 11A(1)(a). DCCEEW's (formerly DAWE) responsibilities may be relevant to the proposed activities in the EMBA as there are potential environmental impacts from the proposed activity.</p> <p>There are known Maritime Cultural Heritage overlapping the EMBA.</p>	Yes
Director of National Parks (DNP)	<p>Responsible for the management of Commonwealth parks and conservation zones.</p>	<p>Woodside has applied its methodology for 'Government departments / agencies – environment' under regulation 11A(1)(a). DNP's responsibilities may be relevant to the activity as DNP requires an awareness of activities that occur within AMPs, and an understanding of potential impacts and risks to the values of parks (NOPSEMA guidance note: N-04750-GN1785 A620236, June 2020). Titleholders are required to consult DNP on offshore petroleum and greenhouse gas exploration activities if they</p>	Yes

Person or Organisation	Summary of responsibilities and/or functions, interests or activities	Assessment of relevance	Relevant person
		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).	
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 11A(1)(a). The proposed activity has the potential to impact NCWHAC's responsibilities as the EMBA overlaps the Ningaloo Marine Park.	Yes
Department of Biodiversity, Conservation and Attractions (DBCA)	Responsible for managing WA's parks, forests and reserves to achieve wildlife conservation and provide sustainable recreation and tourism opportunities.	Woodside has applied its methodology for 'Government departments / agencies – environment' under regulation 11A(1)(b). The proposed activities overlap WA parks, forests or reserves. Activities have the potential to impact marine tourism in the EMBA.	Yes
Commonwealth and State Government Departments or Agencies – Industry			
Department of Industry, Science and Resources (DISR) (formerly DISER)	Department of relevant Commonwealth Minister.	Required to be consulted under regulation 11A(1)(a).	Yes
Department of Mines, Industry Regulation and Safety (DMIRS)	Department of relevant State Minister	Required to be consulted under regulation 11A(1)(c).	Yes
Commonwealth Commercial fisheries and representative bodies			
North West Slope and Trawl Fishery	Commonwealth commercial fishery	Woodside has applied its methodology for 'Commercial fisheries (Commonwealth and State) and peak representative bodies' under regulation 11A(1)(d). 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
Southern Bluefin Tuna Fishery	Commonwealth commercial fishery	Woodside has applied its methodology for 'Commercial fisheries (Commonwealth and State) and peak representative bodies' under regulation 11A(1)(d). 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,	No

Person or Organisation	Summary of responsibilities and/or functions, interests or activities	Assessment of relevance	Relevant person
		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).	
Western Deepwater Trawl Fishery	Commonwealth commercial fishery	Woodside has applied its methodology for 'Commercial fisheries (Commonwealth and State) and peak representative bodies' under regulation 11A(1)(d). The fishery overlaps the Operational Area and EMBA and has been active in the Operational Area and EMBA within the last 5 years.	Yes
Western Skipjack Fishery	Commonwealth commercial fishery	Woodside has applied its methodology for 'Commercial fisheries (Commonwealth and State) and peak representative bodies' under regulation 11A(1)(d). 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 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.	No
Western Tuna and Billfish Fishery	Commonwealth commercial fishery	Woodside has applied its methodology for 'Commercial fisheries (Commonwealth and State) and peak representative bodies' under regulation 11A(1)(d). Although the fishery overlaps the Operational Area, it has not been active in the Operational Area within the last 5 years. The fishery overlaps EMBA and has been active in the EMBA within the last 5 years.	Yes
Northern Prawn Fishery	Commonwealth commercial fishery	Woodside has applied its methodology for 'Commercial fisheries (Commonwealth and State) and peak representative bodies' under regulation 11A(1)(d). The fishery does not overlap the Operational Area or EMBA. The fishery has been active within the last 5 years where shoreline accumulation may occur.	Yes
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 11A(1)(d). The Western Deepwater Trawl Fishery is active in the Operational Area.	Yes

Person or Organisation	Summary of responsibilities and/or functions, interests or activities	Assessment of relevance	Relevant person
		The North West Slope and Trawl Fishery, Western Deepwater Trawl Fishery and Western Tuna and Billfish Fishery are active in the EMBA. The Northern Prawn Fishery has been active where shoreline accumulation may occur. CFA's functions may be relevant to the activity as the Western Deepwater Trawl Fishery is active in the Operational Area and EMBA, the North West Slope and Trawl Fishery and Western Tuna and Billfish Fishery are active in the EMBA, and the Northern Prawn Fishery has been active where shoreline accumulation may occur.	
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 11A(1)(d). 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. Woodside has provided information to the ASBTIA at its discretion in line with Section 5.3.4 on AFMA advice that it expects all Commonwealth fishers who have entitlements to fish within the proposed area to be consulted, which can be through the relevant fishing industry associations.	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 11A(1)(d). The Western Tuna and Billfish Fishery is active in the EMBA. Tuna Australia's functions, interests or activities may be relevant to the activity as the Western Tuna and Billfish Fishery is active in the EMBA.	Yes
Northern Prawn Fishery Industry Pty Ltd	Represents the interests of the Northern Prawn Fishery	Woodside has applied its methodology for 'Commercial fisheries (Commonwealth and State) and peak representative bodies' under regulation 11A(1)(d). The Northern Prawn Fishery does not overlap the Operational Area or EMBA. The fishery has been active within the last 5 years where shoreline accumulation may occur. The Northern Prawn Fishery Industry Pty Ltd's functions, interests or activities may be relevant to the activity as the Northern Prawn Fishery is active where shoreline accumulation may occur.	Yes
Pearl Producers Association (PPA)	Peak representative organisation of The Australian South Sea Pearling Industry, with members in Western	Woodside has applied its methodology for 'Commercial fisheries (Commonwealth and State) and peak representative bodies' under regulation 11A(1)(d).	No

Person or Organisation	Summary of responsibilities and/or functions, interests or activities	Assessment of relevance	Relevant person
	Australia and the Northern Territory	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. Woodside chose to contact the PPA at its discretion in line with Section 5.3.4.	
State Commercial fisheries and representative bodies			
Marine Aquarium Managed Fishery	State commercial fishery	Woodside has applied its methodology for 'Commercial fisheries (Commonwealth and State) and peak representative bodies' under regulation 11A(1)(d). Although the fishery overlaps the Operational Area it has not been active in the Operational Area within the last 5 years. The fishery overlaps EMBA and has been active in the EMBA within the last 5 years.	Yes
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 11A(1)(d). 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. The fishery has been active within the last 5 years where shoreline accumulation may occur.	Yes
Mackerel Managed Fishery (Area1, 2 and 3)	State commercial fishery	Woodside has applied its methodology for 'Commercial fisheries (Commonwealth and State) and peak representative bodies' under regulation 11A(1)(d). Although Area 3 of the fishery overlaps the Operational Area, it has not been active in the Operational Area within the last 5 years. Area 1, 2 and Area 3 of the fishery have been active in the EMBA in the last 5 years.	Yes
Pilbara Crab Managed Fishery	State commercial fishery	Woodside has applied its methodology for 'Commercial fisheries (Commonwealth and State) and peak representative bodies' under regulation 11A(1)(d). Although the fishery overlaps the Operational Area, the fishery has not been active in the Operational Area within the last 5 years. The fishery overlaps EMBA and has been active in the EMBA within the last 5 years.	Yes
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 11A(1)(d).	Yes

Person or Organisation	Summary of responsibilities and/or functions, interests or activities	Assessment of relevance	Relevant person
		Although the fishery overlaps the Operational Area, the fishery has not been active in the Operational Area within the last 5 years. The fishery has been active in the EMBA in the last 5 years.	
Specimen Shell Managed Fishery	State commercial fishery	Woodside has applied its methodology for 'Commercial fisheries (Commonwealth and State) and peak representative bodies' under regulation 11A(1)(d). 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
Onslow Prawn Managed Fishery	State commercial fishery	Woodside has applied its methodology for 'Commercial fisheries (Commonwealth and State) and peak representative bodies' under regulation 11A(1)(d). 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
Exmouth Gulf Prawn Fishery	State commercial fishery	Woodside has applied its methodology for 'Commercial fisheries (Commonwealth and State) and peak representative bodies' under regulation 11A(1)(d). 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
Pearl Oyster Managed Fishery	State commercial fishery	Woodside has applied its methodology for 'Commercial fisheries (Commonwealth and State) and peak representative bodies' under regulation 11A(1)(d). The fishery does not overlap the Operational Area. The fishery overlaps the EMBA but has not been active in the EMBA within the last 5 years. The fishery has been active within the last 5 years where shoreline accumulation may occur.	Yes
Nickol Bay Prawn Managed Fishery	State commercial fishery	Woodside has applied its methodology for 'Commercial fisheries (Commonwealth and State) and peak representative bodies' under regulation 11A(1)(d). 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
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 11A(1)(d). 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

Person or Organisation	Summary of responsibilities and/or functions, interests or activities	Assessment of relevance	Relevant person
Land Hermit Crab Fishery	State commercial fishery	Woodside has applied its methodology for 'Commercial fisheries (Commonwealth and State) and peak representative bodies' under regulation 11A(1)(d). 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
Gascoyne Demersal Scalefish Fishery	State commercial fishery	Woodside has applied its methodology for 'Commercial fisheries (Commonwealth and State) and peak representative bodies' under regulation 11A(1)(d). 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
West Coast Rock Lobster Managed Fishery	State commercial fishery	Woodside has applied its methodology for 'Commercial fisheries (Commonwealth and State) and peak representative bodies' under regulation 11A(1)(d). The fishery does not overlap the Operational Area. The fishery overlaps EMBA and has been active in the EMBA within the last 5 years. The fishery has been active within the last 5 years where shoreline accumulation may occur.	Yes
Abalone Managed Fishery	State commercial fishery	Woodside has applied its methodology for 'Commercial fisheries (Commonwealth and State) and peak representative bodies' under regulation 11A(1)(d). The fishery does not overlap the Operational Area. The fishery overlaps the EMBA but has not been active in the EMBA within the last 5 years. The fishery has been active within the last 5 years where shoreline accumulation may occur.	Yes
Kimberley Crab Fishery	State commercial fishery	Woodside has applied its methodology for 'Commercial fisheries (Commonwealth and State) and peak representative bodies' under regulation 11A(1)(d). The fishery does not overlap the Operational Area. The fishery overlaps the EMBA but has not been active in the EMBA in the last 5 years. The fishery has been active within the last 5 years where shoreline accumulation may occur.	Yes
West Coast Demersal Gillnet & Demersal Longline Interim Managed Fishery	State commercial fishery	Woodside has applied its methodology for 'Commercial fisheries (Commonwealth and State) and peak representative bodies' under regulation 11A(1)(d). The fishery does not overlap the Operational Area. The fishery overlaps the EMBA but has not been active in the EMBA in the last 5 years.	Yes

Person or Organisation	Summary of responsibilities and/or functions, interests or activities	Assessment of relevance	Relevant person
		The fishery has been active within the last 5 years where shoreline accumulation may occur.	
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 11A(1)(d). 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
Exmouth Gulf Beach Seine and Mesh Net Managed Fishery	State commercial fishery	Woodside has applied its methodology for 'Commercial fisheries (Commonwealth and State) and peak representative bodies' under regulation 11A(1)(d). 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
Northern Demersal Scalefish Fishery	State commercial fishery	Woodside has applied its methodology for 'Commercial fisheries (Commonwealth and State) and peak representative bodies' under regulation 11A(1)(d). The fishery does not overlap the Operational Area. The fishery overlaps the EMBA but has not been active in the EMBA in the last 5 years. The fishery has been active within the last 5 years where shoreline accumulation may occur.	Yes
Octopus Interim Managed Fishery	State commercial fishery	Woodside has applied its methodology for 'Commercial fisheries (Commonwealth and State) and peak representative bodies' under regulation 11A(1)(d). The fishery does not overlap the Operational Area. The fishery overlaps the EMBA but has not been active in the EMBA in the last 5 years. The fishery has been active within the last 5 years where shoreline accumulation may occur.	Yes
Shark Bay Crab Managed Fishery	State commercial fishery	Woodside has applied its methodology for 'Commercial fisheries (Commonwealth and State) and peak representative bodies' under regulation 11A(1)(d). The fishery does not overlap the Operational Area. The fishery overlaps the EMBA but has not been active in the EMBA in the last 5 years. The fishery has been active within the last 5 years where shoreline accumulation may occur.	Yes

Person or Organisation	Summary of responsibilities and/or functions, interests or activities	Assessment of relevance	Relevant person
Shark Bay Prawn Managed Fishery	State commercial fishery	Woodside has applied its methodology for 'Commercial fisheries (Commonwealth and State) and peak representative bodies' under regulation 11A(1)(d). The fishery does not overlap the Operational Area. The fishery overlaps the EMBA but has not been active in the EMBA in the last 5 years. The fishery has been active within the last 5 years where shoreline accumulation may occur.	Yes
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 11A(1)(d). The fishery does not overlap the Operational Area. The fishery overlaps the EMBA but has not been active in the EMBA in the last 5 years. The fishery has been active within the last 5 years where shoreline accumulation may occur.	Yes
WA North Coast Shark Managed Fishery	State commercial fishery	Woodside has applied its methodology for 'Commercial fisheries (Commonwealth and State) and peak representative bodies' under regulation 11A(1)(d). The fishery does not overlap the Operational Area. Although the fishery overlaps the EMBA and where shoreline accumulation may occur, the fishery has not been an active fishery since 2008/09 (DPIRD).	No
Abrolhos Islands and Mid West Trawl Limited Fishery	State commercial fishery	Woodside has applied its methodology for 'Commercial fisheries (Commonwealth and State) and peak representative bodies' under regulation 11A(1)(d). The fishery does not overlap the Operational Area or EMBA. The fishery has been active within the last 5 years where shoreline accumulation may occur.	Yes
FBL Condition 74 Fish Trapping	State commercial fishery	Woodside has applied its methodology for 'Commercial fisheries (Commonwealth and State) and peak representative bodies' under regulation 11A(1)(d). The fishery does not overlap the Operational Area or EMBA. Whilst the fishery has been active within the last 5 years where shoreline accumulation may occur, this is on onshore fishery and therefore no interaction is expected.	No
Broome Prawn Managed Fishery	State commercial fishery	Woodside has applied its methodology for 'Commercial fisheries (Commonwealth and State) and peak representative bodies' under regulation 11A(1)(d). The fishery does not overlap the Operational Area or EMBA.	No

Person or Organisation	Summary of responsibilities and/or functions, interests or activities	Assessment of relevance	Relevant person
		Although the fishery overlaps the area where shoreline accumulation may occur, it has not been active within the last 5 years.	
Joint Authority Southern Demersal Gillnet & Demersal Longline Limited Entry Fishery	State commercial fishery	Woodside has applied its methodology for 'Commercial fisheries (Commonwealth and State) and peak representative bodies' under regulation 11A(1)(d). The fishery does not overlap the Operational Area or EMBA. The fishery has been active within the last 5 years where shoreline accumulation may occur.	Yes
Kimberley Gillnet and Barramundi Management Plan	State commercial fishery	Woodside has applied its methodology for 'Commercial fisheries (Commonwealth and State) and peak representative bodies' under regulation 11A(1)(d). The fishery does not overlap the Operational Area or EMBA. The fishery has been active within the last 5 years where shoreline accumulation may occur.	Yes
Kimberley Prawn Managed Fishery	State commercial fishery	Woodside has applied its methodology for 'Commercial fisheries (Commonwealth and State) and peak representative bodies' under regulation 11A(1)(d). The fishery does not overlap the Operational Area or EMBA. The fishery has been active within the last 5 years where shoreline accumulation may occur.	Yes
Purse Seine Developing Fishery	State commercial fishery	Woodside has applied its methodology for 'Commercial fisheries (Commonwealth and State) and peak representative bodies' under regulation 11A(1)(d). The fishery does not overlap the Operational Area or EMBA. The fishery has been active within the last 5 years where shoreline accumulation may occur.	Yes
Shark Bay Beach Seine and Mesh Net Fishery	State commercial fishery	Woodside has applied its methodology for 'Commercial fisheries (Commonwealth and State) and peak representative bodies' under regulation 11A(1)(d). The fishery does not overlap the Operational Area or EMBA. The fishery has been active within the last 5 years where shoreline accumulation may occur.	Yes
South West Trawl Fishery	State commercial fishery	Woodside has applied its methodology for 'Commercial fisheries (Commonwealth and State) and peak representative bodies' under regulation 11A(1)(d). The fishery does not overlap the Operational Area or EMBA.	No

Person or Organisation	Summary of responsibilities and/or functions, interests or activities	Assessment of relevance	Relevant person
		Although the fishery overlaps the area where shoreline accumulation may occur, it has not been active within the last 5 years.	
South West Coast Beach Net	State commercial fishery	Woodside has applied its methodology for 'Commercial fisheries (Commonwealth and State) and peak representative bodies' under regulation 11A(1)(d). The fishery does not overlap the Operational Area or EMBA. Although the fishery overlaps the area where shoreline accumulation may occur, it has not been active within the last 5 years.	No
West Coast (Beach Bait Fish Net)	State commercial fishery	Woodside has applied its methodology for 'Commercial fisheries (Commonwealth and State) and peak representative bodies' under regulation 11A(1)(d). The fishery does not overlap the Operational Area or EMBA. Although the fishery overlaps the area where shoreline accumulation may occur, it has not been active within the last 5 years.	No
West Coast Estuarine Managed Fishery	State commercial fishery	Woodside has applied its methodology for 'Commercial fisheries (Commonwealth and State) and peak representative bodies' under regulation 11A(1)(d). The fishery does not overlap the Operational Area or EMBA. The fishery has been active within the last 5 years where shoreline accumulation may occur.	Yes
West Coast Purse Seine Managed Fishery	State commercial fishery	Woodside has applied its methodology for 'Commercial fisheries (Commonwealth and State) and peak representative bodies' under regulation 11A(1)(d). The fishery does not overlap the Operational Area or EMBA. The fishery has been active within the last 5 years where shoreline accumulation may occur.	Yes
Open Access in the North Coast, Gascoyne Coast and West Coast Bioregions	State commercial fishery	Woodside has applied its methodology for 'Commercial fisheries (Commonwealth and State) and peak representative bodies' under regulation 11A(1)(d). The fishery does not overlap the Operational Area or EMBA. The fishery has been active within the last 5 years where shoreline accumulation may occur. There is no publicly available information on the extent of management area for the Open Access Fishery. Further, Woodside has received advice from DPIRD that no contact details are available for this fishery.	No

Person or Organisation	Summary of responsibilities and/or functions, interests or activities	Assessment of relevance	Relevant person
Open Access in the South Coast Bioregions	State commercial fishery	Woodside has applied its methodology for 'Commercial fisheries (Commonwealth and State) and peak representative bodies' under regulation 11A(1)(d). The fishery does not overlap the Operational Area or EMBA. The fishery has been active within the last 5 years where shoreline accumulation may occur. There is no publicly available information on the extent of management area for the Open Access Fishery. Further, Woodside has received advice from DPIRD that no contact details are available for this fishery.	No
Demersal Scalefish Fishery: Pilbara Trawl Fishery	State commercial fishery	Woodside has applied its methodology for 'Commercial fisheries (Commonwealth and State) and peak representative bodies' under regulation 11A(1)(d). 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
Pilbara Trap Fishery	State commercial fishery	Woodside has applied its methodology for 'Commercial fisheries (Commonwealth and State) and peak representative bodies' under regulation 11A(1)(d). 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
Pilbara Line Fishery	State commercial fishery	Woodside has applied its methodology for 'Commercial fisheries (Commonwealth and State) and peak representative bodies' under regulation 11A(1)(d). Although the fishery overlaps the Operational Area, it has not been active in the Operational Area within the last 5 years. The fishery has been active in the EMBA in the last 5 years.	Yes
Western Australian Fishing Industry Council (WAFIC)	Represents the interests of commercial fishers with licences in State waters.	Woodside has applied its methodology for 'Commercial fisheries (Commonwealth and State) and peak representative bodies' under regulation 11A(1)(d). No State fisheries are active in the Operational Area. The Exmouth Gulf Beach Seine and Mesh Net Managed Fishery, Exmouth Gulf Prawn Managed Fishery, Gascoyne Demersal Scalefish Fishery, Land Hermit Crab Fishery, Mackerel Managed Fishery (Area 1, 2 and 3), Marine Aquarium Managed Fishery, Nickol Bay Managed Fishery, Onslow Prawn Managed Fishery, Pilbara Crab Managed Fishery, Pilbara Trawl Fishery, Pilbara Line Fishery, Pilbara Trap Fishery, Specimen Shell Managed Fishery, Western Australian Sea Cucumber Fishery, West Coast Deep Sea Crustacean	Yes

Person or Organisation	Summary of responsibilities and/or functions, interests or activities	Assessment of relevance	Relevant person
		<p>Managed Fishery, West Coast Demersal Scalefish Fishery and West Coast Rock Lobster Managed Fishery are active in the EMBA.</p> <p>Abalone Managed Fishery, Abrolhos Islands and Mid West Trawl Managed Fishery, Joint Authority Southern Demersal Gillnet & Demersal Longline Limited Entry Fishery, Kimberley Crab Managed Fishery, Kimberley Gillnet and Barramundi Managed Fishery, Kimberley Prawn Managed Fishery, Northern Demersal Scalefish Fishery, Octopus Interim Managed Fishery, Pearl Oyster Managed Fishery, Purse Seine Developing Fishery, Shark Bay Beach Seine and Mesh Net Managed Fishery, Shark Bay Crab Managed Fishery, Shark Bay Prawn Managed Fishery, Shark Bay Scallop Managed Fishery, South-West Coast Salmon Fishery, West Coast Demersal Gillnet & Demersal Longline Interim Managed Fishery, West Coast Estuarine Managed Fishery, West Coast Purse Seine Managed Fishery, West Coast Rock Lobster Managed Fishery have been active where shoreline accumulation may occur.</p> <p>WAFIC's functions may be relevant to the activity as the peak representative body for State fisheries.</p> <p>Woodside acknowledges WAFIC's consultation guidance¹ and has applied this by consulting fisheries that are assessed as having a potential for interaction in the Operational Area directly and consulting fisheries assessed as having a potential for interaction in the EMBA via WAFIC.</p>	
Western Rock Lobster Council	Represents the interests of the Western Rock Lobster Managed Fishery.	<p>Woodside has applied its methodology for 'Commercial fisheries (Commonwealth and State) and peak representative bodies' under regulation 11A(1)(d).</p> <p>The Western Rock Lobster Managed Fishery is active within the EMBA and where shoreline accumulation may occur.</p> <p>The Western Rock Lobster Council's functions may be relevant to the activity as the Western Rock Lobster Managed Fishery is active in the EMBA and where shoreline accumulation may occur.</p>	Yes
Recreational marine users and representative bodies			
Karratha recreational marine users	Karratha-based dive, tourism and charter operators	<p>Woodside has applied its methodology for 'Recreational marine users and representative bodies' under regulation 11A(1)(d).</p> <p>Activities have the potential to impact Karratha-based dive, tourism and charter operator's functions, interests or activities due to the location of activities and there has been recorded charter effort in the EMBA in the past 5 years.</p>	Yes

Person or Organisation	Summary of responsibilities and/or functions, interests or activities	Assessment of relevance	Relevant person
Exmouth recreational marine users	Exmouth-based dive, tourism and charter operators	Woodside has applied its methodology for 'Recreational marine users and representative bodies' under regulation 11A(1)(d). Activities have the potential to impact Exmouth-based dive, tourism and charter operator's functions, interests or activities due to the location of activities and there has been recorded charter effort in the EMBA in the past 5 years.	Yes
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 11A(1)(d). 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.	Yes
Pilbara / Kimberley Recreational Marine Users	Pilbara/Kimberley-based dive, tourism and charter operators	Woodside has applied its methodology for 'Recreational marine users and representative bodies' under regulation 11A(1)(d). 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.	Yes
West Coast Recreational Marine Users	West Coast-based dive, tourism and charter operators	Woodside has applied its methodology for 'Recreational marine users and representative bodies' under regulation 11A(1)(d). Activities have the potential to impact West Coast-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.	Yes
South West Recreational Marine Users	South West-based dive, tourism and charter operators	Woodside has applied its methodology for 'Recreational marine users and representative bodies' under regulation 11A(1)(d). Activities have the potential to impact South Coast-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.	Yes
Recfishwest	Represents the interests of recreational fishers in WA.	Woodside has applied its methodology for 'Recreational marine users and representative bodies' under regulation 11A(1)(d). Activities have the potential to impact recreational fishers' functions, interests or activities due to the location offshore and there has been recorded charter effort in the EMBA in the past 5 years.	Yes

Person or Organisation	Summary of responsibilities and/or functions, interests or activities	Assessment of relevance	Relevant person
Marine Tourism WA	Represents the interests of marine tourism in WA.	Woodside has applied its methodology for 'Recreational marine users and representative bodies' under regulation 11A(1)(d). Activities have the potential to impact recreational fishers' functions, interests or activities due to the location offshore and there has been recorded charter effort in the EMBA in the past 5 years.	Yes
WA Game Fishing Association	Represents the interests of game fishers in WA.	Woodside has applied its methodology for 'Recreational marine users and representative bodies' under regulation 11A(1)(d). Activities have the potential to impact game fishers' functions, interests or activities due to the location offshore and there has been recorded charter effort in the EMBA in the past 5 years.	Yes
Titleholders and Operators			
Chevron Australia	Titleholder or Operator	Woodside has applied its methodology for 'Titleholders and Operators' under regulation 11A(1)(d). 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 11A(1)(d). 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 11A(1)(d). 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 11A(1)(d). Titleholder or Operator's permit areas overlaps the EMBA.	Yes
INPEX Alpha Ltd	Titleholder or Operator	Woodside has applied its methodology for 'Titleholders and Operators' under regulation 11A(1)(d). Titleholder or Operator's permit areas overlaps the EMBA.	Yes
Carnarvon Energy Ltd	Titleholder or Operator	Woodside has applied its methodology for 'Titleholders and Operators' under regulation 11A(1)(d). Titleholder or Operator's permit areas overlaps the EMBA.	Yes
BP Developments Australia	Titleholder or Operator	Woodside has applied its methodology for 'Titleholders and Operators' under regulation 11A(1)(d). Titleholder or Operator's permit areas overlaps the EMBA.	Yes
Pathfinder Energy Pty Ltd	Titleholder or Operator	Woodside has applied its methodology for 'Titleholders and Operators' under regulation 11A(1)(d). Titleholder or Operator's permit areas overlaps the EMBA.	Yes

Person or Organisation	Summary of responsibilities and/or functions, interests or activities	Assessment of relevance	Relevant person
Osaka Gas Gorgon	Titleholder or Operator	Woodside has applied its methodology for 'Titleholders and Operators' under regulation 11A(1)(d). 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 11A(1)(d). 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 11A(1)(d). 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 11A(1)(d). 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 11A(1)(d). 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 11A(1)(d). Titleholder or Operator's permit areas overlaps the EMBA.	Yes
Fugro Exploration	Titleholder or Operator	Woodside has applied its methodology for 'Titleholders and Operators' under regulation 11A(1)(d). Titleholder or Operator's permit areas overlaps the EMBA.	Yes
Australian Gas Infrastructure (AGI) Tubriogi Pty Limited	Titleholder or Operator	Woodside has applied its methodology for 'Titleholders and Operators' under regulation 11A(1)(d). Titleholder or Operator's permit areas overlaps the EMBA.	Yes
Finder Energy (Finder No 9 / 16)	Titleholder or Operator	Woodside has applied its methodology for 'Titleholders and Operators' under regulation 11A(1)(d). 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 11A(1)(d). Titleholder or Operator's permit areas overlaps the EMBA.	Yes
TGS - NOPEC Geophysical Company Pty Ltd	Titleholder or Operator	Woodside has applied its methodology for 'Titleholders and Operators' under regulation 11A(1)(d). Titleholder or Operator's permit areas overlaps the EMBA.	Yes
Santos NA Energy Holdings / Santos Ltd / Santos WA Northwest /	Titleholder or Operator	Woodside has applied its methodology for 'Titleholders and Operators' under regulation 11A(1)(d). Titleholder or Operator's permit areas overlaps the EMBA.	Yes

Person or Organisation	Summary of responsibilities and/or functions, interests or activities	Assessment of relevance	Relevant person
Santos Offshore / Santos WA Southwest / Santos (BOL) / Santos WA PVG			
Bounty Oil and Gas NL	Titleholder or Operator	Woodside has applied its methodology for 'Titleholders and Operators' under regulation 11A(1)(d). Titleholder or Operator's permit areas overlaps the EMBA.	Yes
Coastal Oil and Gas	Titleholder or Operator	Woodside has applied its methodology for 'Titleholders and Operators' under regulation 11A(1)(d). Titleholder or Operator's permit areas overlaps the EMBA.	Yes
Buru Energy Limited	Titleholder or Operator	Woodside has applied its methodology for 'Titleholders and Operators' under regulation 11A(1)(d). Titleholder or Operator's permit areas overlaps the EMBA.	Yes
Energy Resources Limited	Titleholder or Operator	Woodside has applied its methodology for 'Titleholders and Operators' under regulation 11A(1)(d). Titleholder or Operator's permit areas overlaps the EMBA.	Yes
OMV Australia / Sapura OMV Upstream	Titleholder or Operator	Woodside has applied its methodology for 'Titleholders and Operators' under regulation 11A(1)(d). Titleholder or Operator's permit areas overlaps the EMBA.	Yes
Key Petroleum (Australia) Pty Ltd / Key Midwest Pty Ltd	Titleholder or Operator	Woodside has applied its methodology for 'Titleholders and Operators' under regulation 11A(1)(d). Titleholder or Operator's permit areas overlaps the EMBA.	Yes
PetroChina International Investment (Australia) Pty Ltd	Titleholder or Operator	Woodside has applied its methodology for 'Titleholders and Operators' under regulation 11A(1)(d). Titleholder or Operator's permit areas overlaps the EMBA.	Yes
Origin Energy West Pty Ltd	Titleholder or Operator	Woodside has applied its methodology for 'Titleholders and Operators' under regulation 11A(1)(d). Titleholder or Operator's permit areas overlaps the EMBA.	Yes
Vermillion Oil and Gas Australia Pty Ltd	Titleholder or Operator	Woodside has applied its methodology for 'Titleholders and Operators' under regulation 11A(1)(d). Titleholder or Operator's permit areas overlaps the EMBA.	Yes
Jadestone	Titleholder or Operator	Woodside has applied its methodology for 'Titleholders and Operators' under regulation 11A(1)(d). Titleholder or Operator's permit areas overlaps the EMBA.	Yes
Beagle No 1 Pty Ltd	Titleholder or Operator	Woodside has applied its methodology for 'Titleholders and Operators' under regulation 11A(1)(d). Titleholder or Operator's permit areas overlaps the EMBA.	Yes

Person or Organisation	Summary of responsibilities and/or functions, interests or activities	Assessment of relevance	Relevant person
JX Nippon O&G Exploration (Australia)	Titleholder or Operator	Woodside has applied its methodology for 'Titleholders and Operators' under regulation 11A(1)(d). Titleholder or Operator's permit areas overlaps the EMBA.	Yes
KATO Amulet Pty Ltd / KATO NWS Pty Ltd / KATO Corowa / KATO Energy (WA) Pty Ltd	Titleholder or Operator	Woodside has applied its methodology for 'Titleholders and Operators' under regulation 11A(1)(d). Titleholder or Operator's permit areas overlaps the EMBA.	Yes
Peak Industry Representative bodies			
APPEA	Represents the interests of oil and gas explorers and producers in Australia.	Woodside has applied its methodology for 'Peak Industry Representative bodies' under regulation 11A(1)(d). APPEA's responsibilities are identified as having an intersect with Woodside's planned activities in the EMBA.	Yes
Traditional Custodians and nominated representative corporations			
Balanggarra Aboriginal Corporation	Representative Aboriginal Corporation	Woodside has applied its methodology for 'Traditional Custodians and Nominated Representative Corporations' under regulation 11A(1)(d). The Balanggarra (Combined) native title claim, for which the Balanggarra Aboriginal Corporation is the Registered Native Title Body Corporate, does not overlap the EMBA but does overlap areas where shoreline accumulation may occur. The Balanggarra Aboriginal Corporation is party to the BAC KSCS Indigenous Land Use Agreement which overlaps where shoreline accumulation may occur. The EMBA overlaps the North Kimberley Marine Park, over which the North Kimberley Marine Park Joint Management Plan 2016 specifies Wunambal Gaambera Aboriginal Corporation, Balanggarra Aboriginal Corporation, Wilinggin Aboriginal Corporation and Yawoorroong Miriwoong Gajirrawoong Yirrgeb Noong Dawang Aboriginal Corporation as representing people who may have cultural interests in the marine park.	Yes
Bardi and Jawi Niimidiman Aboriginal Corporation	Representative Aboriginal Corporation	Woodside has applied its methodology for 'Traditional Custodians and Nominated Representative Corporations' under regulation 11A(1)(d). The Bardi and Jawi Native Title Determination, for which the Bardi and Jawi Niimidiman Aboriginal Corporation is the Registered Native Title Body Corporate does not overlap the EMBA but does overlap areas where shoreline accumulation may occur.	Yes

Person or Organisation	Summary of responsibilities and/or functions, interests or activities	Assessment of relevance	Relevant person
		The Bardi and Jawi Niimidiman Aboriginal Corporation is party to the Bardi Jawi Conservation Estate Indigenous Land Use Agreement which overlaps areas where shoreline accumulation may occur.	
Bundi Yamatji Aboriginal Corporation	Representative Aboriginal Corporation	Woodside has applied its methodology for 'Traditional Custodians and Nominated Representative Corporations' under regulation 11A(1)(d). The Yamatji Nation native title claim, for which the Bundi Yamatji Aboriginal Corporation is the Registered Native Title Body Corporate, does not overlap the EMBA but does overlap areas where shoreline accumulation may occur. The Bundi Yamatji Aboriginal Corporation is party to the Yamatji Nation Agreement, which overlaps areas where shoreline accumulation may occur.	Yes
Buurabalayji Thalanyji Aboriginal Corporation (BTAC)	Representative Aboriginal Corporation	Woodside has applied its methodology for 'Traditional Custodians and Nominated Representative Corporations' under regulation 11A(1)(d). The Thalanyji native title claim, for which BTAC is the Registered Native Title Body Corporate, overlaps the EMBA. BTAC is also party to the Macedon ILUA and Thalanyji and Minderoo Pastoral ILUA which overlap the EMBA.	Yes
Dambimangari Aboriginal Corporation	Representative Aboriginal Corporation	Woodside has applied its methodology for 'Traditional Custodians and Nominated Representative Corporations' under regulation 11A(1)(d). Dambimangari Aboriginal Corporation is party to the Dambimangari KSCS Marine Parks ILUA and the Cockatoo Island Co-Existence Indigenous Land Use Agreement which overlap areas where shoreline accumulation may occur. The EMBA overlaps the Lalang-garram/Camden Sound Marine Park, Lalang-garram/Horizontal Falls Marine Park and North Lalang-garram Marine Park, over which the Lalang-gaddam Marine Park Joint Management Plan 2022 specifies Dambimangari Aboriginal Corporation as representing people who may have cultural interests in the marine park.	Yes
Gogolanyngor Aboriginal Corporation	Representative Aboriginal Corporation	Woodside has applied its methodology for 'Traditional Custodians and Nominated Representative Corporations' under regulation 11A(1)(d). The Bindunbur native title claim, for which the Gogolanyngor Aboriginal Corporation, Nimanburr Aboriginal Corporation and Nyul Nyul PBC Aboriginal Corporation are the Registered Native Title Bodies Corporate, does not overlap the EMBA but does overlap areas where shoreline accumulation may occur. The Jabirr Jabirr/Ngumbarl native title claim, for which the Gogolanyngor Aboriginal Corporation is the Registered Native Title Body Corporate, does	Yes

Person or Organisation	Summary of responsibilities and/or functions, interests or activities	Assessment of relevance	Relevant person
		not overlap the EMBA but does overlap areas where shoreline accumulation may occur.	
Karajarri Traditional Lands Association (Aboriginal Corporation)	Representative Aboriginal Corporation	<p>Woodside has applied its methodology for 'Traditional Custodians and Nominated Representative Corporations' under regulation 11A(1)(d). The Karajarri People (Area A) and Karajarri People (Area B) native title claims, for which the Karajarri Traditional Lands Association (Aboriginal Corporation) is the Registered Native Title Body Corporate, does not overlap the EMBA but does overlap areas where shoreline accumulation may occur. The Karajarri Traditional Lands Association (Aboriginal Corporation) is party to the Great Sandy Desert Project ILUA – Infrastructure and Karajarri Traditional Lands Association KSCS Eighty Mile Beach ILUA which overlaps areas where shoreline accumulation may occur.</p> <p>The EMBA overlaps the Eighty Mile Beach Marine Park, over which the Eighty Mile Beach Marine Park management plan 2014-2024 specifies Karajarri Traditional Lands Association, Nyangumarta Warrarn Aboriginal Corporation, Wanparta Aboriginal Corporation and Nyangumarta Karajarri Aboriginal Corporation as representing people who may have cultural interests in the marine park.</p> <p>The EMBA also overlaps the Jinmarnkur Kulja Nature Reserve, over which Parks and reserves of the south-west Kimberley and north-west Pilbara joint management plan 2019 specifies Karajarri Traditional Lands Association, Nyangumarta Warrarn Aboriginal Corporation, Wanparta Aboriginal Corporation and Nyangumarta Karajarri Aboriginal Corporation as representing people who may have cultural interests in the marine park.</p>	Yes
Kariyarra Aboriginal Corporation	Representative Aboriginal Corporation	<p>Woodside has applied its methodology for 'Traditional Custodians and Nominated Representative Corporations' under regulation 11A(1)(d). The Kariyarra native title claim, for which the Kariyarra Aboriginal Corporation is the Registered Native Title Body Corporate, does not overlap the EMBA but does overlap areas where shoreline accumulation may occur.</p> <p>The Kariyarra Aboriginal Corporation is also party to the Kariyarra and State ILUA which overlaps areas where shoreline accumulation may occur.</p>	Yes
Karri Karrak Aboriginal Corporation	Representative Aboriginal Corporation	<p>Woodside has applied its methodology for 'Traditional Custodians and Nominated Representative Corporations' under regulation 11A(1)(d). The South West Boojarah #2 Indigenous Land Use Agreement overlaps areas where shoreline accumulation may occur. The Karri Karrak Aboriginal</p>	Yes

Person or Organisation	Summary of responsibilities and/or functions, interests or activities	Assessment of relevance	Relevant person
		Corporation is the regional corporation established for the South West Boojarah region.	
Malgana Aboriginal Corporation	Representative Aboriginal Corporation	Woodside has applied its methodology for 'Traditional Custodians and Nominated Representative Corporations' under regulation 11A(1)(d). The Malgana Part A native title claim, for which the Malgana Aboriginal Corporation is the Registered Native Title Body Corporate, does not overlap the EMBA but does overlap areas where shoreline accumulation may occur. The Nanda People Part B, Malgana 2 and Malgana 3 native title claim, for which the Malgana Aboriginal Corporation and Nanda Aboriginal Corporation are the Registered Native Title Bodies Corporate, does not overlap the EMBA but does overlap areas where shoreline accumulation may occur. The Malgana Aboriginal Corporation is party to the Malgana Tamala Pastoral Lease Agreement which overlaps areas where shoreline accumulation may occur and the Malgana Woodleigh Carbla Pastoral Lease Agreement and Malgana Wooramel Pastoral Lease Agreement which are coastally adjacent to the EMBA.	Yes
Mayala Inninalang Aboriginal Corporation	Representative Aboriginal Corporation	Woodside has applied its methodology for 'Traditional Custodians and Nominated Representative Corporations' under regulation 11A(1)(d). The Mayala People native title claim, for which the Mayala Inninalang Aboriginal Corporation is the Registered Native Title Body Corporate, does not overlap the EMBA but does overlap areas where shoreline accumulation may occur. The Mayala Inninalang Aboriginal Corporation is party to the Mayala Country Marine Park Indigenous Land Use Agreement which overlaps where shoreline accumulation may occur.	Yes
Murujuga Aboriginal Corporation (MAC)	Representative Aboriginal Corporation	Woodside has applied its methodology for 'Traditional Custodians and Nominated Representative Corporations' under regulation 11A(1)(d). MAC is the Nominated Representative Corporation under the Burrup and Maitland Industrial Estates Agreement (BMIEA), which is coastally adjacent to the EMBA and underpins land access for the onshore component of the Scarborough Project. MAC was established to represent the members of competing Native Title claims over Murujuga, collectively known as the Ngarda Ngarli and comprising Mardudhunera, Ngarluma, Yaburara, Yindjibarndi and Wong-Goo-Tt-Oo people. The determination of the competing Native Title claims	Yes

Person or Organisation	Summary of responsibilities and/or functions, interests or activities	Assessment of relevance	Relevant person
		<p>resulted in no native title being found over the lands subject to the BMIEA or below the low water mark.</p> <p>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. The EMBA does not overlap the Murujuga National Park.</p>	
Nanda Aboriginal Corporation	Representative Aboriginal Corporation	<p>Woodside has applied its methodology for 'Traditional Custodians and Nominated Representative Corporations' under regulation 11A(1)(d). The Nanda People and Nanda #2 native title claim, for which the Nanda Aboriginal Corporation is the Registered Native Title Body Corporate, does not overlap the EMBA but does overlap areas where shoreline accumulation may occur.</p> <p>The Nanda People Part B, Malgana 2 and Malgana 3 native title claim, for which the Malgana Aboriginal Corporation and Nanda Aboriginal Corporation are the Registered Native Title Bodies Corporate, does not overlap the EMBA but does overlap areas where shoreline accumulation may occur.</p>	Yes
Nganhurra Thanardi Garrbu Aboriginal Corporation (NTGAC)	Representative Aboriginal Corporation	<p>Woodside has applied its methodology for 'Traditional Custodians and Nominated Representative Corporations' under regulation 11A(1)(d). The Gnulli, Gnulli #2 and Gnulli #3 - Yinggarda, Baiyungu and Thalanyji People native title claim, for which the NTGAC and Yinggarda Aboriginal Corporation (YAC) are the Registered Native Title Bodies Corporate, overlaps the EMBA.</p> <p>The NTGAC is also party to the Ningaloo Conservation Estate Indigenous Land Use Agreement which overlaps the EMBA and the Gnaraloo ILUA which is coastally adjacent to the EMBA.</p> <p>The EMBA overlaps the Ningaloo Marine Park, over which the Nyinggulu (Ningaloo) Coastal Reserves Red Bluff to Winderabandi Joint Management Plan 2022 specifies Nganhurra Thanardi Garrbu Aboriginal Corporation as representing people who may have cultural interests in the marine park.</p> <p>The NTGAC's nominated representative is the YMAC and the NTGAC executive officer and contact officer pursuant to the Corporations (Aboriginal and Torres Strait Islander) Act 2006 is employed by YMAC. Woodside has therefore consulted the NTGAC, via YMAC.</p>	Yes
Ngarluma Aboriginal Corporation (NAC)	Representative Aboriginal Corporation	Woodside has applied its methodology for 'Traditional Custodians and Nominated Representative Corporations' under regulation 11A(1)(d).	Yes

Person or Organisation	Summary of responsibilities and/or functions, interests or activities	Assessment of relevance	Relevant person
		<p>The Ngarluma/Yindjibarndi native title claim, for which NAC and the Yindjibarndi Aboriginal Corporation are the Registered Native Title Bodies Corporate, overlaps the EMBA.</p> <p>The Ngarluma People native title claim, for which NAC is the Registered Native Title Body Corporate, does not overlap the EMBA but does overlap areas where shoreline accumulation may occur.</p> <p>NAC is party to the Anketell Port, Infrastructure Corridor and Industrial Estates Agreement which overlaps the EMBA and the RTIO Ngarluma Indigenous Land Use Agreement (Body Corporate Agreement) which overlaps areas where shoreline accumulation may occur.</p> <p>The EMBA overlaps the Dampier AMP, over which the North-west Marine parks Network Management Plan 2018 specifies NAC and the Yindjibarndi Aboriginal Corporation as representing people who may have cultural interests in the marine park.</p>	
Nimanburr Aboriginal Corporation	Representative Aboriginal Corporation	<p>Woodside has applied its methodology for 'Traditional Custodians and Nominated Representative Corporations' under regulation 11A(1)(d).</p> <p>The Bindunbur native title claim, for which the Gogolanyngor Aboriginal Corporation, Nimanburr Aboriginal Corporation and Nyul Nyul PBC Aboriginal Corporation are the Registered Native Title Bodies Corporate, does not overlap the EMBA but does overlap areas where shoreline accumulation may occur.</p>	Yes
Nyangumarta Karajarri Aboriginal Corporation	Representative Aboriginal Corporation	<p>Woodside has applied its methodology for 'Traditional Custodians and Nominated Representative Corporations' under regulation 11A(1)(d).</p> <p>The Nyangumarta-Karajarri Overlap Proceeding (Yawinya) native title claim, for which the Nyangumarta Karajarri Aboriginal Corporation is the Registered Native Title Body Corporate, does not overlap the EMBA but does overlap areas where shoreline accumulation may occur.</p> <p>The Nyangumarta Karajarri Aboriginal Corporation is party to the NKAC KSCS Eighty Mile Beach ILUA, Nyangumarta Karajarri and Anna Plains Station ILUA and Nyangumarta Karajarri and Mandora Station ILUA which overlap areas where shoreline accumulation may occur.</p> <p>The EMBA overlaps the Eighty Mile Beach Marine Park, over which the Eighty Mile Beach Marine Park management plan 2014-2024 specifies Karajarri Traditional Lands Association, Nyangumarta Warrarn Aboriginal Corporation, Wanparta Aboriginal Corporation and Nyangumarta Karajarri Aboriginal Corporation as representing people who may have cultural interests in the marine park.</p>	Yes

Person or Organisation	Summary of responsibilities and/or functions, interests or activities	Assessment of relevance	Relevant person
		The EMBA also overlaps the Jinmarnkur Kulja Nature Reserve, over which Parks and reserves of the south-west Kimberley and north-west Pilbara joint management plan 2019 specifies Karajarri Traditional Lands Association, Nyangumarta Warrarn Aboriginal Corporation, Wanparta Aboriginal Corporation and Nyangumarta Karajarri Aboriginal Corporation as representing people who may have cultural interests in the marine park.	
Nyangumarta Warrarn Aboriginal Corporation	Representative Aboriginal Corporation	<p>Woodside has applied its methodology for 'Traditional Custodians and Nominated Representative Corporations' under regulation 11A(1)(d). The Nyangumarta People (Part A) native title claim, for which the Nyangumarta Warrarn Aboriginal Corporation is the Registered Native Title Body Corporate, does not overlap the EMBA but does overlap areas where shoreline accumulation may occur.</p> <p>The Nyangumarta Warrarn Aboriginal Corporation is party to the Nyangumarta PBC KSCS ILUA, Nyangumarta Warrarn Aboriginal Corporation & Mandora Pastoral Lease ILUA and Nyangumarta Warrarn Aboriginal Corporation & Wallal Downs Pastoral Lease ILUA which overlap areas where shoreline accumulation may occur.</p> <p>The EMBA overlaps the Eighty Mile Beach Marine Park, over which the Eighty Mile Beach Marine Park management plan 2014-2024 specifies Karajarri Traditional Lands Association, Nyangumarta Warrarn Aboriginal Corporation, Wanparta Aboriginal Corporation and Nyangumarta Karajarri Aboriginal Corporation as representing people who may have cultural interests in the marine park.</p> <p>The EMBA also overlaps the Jinmarnkur Kulja Nature Reserve, over which Parks and reserves of the south-west Kimberley and north-west Pilbara joint management plan 2019 specifies Karajarri Traditional Lands Association, Nyangumarta Warrarn Aboriginal Corporation, Wanparta Aboriginal Corporation and Nyangumarta Karajarri Aboriginal Corporation as representing people who may have cultural interests in the marine park.</p>	Yes
Nyul Nyul PBC Aboriginal Corporation	Representative Aboriginal Corporation	<p>Woodside has applied its methodology for 'Traditional Custodians and Nominated Representative Corporations' under regulation 11A(1)(d). The Bindunbur native title claim, for which the Gogolanyngor Aboriginal Corporation, Nimanburr Aboriginal Corporation and Nyul Nyul PBC Aboriginal Corporation are the Registered Native Title Bodies Corporate, does not overlap the EMBA but does overlap areas where shoreline accumulation may occur.</p>	Yes

Person or Organisation	Summary of responsibilities and/or functions, interests or activities	Assessment of relevance	Relevant person
Robe River Kuruma Aboriginal Corporation	Representative Aboriginal Corporation	Woodside has applied its methodology for 'Traditional Custodians and Nominated Representative Corporations' under regulation 11A(1)(d). There are no native title claims that the Robe River Kuruma Aboriginal Corporation is party to overlapping the EMBA or coastally adjacent to the EMBA. The Robe River Kuruma Aboriginal Corporation is party to the RTIO Kuruma Marthudunera People ILUA and KM & YM ILUA, which overlap the EMBA.	Yes
Wanjina-Wunggurr (Native Title) Aboriginal Corporation	Representative Aboriginal Corporation	Woodside has applied its methodology for 'Traditional Custodians and Nominated Representative Corporations' under regulation 11A(1)(d). The Dambimangari native title claim and Unguu Part A native title claim, for which the Wanjina-Wunggurr (Native Title) Aboriginal Corporation is the Registered Native Title Body Corporate, do not overlap the EMBA but do overlap areas where shoreline accumulation may occur. The Wanjina-Wunggurr (Native Title) Aboriginal Corporation is party to the Dambimangari KSCS Marine Parks ILUA and the Cockatoo Island Co-Existence Indigenous Land Use Agreement which overlap areas where shoreline accumulation may occur.	Yes
Wanparta Aboriginal Corporation	Representative Aboriginal Corporation	Woodside has applied its methodology for 'Traditional Custodians and Nominated Representative Corporations' under regulation 11A(1)(d). The Ngarla and Ngarla #2 (Determination Area A) native title claim, for which the Wanparta Aboriginal Corporation is the Registered Native Title Body Corporate, does not overlap the EMBA but does overlap areas where shoreline accumulation may occur. The Wanparta Aboriginal Corporation is party to the Ngarla Patoral ILUA and Ngarla PBC KCSC ILUA, which overlap areas where shoreline accumulation may occur. The EMBA overlaps the Eighty Mile Beach Marine Park, over which the Eighty Mile Beach Marine Park management plan 2014-2024 specifies Karajarri Traditional Lands Association, Nyangumarta Warrarn Aboriginal Corporation, Wanparta Aboriginal Corporation and Nyangumarta Karajarri Aboriginal Corporation as representing people who may have cultural interests in the marine park. The EMBA also overlaps the Jinmarnkur Kulja Nature Reserve, over which Parks and reserves of the south-west Kimberley and north-west Pilbara joint management plan 2019 specifies Karajarri Traditional Lands Association, Nyangumarta Warrarn Aboriginal Corporation, Wanparta Aboriginal	Yes

Person or Organisation	Summary of responsibilities and/or functions, interests or activities	Assessment of relevance	Relevant person
		Corporation and Nyangumarta Karajarri Aboriginal Corporation as representing people who may have cultural interests in the marine park.	
Wilinggin Aboriginal Corporation	Representative Aboriginal Corporation	Woodside has applied its methodology for 'Traditional Custodians and Nominated Representative Corporations' under regulation 11A(1)(d). The EMBA overlaps the North Kimberley Marine Park, over which the North Kimberley Marine Park Joint Management Plan 2016 specifies Wunambal Gaambera Aboriginal Corporation, Balangarra Aboriginal Corporation, Wilinggin Aboriginal Corporation and Yawoorroong Miriwoong Gajirrawoong Yirrgeb Noong Dawang Aboriginal Corporation as representing people who may have cultural interests in the marine park.	Yes
Wirrawandi Aboriginal Corporation (WAC)	Representative Aboriginal Corporation	Woodside has applied its methodology for 'Traditional Custodians and Nominated Representative Corporations' under regulation 11A(1)(d). The Yaburara & Mardudhunera People native title claim, for which WAC is the Registered Native Title Body Corporate, overlaps the EMBA. WAC is party to the Cape Preston Project Deed (YM Mardie ILUA), Cape Preston West Export Facility ILUA, and KM & YM ILUA, which overlap the EMBA.	Yes
Wunambal Gaambera Aboriginal Corporation	Representative Aboriginal Corporation	Woodside has applied its methodology for 'Traditional Custodians and Nominated Representative Corporations' under regulation 11A(1)(d). The EMBA overlaps the North Kimberley Marine Park, over which the North Kimberley Marine Park Joint Management Plan 2016 specifies Wunambal Gaambera Aboriginal Corporation, Balangarra Aboriginal Corporation, Wilinggin Aboriginal Corporation and Yawoorroong Miriwoong Gajirrawoong Yirrgeb Noong Dawang Aboriginal Corporation as representing people who may have cultural interests in the marine park.	Yes
Yawoorroong Miriwoong Gajirrawoong Yirrgeb Noong Dawang Aboriginal Corporation	Representative Aboriginal Corporation	Woodside has applied its methodology for 'Traditional Custodians and Nominated Representative Corporations' under regulation 11A(1)(d). The EMBA overlaps the North Kimberley Marine Park, over which the North Kimberley Marine Park Joint Management Plan 2016 specifies Wunambal Gaambera Aboriginal Corporation, Balangarra Aboriginal Corporation, Wilinggin Aboriginal Corporation and Yawoorroong Miriwoong Gajirrawoong Yirrgeb Noong Dawang Aboriginal Corporation as representing people who may have cultural interests in the marine park.	Yes
Yawuru Native Title Holders Aboriginal Corporation	Representative Aboriginal Corporation	Woodside has applied its methodology for 'Traditional Custodians and Nominated Representative Corporations' under regulation 11A(1)(d).	Yes

Person or Organisation	Summary of responsibilities and/or functions, interests or activities	Assessment of relevance	Relevant person
		<p>The Rubibi Community native title claim, for which the Yawuru Native Title Holders Aboriginal Corporation is the Registered Native Title Body Corporate, does not overlap the EMBA but does overlap areas where shoreline accumulation may occur.</p> <p>The Yawuru Native Title Holders Aboriginal Corporation is party to the Eco Beach ILUA, Yawuru Nagulagun / Roebuck Bay Marine Park ILUA and Yawuru Prescribed Body Corporate ILUA - Broome which overlaps areas where shoreline accumulation may occur.</p>	
Yindjibarndi Aboriginal Corporation	Representative Aboriginal Corporation	<p>Woodside has applied its methodology for 'Traditional Custodians and Nominated Representative Corporations' under regulation 11A(1)(d). The Ngarluma/Yindjibarndi native title claim, for which NAC and the Yindjibarndi Aboriginal Corporation are the Registered Native Title Bodies Corporate, overlaps the EMBA.</p> <p>The EMBA overlaps the Dampier AMP, over which the North-west Marine parks Network Management Plan 2018 specifies NAC and the Yindjibarndi Aboriginal Corporation as representing people who may have cultural interests in the marine park.</p>	Yes
Yinggarda Aboriginal Corporation (YAC)	Representative Aboriginal Corporation	<p>Woodside has applied its methodology for 'Traditional Custodians and Nominated Representative Corporations' under regulation 11A(1)(d). The Gnulli, Gnulli #2 and Gnulli #3 - Yinggarda, Baiyungu and Thalanyji People native title claim, for which the NTGAC and Yinggarda Aboriginal Corporation (YAC) are the Registered Native Title Bodies Corporates, overlaps the EMBA.</p> <p>YAC is party to the Quobba – Yinggarda Pastoral ILUA which overlaps areas where shoreline accumulation may occur, and the Brickhouse and Yinggarda Aboriginal Corporation ILUA which is coastally adjacent to the EMBA.</p> <p>The YAC nominated representative was the YMAC and the YAC executive officer and contact officer pursuant to the Corporations (Aboriginal and Torres Strait Islander) Act 2006 is employed by YMAC. Woodside therefore consulted YAC, via YMAC. Woodside was advised that as of late April 2023, the nominated representative for YAC was now Gumala Aboriginal Corporation.</p>	Yes
Yued Aboriginal Corporation	Representative Aboriginal Corporation	<p>Woodside has applied its methodology for 'Traditional Custodians and Nominated Representative Corporations' under regulation 11A(1)(d). The Yued Indigenous Land Use Agreement overlaps areas where shoreline accumulation may occur. The Yued Aboriginal Corporation is the regional corporation established for the Yued region.</p>	Yes

Person or Organisation	Summary of responsibilities and/or functions, interests or activities	Assessment of relevance	Relevant person
		The EMBA overlaps the Jurien Bay State Marine Park, over which the Jurien bay Marine Park Management Plan 2005-2015 specifies Yued native title claimants as representing people who may have cultural interests in the marine park.	
Native Title Representative Bodies			
Yamatji Marlpa Aboriginal Corporation (YMAC)	Native Title Representative Body	Woodside has applied its methodology for 'Native Title Representative Bodies' under regulation 11A(1)(d). 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 was also the nominated representative for YAC. Woodside was advised that as of late April 2023, the nominated representative for YAC is now Gumala Aboriginal Corporation. 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
Kimberley Land Council (KLC)	Land Council and Native Title Representative Body	Woodside has applied its methodology for 'Native Title Representative Bodies' under regulation 11A(1)(d). 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
Historical cultural heritage groups or organisations			
Western Australian Museum	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 11A(1)(d). There are known shipwrecks overlapping the Combined EMBA which the Western Australian Museum may be responsible for.	Yes

Person or Organisation	Summary of responsibilities and/or functions, interests or activities	Assessment of relevance	Relevant person
Local government and community representative groups or organisations			
Shire of Exmouth	Local government governed by the Local Government Act 1995 representing the suburbs and localities of Exmouth, Learmonth and North West Cape.	Woodside has applied its methodology for 'Local government and community representative groups or organisations' under regulation 11A(1)(d). The Shire of Exmouth's area of responsibility overlaps the EMBA.	Yes
City of Karratha	Local government governed by the Local Government Act 1995 representing the suburbs and localities of Baynton, Baynton West, Bulgarra, Cossack, Dampier, Gap Ridge, Karratha, Karratha Industrial Estate, Jingarri, Madigan, Millars Well, Nickol, Pegs Creek, Point Samson, Roebourne, Whim Creek and Wickham.	Woodside has applied its methodology for 'Local government and community representative groups or organisations' under regulation 11A(1)(d). The City of Karratha's area of responsibility overlaps the EMBA.	Yes
Shire of Ashburton	Local government governed by the Local Government Act 1995 representing the suburbs and localities of Onslow, Pannawonica, Paraburdoo and Tom Price.	Woodside has applied its methodology for 'Local government and community representative groups or organisations' under regulation 11A(1)(d). The Shire of Ashburton's area of responsibility overlaps the EMBA.	Yes
Town of Port Hedland	Local government governed by the Local Government Act 1995 representing the suburbs and localities of Cooke Point, Port Hedland, Pretty Pool, Redbank, South Hedland, Wedgefield and Yandeyarra.	Woodside has applied its methodology for 'Local government and community representative groups or organisations' under regulation 11A(1)(d). The Town of Port Hedland's area of responsibility overlaps the EMBA.	Yes
Shire of Carnarvon	Local government governed by the Local Government Act 1995 representing the suburbs and localities of Babbage Island, Brockman, Browns Range,	Woodside has applied its methodology for 'Local government and community representative groups or organisations' under regulation 11A(1)(d). The Shire of Carnarvon's area of responsibility overlaps the EMBA.	Yes

Person or Organisation	Summary of responsibilities and/or functions, interests or activities	Assessment of relevance	Relevant person
	Carnarvon, Coral Bay, East Carnarvon, Greys Plain, Ingaarda, Kingsford, Morgantown, North Plantations, South Carnarvon, South Plantations.		
Shire of Wyndham-East Kimberley	Local government governed by the Local Government Act 1995 representing the suburbs and localities of Crossing Falls, Kalumburu, Kununurra, Lake Argyle, Lakeside, Packsaddle, Wyndam	Woodside has applied its methodology for 'Local government and community representative groups or organisations' under regulation 11A(1)(d). The Shire of Wyndham-East Kimberley's area of responsibility overlaps the EMBA.	Yes
Shire of Derby/West Kimberley	Local government governed by the Local Government Act 1995 representing the suburbs and localities of Derby, Fitzroy Crossing and Camballin	Woodside has applied its methodology for 'Local government and community representative groups or organisations' under regulation 11A(1)(d). The Shire of Derby/West Kimberley's area of responsibility overlaps the EMBA.	Yes
Shire of East Pilbara	Local government governed by the Local Government Act 1995 representing the suburbs and localities of Jigalong, Kiwirrkurra, Kunawarrtji, Marble Bar, Newman, Nullagine, Parngurr, Punmu, Warralong	Woodside has applied its methodology for 'Local government and community representative groups or organisations' under regulation 11A(1)(d). The Shire of East Pilbara's area of responsibility overlaps the EMBA.	Yes
Shire of Broome	Local government governed by the Local Government Act 1995 representing the suburbs and localities of Mile, Biligurr, Broome, Cable Beach, Cape Leveque, Coconut Well, Djugun, Lombadina, Minyirr, Morell Park, Skuthorpe	Woodside has applied its methodology for 'Local government and community representative groups or organisations' under regulation 11A(1)(d). The Shire of Broome's area of responsibility overlaps the EMBA.	Yes
Shire of Shark Bay	Local government governed by the Local Government Act 1995 representing the suburbs and localities of Billabong, Denham,	Woodside has applied its methodology for 'Local government and community representative groups or organisations' under regulation 11A(1)(d). The Shire of Shark Bay's area of responsibility overlaps the EMBA.	Yes

Person or Organisation	Summary of responsibilities and/or functions, interests or activities	Assessment of relevance	Relevant person
	Monkey Mia, Nanga, Overlander, Useless Loop		
City of Greater Geraldton	Local government governed by the Local Government Act 1995 representing the suburbs and localities of Ardingly, Beachlands Beatty, Beresford, Bluff Point, Bootenal, Bringoo, Burma Road, Cape Burney, Casuarina, Deepdale, Devils Creek, Drummond Cove, East Chapman, Ellendale, Eradu, Eradu South, Forrester Park, Georgina, Geraldton, Glenfield, Greenough, Indarra, Karloo, Kockatea, Kojarena, Mahomets Flats, Mendel, Meru, Minnenooka, Moonyoonooka, Moresby, Mullewa, Mt Hill, Mt Tarcoola, Narngulu, Northern Gully, Pindar, Rangeway, Rudds Gully, Sandsprings, South Greenough, Spalding, Strathalbyn, Sullivan, Sunset Beach, Tarcoola Beac, Tardun, Tenindewa, Tilbradden, Utakarra, Waggrakine, Walkaway, Wandina, Webberton, West End, Wicherina, Wicherina South, Wilroy, Wongoondy, Wonthella, Woorree.	Woodside has applied its methodology for 'Local government and community representative groups or organisations' under regulation 11A(1)(d). The City of Greater Geraldton's area of responsibility overlaps the EMBA.	Yes
Shire of Augusta Margaret River	Local government governed by the Local Government Act 1995 representing the suburbs and localities of Augusta, East Augusta, Molloy Island,	Woodside has applied its methodology for 'Local government and community representative groups or organisations' under regulation 11A(1)(d). The Shire of Augusta Margaret River's area of responsibility overlaps the EMBA.	Yes

Person or Organisation	Summary of responsibilities and/or functions, interests or activities	Assessment of relevance	Relevant person
	Prevelly, Witchcliffe, Burnside, Cowaramup, Gracetown, Forest Grove, Leeuwin, Osmington, Karridale, Kudardup, Bramley, Rosa Glen, Margaret River, Redgate, Baudin, Rosa Brook, Boranup, Warner Glen, Deepdene, Scott River, Hamelin Bay, Alexandra Bridge, Treeton, Gnarabup, Courtenay, Nillup.		
Shire of Chapman Valley	Local government governed by the Local Government Act 1995 representing the suburbs and localities of Buller, Oakajee, Howatharra, Nabawa, Nanson, Naraling, White Peak, Yetna, Yuna.	Woodside has applied its methodology for 'Local government and community representative groups or organisations' under regulation 11A(1)(d). The Shire of Chapman Valley's area of responsibility overlaps the EMBA.	Yes
Shire of Dandaragan	Local government governed by the Local Government Act 1995 representing the suburbs and localities of Badgingarra, Cervantes, Dandaragan, Jurien Bay, Regans Ford.	Woodside has applied its methodology for 'Local government and community representative groups or organisations' under regulation 11A(1)(d). The Shire of Dandaragan's area of responsibility overlaps the EMBA.	Yes
Shire of Gingin	Local government governed by the Local Government Act 1995 representing the suburbs and localities of Gingin, Gingin Rural/Industrial Estate, Guilderton, Honeycomb Estate, Lancelin, Ledge Point, Marchmont Estate, Moondah Ridge, Ocean Farm, Redfield Park, Seabird, Seaview Park, Sunset Estate, Sovereign Hill, Woodridge.	Woodside has applied its methodology for 'Local government and community representative groups or organisations' under regulation 11A(1)(d). The Shire of Gingin's area of responsibility overlaps the EMBA.	Yes

Person or Organisation	Summary of responsibilities and/or functions, interests or activities	Assessment of relevance	Relevant person
Shire of Northampton	Local government governed by the Local Government Act 1995 representing the suburbs and localities of Ajana, Binnu, Horrocks Beach, Isseka, Kalbarri, Northampton, Port Gregory.	Woodside has applied its methodology for 'Local government and community representative groups or organisations' under regulation 11A(1)(d). The Shire of Northampton's area of responsibility overlaps the EMBA.	Yes
Exmouth Community Reference Group (CRG) Base Marine Bgahwan Marine Cape Conservation Group Inc. DBCA Department of Defence Department of Transport Exmouth Bus Charter Exmouth Chamber of Commerce and Industry Exmouth District High School Exmouth Freight and Logistics Exmouth Game Fishing Club Exmouth Tackle and Camping Supplies Exmouth Visitors Centre Exmouth Volunteer Marine Rescue Fat Marine Gascoyne Development Commission Gun Marine Services Ningaloo Lodge Offshore Unlimited Shire of Exmouth	The Exmouth CRG represents the interests of a range of local government, industry and community organisations in relation to oil and gas matters in the Exmouth region.	Woodside has applied its methodology for 'Local government and community representative groups or organisations' under regulation 11A(1)(d). The Exmouth CRG's area of responsibility under its terms of reference overlaps the EMBA.	Yes

Person or Organisation	Summary of responsibilities and/or functions, interests or activities	Assessment of relevance	Relevant person
BHP Petroleum Santos Community Member			
Karratha Community Liaison Group (KLG) WA Police Karratha Health Care Development WA Ngarluma Yindjibarndi Foundation Ltd (NYFL) * Department of Education Pilbara Ports Authority Regional Development Australia Pilbara Development Commission Dampier Community Association City of Karratha Karratha & Districts Chamber of Commerce and Industry Horizon Power Murujuga Aboriginal Corporation (MAC)* Department of Local Government, Sport and Cultural Industries *MAC and NYFL were consulted directly as described above.	The KLG 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 11A(1)(d). The KLG's area of responsibility under its terms of reference does not overlap the EMBA. Under regulation 11 A 1 (e), Woodside, at its discretion, chose to assess the KLG as a relevant person.	Yes
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.	Woodside has applied its methodology for 'Local government and community representative groups or organisations' under regulation 11A(1)(d). The Onslow Chamber of Commerce and Industry's interests have the potential to be impacted by the proposed activities.	Yes

Person or Organisation	Summary of responsibilities and/or functions, interests or activities	Assessment of relevance	Relevant person
Port Hedland Chamber of Commerce and Industry	Independent not-for-profit organisation responsible for promoting the interests of its members in the business community in the town of Port Hedland and surrounding areas.	Woodside has applied its methodology for 'Local government and community representative groups or organisations' under regulation 11A(1)(d). The Port Hedland Chamber of Commerce and Industry's interests have the potential to be impacted by the proposed activities.	Yes
Carnarvon Chamber of Commerce and Industry	Independent not-for-profit organisation responsible for promoting the interests of its members in the business community in the town of Carnarvon and surrounding areas.	Woodside has applied its methodology for 'Local government and community representative groups or organisations' under regulation 11A(1)(d). The Carnarvon Chamber of Commerce and Industry's interests have the potential to be impacted by the proposed activities.	Yes
East Kimberley 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 East Kimberley and surrounding areas.	Woodside has applied its methodology for 'Local government and community representative groups or organisations' under regulation 11A(1)(d). The East Kimberley Chamber of Commerce and Industry's interests have the potential to be impacted by the proposed activities.	Yes
Derby 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 Derby and surrounding areas.	Woodside has applied its methodology for 'Local government and community representative groups or organisations' under regulation 11A(1)(d). The Derby Chamber of Commerce and Industry's interests have the potential to be impacted by the proposed activities.	Yes
Broome 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 Broome and surrounding areas.	Woodside has applied its methodology for 'Local government and community representative groups or organisations' under regulation 11A(1)(d). The Broome Chamber of Commerce and Industry's interests have the potential to be impacted by the proposed activities.	Yes

Person or Organisation	Summary of responsibilities and/or functions, interests or activities	Assessment of relevance	Relevant person
Mid West 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 Geraldton and surrounding areas.	Woodside has applied its methodology for 'Local government and community representative groups or organisations' under regulation 11A(1)(d). The Mid West Chamber of Commerce and Industry's interests have the potential to be impacted by the proposed activities.	Yes
Margaret River 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 Margaret River and surrounding areas.	Woodside has applied its methodology for 'Local government and community representative groups or organisations' under regulation 11A(1)(d). The Margaret River Chamber of Commerce and Industry's interests have the potential to be impacted by the proposed activities.	Yes
Other non-government groups or organisations			
Australian Conservation Foundation (ACF)	Non-government organisation	Woodside has applied its methodology for 'Other non-government groups or organisations' under regulation 11A(1)(d). Woodside has assessed that ACF's public website material does not demonstrate an interest with the potential risks and impacts associated with planned activities in accordance with the intended outcome of consultation (as set out in Section 5.2). Woodside chose to contact ACF at its discretion in line with Section 5.3.4.	No
Conservation Council of Western Australia (CCWA)	Non-government organisation	Woodside has applied its methodology for 'Other non-government groups or organisations' under regulation 11A(1)(d). Woodside has assessed that CCWA's public website material does not demonstrate an interest with the potential risks and impacts associated with planned activities in accordance with the intended outcome of consultation (as set out in Section 5.2). Woodside chose to contact CCWA at its discretion in line with Section 5.3.4.	No
Greenpeace Australia Pacific (GAP)	Non-government organisation	Woodside has applied its methodology for 'Other non-government groups or organisations' under regulation 11A(1)(d) to determine GAP's relevance for the proposed activity. Woodside has assessed that GAP's public website material does not demonstrate an interest with the potential risks and impacts associated with planned activities in accordance with the intended outcome of consultation (as set out in Section 6.2). Woodside chose to contact GAP at its discretion in line with Section 5.3.4.	No

Person or Organisation	Summary of responsibilities and/or functions, interests or activities	Assessment of relevance	Relevant person
Friends of the Earth Australia	Non-government organisation	During the course of preparing the EP, Friends of the Earth Australia self-identified and provided comment on the proposed activities. Woodside has applied its methodology for 'Other non-government groups or organisations' under regulation 11A(1)(d). Woodside has assessed that Friends of the Earth Australia's public website material and feedback demonstrates an interest with the potential risks and impacts associated with planned activities in accordance with the intended outcome of consultation (as set out in Section 5.2).	Yes
Maritime Union of Australia (MUA)	Non-government organisation	During the course of preparing the EP, MUA self-identified and provided comment on the proposed activities. Woodside has applied its methodology for 'Other non-government groups or organisations' under regulation 11A(1)(d). Woodside has assessed that MUA's Australia's public website material and feedback demonstrates an interest with the potential risks and impacts associated with planned activities in accordance with the intended outcome of consultation (as set out in Section 5.2).	Yes
Research institutes and local conservation groups or organisations			
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 subregulation 11 A 1 (d) to determine CCG's relevance for the proposed activity. CCG's conservation activities have the potential to intersect with the EMBA as the EMBA overlaps North West Cape.	Yes
Protect Ningaloo	Local conservation group focused on protecting the Exmouth Gulf and Ningaloo Reef and Cape Range	Woodside has applied its methodology for 'Research institutes and local conservation groups or organisations' under subregulation 11 A 1 (d) to determine CCG's relevance for the proposed activity. Protect Ningaloo's conservation activities have the potential to intersect with the EMBA as the EMBA overlaps North West Cape.	Yes
University of Western Australia (UWA)	Research institute	Woodside has applied its methodology for 'Research institutes and local conservation groups or organisations' under regulation 11A(1)(d) to determine UWA's relevance for the proposed activity. 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 5.3.4.	No
Western Australian Marine Science Institution (WAMSI)	Research institute	Woodside has applied its methodology for 'Research institutes and local conservation groups or organisations' under regulation 11A(1)(d) to determine WAMSI's relevance for the proposed activity.	No

Person or Organisation	Summary of responsibilities and/or functions, interests or activities	Assessment of relevance	Relevant person
		There is no known research being undertaken by WAMSI that intersects within the EMBA Woodside chose to contact WAMSI at its discretion in line with Section 5.3.4.	
Commonwealth Scientific and Industrial Research Organisation (CSIRO)	Research institute	Woodside has applied its methodology for 'Research institutes and local conservation groups or organisations' under regulation 11A(1)(d) to determine CSIRO's relevance for the proposed activity. There is no known research being undertaken by CSIRO that intersects within the EMBA. Woodside chose to contact CSIRO at its discretion in line with Section 5.3.4.	No
Australian Institute of Marine Science (AIMS)	Research institute	Woodside has applied its methodology for 'Research institutes and local conservation groups or organisations' under regulation 11A(1)(d) to determine AIMS's relevance for the proposed activity. There is no known research being undertaken by AIMS that intersects within the EMBA. Woodside chose to contact AIMS at its discretion in line with Section 5.3.4.	No

5.8 Consultation Activities and Additional Engagement

5.8.1 Stybarrow P&A EP Consultation

- Woodside advertised the planned activities proposed for this EP in the national, state and relevant local newspapers including The Australian, The West Australian, Pilbara News, Midwest Times, North West Telegraph (15 February 2023) and Geraldton Times (17 February 2023) (see **Appendix F, reference 2.87**). Regional newspapers do not require subscription and are available and in some cases delivered directly to households. All communities within or adjacent to the EMBA had access to this information via this media. No direct comments or feedback were received from the advertisements.
- A Consultation Information Sheet was provided to relevant persons and persons Woodside chose to contact (see **Section 5.3.4**), which included details such as an activity overview, maps, a summary of key risks and/or impacts and management measures (**Appendix F, reference 1.1**).
- An activity update Consultation Information Sheet was provided to relevant persons and persons Woodside chose to contact (see), which included an update regarding planned activities, information regarding the EMBA for this EP and additional information relating to mitigation and managements measures for this EP (**Appendix F, reference 2.1 and 2.90**).
- Since the commencement of the initial consultation period (May 2022), the Stakeholder Consultation Information Sheet (**Appendix F, reference 1.1**) was available on BHP website and the activity update Consultation Information Sheet has been available on the Woodside website since February 2023 (**Appendix F, reference 2.1 and 2.90**). The Woodside Information Sheets include a toll-free 1800 phone number and Woodside's feedback email address (feedback@woodside.com.au).
- From 3 May 2023, Woodside commenced a geotargeted sponsored social media campaign (**Appendix F, reference 3.6**) to various local government authorities that are within or coastally adjacent to the EMBA for the proposed activities. The campaign brought the proposed activity 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.
- Community Information Sessions were held in Broome, Derby and Kununurra on 12 June 2023, 13 June 2023 and 15 June 2023 respectively. Ahead of the events, Woodside advertised the sessions via the means below which provided the opportunity for local individuals to become aware of the event and have access to experts and information about the activity. The methods used to promote these consultation opportunities were developed with input from Indigenous representatives and were adapted to incorporate culturally appropriate and accessible language to encourage engagement and understanding of Woodside's proposed activities:
 - Advertising the community information sessions in the Kimberley Echo and Broome Advertiser on 1 June 2023 and 8 June 2023 (**Appendix F, reference 3.8**).
 - From 8 June 2023, Woodside commenced a geotargeted social media campaign in Broome, Derby, Kununurra and surrounding areas (**Appendix F, reference 3.9**) advertising the community information sessions.
 - Directly contacting local Traditional Custodian groups to invite representatives to attend the community information sessions and providing the event information (see **Appendix F, Table 1**).
 - Representatives from Woodside, including project and environment personnel equipped to answer technical questions, attended the event. Copies of the Consultation Information Sheets and bespoke targeted Consultation Summary Information Sheets were available to attendees. Community members were able to engage with Woodside representatives to understand the proposed activity and how it may affect them, ask questions and provide their feedback.
- A Community Information Session was held in Exmouth on 17 June 2023. Ahead of the event, Woodside advertised the session via the means below which provided the opportunity for local individuals to become aware of the event and have access to experts and information about the activity. The methods used to promote these consultation opportunities were developed with input from Indigenous representatives and were adapted to incorporate culturally appropriate and accessible language to encourage engagement and understanding of Woodside's proposed activities:
 - From 15-17 June 2023, Woodside commenced a geotargeted social media campaign in Exmouth and surrounding areas (**Appendix F, reference 3.7**) advertising of the Community Information Session.

- Representatives from Woodside, including project and environment personnel equipped to answer technical questions, attended the event. Copies of the Consultation Information Sheets and bespoke targeted Consultation Summary Information Sheets were available to attendees. Community members were able to engage with Woodside representatives to understand the proposed activity and how it may affect them, ask questions and provide their feedback.
- A Community Information Session was held in Roebourne on 22 June 2023. Woodside advertised the session by distributing posters advising of the event details in the local community and visiting offices to raise awareness, including the offices of local Traditional Custodian groups (**Appendix F, reference 3.11**).
- Community Information Sessions were held in Karratha on 28 June 2023 and 29 June 2023. Ahead of the events, Woodside advertised the sessions via the means below which provided the opportunity for local individuals to become aware of the event and have access to experts and information about the activity. The methods used to promote these consultation opportunities were developed with input from Indigenous representatives and were adapted to incorporate culturally appropriate and accessible language to encourage engagement and understanding of Woodside’s proposed activities:
 - Ahead of the 28 June 2023 event, posting a story on its Facebook page (**Appendix F, reference 3.13**), sharing details of its shopping centre stand where Consultation Information Sheets regarding is planned and proposed activities were available, including the activities proposed under this EP.
 - Ahead of the 29 June 2023 event, advertising the community information session in the Pilbara News (**Appendix F, reference 3.12**), geotargeting a social media campaign in Karratha and surrounding areas and posting the event details on its Facebook page (**Appendix F, reference 3.14**).
 - Representatives from Woodside, including project and environment personnel equipped to answer technical questions, attended the event. Copies of the Consultation Information Sheets and bespoke targeted Consultation Summary Information Sheets were available to attendees. Community members were able to engage with Woodside representatives to understand the proposed activity and how it may affect them, ask questions and provide their feedback.
- Where appropriate, Woodside conducted phone calls and meetings with relevant persons.
- Where appropriate, targeted follow-up emails were sent to relevant persons 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**).
- Woodside hosted community reference group information sessions with the Exmouth Community Liaison Group, where updates on the proposed activity were provided.
- Consultation activities undertaken with relevant persons are summarised at **Appendix F, Table 1**.
- Engagement undertaken with persons or organisations Woodside assessed as not relevant but chose to contact (see **Section 5.3.4**) or self-identified and Woodside assessed as not relevant are summarised at **Appendix F, Table 2**.

5.8.2 Traditional Custodian Specific Consultation

Woodside provides persons or organisations, including individual Traditional Custodians, with the opportunity to be aware of Woodside’s proposed activities and to participate in consultation. Woodside’s First Nations Communities Policy is guided by the United Nations Declaration on the Rights of Indigenous People (UNDRIP) which respects Traditional Custodians by directing consultations through their nominated representative body (referred to in UNDRIP as “their own representative institutions”. This has been reinforced throughout consultation with PBCs who have requested that Woodside engage with them as the representative bodies for that Traditional Custodian group.

Woodside asks nominated representative bodies and the Native Title Representative Bodies to identify individuals, and also enables individuals to self-identify in response to national and local advertising, social media and community engagement opportunities (as described in **Section 5.8.1.1**). Woodside does not directly approach individuals for consultation, because this is misaligned with UNDRIP and undermines the role of the nominated representative bodies. Approaching individuals directly is an outdated practice which is no longer considered acceptable because of divisions it has been shown to cause in communities.

However, individuals are given the opportunity to self-identify, consult and provide feedback on the proposed activity. In these circumstances, Woodside will engage individuals as relevant persons and also advise the nominated representative body of the consultation where it relates to cultural values. Woodside has not been

directed to engage individual Traditional Custodians by nominated representative bodies for this proposed activity, however Woodside has nevertheless provided reasonable opportunity for individual Traditional Custodians to engage in consultation through appropriate and adapted consultation methods. These methods are consistent with the requirements for notification under the Native Title Act (1993), 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 practical and pragmatic analogue for consultation, rather than the authorisation process which aims to seek authorisation of agreements and Native Title claims under the Native Title Act⁴.

The most effective consultation methods for this activity, specifically designed for Traditional Custodians, to ensure that information is provided in a form that is readily accessible and appropriate are provided below:

- Direct engagement with nominated representative bodies via the contact listed on the ORIC website, requesting advice on how they would like to be engaged and asking whether other members and/or individuals should be consulted. This has resulted in:
 - Meetings with directors, elders and any nominated representatives, on country or in Perth
 - Requests and offers of resourcing to enable and support consultation
 - Exchange of written feedback and correspondence
 - A bespoke targeted Consultation Summary Sheet, developed and reviewed by Indigenous representatives to ensure content is appropriate to the intended recipients, was provided to relevant Traditional Custodian groups (**Appendix F, reference 2.88 and 2.89**). and phone calls to provide context to the consultation made.
- 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 decided by Traditional Custodian groups, supported by senior Woodside representatives, subject matter experts, 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
 - Visual aids such as posters, presentations, simplified technical videos and real-world pictures and footage
 - Emphasis on potential planned and unplanned risks and impacts
 - Ample opportunity for questions and feedback
 - Discussion about ongoing relationship development and opportunities
 - Distribution of hard-copy Consultation Information Sheets (**Appendix F, reference 2.1 and 2.90**) and bespoke targeted Consultation Summary Sheets (**Appendix F, reference 2.88 and 2.89**)
 - Meeting all costs such as sitting fees, travel, legal support and executive support and other support required
- Woodside has a geotargeted sponsored social media campaign (**Appendix F, reference 3.6**) to various communities that are coastally adjacent to the EMBA for the proposed activities.
 - The wide-reaching campaign brought the proposed activity to the attention of persons who may be interested and advised persons or organisations how they can find out about Woodside's proposed activities by visiting Woodside's website, which details the intent of consultation with relevant persons under the Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2009 (Cth). The reach of this campaign is shown in **Appendix F, reference 3.6**, providing the opportunity to consult via over 139,000 views to date across various regions.
 - These social media posts were developed with input from Indigenous representatives. Social media is a highly effective means to engage Indigenous audiences as outlined in Indigenous Digital Life (Professor Carlson, 2021). Advertisements used language and information appropriate to Indigenous audiences. Feedback from community engagements indicates a high level of penetration for this technique.
- Community Information Sessions were held in Broome, Derby and Kununurra on 12 June 2023, 13 June 2023 and 15 June 2023 respectively. Ahead of the events, Woodside advertised the sessions via the means below which provided the opportunity for local individuals to become aware of the event and have access to experts and information about the activity. The methods used to promote these consultation opportunities were developed with input from Indigenous representatives and were adapted to incorporate culturally appropriate and accessible language to encourage engagement and understanding of Woodside's proposed activities:
 - Advertising the community information sessions in the Kimberley Echo and Broome Advertiser on 1 June 2023 and 8 June 2023 (**Appendix F, reference 3.8**).
 - From 8 June 2023, Woodside commenced a geotargeted social media campaign in Broome, Derby, Kununurra and surrounding areas (**Appendix F, reference 3.9**) advertising the community information sessions.

⁴ Santos NA Barossa Pty Ltd v Tipakalippa [2022] FCAFC 193, at [104]

- Directly contacting local Traditional Custodian groups to invite representatives to attend the community information sessions and providing the event information (see **Appendix F, Table 1**).
- Representatives from Woodside, including project and environment personnel equipped to answer technical questions, attended the event. Copies of the Consultation Information Sheets and bespoke targeted Consultation Summary Information Sheets were available to attendees. Community members were able to engage with Woodside representatives to understand the proposed activity and how it may affect them, ask questions and provide their feedback.
- A Community Information Session was held in Exmouth on 17 June 2023. Ahead of the event, Woodside advertised the session via the means below which provided the opportunity for local individuals to become aware of the event and have access to experts and information about the activity. The methods used to promote these consultation opportunities were developed with input from Indigenous representatives and were adapted to incorporate culturally appropriate and accessible language to encourage engagement and understanding of Woodside's proposed activities:
 - From 15-17 June 2023, Woodside commenced a geotargeted social media campaign in Exmouth and surrounding areas (**Appendix F, reference 3.7**) advertising of the Community Information Session.
 - Representatives from Woodside, including project and environment personnel equipped to answer technical questions, attended the event. Copies of the Consultation Information Sheets and bespoke targeted Consultation Summary Information Sheets were available to attendees. Community members were able to engage with Woodside representatives to understand the proposed activity and how it may affect them, ask questions and provide their feedback.
- A Community Information Session was held in Roebourne on 22 June 2023. Woodside advertised the session by distributing posters advising of the event details in the local community and visiting offices to raise awareness, including the offices of local Traditional Custodian groups (**Appendix F, reference 3.11**).
- Community Information Sessions were held in Karratha on 28 June 2023 and 29 June 2023. Ahead of the events, Woodside advertised the sessions via the means below which provided the opportunity for local individuals to become aware of the event and have access to experts and information about the activity. The methods used to promote these consultation opportunities were developed with input from Indigenous representatives and were adapted to incorporate culturally appropriate and accessible language to encourage engagement and understanding of Woodside's proposed activities:
 - Ahead of the 28 June 2023 event, posting a story on its Facebook page (**Appendix F, reference 3.13**), sharing details of its shopping centre stand where Consultation Information Sheets regarding is planned and proposed activities were available, including the activities proposed under this EP.
 - Ahead of the 29 June 2023 event, advertising the community information session in the Pilbara News (**Appendix F, reference 3.12**), geotargeting a social media campaign in Karratha and surrounding areas and posting the event details on its Facebook page (**Appendix F, reference 3.14**).
 - Representatives from Woodside, including project and environment personnel equipped to answer technical questions, attended the event. Copies of the Consultation Information Sheets and bespoke targeted Consultation Summary Information Sheets were available to attendees. Community members were able to engage with Woodside representatives to understand the proposed activity and how it may affect them, ask questions and provide their feedback.

Woodside has employed a diverse range of techniques to allow relevant persons to become aware of the proposed activity and how it may affect their functions activities or interests, and understand their ability to provide feedback. The combination of PBC engagement meetings, traditional print media, social media and face-to face community interaction was designed with input from Indigenous representatives and adapted to the audience, so that it provides a wide-ranging opportunity to consult.

6 Environmental Risk Management Framework

Woodside has established a risk management governance framework with supporting processes and performance requirements that provide an overarching and consistent approach for identifying, assessing and managing risks. Woodside Policies have been formulated to comply with the intent of the Risk Management Policy and are consistent with the AS/ISO 31000-2009 Risk Management Principles and Guidance.

An integrated risk assessment and impact process is used to identify the most appropriate management strategy and relevant controls to reduce impacts and risks from planned (routine and non-routine) activities and unplanned (accidents/incidents) events to as low as reasonably practicable (ALARP) and acceptable levels (**Figure 6-1**). The process includes incorporating historic stakeholder and legal and environmental monitoring data for the relevant environmental impacts.

6.1 Evaluation of Impacts and Risks

A formal impact and risk assessment was completed for each environmental aspect and source of hazard for the activities described in **Section 3** using the Environmental Hazard Identification (ENVID) workshop process. The primary objective of the impact and risk assessment is to demonstrate that the identified impacts and risks associated with the Petroleum Activity are reduced to ALARP and are of an acceptable level. The environmental impact and risk assessment presented in this EP has been informed by recent and historic hazard identification studies and workshops (e.g. HAZID/ENVID), Process Safety Risk Assessment processes, reviews and associated desktop studies associated with the Petroleum Activity. Impacts, risks and potential consequences were identified based on planned and potential interaction with the activity (based on the description in **Section 6.1.2**), the existing environment (**Section 4**) and the outcomes of Woodside's stakeholder engagement process (**Section 5**).

An ENVID workshop was conducted in June 2022 for the Stybarrow P&A activity. Participants included Woodside HSE, projects and engineering departments and specialist environmental consultants. Following the ENVID, impact and risk information was then classified, evaluated and tabulated for each planned activity and unplanned event. Environmental impacts and risks are recorded in an environmental impacts and risk register. The output of the ENVID is used to present the risk assessment and forms the basis to develop performance outcomes, performance standards and measurement criteria.

The impact and risk assessment process is illustrated in **Figure 6-1** and considers planned (routine and non-routine) activities, unplanned (accidents/incidents) events and emergency conditions. The process considered previous risk assessments for similar activities, reviews of relevant studies, reviews of past performance, external stakeholder consultation feedback and a review of the existing environment. The process includes:

- confirming the sources of hazards for the planned activities and unplanned events
- identifying environmental impact and risk receptors
- analysing environmental impact and risk receptors
- identifying potential controls to reduce the impacts and risks
- allocating a likelihood rating for all unplanned events
- allocating a severity rating for all planned activities and unplanned events
- accepting controls through an ALARP process
- assessing final acceptability of the risks and impacts using the Woodside acceptability criteria.

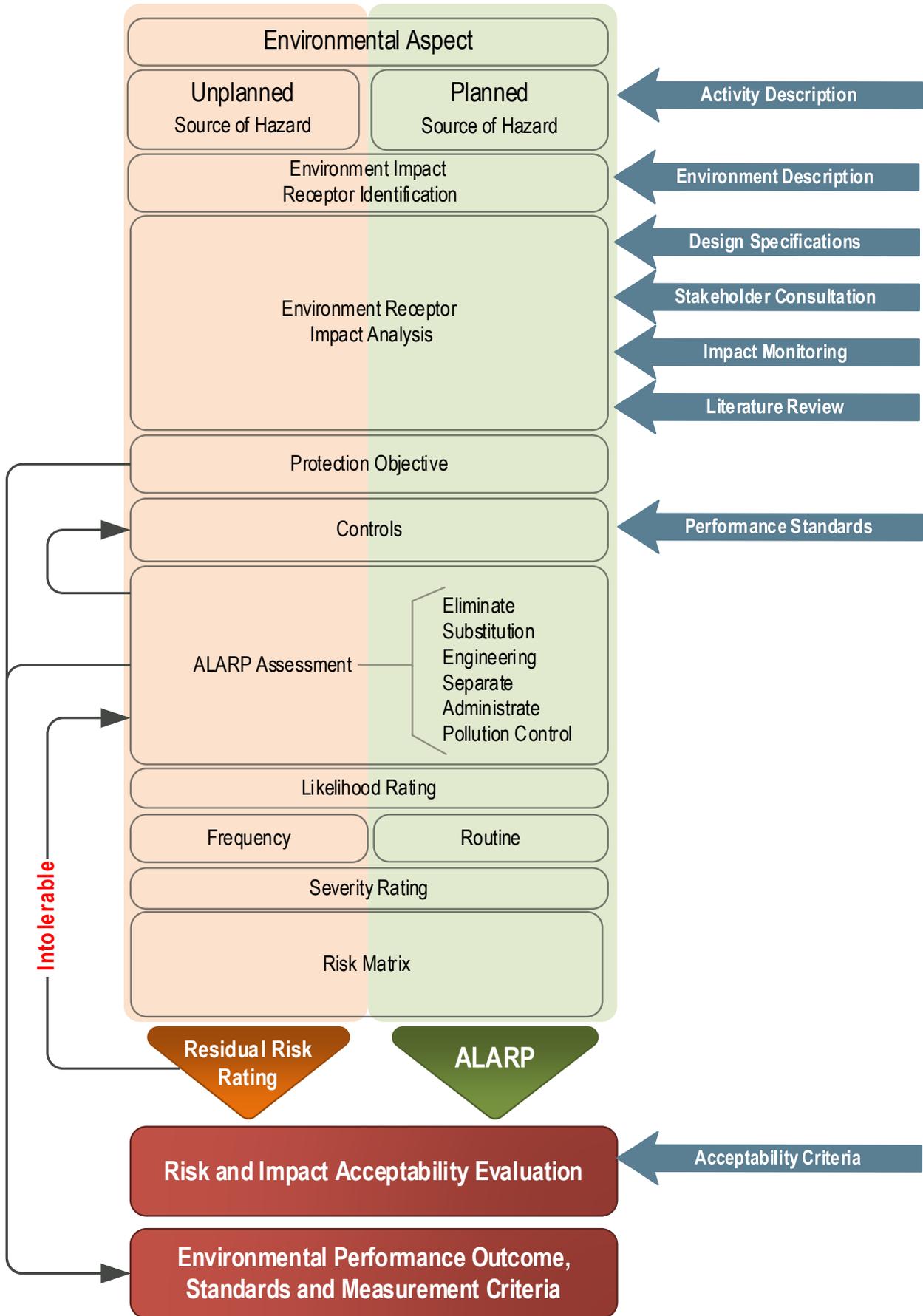


Figure 6-1 Environment Plan Integrated Impact and Risk Assessment Process

6.1.1 Decision Context

Consistent with the Guidance on Risk Related Decision Making (Oil and Gas UK, 2014), Woodside has applied decision criteria to determine whether impacts and risks created during the Petroleum Activity constitute ‘lower-order’ or ‘higher-order’ impacts and risks, and subsequently how each are managed to ALARP (**Section 6.2**) and acceptable levels (**Section 6.3**). This approach implies a level of proportionality wherein the principles of decision-making applied to each particular hazard are proportionate to the acceptability of environmental risk of that hazard.

The decision-making principles described in **Table 6-1** are consistent with the precautionary principle (as defined in the EPBC Act) and provide assurance that the environmental impacts and risks are reduced to ALARP and of an acceptable level.

Table 6-1 Risk Related Decision Making Framework

Decision Type	Description
Decision Type A	<p>Woodside considers lower-order (or ‘Type A’) impacts or risks as those that are:</p> <ul style="list-style-type: none"> • well understood and established practice, typically derived from standard, non-complex or routine operations familiar to Woodside • there are clearly defined regulatory, corporate or industry (good practice) controls to manage the impact or risk • have no concerns or objections from relevant stakeholders • have a ‘severity level’ for planned operations (impacts) and unplanned events (risks) that does not exceed ‘2’ based upon the severity level definition (Table 6-3) • have a ‘likelihood’ for unplanned events that is either ‘unlikely’ or ‘highly unlikely’ based upon the likelihood definitions (Table 6-4).
Decision Type B	<p>Woodside considers higher-order (or ‘Type B’) impacts or risks as those that are:</p> <ul style="list-style-type: none"> • not well understood or involve a level of uncertainty, typically derived from complex operations not routinely performed by Woodside • have regulatory, corporate or industry (good practice) controls that require additional definition or validation • have had some concerns or objections raised by relevant stakeholders • have a ‘severity level’ for planned operations (impacts) and unplanned events (risks) that is ‘3’ based upon the severity level definition (Table 6-3) • have a ‘likelihood’ for unplanned events that is considered ‘probable’ to ‘highly likely’ based upon the likelihood definitions (Table 6-4).
Decision Type C	<p>Woodside considers highest-order (or ‘Type C’) impacts or risks as those that are:</p> <ul style="list-style-type: none"> • not understood or there is a high degree of uncertainty, typically derived from operations not previously performed by Woodside • have corporate or industry (good practice) controls that either do not exist or are insufficient to manage impacts or risks and therefore require adoption of the precautionary approach • have had multiple concerns or objections raised by relevant stakeholders or lobby groups • have a ‘severity level’ for planned operations (impacts) and unplanned events (risks) that is equal to or exceeds ‘4’ based upon the severity level definition (Table 6-3) • have a ‘likelihood’ for unplanned events that is considered ‘probable’ to ‘highly likely’ based upon the likelihood definitions (Table 6-4).

6.1.2 Environmental Impact Analysis

The environmental impact analysis is based on the environmental receptors identified in **Section 4**. Impact and risk

descriptions are developed in an initial screening process that identifies the specific receptor that may be impacted. Quantitative or qualitative definition of the impact and risk may be completed to ensure an understanding of and to confirm the severity of the risk and impact.

6.1.3 Planned Activity Assessment

All planned activities were assessed as being a routine impact and defined as such in the ENVID. The description and degree of impact formed the basis for the severity rating applied, with a quantitative assessment of impact conducted where possible to ensure the impact was well understood and clearly categorised on the severity table. Where this was not possible, a robust qualitative assessment was completed and the severity rating assigned during the ENVID process in accordance with the Woodside (PetDW) HSE Risk Matrix, which is consistent with the Risk Management Severity Table (Table 6-3), taking into account any of the mitigative controls assigned. Given routine operations are planned, and impacts are mitigated by applying control measures, likelihood or residual risk ratings were not applied.

6.1.4 Unplanned Event Risk Assessment

Risk ranking of an unplanned event is the product of the consequence of an event (the severity) and the likelihood of that event occurring.

Likelihood and potential severity ratings were assigned in accordance with the Woodside (PetDW) HSE Risk Matrix (Table 6-2, Table 6-3 and Table 6-4), which allowed the risk of individual events to be categorised in a methodical and structured process. This was completed based upon judgement by the ENVID assessment team, with detailed potential impact descriptions used to ensure a robust and comprehensive decision.

The likelihood rating was based on the frequency of the source of hazard actually occurring with all preventative controls taken into consideration. The potential severity rating was determined based on the potential impact that may occur once the source of hazard had occurred, taking into account any mitigative controls in place to reduce the impact.

Table 6-2: Woodside PetDW HSE Risk matrix

Likelihood	Severity Level				
	1	2	3	4	5
Highly Likely	30	90	300	900	3000
Likely	10	30	100	300	1000
Probable	3	9	30	90	300
Unlikely	1	3	10	30	100
Highly Unlikely	0.3	0.9	3	9	30

Table 6-3: Woodside PetDW Severity Level Definitions

Severity Level	Descriptor	Severity Factor
5	<ul style="list-style-type: none"> Severe impact to the environment and where recovery of ecosystem function takes 10 years or more; or Severe impact on community lasting more than 12 months or a substantiated human rights violation impacting 6 or more people 	1000
4	<ul style="list-style-type: none"> Serious impact to the environment, where recovery of ecosystem function takes between 3 and up to 10 years; or Serious impact on community lasting 6-12 months or a substantiated human rights violation impacting 1-5 persons 	300

3	<ul style="list-style-type: none"> Substantial impact to the environment, where recovery of ecosystem function takes between 1 and up to 3 years; or Substantial impact on community lasting 2-6 months 	100
2	<ul style="list-style-type: none"> Measurable but limited impact to the environment, where recovery of ecosystem function takes less than 1 year; or Measurable but limited community impact lasting less than one month 	30
1	<ul style="list-style-type: none"> Minor, temporary impact to the environment, where the ecosystem recovers with little intervention; or Minor, temporary community impact that recovers with little intervention 	10

Table 6-4: Woodside PetDW Likelihood Definitions

Uncertainty	Frequency	Likelihood factor
Highly Likely	Likely to occur within a 1 year period.	3
Likely	Likely to occur within a 1 - 5 year period.	1
Probable	Likely to occur within a 5 - 20 year period.	0.3
Unlikely	Likely to occur within a 20 - 50 year period.	0.1
Highly Unlikely	Not likely to occur within a 50 year period.	0.03

6.2 Demonstration of ALARP

Regulation 10A(b) of the Environment Regulations requires demonstration that the environmental impacts and risks of the activity will be reduced to ALARP.

6.2.1 Planned Activity and Unplanned Event ALARP Evaluation

This section details the process for demonstrating ALARP for both planned routine operations and unplanned events. **Table 6-5** provides a description on how Woodside demonstrates different impacts and risks are ALARP based on their Decision Types identified.

Table 6-5 Summary of the criteria used for ALARP demonstration

Decision Type	Demonstration of ALARP Description
Decision Type A	<p>Demonstrating ALARP for lower-order ('Type A') impacts or risks</p> <ul style="list-style-type: none"> Identified regulatory, corporate and industry good practice controls are implemented, Woodside considers the impact or risk to be managed to ALARP and no further detailed engineering evaluation of controls is required. The application of feasible and readily implementable alternate, additional or improved controls may be adopted opportunistically when demonstrated to further reduce potential environmental impacts or risks.
Decision Type B	<p>Demonstrating ALARP for higher-order ('Type B') impacts or risks</p> <ul style="list-style-type: none"> In addition to relevant regulatory, corporate and industry good practice controls being implemented, alternate, additional or improved controls should be proposed and evaluated according to their feasibility, reasonableness and practicability to implement to further reduce the potential for impacts and risks associated with the activities Woodside applies a cost and benefit analysis when evaluating additional controls and applies those that are both feasible and where the cost (safety, time, effort and financial) are not grossly disproportionate to the potential reduction in environmental impact or risk afforded by the control.
Decision Type C	<p>Demonstrating ALARP for highest-order ('Type C') impacts or risks</p>

Decision Type	Demonstration of ALARP Description
	<ul style="list-style-type: none"> • Alternate, additional, or improved controls over and above relevant regulatory, corporate and industry good practice must be proposed and evaluated based upon a precautionary approach • Woodside ensures all feasible controls that have the potential to reduce environmental impacts and risks are implemented, when safe to do so and irrespective of the additional effort, time or financial cost associated with implementing the control.

When evaluating additional controls for higher order ‘Type B’ and ‘Type C’ impacts and risks, Woodside has applied the hierarchy of controls as defined below and illustrated in **Figure 6-2**:

- Eliminate – Remove the source preventing the impact; in other words, eliminate the hazard.
- Substitution – Replace the source preventing the impact.
- Engineer – Introduce engineering controls to prevent or control the source having an impact.
- Separate – Separate the source from the receptor preventing impact.
- Administrate – Procedures, competency and training implemented to minimise the source causing an impact.
- Pollution Control – Implement a pollution control system to reduce the impact.
- Contingency Planning – Mitigate control reducing the impact.
- Monitor – Program or system used to monitor the impact over time.

The general preference is to accept controls that are ranked in the Tier 1 categories of Eliminate, Substitute, Engineer and Separate as these controls provide a preventive means of reducing the likelihood of the hazard occurring over and above Tier 2 controls.

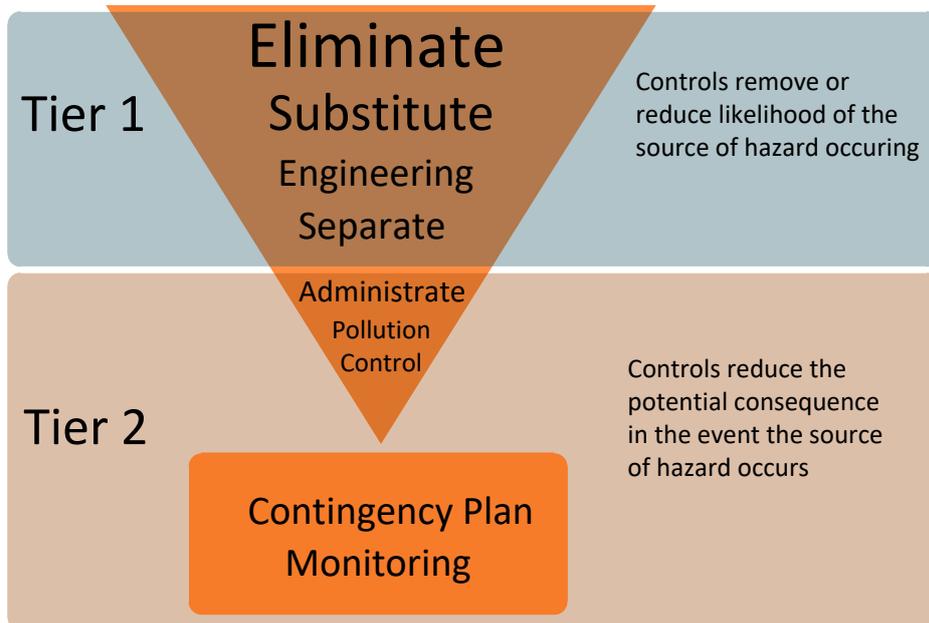


Figure 6-2: Hierarchy of control framework

6.2.2 Spill Response Strategy Effectiveness and ALARP

In developing the environmental performance standards that apply to each response strategy, Woodside has considered the level of performance that is reasonable to achieve for each control measure and the ‘effectiveness’ of the control measures.

The effectiveness of the control measures is assessed by considering:

- availability: the status of availability to Woodside
- functionality: a measure of functional performance
- reliability: the probability that the control will function correctly

- survivability: the potential of the control measure to survive an incident
- independence/compatibility: the degree of reliance on other systems and/ or controls, in order to perform its function.

These criteria follow the definitions in NOPSEMA’s *Control Measures and Performance Standards Guidance Note* (NOPSEMA, 2020b), with ranking provided in **Table 6-6**.

Table 6-6: Criteria for ranking spill response effectiveness

Evaluation Criteria	Response Effectiveness Ranking	
	Low	High
Availability	Woodside does not have equipment and resources on standby, or contracts, arrangements, and Memorandums of Understanding in place for providing equipment and resources. Woodside has internal processes and procedures in place to expedite timely provision of equipment and resources.	Woodside has equipment and resources on standby, or contracts, arrangements or Memorandums of Understanding in place for providing equipment and resources.
Functionality	Implementation of the control measure does not greatly reduce the risk and impact.	Implementation of the control measure has material difference in reducing the risk and impact.
Reliability	The control measure is not reliable (for example, has not been tried and tested in Australian waters) or low assurance can be given to its success rate and effectiveness.	The control measure is reliable (for example, has been tried and tested in Australian waters) or high assurance can be given to its success rate and effectiveness.
Survivability	The control measure has a low operating timeframe and will need to be replaced regularly throughout its operation period in order to maintain its effectiveness.	The control has a high operating timeframe and will not need to be replaced regularly throughout its operation period in order to maintain its effectiveness.
Independence / Compatibility	The control relies on other control measures being in place or the control measure is incompatible with other control measures in place.	The control does not depend on other control measures being in place or the control measure can be implemented in unison with other control measures.

Each control was then evaluated, considering the environmental benefit gained from implementation compared with its practicability (in other words, control effectiveness, cost, response capacity and implementation time) to determine if the control was either:

- accept and implement, or
- reject.

This traffic light system is used in the ALARP demonstration tables where the ‘do nothing’ option is rejected, along with a scalable option that generally involves mobilising spill response resources and equipment to site and on standby. Accepted controls in all the ALARP demonstration tables indicate those that would be implemented as part of the response.

Applying principles similar to those presented within the *Guidance on Risk Related Decision Making* (Oil and Gas UK, 2014), as described in **Section 6.1.1** of this EP, Woodside has adopted the following criteria for determining spill response strategy preparedness that present a lower-order risk compared to those that present a higher-order risk:

- A spill response strategy is determined to present a lower-order risk where all controls have been ranked as ‘high’ according to the criteria for ranking spill response effectiveness (These criteria follow the definitions in the *Control Measures and Performance Standards Guidance Note* (NOPSEMA, 2020b), with ranking provided in
- **Table 6-6** and additional controls would unlikely reduce potential environmental impacts and risks further. As

such, Woodside has considered 'Type A' spill response strategies to be managed to ALARP.

- A spill response strategy is determined to present a higher-order risk where one or more controls have been ranked as 'low' according to the criteria for ranking spill response effectiveness and additional controls would likely reduce potential environmental impacts and risks further. As such, alternate, additional, or improved controls should be proposed in an attempt to increase their effectiveness ranking to 'high'. Where improved controls have been identified but are not readily available, an improvement plan has been developed to meet the oil spill response need before performing the activity.

Woodside's ALARP assessment for resourcing for each spill response strategy is presented within Appendix A.

6.3 Demonstration of Acceptability

Regulation 10A(c) of the Environment Regulations requires demonstration that the environmental impacts and risks of the activity will be of an acceptable (tolerable) level.

The demonstration of acceptability is completed independently of the ALARP evaluation described above. However, as with the demonstration of ALARP, the demonstration of acceptability detailed below applies the decision-making principles described in **Section 6.1.1**, ensuring consistency with the precautionary principle when considering the acceptable levels of impact and risk caused by the activity.

Demonstrating acceptability for lower-order ('Type A') and higher-order ('Type B') impacts or risks

When an impact or risk has been evaluated as 'lower-order' or 'higher-order' based upon the Decision Context detailed in **Section 6.1.1**, acceptability of the impact or risk is evaluated based upon the following criteria:

- Relevant regulatory, corporate and industry good practice controls have been identified and implemented, including consideration of relevant actions prescribed in recovery plans and approved conservation.
- The activity does not contravene any relevant Plan of Management for a World Heritage place, National Heritage place or Ramsar wetland identified within the EMBA.
- Any alternate, additional or improved controls adopted via the detailed engineering risk assessment have been or will be implemented to manage potential impacts and risks to ALARP.
- There are either no objections or claims made by relevant stakeholders for the aspect of the activity being assessed, or any objections or claims received from relevant stakeholders are assessed for merit and controls adopted to address the objections or claims where merited.
- Where industry good practice cannot be adopted, professional judgement made by subject matter experts have been used to evaluate the acceptability of potential environmental impact or risk based upon adoption of alternate, additional or improved controls identified during detailed engineering risk assessment.
- Consideration of relevant actions prescribed in listed species recovery plans, conservation advice and threat abatement plans have informed the development of control measures.
- The application of adopted controls clearly indicates the aspect-specific EPOs can be achieved.
- The proposed impact is consistent with the principles of ESD defined in Section 3A of the EPBC Act (**Section 2.1.3**), including:
 - Decision-making processes should effectively integrate both long-term and short-term economic, environmental, social and equitable considerations (the 'integration principle')
 - If there are threat of serious or irreversible damage lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation (the 'precautionary principle')
 - The principle of intergenerational equity- that the present generation should ensure the health, diversity and productivity of the environment is maintained or enhanced for the benefit of future generations (the 'intergenerational principle')
 - The conservation of biological diversity and ecological integrity should be a fundamental consideration in decision making ('the biodiversity principle').

Demonstrating acceptability for highest-order ('Type C') impacts or risks

When an impact or risk has been evaluated as 'highest-order' based upon the Decision Context detailed in **Section 6.1.1**, the potential environmental impact or risk can only be deemed acceptable once the criteria for 'Type B' demonstration of acceptability detailed above has been met and:

- any alternate, additional or improved controls adopted via implementing a precautionary approach (consistent

with the 'Precautionary Principle' as defined within Section 3A of the EPBC Act) can demonstrate residual impacts have been lowered, such that a severity level of '4' becomes 'unlikely' or the severity level of '5' becomes 'highly unlikely' based upon the Woodside PetDW HSE Risk Matrix (**Table 6-2**).

6.4 Environmental Performance Outcomes, Performance Standards and Measurement Criteria

Regulation 10A(d) of the Environment Regulations requires the EP provides appropriate EPOs, environmental performance standards (EPSs) and measurement criteria (MC).

An objective of the EP is to ensure all activities are performed in accordance with appropriate EPSs, thus ensuring EPOs are achieved. This requires (among other things) appropriate measurement criteria for demonstrating the EPSs have been met as defined within the EP.

Establishing EPOs and EPSs involves a process of considering legal requirements and the environmental risks (described in the risk assessment presented in **Section 1** and **Section 8**) and considering available control options (**Section 1** and **Section 8**), and the views of interested parties (**Section 5**). The resulting outcomes and standards must be measurable where practicable and consistent with 'Our Values'.

6.4.1 Environmental Performance Outcomes

EPOs are developed to ensure protection of the environment from the impact or risk and to ensure ongoing performance and measurability of the controls. These were developed using the below criteria:

- Be specific to the source of the hazard.
- Indicate how the environmental impact will be managed (for example, minimise or prevent).
- Contain a statement of measurable performance (where applicable).
- Contain a timeframe for action (where applicable).
- Be consistent with legislative and HSE requirements.

6.4.2 Environmental Performance Standards

An EPS is a statement of performance required from a control measure (a system, an item of equipment, a procedure or functional responsibility (person)), which is used as a basis for managing environmental impact and risk, for the duration of the activity.

There is a specific link between the EPOs, the EPSs and control measures; each EPO has one or more standards defining the performance requirement that needs to be met by a control measure to meet the EPO.

EPSs detailed within this EP are specific, measurable, and achievable.

6.4.3 Environmental Measurement Criteria

MCs have been assigned for each EPS as a means of validating that each EPO and EPS will be or has been met throughout the duration of the Petroleum Activity, thus continually reducing environmental impacts and risks to ALARP and acceptable levels.

All MCs are designed to be inspected or audited via compliance assurance activities and enable a traceable record of performance to be maintained.

EPOs, EPSs, and MCs, both in relation to planned activities and unplanned events, have been detailed throughout **Section 7** and **Section 8**.

EPOs, EPSs, and MCs relating to oil spill response preparedness and the effectiveness of the response strategy implementation are provided in **Section 10**.

EPOs, EPSs, and MCs relating to Incident Management Team (IMT) capability and competency are detailed within **Section 10.4.10**.

7 Environmental Impact Assessment and Evaluation - Planned Activities

The purpose of this section is to address the requirements of Regulations 13(5) and 13(6) of the Environment Regulations by assessing and evaluating all the identified impacts and risks associated with the Petroleum Activity and associated control measures that will be applied to reduce the impacts and risks to an ALARP and an acceptable level.

Table 7-1 summarises the impact analysis for the aspects associated with the planned activities. A comprehensive risk and impact assessment for each of the planned activities, and subsequent control measures proposed by Woodside to reduce the impacts and risks to ALARP and acceptable levels, are detailed in the subsections.

Table 7-1: Summary of the Environmental Impact Analysis for Planned Activities

Aspect	Environmental									Socio-economic			Risk Assessment & Evaluation			
	Marine Mammals	Marine Reptiles	Fish	Seabirds / Shorebirds	Seabed / Benthic Habitat	Water Quality	Air Quality	Marine Protected Areas	Key Ecological Features	Commercial Fisheries	Shipping	Tourism / Recreation	Severity Factor	Likelihood Factor	Residual Risk	Acceptability
Physical Presence – Interaction with Other Marine Users – Section 7.1																
Presence of MODU and project vessels during petroleum activity										X	X	X	10	N/A	-	Tolerable
Temporary and permanent continued presence of well infrastructure										X			10	N/A	-	Tolerable
Light Emissions – Section 7.2																
Routine light emissions from MODU and project vessels	X	X	X	X									10	N/A	-	Tolerable
Light emissions from non-routine flaring during well P&A	X	X	X	X									10	N/A	-	Tolerable
Noise Emissions – Section 7.3																
Generation of noise from the MODU and project vessels during normal operations	X	X	X										30	N/A	-	Tolerable
Generation of noise from positioning equipment	X	X	X										10	N/A	-	Tolerable
Generation of noise from well infrastructure removal	X	X	X										10	N/A	-	Tolerable
Generation of noise from helicopter transfers within Operational Area	X	X	X										10	N/A	-	Tolerable
Generation of noise from flaring	X	X	X										10	N/A	-	Tolerable
Atmospheric Emissions – Section 7.4																
Exhaust emissions from internal combustion engines and incinerators on MODU, project vessels and helicopters							X						10	N/A	-	Tolerable
Flaring and burning of residual hydrocarbons from MODU during well P&A							X						10	N/A	-	Tolerable
Venting of residual trapped gas							X						10	N/A	-	Tolerable
MODU and Vessel Discharges – Section 7.5																
Routine discharge of sewage, grey water and putrescible wastes to marine environment from MODU and project vessels						X							10	N/A	-	Tolerable
Routine discharge of deck and bilge water to marine environment from MODU and project vessels						X							10	N/A	-	Tolerable
Routine discharge of brine or cooling water to the marine environment from MODU and project vessels						X							10	N/A	-	Tolerable
Plug and Abandonment Discharges – Section 7.6																

Aspect	Environmental										Socio-economic			Risk Assessment & Evaluation			
	Marine Mammals	Marine Reptiles	Fish	Seabirds / Shorebirds	Seabed / Benthic Habitat	Water Quality	Air Quality	Marine Protected Areas	Key Ecological Features	Commercial Fisheries	Shipping	Tourism / Recreation	Severity Factor	Likelihood Factor	Residual Risk	Acceptability	
Planned subsea discharges associated with P&A (cleaning acid, control fluids, residual trapped wellbore fluids, grit, flocculant, metal swarf and cement)					X	X						10	N/A	-	Tolerable		
Planned MODU discharges associated with planned P&A activities (well kill and clean out fluids, residual well fluids, cement, cement spaces, chemical additives)					X	X						30	N/A	-	Tolerable		
Planned MODU discharges associated with contingent P&A activities (WBM, metal swarf, cement, formation rock cuttings, reservoir sand with residual hydrocarbon)					X	X						10	N/A	-	Tolerable		
Solid Waste Generation – Section 7.7																	
Hazardous and non-hazardous waste generated during MODU and project vessel operations												10	N/A	-	Tolerable		
Disposal of recovered well infrastructure												10	N/A	-	Tolerable		
Seabed Disturbance – Section 7.8																	
Disturbance to seabed from MODU station keeping (mooring installation or deployment of DP positioning equipment)					X							10	N/A	-	Tolerable		
Installation of the BOP tether system (if required)					X							10	N/A	-	Tolerable		
Sediment displacement (if required)					X							10	N/A	-	Tolerable		
Disturbance to seabed from subsea cleaning and preparation for permanent plugging (water jetting, marine growth removal, sediment relocation) and ROV use					X							10	N/A	-	Tolerable		
Disturbance to seabed from cutting and removal well infrastructure, including disconnection of ancillary lines and installation of mud mats for equipment laydown.					X							10	N/A	-	Tolerable		
ROV operations					X							10	N/A	-	Tolerable		

7.1 Physical Presence – Interaction with Other Marine Users

7.1.1 Summary of Risk Assessment and Evaluation

Aspect	Source of Hazard	Potential Impact	Severity Factor	Likelihood Factor	Residual Risk	Decision Context	Acceptability
Physical Presence	Presence of a MODU and project vessels during the Petroleum Activity	Interaction with or displacement of other marine users (such as commercial shipping, commercial fishing or other third-party vessels).	10	N/A	-	Type A Low Order Impact	Tolerable
	Temporary or permanent continued presence of well infrastructure		10	N/A	-	Type A Low Order Impact	Tolerable

7.1.2 Source of Hazard

7.1.2.1 Presence of MODU and Project Vessels

A number of project vessels and a MODU will be present in the Operational Area during the petroleum activities. The preparatory activities prior to P&A will be conducted using one offshore support vessel and is expected to take between about 40 – 70 days. To permanently plug the 10 wells, a MODU and at least one, but up to three support vessels may be present in the Operational Area as outlined in **Section 3.7**. Permanent plugging activities are expected to take between around 18 – 24 days per well. Following permanent plugging of the wells, the well infrastructure above the mudline will be removed either by the MODU or using a project support vessel. Removal of well infrastructure is expected to take between about 1 – 5 days per well. A temporary 500 m safety exclusion zone will be maintained around the MODU while it is within the Operational Area. Marine users are requested to avoid this area during the activity to ensure the safety of the MODU and third-party vessels.

The physical presence of the MODU and support vessels in the Operational Area and associated 500 m radius temporary exclusion zone has the potential to cause interference with or displacement of other marine users, including commercial shipping and commercial fishing.

7.1.2.2 Continued Physical Presence of Well Infrastructure

Permanent plugging of the Stybarrow wells is expected to take between around 6 – 8 months and is required to be completed by 30 September 2024 in accordance with Direction 1 of General Direction 833. Following permanent plugging, well infrastructure (above the mudline) may either be immediately recovered using the MODU or temporarily left in situ for a short duration and subsequently removed as part of the Stybarrow subsea infrastructure removal campaign, which covered activities defined in the Stybarrow Equipment Removal and Field Management EP. Combining recovery of well and subsea infrastructure in a separate vessel-based campaign will enable resource and execution efficiencies to be realised. Stybarrow well infrastructure above the mudline is required to be recovered by no later than 31 March 2025 in accordance with Direction 2 of General Direction 833.

Should the preferred cutting method (mechanical internal cutting) be unsuccessful at removing any of the wellheads, a diamond wire saw will be used to achieve an external cut (**Table 3-13**). This contingency option is not expected to be required for any of the wells as the mechanical cutting tool was assessed to be the preferred method for removing the infrastructure based on well specifications, status/condition (e.g., nothing within the wells inhibiting an internal cut) and water depth. Therefore, the preferred option is expected to have high feasibility for all wells.

Should this method be found not appropriate, or issues are experienced during plugging or removal that result in a diamond wire saw being required to cut the infrastructure, the cut will be made as close to the seabed as possible. However, up to 1 m above the current mudline may be required to be left in-situ due to the practicability of fitting the large equipment around the infrastructure to achieve the external cut. Other factors which may contribute to this are

excess cementing around the well or natural hard substrate which make it not possible to clear a suitable area to position the saw for a cut at the mudline.

7.1.3 Environmental Impact Assessment

7.1.3.1 Commercial Fishing

The Operational Area overlaps four Commonwealth and six State managed fisheries (**Section 4.8.2**). The Commonwealth Fisheries overlapping the Operational Area include the Western Deep Water Trawl Fishery, the Western Tuna and Billfish Fishery, the Southern Bluefin Tuna Fishery, and the Skipjack Tuna Fishery. The State Fisheries overlapping the Operational Area include the Pilbara Crab Fishery, the Pilbara Line Fishery, the West Coast Deep Sea Crustacean Fishery, the Mackerel Fishery, the Marine Aquarium Fishery and the South West Coast Salmon Fishery.

None of these fisheries are currently active in proximity to the Operational Area, nor are they expected to become active during the Petroleum Activity with the Operational Area being too deep to support fish resources targeted by these fisheries. Of these fisheries listed above, only the Western Deep Water Trawl Fishery uses trawled gear which may interact with equipment on the seabed. However, effort in this fishery is typically greatest off the central west coast, with Carnarvon and Fremantle the major landing ports. Furthermore, environmental surveys in WA-32-L did not observe any demersal fish or crustaceans that are targeted by commercial fisheries.

Although the exclusion zone around the MODU and physical presence of support vessels has potential to displace commercial fishers (in the unlikely event they are operating near the Operational Area) the Petroleum Activity is unlikely to significantly increase the area of physical disturbance from what currently exists within WA-32-L. This is on the basis that a series of PSZs have been, and continue to be, established around the drill centres where the MODU will be positioned during the operation and cessation of the Stybarrow field. Although the Petroleum Activity will establish additional exclusion zones around the MODU, these will mostly overlap the existing PSZs and will not result in significant new areas where fishers are excluded.

If a wellhead or xmas tree is temporarily left in-situ, it is unlikely to displace or cause a risk to other marine users given the water depths where the infrastructure is located and no trawl fishers currently operate in the area. Impacts to commercial fishing activities if any well infrastructure remains *in situ* temporarily before removal by no later than 31 March 2025 are, therefore, not expected.

If a wellhead requires an external cut to be removed, a portion (up to 1 m above the current mudline) of the infrastructure may be left *in situ* permanently. Although no trawling vessels currently operate in the area there is a potential for this to change in the future in which case the infrastructure may present a snag hazard to these trawl fishers. Given the low likelihood of this occurring and the small area this infrastructure occupies in comparison to the areas available for fishing, the commitment this infrastructure would continue to be marked on navigational charts as well as that seabeds naturally comprise hazards that must be avoided by all marine users, the impact from one of more partial wellheads remaining *in situ* will be negligible.

No concerns were raised through consultation fishing representative and regulatory bodies including AFMA, DAFF - Fisheries, Northern Prawn Fishery Industry Pty Ltd, DPIRD, CFA, and WAFIC on the activities covered under this EP (**Section 5**).

Given the negligible commercial fishing effort to date, the absence of targeted commercial fisheries within the title area and the relatively small increase in exclusion zones from what already exist in WA-32-L, no displacement of commercial fishers or interactions with fishing gear are expected.

7.1.3.2 Recreational Fishing

Recreational fishing is unlikely to occur in the Operational Area due to its depth and distance from shore. Consultation did not identify any recreational activities that could be impacted by the activity (**Section 5**). Recreational fishing in the region is concentrated around the coastal waters and islands of the NWMR, such as the Montebello Islands (about 150 km north-east from the Operational Area). Given this, no impacts to recreational fishers are expected.

If recreational fishing effort occurred within the Operational Area while activities are being performed, displacement as a result of the Petroleum Activities Program would be minimal and relate only to the temporary exclusion zones (500 m radius) that would be in place around the MODU/project vessel.

7.1.3.3 Commercial Shipping

The presence of the MODU and/or project vessels may potentially cause temporary disruption to commercial shipping. There are no recognised shipping routes in or near the Operational Area, with the nearest shipping fairway designated by AMSA located to the west and north of the Operational Area (Figure 4-15). This fairway is approximately 21 km from the Operational Area at the closest point. While not mandatory, the use of the shipping fairways is strongly recommended by AMSA. Analysis of shipping traffic data indicates commercial vessels do use the general area, with most vessels in the area associated with the oil and gas industry (typically support and offtake vessels associated with FPSOs off North West Cape). In the very unlikely event commercial shipping vessels are present in or near the Operational Area, temporary displacement of the commercial shipping vessels would relate to the 500 m exclusion zone around the MODU for the duration of the Petroleum Activity. Consultation did not identify any concerns for impacts to commercial shipping (**Section 5**). Therefore, any impact is anticipated to be temporary and minor given the location of the Operational Area relative to shipping fairways.

7.1.3.4 Defence

The Operational Area lies within the NWSA, within which the DoD may undertake military exercises. Large scale exercises tend to be infrequent and are clearly communicated to other marine users by NOTMARs and civilian aviation by NOTAMS. The Stybarrow field, and the associated PSZs, have been in place since production commenced in 2007 and Woodside and DoD have an established relationship for managing potential interactions in the area accordingly. Woodside has also consulted with the DoD regarding the Stybarrow field and the petroleum activities within the scope of this EP.

Given the nature and scale of defence activities in the region, the long-term presence of the Stybarrow field and the consultations undertaken by Woodside, interactions between the petroleum activity and the DoD are not expected to occur.

7.1.3.5 Existing Oil and Gas Infrastructure

Interactions with operators of other nearby facilities have the potential to occur, including the Ngujima Yin FPSO, Ningaloo Vision FPSO and the Pyrenees Venture FPSO which are 20 km east, 23 km east and 26 km south east of the Operational Area, respectively. This would mainly be as a result of project-based vessel movements to and from the Operational Area not covered within this EP. Consultation did not identify any concerns for impacts to other operators in proximity to the Operational Area (**Section 5**). **Section 3.4.1** outlines potential for cumulative impacts from SIMOPs with other Woodside decommissioning activities within WA-32-L.

7.1.3.6 Cumulative Impacts

There is potential for SIMOPs to occur with activities covered under this EP and other Woodside decommissioning activities within WA-32-L as described in **Section 3.4.1**. A maximum of up to four vessels and a MODU may be present in the Operational Area at one time should SIMOPs occur with well P&A (covered under separate EP). While it is unlikely that the two activities would overlap, cumulative impacts to other marine users have the potential to occur due to an increased chance of interaction. Activities would be managed under a SIMOPs Management Plan and any impacts are expected to be short term localised displacement of users from the Operational Area with no lasting effect.

7.1.4 Demonstration of ALARP

The ALARP process performed for the environmental aspect is summarised in **Table 7-2**. This process was completed as outlined in **Section 6.2** and included consideration of all controls, analysis of the risk reduction proportional to the benefit gained, and final acceptance or justification if the control was rejected.

Table 7-2: Physical Presence - ALARP Summary

Control Measure	Accept / Reject	Reason	Associated Performance Standards
Legislation, Codes and Standards			
<p>MODU and project support vessel compliant with navigation safety requirements including the Navigation Act 2012 and any subsequent Marine Orders (21 & 30), which specify:</p> <ul style="list-style-type: none"> • navigation (including lighting, compass/radar), bridge and communication equipment will comply with appropriate marine navigation and vessel safety requirements • Automatic Identification System (AIS) is fitted and maintained in accordance with Regulation 19-1 of Chapter V of SOLAS • crew performing vessel bridge-watch will be qualified in accordance with AMSA Marine Order Part 3: Seagoing Qualifications or certified training equivalent 	Accept	<p>Legislative requirements to be followed which reduces the risk of third-party vessel interactions due to ensuring safety requirements are fulfilled and other marine users are aware of the presence of the MODU and support vessels.</p> <p>The control is feasible, standard practice with minimal cost. Benefits outweigh any cost sacrifice.</p>	PS 1.1
Establishment of a 500 m safety exclusion zone around MODU/infrastructure removal vessel and communicated to marine users.	Accept	<p>Establishment of a 500 m petroleum safety zone around MODU and vessel conducting infrastructure removal activities reduces the likelihood of interaction with other marine users.</p> <p>The control is feasible, standard practice with minimal cost. Benefits outweigh any cost sacrifice.</p>	PS 1.2
Sea Dumping Permit for leaving partial wellheads in-situ if internal cut and external cut at the mudline cannot be achieved.	Reject	Determined a permit under the Environment Protection (Sea Dumping) Act 1981 is not required, given the infrastructure is considered to fall under the scope of Article 1.4.2.3 of the London Protocol, which states that sea dumping does not include the 'abandonment in the sea of matter (such as cables, pipelines and marine research devices) placed for a purpose other than the mere disposal thereof'.	Not applicable
Eliminate			
Eliminate use of vessels.	Reject	Control not considered feasible. The use of vessels is required to conduct the petroleum activities.	Not applicable
Reduce the exclusion zone around the vessels.	Reject	Reduces the area of displacement of other marine users; however, the exclusion zone is a legislative requirement and cannot be reduced, therefore the control is not feasible.	Not applicable

Control Measure	Accept / Reject	Reason	Associated Performance Standards
Remove well infrastructure directly following permanent plugging of the wells	Reject	Continued temporary presence of well infrastructure (wellheads and subsea trees) for up to six months after permanent plugging has been completed has a negligible impact on other marine users given the low fishing effort in the Operational Area and that wellhead presence for up to six months will not affect the success of future removal. Control is disproportionate. The cost/sacrifice outweighs the benefit gained.	Not applicable
Engineering			
Remove well infrastructure above the mudline, where feasible.	Accept	Cutting below the mudline will remove the potential for infrastructure to react with trawl fisheries or other marine users who interact with the seabed. Control is feasible, standard practice with minimal cost. Benefits outweigh any cost sacrifice.	PS 2.1
Administrative			
Where well infrastructure above the mudline cannot be removed and remaining portion may present a credible snag risk to future trawl fishers, notify AHO of wellhead location so it can continue to be marked on navigational charts.	Accept	Notification to AHO will enable them to ensure well infrastructure that remains above the mudline (if required) is maintained on navigational charts to reduce the likelihood of any future interactions with marine users (trawling). Control is feasible, standard practice with minimal cost. Benefits outweigh any cost sacrifice.	PS 2.2
AHO notified of activity no less than four working weeks prior to undertaking the petroleum activity	Accept	Notification to AHO will enable them to generate navigation warnings. Control is feasible, standard practice with minimal cost. Benefits outweigh any cost sacrifice.	PS 1.3
Notify relevant fishing industry government departments, representative bodies and licence holders of activities prior to commencement and upon completion of activities.	Accept	Communicating the activities to other marine users ensures they are informed and aware, thereby reducing the likelihood of interfering with other marine users. Control is feasible, standard practice with minimal cost. Benefits outweigh any cost sacrifice.	PS 1.4
Notify DoD at least five weeks prior to the scheduled activity commencement date	Accept	Notification was requested by DoD during consultation. Communicating the activities to other marine users ensures they are informed and aware, thereby reducing the likelihood of interfering with other marine users. Control is feasible, standard practice with minimal cost. Benefits outweigh any cost sacrifice.	PS 1.5
Notify AMSA JRCC of activities 24–48 hours of undertaking the	Accept	Communicating the activities to other marine users ensures they are informed and aware,	PS 1.6

Control Measure	Accept / Reject	Reason	Associated Performance Standards
petroleum activities		thereby reducing the likelihood of interfering with other marine users. Control is feasible, standard practice with minimal cost. Benefits outweigh any cost sacrifice.	
Establish and maintain a publicly available interactive map which provides stakeholders with updated information on activities being conducted as part of the Petroleum Activity.	Accept	Interactive map provides additional alternative method for marine users to obtain information on the timing of activities, thereby reducing the likelihood. Control is feasible, standard practice with minimal cost. Benefits outweigh any cost sacrifice.	PS 1.7

7.1.4.1 ALARP Summary

The risk assessment and evaluation has identified a range of controls appropriate to the decision type (Decision Type A), that when implemented are considered to manage the impacts of the physical presence of the MODU, support vessels and well infrastructure on other marine users to ALARP.

Woodside considers the control measures described above are appropriate to reduce the potential for interaction with other marine users associated with the physical presence of the MODU, support vessels and well infrastructure. Additional reasonable control measures were identified in **Table 7-2** to further reduce impacts but rejected since the associated cost or sacrifice was grossly disproportionate to any benefit. The impacts are therefore considered reduced to ALARP.

7.1.5 Demonstration of Acceptability

Based on the impact assessment, given the adopted controls, the physical presence of the MODU and project vessels will not result in potential impacts greater than a minor, temporary displacement of other marine users, such as commercial fishing and shipping. Due to the size and location of the well infrastructure, the continued presence of well infrastructure for a short duration⁵ following permanent plugging activities is not expected to cause impact to other marine users. Should an external cut using a diamond wire saw be required for some of the wellheads and cutting results in a portion of the wellhead remaining above the mudline with a potential to act as a credible snag risk to future trawl fishers the impact is expected to be negligible and continuing to mark these wells on navigation charts will further minimise any impact.

Further opportunities to reduce the impacts have been investigated above (**Table 7-2**). The adopted controls are considered good oil-field practice/industry best practice. The environmental impacts meet the Woodside environmental risk acceptability criteria (**Section 6.3**). The environmental impacts are consistent with the principles of ESD:

- **Integration Principle:** Plug and abandonment activities allow ongoing decommissioning of the Stybarrow field to progress which will achieve favourable short to long term environmental, social and economic outcomes.
- **Precautionary Principle:** The physical presence aspect, and its potential impacts, are well understood, and there is no risk of serious or irreversible environmental damage from this aspect.
- **Intergenerational Principle:** The physical presence aspect is temporary and will not impact upon the environment such that future generations cannot meet their needs. In the event an external cut is required to recover a wellhead, and the cutting results in a small portion of the wellhead may remain above the mudline. The impact of this remanent wellhead is expected to be negligible and have no lasting impact to future generations.

⁵ Duration is expected to be between 6 – 8 months, and no greater than a year based on the assumption that the P&A is expected to be completed by Q3 2024 (no later than 31 September 2024) and well infrastructure above the mudline is to be recovered no later than 31 March 2025 in accordance with Direction 2 of General Direction 833.

- **Biodiversity Principle:** The physical presence aspect will not impact upon biodiversity or ecological integrity. On this basis, Woodside considers the impact to be managed to an acceptable level.

7.1.6 Environmental Performance Outcome, Performance Standards and Measurement Criteria

Environmental Performance Outcomes	Controls	Performance Standards	Measurement Criteria
EPO 1 No unplanned interactions between the MODU or support vessels and other marine users	C 1.1 MODU and project support vessel compliant with navigation safety requirements including the Navigation Act 2012 and any subsequent Marine Orders (21, 27 & 30), which specify: <ul style="list-style-type: none"> • navigation (including lighting, compass/radar), bridge and communication equipment will comply with appropriate marine navigation and vessel safety requirements • Automatic Identification System (AIS) is fitted and maintained in accordance with Regulation 19-1 of Chapter V of SOLAS • crew performing vessel bridge-watch will be qualified in accordance with AMSA Marine Order Part 3: Seagoing Qualifications or certified training equivalent 	PS 1.1 MODU and project vessels compliant to the navigation safety requirements including the <i>Navigation Act 2012</i> , International Convention of the Safety of Life at Sea (SOLAS), Marine Order 30 and Marine Order 21.	MC 1.1.1 Marine assurance inspection records demonstrate compliance with standard maritime safety procedures
	C 1.2 Establishment of a 500 m safety exclusion zone around MODU/infrastructure removal vessel and communicated to marine users.	PS 1.2 No entry of unauthorised vessels within the 500 m safety exclusion zone.	MC 1.2.1 Records of breaches by unauthorised vessels within the petroleum safety zone are recorded.
	C 1.3 AHO notified of activity no less than four working weeks prior to undertaking the petroleum activity	PS 1.3 AHO notified of activities and movements for generation of navigation warnings (MSIN and NTM [including AUSCOAST warnings where relevant])	C 1.3.1 Consultation Records demonstrate that AHO notified prior to commencement of an activity to allow generation of navigation warnings.
	C 1.4 Notify relevant fishing industry government departments, representative bodies and licence holders of activities prior to commencement and	PS 1.4 AFMA, CFA, DCCEEW, WAFIC and relevant Fishery Licence Holders notified prior to commencement and upon completion of	MC 1.4.1 Consultation records demonstrate that AFMA, CFA, DCCEEW, WAFIC and relevant Fishery Licence Holders notified prior to commencement

Environmental Performance Outcomes	Controls	Performance Standards	Measurement Criteria
	upon completion of activities.	activities.	and upon completion of activities.
	C 1.5 Notify DoD at least five weeks prior to the scheduled activity commencement date	PS 1.5 The DoD is notified at least five weeks before commencing the Petroleum Activity.	MC 1.5.1 Records demonstrate DoD were notified at least five weeks before commencement of the Petroleum Activity, as requested by DoD during consultation.
	C 1.6 Notify AMSA JRCC of activities 24–48 hours of undertaking the petroleum activities	PS 1.6 Notification to AMSA JRCC 24-48 hours prior to the scheduled commencement date.	MC 1.6.1 Consultation records demonstrate that AMSA JRCC has been notified prior to commencement of the activity within required timeframes.
	C 1.7 Establish and maintain a publicly available interactive map which provides stakeholders with updated information on activities being conducted as part of the Petroleum Activity.	PS 1.7 Activity interactive map established and maintained throughout activities.	MC 1.7.1 Records demonstrate interactive map was provided and available to stakeholders throughout activities.
EPO 2 Prevent adverse interactions with other marine users from continued presence of well infrastructure	C 2.1 Remove well infrastructure above the mudline, where feasible.	PS 2.1 Well infrastructure above the mudline ⁶ will be removed prior to the 31 March 2025.	MC 2.1.1 As left survey demonstrates well infrastructure above the mudline ³ has been removed.
	C 2.2 Where well infrastructure above the mudline cannot be removed and remaining portion may present a credible snag risk to future trawl fishers, notify AHO of wellhead location so it can continue to be marked on navigational charts.	PS 2.2 AHO notified of locations of infrastructure remaining above the mudline, where it presents credible snag risk to future trawl fishers.	MC 2.2.1 Records demonstrate that AHO has been notified of infrastructure remaining above the mudline, where it presents credible snag risk to future trawl fishers.

⁶ Should contingency DWS cutting method be required to remove well infrastructure for any wells, up to 1 m of infrastructure may be required to be left above the current mudline.

7.2 Light Emissions

7.2.1 Summary of Risk Assessment and Evaluation

Aspect	Source of Hazard	Potential Impact	Severity Factor	Likelihood Factor	Residual Risk	Decision Context	Acceptability
Light emissions	Routine light emissions from MODU and project vessels	Light emissions (light spill and glow) from external lighting on the MODU and support vessels causing alterations to normal marine fauna behaviour.	10	N/A	-	Type A Low Order Impact	Tolerable
	Light emissions from non-routine flaring during well P&A.	Light emissions generated from non routine flaring activities causing alterations to normal marine fauna behaviour	10	N/A	-	Type A Low Order Impact	Tolerable

7.2.2 Source of Hazard

7.2.2.1 Vessel and MODU Operations

Routine light emissions include light sources that alter the ambient light conditions in an environment. The MODU and project vessels will routinely use external lighting to navigate and conduct safe operations at night throughout the petroleum activity. External light emissions from the MODU and project vessels are typically managed to maintain good night vision for crew members. Vessel/MODU lighting will also be used to communicate the vessel's presence to other marine users (i.e., navigation/warning lights). Subsea spot lighting may also be generated from time to time during the use of equipment such as the ROVs. Lighting is required for safely operating project vessels/MODU and cannot reasonably be eliminated.

External lighting for deck operations typically consists of bright white (metal halide, halogen, fluorescent) lights and Light Emitting Diode (LED), which is not dissimilar to lighting used for other offshore activities, including fishing and shipping. The vessels/MODU that may be required for the petroleum activity are outlined in **Section 3.7**. External lighting is located on vessel/MODU decks, with most external lighting directed towards working areas such as the main decks. These areas are typically <20 m above sea level for vessels, and ~30 m for MODUs. Indicative timing for the petroleum activity is provided in **Section 3.4** and activities may occur at any time throughout the year.

7.2.2.2 Flaring

Flaring, which is a relatively bright light source, is sometimes necessary for short periods of time during permanent plugging of wells (**Section 3.8.4.2**). It is planned there will be limited flaring of gas or liquids during plugging of the wells. The base case is that residual well fluids are bullheaded back into the formation, however hydrocarbons present in the annuli of the production wells may be bled off to the MODU including any volumes in the production tubing that could not be successfully bullheaded. Flaring is for a limited duration as it is constrained by the volume of gas/liquids in the annulus and well bore. It is estimated there would be a maximum of 1,080-minutes (~18-hours) of flaring. Flaring will only be at low flow rates, unlike unload operations, and would take place during both daytime and night time.

Lighting from vessels/MODU may appear as a direct light source from an unshielded lamp with direct line of sight to the observer or through sky glow. Direct lighting falling upon a surface is referred to as light spill. Sky glow 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 sky glow may be visible from the source depends on the characteristics of vessel/MODU lighting (including height above sea level) and environmental conditions (e.g., cloud cover).

As a guide, **Figure 7-1** presents a simple calculation of diminishment of received light with distance, assuming 100 lamps on a vessel of low, medium, and high intensity, each acting additively. Light received is diminished to about the equivalent of light that would be received from a full moon within about 200 m from the vessel, and to that of a moonless clear night within about 1,500 m for low-intensity lights and 3,000 m for high-intensity lights. While a useful guide, these calculations are conducted in lux, a photometric unit which is weighted to the wavelength sensitivity of the human eye and may underestimate light intensity across the whole light spectrum which is visible to other species.

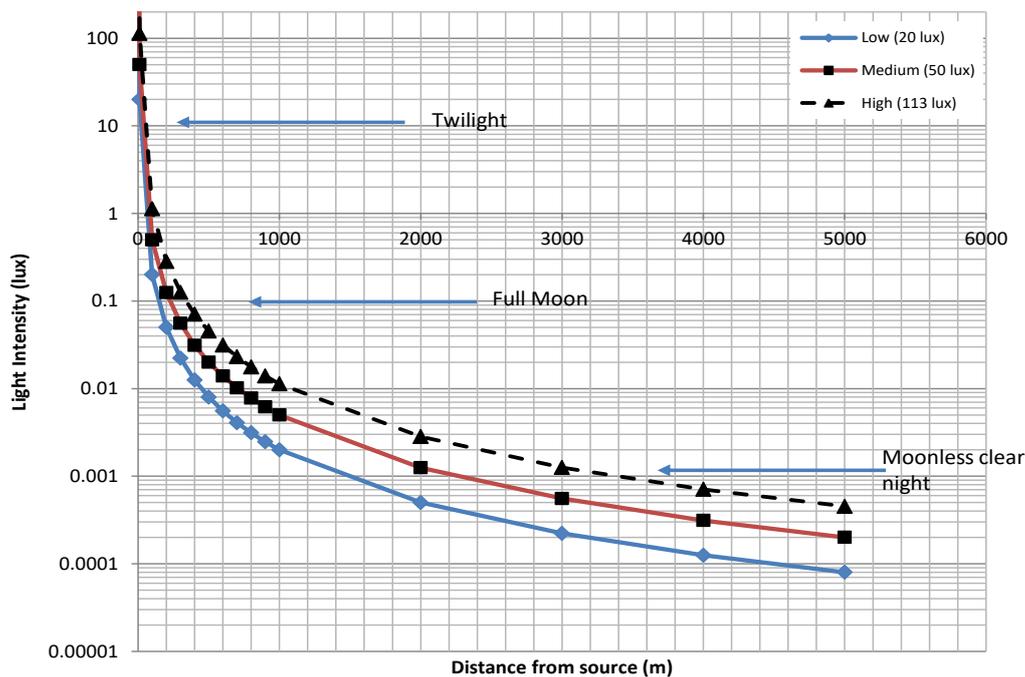


Figure 7-1: Reduction of light received with increasing distance from source, assuming 100 lamps of low, medium, and high intensity

7.2.3 Environmental Impact Assessment

Receptors that have important habitat within a 20 km buffer of the Operational Area are considered for the impact assessment within this section, based on recommendations of the *National Light Pollution Guidelines for Wildlife Including Marine Turtles, Seabirds and Migratory Shorebirds* (NLPG) (Commonwealth of Australia, 2020b). The 20 km threshold provides a precautionary limit based on observed effects of sky glow on marine turtle hatchlings demonstrated to occur at 15 to 18 km and fledgling seabirds grounded in response to artificial light 15 km away (Commonwealth of Australia, 2020b).

Light emissions have the potential to affect fauna in two main ways:

- **Behaviour:** Many species are adapted to natural levels of lighting and the natural changes associated with the day and night cycle as well as the night-time phases of the moon. However, artificial lighting has the potential to create a constant level of light at night that can override these natural levels and cycles.
- **Orientation:** Species such as marine turtles and birds may also use lighting from natural sources to orient themselves in a certain direction at night. If an artificial light source is brighter than a natural source, the artificial light may override natural cues, leading to disorientation.

Artificial lighting has the potential to affect marine fauna that use visual cues for orientation, navigation, or other purposes, resulting in behavioural responses that can alter foraging and breeding activity. The species with greatest sensitivity to light are marine turtles, seabirds, and fish.

Potential impacts to marine fauna from artificial lighting may include:

- disorientation, attraction, or repulsion to the light
- disruption to natural behaviour patterns and cycles
- indirect impacts such as increased predation risks through attraction of predators.

These potential impacts depend on:

- the wavelength and intensity of the lighting, and the extent to which the light spills into important wildlife habitat (such as foraging, breeding and nesting)
- the timing of light spill relative to the timing of habitat use by marine fauna sensitive to lighting effects
- the physiological sensitivity and resilience of the fauna populations that are at risk of potential effects.

The fauna within and immediately adjacent to the Operational Area are predominantly pelagic fish and zooplankton, with a low abundance of transient species such as marine turtles, whale sharks, cetaceans and migratory shorebirds and seabirds. There is no known critical habitat within the Operational Area for EPBC listed species. The Operational Area also does not overlap any Habitat Critical for the survival of species of marine turtles. The Operational Area does however overlap with the following BIAs (**Section 4.7.2**):

- pygmy blue whale migration and distribution BIA
- wedge-tailed shearwater breeding

Given the low abundance of fauna expected to occur within the Operational Area, impacts from light emissions are considered to be highly unlikely.

As described in 4.7.1, internesting buffer Habitat Critical for the survival of the species for flatback, green, hawksbill and loggerhead turtles are located ~ 18 km, ~ 21 km, ~ 52 km and ~ 21 km, respectively, from the Operational Area. However, as outlined below, internesting adult female turtles are not impacted by artificial light emissions, and it is more relevant to consider separation distances between light sources and nesting habitat critical for turtles (i.e., the nesting locations as identified in Table 6 of the *Recovery Plan for Marine Turtles in Australia 2017-2027* (Commonwealth of Australia, 2017).

At the closest point, the Operational Area is located approximately:

- 45 km from the nearest nesting locations for green turtles at the North West Cape
- 40 km from the nearest nesting locations for loggerhead turtles at Murion Island and the Ningaloo Coast
- 40 km from the nearest nesting locations for hawksbill turtles at the Ningaloo Coast
- 82 km from the nearest nesting locations for flatback turtles at Thevenard Island – South Coast

7.2.3.1 Fish and Zooplankton

Fish and zooplankton may be directly or indirectly attracted to light. Experiments using light traps have found some fish and zooplankton species are attracted to light sources (Meekan et al., 2001), with traps drawing catches from up to 90 m (Milicich, 1992). Lindquist et al. (2005) concluded from a study that light fields around oil and gas activities resulted in an enhanced abundance of clupeids (herring and sardines) and engraulids (anchovies), both of which are known to be highly photopositive.

The concentration of organisms attracted to light results in an increase in food source for predatory species and marine predators are known to aggregate at the edges of artificial light halos. Shaw et al. (2002), in a similar light study, noted juvenile tunas (Scombridae) and jacks (Carangidae), which are highly predatory, may have been preying upon concentrations of zooplankton attracted to the light fields around oil and gas activities. This could potentially lead to increased predation rates compared to unlit areas.

Light spill from the MODU and support vessels onto the surrounding surface waters, particularly during night-time activities, is likely to result in aggregations of fish around the project vessels as they are attracted to the light and increased food availability. However, the Operational Area does not contain any significant feeding, breeding or aggregation areas for important fish species. The potential for increased predation activity and impact to fish and zooplankton is anticipated to be temporary and minor.

7.2.3.2 Seabirds and Migratory Shorebirds

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 (Gaston et al., 2014; Longcore and Rich, 2004). As the Operational Area is offshore and away from islands or other emergent features, any presence of seabirds or shorebirds is considered likely to be of a transient nature only, such as migrating or foraging.

The most vulnerable life stages for seabirds and migratory shorebirds are nesting adults or fledglings. Nesting or fledgling seabirds and migratory shorebirds are vulnerable to artificial lighting within 20 km of the nesting location (Commonwealth of Australia, 2020). Shearwater fledglings are predominantly impacted by onshore lighting sources, which can override sea finding cues and attract fledglings further inland, preventing them from reaching the sea (Mitkus et al., 2018). The Operational Area overlaps a foraging and breeding BIA for the wedge-tailed shearwater, and is approximately 51 km from the Murion Islands, which is an important breeding site for this species.

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 adult wedge-tailed shearwaters may be attracted to sources of light emissions to feed on fish drawn to the light, or may be attracted to vessel light during periods of low visibility (Catry et al., 2009; Whittow, 2020), however the species feeds primarily during the day. Artificial light can also impact behaviour and adult nest attendance, or confuse shearwater species, resulting in injury or mortality as a result of birds colliding with structures (Cianchetti-Benedetti et al., 2018; Rodríguez et al., 2017). Tagging studies of wedge-tailed shearwaters in the region by Cannell et al. (2019) showed that bi-modal foraging strategy with chick-rearing foraging activity around nesting islands and, longer ranging foraging south of Indonesia in the Indian Ocean (often in association with seamounts).

Behavioural disturbance to birds from light is expected to be localised to within the vicinity of the MODU and project vessels within the Operational Area. The light source from the MODU and vessels within the Operational Area will be temporary and only when operations are occurring. Interactions with seabirds are therefore expected to be unlikely. Any impacts are predicted to be at an individual level and not a population level. The temporary behavioural disturbance of birds will be localised around the light sources, and not result in a substantial adverse effect on a population of species or its lifecycle. Additionally, light emissions will not seriously disrupt the lifecycle of an ecologically significant proportion of any migratory species population.

Migratory shorebirds may be present in or fly through the region between July and December, and again between March and April as they complete migrations between Australia and offshore locations (Commonwealth of Australia, 2015b). The risk associated with collision from seabirds and shorebirds attracted to the light is considered to be low, based on the intermittent and localised nature of the activities in the Operational Area, as well as the distance offshore. Impacts are expected to be limited to temporary behavioural disturbance to isolated individuals, that is not expected to disrupt important migration patterns of migratory seabirds.

Based on the detailed evaluation, the magnitude of impacts to birds from light emissions during the petroleum activity are anticipated to be temporary and minor.

7.2.3.3 Marine Turtles

The attraction of marine turtles to light has been well documented. Adult marine turtles may avoid nesting on beaches that are brightly light (Price et al., 2018; Witherington, 1992) and adult and hatchling turtles can be disorientated and unable to find the ocean in the presence of direct light or sky glow (Lorne and Salmon, 2007; Price et al., 2018; Thums et al., 2016; Witherington, 1992).

Five marine turtle species were identified as potentially occurring in the Operational Area (**Table 4-7**). However, there are no BIAs or habitats critical for the survival of turtles that overlap the Operational Area.

Hatchlings

The nearest marine turtle nesting site is North West Cape (approximately 40 km from the Operational Area), which exceeds the 20 km buffer set by the NLPG; therefore, sky glow and light spill from the MODU and project vessels will not reach any nesting beach. The distance of the Operational Area from the nearest nesting beach mitigates the potential effects on turtle hatchlings. Furthermore, the activity is short term in nature and no long term artificial light sources will remain in the Operational Area at the end of the Petroleum Activity, therefore it is unlikely that hatchlings would be impacted at a population level.

Any impacts to hatchling turtles from artificial light will be limited to possible short-term behavioural impacts during hours of darkness only, on isolated individual hatchlings offshore, with no lasting effect to the species population.

Adults

Although individuals performing behaviours such as inter-nesting, migration, mating (adults) or foraging (adults and pelagic juveniles) may occur within the Operational Area, marine turtles do not use light cues to guide these behaviours. There is currently no evidence to suggest inter-nesting, mating, foraging, or migrating turtles are impacted by light from offshore vessels. Light emissions from the vessels are unlikely to result in displacement of, or behavioural changes to, individuals in these life stages.

Spending most of their lives in the ocean, adult female marine turtles nest above the high-tide mark on sandy tropical and subtropical beaches, predominantly at night (Witherington and Martin, 2003). They rely on visual cues to select nesting beaches and orient on land. Artificial lighting on or near beaches has been shown to disrupt nesting behaviour. Lighting may affect the location where turtles emerge onto the beach, the success of nest construction, whether the nesting attempts are abandoned, and even the directness of paths as adult females return to the sea (Witherington and Martin, 2003). The nearest marine turtle nesting site is 40 km from the Operational Area. Nesting sites at this distance will not be visible as sky glow to nesting adult turtles, therefore the light emissions from the project vessels will not displace females from nesting habitats.

Five marine turtle species were identified as potentially occurring in the Operational Area (**Table 4-7**), although no habitat critical for the survival of marine turtles or biologically important areas overlap the Operational Area. Individual turtles may traverse the Operational Area during the petroleum activities; however, considering the water depths of the Operational Area (around 800 m) and distance to nesting beaches (approximately 40 km to North West Cape), large numbers of inter-nesting adults are not expected. Behavioural impacts to marine turtles from light emissions from the project vessels are anticipated to be temporary and minor.

7.2.3.4 Species Recovery Plans, Approved Conservation Advice and Threat Abatement Plans

Woodside has considered information contained in recovery plans, approved conservation advice and threat abatement plans (**Section 9**). This includes the *Recovery Plan for Marine Turtles in Australia 2017-2027* (Commonwealth of Australia, 2017) as well as the NLPG (Commonwealth of Australia, 2020b).

The overarching objective of the *Recovery Plan for Marine Turtles in Australia 2017-2027* (Commonwealth of Australia, 2017) is to reduce detrimental impacts on Australian populations of marine turtles and hence promote their recovery in the wild. All six species of marine turtle that occur in Australian waters are listed as threatened under the EPBC Act. Marine turtles are long-lived, slow to mature and are subject to multiple threats. Light pollution is identified as a high-risk threat in the *Recovery Plan for Marine Turtles in Australia 2017-2027* (Commonwealth of Australia, 2017). Minimising light pollution, such that artificial light within or adjacent to habitat critical to the survival of marine turtles, is managed so marine turtles are not displaced from these habitats (Commonwealth of Australia, 2017). As there are no safe alternatives to using artificial lighting on the project vessels, and as lighting will be restricted to that required to provide safe working and navigational requirements, it is considered minimised to ALARP. In summary, Woodside considers the proposed activity is not inconsistent with the *Recovery Plan for Marine Turtles in Australia 2017-2027* (Commonwealth of Australia, 2017).

The *Wildlife Conservation Plan for Seabirds* (Commonwealth of Australia, 2020a) identifies artificial light emissions as a threat for several seabird species, particularly for fledgling seabirds such as shearwaters. The plan recommends that light pollution from vessels at sea be mitigated but does not specify how this should be done. Woodside will manage artificial light emissions in accordance with the NLPG (Commonwealth of Australia, 2020b); these guidelines are good practice and are consistent with the recommendation from the *Wildlife Conservation Plan for Seabirds* (Commonwealth of Australia, 2020a) that light pollution be mitigated.

7.2.4 Demonstration of ALARP

The ALARP process performed for the environmental aspect is summarised in **Table 7-3**. This process was completed as outlined in **Section 6.2** and included consideration of all controls, analysis of the risk reduction proportional to the benefit gained, and final acceptance or justification if the control was rejected.

Table 7-3: Light Emissions - ALARP Summary

Control Measure	Accept / Reject	Reason	Associated Performance Standards
Eliminate			
Restrict the petroleum activities to daylight hours, eliminating the need for external work lights.	Reject	Components of the petroleum activity cannot safely be completed within a 12-hour day shift. As such, the need for external lighting cannot safely be eliminated. Control is not considered feasible.	Not applicable
Eliminate requirement to use the flare	Reject	Flaring is the only feasible and safe way to manage the reservoir fluids brought to surface and achieve the well objectives. Control is not considered feasible.	Not applicable
Substitute			
Substitute external lighting with light sources designed to minimise impacts and marine turtles (as per NLPG 2020 management actions) by: <ul style="list-style-type: none"> • using flashing / intermittent lights instead of fixed beam • using motion sensors to turn lights on only when needed • using luminaires with spectral content appropriate for the species present • avoiding high intensity light of any colour. 	Reject	The retrofitting of all external lighting on the MODU and/or support vessels is significant in cost. Given the distance of the Operational Area from the nearest nesting sites (approximately 41 km) and the already minor impacts of lighting from the petroleum activities on marine fauna, the control cost outweighs the environmental benefit.	Not applicable
Manage timing of the Petroleum Activity to avoid sensitive life cycles for light sensitive marine fauna.	Reject	Limitation on timing of the activity imposes substantial schedule constraints. Also, given the Operational Area is located beyond the buffer defined in the NLPGs it is unlikely to have significant impacts on marine fauna from light at any time of the year.	Not applicable
Engineer			
Lighting will be limited to the minimum required for navigational and safety requirements, with the exception of emergency events	Accept	Limiting light during the Petroleum Activities Program will minimise potential for light attraction and vessel interaction with seabirds. While the control does not result in reduction of impacts, it is good practice and not at significant cost.	PS 3.1.1 PS 3.1.2
Implement the Offshore Seabird Management Plan, including: <ul style="list-style-type: none"> • Standardisation and maintenance of record keeping 	Accept	Reduction in net light emissions from the vessels reducing the likelihood of attracting nocturnal seabirds. Adaptive management framework outlined in the Offshore Seabird Management	PS 3.2

Control Measure	Accept / Reject	Reason	Associated Performance Standards
and reporting of seabird interactions. <ul style="list-style-type: none"> Procedures on seabird intervention, care and management Regulatory reporting requirements for seabirds (unintentional death of or injury to seabirds that constitute MNES) A scalable adaptive management process should negative light impacts to nocturnal seabirds be detected. 		Plan will prevent population level impacts from occurring, and the care and release protocol will reduce impacts at the individual level. Control is feasible, however a minimum level of lighting is required on MODU and project vessels for safety. Benefit outweighs cost, given the low costs in implementation and potential benefits in providing certainty that population level impacts to nocturnal seabirds will not occur.	
Flaring restricted to a duration necessary to perform the activity for well bleed-off, with the exception of emergency events.	Accept	Reduces the likelihood of atmospheric emissions impacting air quality. Consequence remains unchanged. The control is feasible, standard practice with minimal cost. Benefits outweigh any cost sacrifice.	PS 3.3

7.2.5 ALARP Summary

Woodside have identified a number of controls (**Table 7-3**) appropriate to the decision type (Decision Type A), that when implemented are considered to manage the impacts from light emissions from MODU, project vessels and flaring on marine fauna to ALARP.

Woodside considers the control measures described above are appropriate to reduce the potential impacts from light emissions generated during the Petroleum Activity on marine fauna. Additional reasonable control measures were identified in **Table 7-3** to further reduce impacts but rejected since the associated cost or sacrifice was grossly disproportionate to any benefit. The impacts are therefore considered reduced to ALARP.

7.2.6 Demonstration of Acceptability

Based on the impact assessment, given the adopted controls, light emissions from the MODU, project vessels and during flaring operations, will not result in an impact greater than a localised and temporary disturbance to specific marine fauna, particularly, nocturnal seabirds, in the vicinity of the Operational Area, with no lasting effect.

Illumination of working areas on the MODU and project vessels is necessary for safe working practices, as determined as part of a Vessel Safety Case assessment under the OPGGS Act requirements. Navigational lighting is also required to satisfy AMSA’s Prevention of Collision Convention (Marine Order 30, Issue 7) requirements.

Further opportunities to reduce the risks and consequences have been investigated above. The adopted controls are consistent with the most relevant regulatory guidelines and good oil-field practice/industry best practice. Woodside has considered information contained in recovery plans and threat abatement plans (**Section 9**). The environmental impacts meet the Woodside environmental risk acceptability criteria (**Section 6.3**). The environmental impact is considered consistent with the principles of ESD:

- Integration Principle:** Plug and abandonment activities allow ongoing decommissioning of the Stybarrow field to progress which will achieve favourable short to long term environmental, social and economic outcomes.
- Precautionary Principle:** The light emissions aspect, and its potential impacts, are well understood, and there is no risk of serious or irreversible environmental damage from this aspect. There is variability in the presence and timing of some environmental receptors that may be impacted by light emissions; however, the nature and scale of the potential impacts pose no risk of serious or irreversible environmental impacts.
- Intergenerational Principle:** The light emissions aspect will not impact upon the environment such that

future generations cannot meet their needs.

- **Biodiversity Principle:** The light emissions aspect will not impact upon biodiversity or ecological integrity.

On this basis, Woodside considers the impact to be managed to an acceptable level.

7.2.7 Environmental Performance Outcome, Performance Standards and Measurement Criteria

Environmental Performance Outcomes	Controls	Performance Standards	Measurement Criteria
EPO 3 Light emissions managed to limit impacts to marine fauna to short-term behavioural impacts only.	C 3.1 Lighting will be limited to the minimum required for navigational and safety requirements, with the exception of emergency events	PS 3.1.1 Lighting limited to that required for safe work/navigation.	MC 3.1.1 Inspection verifies no excessive light being used beyond that required for safe work/navigation
		PS 3.1.2 Project vessels will use available block-out blinds on portholes and windows not necessary for safety and/or navigation when operating at night.	MC 3.1.2 Vessel contractor procedures include requirement to use available block-out blinds not necessary for safety and/or navigation when operating at night.
	C 3.2 Implement the Offshore Seabird Management Plan, including: <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) • A scalable adaptive management process should negative light impacts to nocturnal seabirds be detected. 	PS 3.2 Implementation of the Seabird Management Plan to minimise potential for light attraction.	MC 3.2.1 Records demonstrate Seabird Management Plan implemented.
C 3.3 Flaring restricted to a duration necessary to perform the activity for well bleed-off, with the exception of emergency events.	PS 3.3 Flaring restricted to a duration necessary to perform the activity for well bleed-off, with the exception of emergency events.	MC 3.3.1 Records demonstrate flaring was restricted to a duration necessary to perform the activity for well bleed-off, with the exception of emergency events.	

7.3 Noise Emissions

7.3.1 Summary of Risk Assessment and Evaluation

Aspect	Source of Hazard	Potential Impact	Severity Factor	Likelihood Factor	Residual Risk	Decision Context	Acceptability
Underwater and atmospheric noise emissions	Generation of underwater noise from the MODU and project vessels during normal operations.	Underwater and atmospheric noise emitted to marine environment causing behavioural disturbance to marine fauna.	30	N/A	-	Type A Low Order Impact	Tolerable
	Generation of underwater noise from positioning equipment		10	N/A	-	Type A Low Order Impact	Tolerable
	Generation of underwater noise from well infrastructure removal						
	Generation of underwater and atmospheric noise from helicopter transfers within Operational Area						
	Generation of underwater and atmospheric noise from flaring						

7.3.2 Source of Hazard

7.3.2.1 Noise Generated by MODU, Project Vessels and Operation of DP

The MODU and project vessels will generate noise both in the air and underwater, due to the operation of thrusters' engines, propeller movement, drilling operations, etc. These noises will contribute to and can exceed ambient noise levels which range from around 90 dB re 1 µPa (root square mean sound pressure level (RMS SPL)) under very calm, low wind conditions, to 120 dB re 1 µPa (RMS SPL) under windy conditions (McCauley, 2005). The following information describes the source sound levels for the MODU (P&A activity and while on DP) with standby and resupply vessel support and other project vessels. The most significant noise source will be the operation of thruster engines while operating the DP systems on the support vessels and MODU (if a DP MODU is used).

MODU Operations

During drilling operations, the MODU will produce low-intensity continuous sound. Sound produced from an active MODU while drilling is predominantly below 2 kHz, with peak frequencies below 500 Hz. Measured frequencies for the West Aquarius MODU, which is considered to be representative of drilling by the MODU that will be contracted for the Stybarrow P&A activity, recorded a peak frequency at 190 Hz (Martin et al., 2019). A range of broadband values, 59 to 188 dB re 1 µPa at 1 m (SPL), have been quoted for various MODUs (Jiménez-Arranz et al., 2020). McCauley (1998) recorded source noise levels for moored MODUs from 149-154 dB re 1 µPa at 1 m while actively drilling (with support vessel on anchor) and Greene (1987) recorded source levels of two moored drillships from 145-158 dB re 1 µPa at 1 m during drilling (with support vessels idling nearby). An acoustic monitoring program commissioned by Santos was conducted during an exploratory drilling program in 2003, which indicated that the drilling operation was not audible from between 8-28 km from the MODU (or beyond) (McCauley, 2005). Austin et al. (2018) recorded broadband source levels from MODU operations (excluding DP thrusters) to be 170.7 dB re 1 µPa. This source level was used to inform sound transmission loss modelling studies by JASCO (Wecker et al., 2022)

commissioned by Woodside to inform the underwater noise impact assessment of a DP MODU and support vessels at the Pluto field. These noise levels are expected to be similar to those generated by a MODU operating on DP during the Petroleum Activity.

The MODU is expected to be on location within the Operational Area for approximately 6 – 8 months for the Stybarrow P&A campaign (18 – 24 days per well).

Project Vessels

The Petroleum Activity will be supported by a number of DP capable vessels (**Table 3-10**) including; anchor handling vessels (AHVs), Light Construction Vessel (LCV), and offshore support vessels (OSVs) used for standby and resupply services. 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 (Jiménez-Arranz et al., 2020).

Vessels in the 50-100 m size class (e.g., supply ships, crew boats) produce broadband source levels in the 165–180 dB re 1 μ Pa SPL range (Götz et al., 2009). In comparison, underwater sound levels generated by large ships can produce levels exceeding 190 dB re 1 μ Pa (Götz et al., 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 et al., 1995). Although the exact vessels that will be used for the Petroleum Activity are not confirmed at this stage, typical vessel specifications have been provided. In the absence of exact noise measurements for the support vessels proposed to be used for the Petroleum Activity McCauley (1998) measured underwater noise generated from a supply vessel holding station in the Timor Sea, this showed noise levels being generated to about 182 dB re 1 μ Pa at 1 m (RMS SPL). In the scenario measured by McCauley (1998) metocean conditions included strong differential currents throughout the water column and skippers were required to operate the bow and main shaft thrust to hold station. It is expected that noise levels measured by McCauley (1998) would be similar to the maximum noise generated by support vessels for the Petroleum Activity, which is located in an area with weaker oceanic currents.

Project vessels and the MODU are conservatively expected to have an overall combined source level of 192 dB re 1 μ Pa (RMS SPL), which represents a doubling of sound pressure from the single loudest source (i.e., 186 dB + 6 dB).

7.3.2.2 Generation of Underwater Noise from Positioning Equipment

An array of long baseline (LBL) and/or ultra-short baseline (USBL) transponders may be installed on the seabed for metrology and positioning. An array of transponders is proposed within a radius of 500 m from the well locations.

Transponders typically emit pulses (impulsive noise) of medium frequency sound, generally within the range 21 to 31 kHz. The estimated SPL would be 180 to 206 dB re 1 μ Pa at 1 m (Jiménez-Arranz et al., 2017). Transmissions are not continuous but consist of short 'chirps' with a duration that ranges from 3 to 40 milliseconds. Transponders will not emit any sound when on standby and are planned to only actively emit sound for about six hours per well. When required for general positioning they will emit one chirp every five seconds (estimated to be required for four hours at a time). When required for precise positioning they will emit one chirp every second (estimated to be required for two hours at a time). An array of transponders will be active whilst the DP MODU is on location.

7.3.2.3 Generation of Underwater Noise from Well Infrastructure Removal

Subsea cutting and removal of well infrastructure may be done by either an abrasive water jet or a cutting tool inserted in the wellhead. Both methods will generate underwater noise at the seabed, however the noise levels will be negligible compared to other noise sources (e.g., DP thrusters).

Twachtman Snyder & Byrd, Inc. and Center for Energy Studies, Louisiana State University (2004) studied the operations and socio-economic impact of non-explosive removal of offshore structures, including noise, and concluded mechanical cutting and abrasive water jet, as well as diamond wire cutting methods, are generally considered harmless to marine life and the environment. Similarly, Pangerc et al. (2016) described the underwater sound measurement data during an underwater diamond wire cutting of a 32-inch conductor (around 10 m above seabed in around 80 m depth) and found the sound radiated from the diamond wire cutting of the conductor was not easily discernible above the background noise at the closest recorder located 100 m from the source. The sound that could be associated with the diamond wire cutting was primarily detectable above the background noise at the higher acoustic frequencies (above around 5 kHz) (Pangerc et al., 2016) above the hearing range of low frequency cetaceans. Background noise was attributed to surface vessel activity such as dynamic positioning.

Any noise propagating at seabed from cutting of the wellhead casing and conductors is likely to attenuate to levels at, or close to, background ambient levels within 100 m of the source, with ambient levels being significantly elevated by the concurrent presence of a project vessel on DP immediately above the wellhead locations. As such, noise from the cutting of the casing and conductors will not add to cumulative noise levels for the operation to any extent.

7.3.2.4 Generation of Underwater and Atmospheric Noise from Helicopter Transfers within the Operational Area

Helicopter activities may occur in the Operational Area, including the landing and take-off of helicopters on the MODU or vessel helidecks. Sound emitted from helicopter operations is typically below 500 Hz (Richardson et al., 1995). The peak received level diminishes with increasing helicopter altitude, but the duration of audibility often increases with increasing altitude. Richardson et al., (1995) reports that helicopter sound is audible in air for four minutes before it passed over underwater hydrophones but was 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 and for a Sikorsky-61 is 108 dB re 1 μ Pa at 305 m (Simmonds et al., 2004).

7.3.2.5 Generation of Underwater and Atmospheric Noise from Flaring

Minimal flaring of gas or liquids will be required during the petroleum activity (refer to section 7.4.2.2). If flaring is required, it will be for a limited duration as it is constrained by the volume of gas/liquids in the wellbore. In addition, any flaring will be carried out at low flow rates, unlike operations. Received levels from airborne propagation modelling were used to ascertain the underwater received levels during flaring activities for the Pyxis EP and are considered representative of this activity. Modelling showed only a very small fraction of the acoustic energy produced from flaring will transmit through the air/water boundary due to the surface of the water acting as a reflective plane and a significant component of acoustic energy reflecting back into the air. The angle at which the sound path meets the surface (angle of incidence) influences the transmission of noise energy from the atmosphere through the sea surface; with angles of $\pm > 13^\circ$ from vertical being almost entirely reflected (Richardson et al., 1995). The transmission of sound from air to water was conservatively calculated assuming worst case vertical incidence. Results indicate the underwater received sound pressure level during flaring is estimated to be 136 dB re 1 μ Pa at 1 m below the sea surface and is estimated to attenuate below the marine mammal behavioural response threshold of 120 dB re 1 μ Pa within only 7 m from the sea surface.

7.3.2.6 Sound Transmission Loss Modelling

Woodside commissioned JASCO (Wecker et al., 2022) to undertake sound transmission loss modelling of several scenarios at two representative well locations in the Pluto field (PLA08 and XNA02), approximately 200 km from the Stybarrow P&A Operational Area. While the XNA02 well is in relatively shallow water (approximately 182 m), the PLA08 well is in approximately 820 m, which is similar to the depths in the Stybarrow field. While recognising the critical role local conditions, such as seabed geology and geomorphology, play in sound transmission loss, the JASCO sound transmission loss modelling is considered indicative of the plug and abandonment activities in the Stybarrow field given the similarity in noise sources, water characteristics and water depths between the Stybarrow field and the PLA08 well location. Relevant scenarios from the modelling study included several permutations of support vessels and the DP MODU undertaking activities (Table 7-4).

Table 7-4: Descriptions of relevant sound transmission loss modelling undertaken by JASCO (Wecker et al., 2022)

Scenario Number	Scenario Description
1	MODU under DP, drilling at PLA08 (24 hr)
2	MODU under DP, drilling at PLA08 (24 hr) + support vessel resupply, under DP (2 hr)
3	MODU under DP, drilling at PLA08 (24 hr) + support vessel resupply, under DP (8 hr)
4	MODU under DP, drilling at PLA08 (24 hr) + support vessel resupply on standby (24 hr)
5	MODU under DP, drilling at PLA08 (24 hr) + support vessel resupply, under DP (8 hr) + support vessel

Scenario Number	Scenario Description
	resupply on standby (24 hr)

The JASCO study (Wecker et al., 2022) assessed distances from operations where underwater sound levels reached thresholds corresponding to various levels of potential impact to marine fauna. The animals considered included marine mammals, turtles, and fish. Due to the variety of species considered, several different thresholds were used for evaluating effects, including mortality, injury, temporary reduction in hearing sensitivity, and behavioural disturbance.

The modelling methodology considered scenario specific source levels and range-dependent environmental properties. Estimated underwater acoustic levels for non-impulsive (continuous) noise sources presented as sound pressure levels (SPL, L_p), and as accumulated sound exposure levels (SEL, L_E) as appropriate for different noise effect criteria. In this report, the duration of the SEL accumulation is defined as integrated over a 24-hour period.

The SEL_{24h} is a cumulative metric that reflects the dosimetric impact of noise levels over 24 hours based on the assumption that an animal is consistently exposed to such noise levels at a fixed position. The corresponding SEL_{24h} radii represent an unlikely worst-case scenario. More realistically, marine mammals (as well as fish and turtles) would not stay in the same location for 24 hours. Therefore, a reported radius for SEL_{24h} criteria does not mean that marine fauna travelling within this radius of the source will be injured, but rather that an animal could be exposed to the sound level associated with impairment if it remained in that location for 24 hours.

7.3.3 Environmental Impact Assessment

The Operational Area is located in water depths of approximately 800 – 850 m. The fauna associated with this area will be predominantly pelagic fishes, with seasonal, migratory species such as cetaceans and marine turtles potentially occurring in the area (**Section 4.7**). Anthropogenic noise has been identified as a threat to a number of migratory and threatened cetaceans and marine turtles that may occur within the Operational Area, including the pygmy blue whale. Relevant actions included in recovery plans for these species are outlined in **Section 9**.

7.3.3.1 Marine Fauna

Underwater noise can affect marine fauna through:

- disturbance and stress leading to behavioural changes or displacement of fauna; the occurrence and intensity of disturbance is highly variable and depends on a range of factors relating to the animal and situation
- masking or interference with other biologically important sounds (including vocal communication, echolocation, signals, and sounds produced by predators or prey)
- secondary ecological effects such as an alteration of predator/prey relationship
- injury to hearing or other organs. Hearing loss may be temporary (temporary threshold shift (TTS)) or permanent (permanent threshold shift (PTS)). Southall et al. (2007) defined TTS as a threshold shift of 6 dB above the normal hearing threshold. If the threshold shift does not return to normal, permanent threshold shift (PTS) has occurred. Threshold shifts can be caused by acoustic trauma from a very intense sound of short duration, as well as from exposure to lower-level sounds over longer time periods (Houser, 2017).

The extent of the impacts of underwater noise on marine fauna depends upon the species of fauna and the frequency range and intensity of the noise produced and the type of acoustic signal (continuous or impulsive). Marine mammal species differ in their hearing capabilities, in absolute hearing sensitivity, as well as frequency band of hearing (Southall et al., 2019). The following sections outline the potential impacts to marine fauna species likely to be found in or near the Operational Area.

Marine Mammals

Marine mammals that may occur within the Operational Area are detailed in **Table 4-7** which predominantly include migratory and threatened cetaceans. Anthropogenic noise has been identified as a threat to a number of cetaceans that may occur within the Operational Area, including the pygmy blue whale, which has a migration BIA overlapping the Operational Area and the humpback whale which has a migration BIA in close proximity (approximately 4 km) to the Operational Area.

Marine mammals rely on sound for a lot of their critical life functions such as detecting predators, navigation and identifying prey (Erbe, 2012; Erbe et al., 2016; Weilgart, 2007). Underwater noise can affect these life functions, cause behaviour changes and/or cause injury through TTS and PTS. The continuous noise impact threshold levels shown in **Table 7-5** are derived from relevant literature and have been used to determine the likelihood of marine mammals experiencing behaviour responses, TTS or PTS from the Petroleum Activity.

Table 7-5: Continuous noise impact thresholds for acoustic effects on marine mammals

Hearing Group	Behavioural Change ¹ SPL (dB re 1 µPa)	TTS Onset ² Weighted SEL _{24h} (dB re 1 µPa ² .s)	PTS Onset ² Weighted SEL _{24h} (dB re 1 µPa ² .s)
Low-frequency cetaceans	120	179	199
Mid-frequency cetaceans	120	178	198
High-frequency cetaceans	120	153	173

¹ ESA Section 7 Consultation Tools for Marine Mammals on the West Coast (National Oceanic and Atmospheric Administration, 2019)

² Southall et al. (2019)

As outlined in **Section 4.7.2** and Appendix A, the Operational Area overlaps the inner part of the pygmy blue whale migration corridor, which roughly corresponds with the continental shelf break. It also lies approximately 18 km north of a foraging BIA off the Ningaloo Coast (**Figure 4-6**). Thums et al. (2022) also suggest the migration corridor may extend much further west from the shelf edge than the migration BIA established by DCCEEW. Pygmy blue whales are listed as endangered and migratory under the EPBC Act. Migrating pygmy blue whales may be exposed to underwater noise generated by vessels and the MODU. While the Operational Area lies offshore off the humpback whale migration corridor, there is the potential for humpback whales to be exposed to underwater noise generated by the Petroleum Activity.

The *Conservation Management Plan for the Blue Whale* (Commonwealth of Australia, 2015b), a recovery plan made under the EPBC Act, defines BIAs for pygmy blue whales, with particular emphasis placed on foraging areas and migration corridors. As noted above, the Operational Area partially overlaps the migration corridor, with the nearest recognised BIA approximately 238 km to the south-west of the Operational Area. The *Guidance on Key Terms within the Blue Whale Conservation Management Plan* (DAWE, 2021) elaborates on the recovery plan and makes a number of points that relate to the assessment of underwater noise impacts to pygmy blue whales in this EP (**Table 7-6**).

Table 7-6: Selected definitions from DAWE (2021) for elements of the *Conservation Management Plan for the Blue Whale* (Commonwealth of Australia, 2015a) relevant to the Petroleum Activity

Recovery Plan Element	Definition
"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"	The intent of this requirement is to ensure that any blue whale can continue to forage with a high degree of certainty in a Foraging Area, and that any blue whale is not displaced from a Foraging Area. In instances where a threat of environmental harm exists and there is scientific uncertainty as to the outcome, a precautionary approach must be taken. A precautionary approach should be taken to the management of industry activities proposed to occur in or adjacent to designated BIAs (Foraging Areas) due to the increased likelihood of whales foraging in those locations at critically important times. Activities proposed to occur outside designated Foraging Areas must adopt best practice adaptive management approaches in the event that indicators of whale foraging (such as aggregating in a particular area) are evident to ensure that impacts to whales are not unacceptable e.g., injury or displacement.
Definition of 'a foraging area'	Foraging –verb (i) to wander in search of supplies. (Macquarie Dictionary 8th ed. 2020) Feeding - verb (i) to take food; eat; graze. (Macquarie Dictionary 8th ed. 2020) Noting the potential for whale foraging and feeding to occur in areas of high primary productivity outside of designated Foraging Areas, consideration also needs to be given to management of industry activities and underwater anthropogenic noise where opportunistic foraging potential exists.

Recovery Plan Element	Definition
	In areas other than those identified in the CMP or NCVA (described in points (i) and (ii) above), where it can be reasonably predicted that blue whale foraging is probable, known or whale presence is detected, adaptive management should be used during industry activities to prevent unacceptable impacts (i.e., no injury or biologically significant behavioural disturbance) to blue whales from underwater anthropogenic noise. In-field observations of actual whale feeding are difficult to detect, so indicators of probable foraging should be used as a proxy.
Definition of 'displaced from a foraging area'	<p>The recovery plan requirement, Action A.2.3, applies in relation to BIAs. A whale could be displaced from a Foraging Area if impact mitigation is not implemented. This means that underwater anthropogenic noise should not:</p> <ul style="list-style-type: none"> • Stop or prevent any blue whale from foraging • Cause any blue whale to move on when foraging • Stop or prevent any blue whale from entering a Foraging Area <p>It is considered that a whale is displaced from a Foraging Area if foraging behaviour is disrupted, regardless of whether the whale can continue to forage elsewhere within that Foraging Area. Mitigation measures must be implemented to reduce the risk of displacement occurring during operations where modelling indicates that behavioural disturbance within a Foraging Area may occur.</p>
Definition of 'injury to Blue Whales'	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.

Based on the *Guidance on Key Terms within the Blue Whale Conservation Management Plan* (DCCEE, 2021), underwater noise emissions from the petroleum activities program must not:

- Result in TTS or PTS to pygmy blue whales
- Displace a pygmy blue whale from a foraging BIA.

The sound transmission loss modelling study by JASCO (Wecker et al., 2022) indicated the TTS threshold for cetaceans (including low frequency functional hearing group cetaceans) may occur out to a maximum range of 0.85 to 1.78 km from the MODU and vessel sources for the scenarios relevant to the Stybarrow field (**Table 7-7**). The TTS threshold is a frequency-weighted cumulative 24 hr. This approach assumed the animal receiving the sound is constantly within the sound field for 24 hr consecutively. This assumption is not consistent with the behaviour of migrating pygmy blue whales, which typically migrate at median speeds of 1.8 to 4.2 km/hr in the region (Thums et al., 2022). Migrating humpback whales have shown avoidance behaviours (increased movement rate and dive frequency) when exposed to underwater noise generated by a vessel (Dunlop et al., 2015), and it is reasonable to assume pygmy blue whales would exhibit similar responses. Based on the observed migration speeds of pygmy blue whales and assumed behavioural responses to underwater noise, it is not credible pygmy blue whales would be exposed to noise levels sufficient to cause TTS. As such, no injury - as defined by the *Guidance on Key Terms within the Blue Whale Conservation Management Plan* (DAWE, 2021) – will credibly occur.

Table 7-7: Summary of sound transmission loss modelling results for combined cetacean functional hearing groups behavioural and TTS thresholds

Scenario Number	Behavioural Response R_{max}^* (km)	Behavioural Response $R_{95\%}^{**}$ (km)	TTS R_{max}^*	TTS Area (km ²)
1	12.4	11.4	0.85	2.17
2	12.8	11.8	0.88	2.34
3	12.8	11.8	0.99	2.85

Scenario Number	Behavioural Response R_{\max}^* (km)	Behavioural Response $R_{95\%}^{**}$ (km)	TTS R_{\max}^*	TTS Area (km ²)
4	12.5	11.5	0.87	4.02
5	13.1	11.9	1.78	5.00

* R_{\max} is the maximum range from the sound source predicted by the modelling at which the threshold value occurs

** $R_{95\%}$ is the range within which the threshold value is reached 95% of the time

The *Conservation Management Plan for the Blue Whale* (Commonwealth of Australia, 2015b) and associated guidance on key terms (**Table 7-6**) requires that pygmy blue whales not be displaced from a foraging area. The nearest recognised foraging BIA is off the Ningaloo Coast, approximately 18 km south of the Operational Area at the closest point. The sound transmission loss modelling study by JASCO (Wecker et al., 2022) predicted behavioural responses (a conservative surrogate for displacement) could occur up to 13.1 km from the noise source when concurrent activities that generate relatively high intensity noise occur simultaneously (**Table 7-4**). Hence, displacement of pygmy blue whales from this foraging BIA is unlikely to occur.

The modelling and tagging study by Thums et al. (2022) identified several areas that may be important for pygmy blue whales, including the edge of the continental shelf between the Ningaloo Coast and the Rowley Shoal. These areas were identified by a combination of tagging data and modelling data that considered pygmy blue whale abundance and residence time. The Operational Area partially overlaps a relatively small area identified by Thums et al. (2022) as important, but does not overlap the substantial important area identified by Thums et al. (2022) approximately 100 km west of Barrow Island.

When considering the available information on pygmy blue whale distribution and behaviour, along with modelling to characterise the underwater noise emissions hazard, some pygmy blue whales may be exposed to underwater noise from the Petroleum Activity when they are present in the region during their northward (highest density in May and June) and southward (November and December) migrations (Thums et al., 2022). Pygmy blue whales within 13.1 km of the vessels and a DP MODU may experience behavioural impacts, such as increased swimming speeds and more frequent diving (Dunlop et al., 2015), however injury (TTS or PTS) would not credibly occur. Underwater noise emissions will not prevent pygmy blue whales from using the BIA off the Ningaloo Coast, nor displace pygmy blue whales from within the BIA.

Humpback whales occur in the region, with a migration BIA lying shoreward of the Operational Area (approximately 4 km at the closest point). Aerial surveys of migrating humpback whales in the region showed the majority of migrating humpbacks occur in the mid- and inner-continental shelf waters, rather than the outer part of the migration corridor (RPS Environment and Planning, 2010). The sound transmission loss modelling study by JASCO (Wecker et al., 2022) predicted that received noise levels within the humpback whale migration BIA are below levels that would cause TTS or behavioural impacts.

Marine Turtles

Marine turtles are at low risk of mortality or permanent injury from continuous anthropogenic noise sources, such as project vessels (Popper et al., 2014). Marine turtles have also been shown to avoid low-frequency sounds (DeRuiter and Doukara, 2012).

Dow Piniak (2012) found green, leatherback and hawksbill turtles have the greatest hearing sensitivity, between 50 to 400 Hz; therefore, the audible frequency range of marine turtles slightly overlaps with the frequency expected from the MODU operating on DP. Considering the United States of America National Marine Fisheries Service criteria for behavioural effects in turtles of 166 dB re 1 μ Pa (SPL) the MODU and/or support vessels operating on DP could potentially disturb turtles within a distance of a few hundred metres. Avoidance behaviour means turtles do not become exposed to noise that is likely to cause TTS or PTS. Because there is no critical habitat, habitat critical for the survival of the species or BIAs for marine turtles, marine turtles are not expected to be in the Operational Area in high numbers and avoidance behaviour is not expected to interrupt critical life functions.

Noise from the Petroleum Activity may result in localised behavioural responses of individuals transiting through the Operational Area, with minor impact only. Individuals may deviate slightly from their activities but are expected to resume normal behaviour as they move away from the activities. Any impacts are anticipated to be temporary and

minor.

Fish, Sharks and Rays

All fish species can detect noise sources, although hearing ranges and sensitivities vary substantially between species. Sensitivity to sound pressure seems to be functionally correlated in fishes to the presence and absence of gas-filled chambers in the sound transduction system. These enable fishes to detect sound pressure and extend their hearing abilities to lower sound levels and higher frequencies (Popper et al., 2019). Based on their anatomy, Popper et al. (2014) classified fishes into three animal groups, comprising:

- fishes with swim bladders whose hearing does not involve the swim bladder or other gas volumes
- fishes whose hearing does involve a swim bladder or other gas volume
- fishes without a swim bladder that can sink and settle on the substrate when inactive.

The criteria defined in Popper et al. (2014) for continuous (**Table 7-8**) noise sources on the above groups have been adopted.

Table 7-8: Continuous noise exposure criteria for fishes (after Popper et al., 2014)

Fish Group	Mortality and Potential Mortal Injury	Recoverable Injury	TTS	Masking	Behavioural Response
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 involved in hearing	(N) Low (I) Low (F) Low	170 dB rms for 48 h	158 dB rms for 12 hr	(N) High (I) High (F) High	(N) High (I) Moderate (F) Low
Fish eggs and 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: Relative risk (high, moderate, low) is given for animals 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.

Based on criteria developed by Popper et al. (2014) for noise impacts on fish, project vessel noise has a low risk of resulting in mortality and a moderate risk of TTS impacts when fish are within tens of metres from the source. The most likely impacts to fish from noise will be behavioural responses, reducing any TTS impact. Individual demersal fish may be impacted in the vicinity of the Operational Area and tuna and billfish and other mobile pelagic species may transverse the Operational Area.

The Operational Area is not known to be an important spawning or aggregation habitat for commercially caught targeted species. Therefore, no impacts to fish stocks are expected.

Any impacts from noise sources to fish, sharks and rays are anticipated to be temporary and minor and relate to behavioural changes only.

7.3.3.2 Generation of Underwater Noise from Positioning Equipment

Transponders used for positioning have the potential to cause some temporary behavioural disturbance to cetaceans; however, noise levels will be well below injury thresholds. Based on empirical spreading loss estimates measured by Warner and McCrodan (2011), received levels from USBL transponders are expected to exceed the cetacean behavioural response threshold for impulsive sources out to about 42 m. Given the short-duration chirps and the mid

frequencies used by positioning equipment, the acoustic noise from a single transponder is unlikely to have any substantial effect on the behavioural patterns of migrating cetaceans. Therefore, potential impacts from transponder noise are likely to be restricted to temporary and localised avoidance behaviour of individuals transiting through the Operational Area, and therefore are considered localised with no lasting effect.

7.3.3.3 Cumulative Impact Assessment

Cumulative impacts to environmental receptors may occur when more than one hazard impacts upon a receptor. Cumulative impacts to environmental receptors may occur because of:

- more than one noise source from the Petroleum Activity impacting upon a receptor, or
- noise sources from the Petroleum Activity and third-party actions impacting upon the same receptor.

Typically, one or two support vessel and one MODU will be in the Operational Area at any time therefore there will be noise from multiple project vessels in the Operational Area during the Petroleum Activity.

Third-party activities with the potential to generate noise emissions that may result in cumulative impacts include commercial shipping and petroleum activities. There is relatively little commercial shipping in the vicinity of the Operational Area (Figure 4-15). Woodside is not aware of any planned seismic surveys in the vicinity of the Operational Area during the execution window for the Petroleum Activity. Any future seismic surveys seeking approval after acceptance of this EP would be required to assess cumulative noise emissions impacts, including consideration of noise generated by plug and abandonment activities. Based on the preceding, cumulative impacts to fauna from third-party noise emissions are not considered credible.

There are several operating FPSOs in the region, the nearest of which is approximately 20 km from the Operational Area. Measurements of FPSOs by Erbe and McPherson (2010) indicated that received noise levels from the FPSOs were comparable with ambient noise levels at distances > 10 km from the FPSOs. On this basis, cumulative impacts due to the operation of FPSOs are considered to be very unlikely to occur.

Impacts from noise emissions to marine fauna have been considered in the above sections. Potentially sensitive periods relate to the humpback and pygmy blue whale migrations, with relatively high densities of whales in the vicinity of the Operational Area. The annual aggregation of whale sharks off the Ningaloo Coast may also be a period in which whale sharks are vulnerable to cumulative underwater noise impacts from the Petroleum Activity.

Cumulative impact from the use of multiple project vessels is not considered to present significant impacts to marine fauna given their mobility and ability to avoid the sound source. Whilst the project vessels may generate noise emissions for a cumulative period during the Petroleum Activity, the noise levels exceeding the distances for behavioural response levels for cetaceans (presented in **Table 7-5**) remain valid given they are based on the worst-case frequency and source levels from a single project vessel (other vessels noise within the Operational Area will remain below these levels). The size of the pygmy blue whale migration BIA is presented in Figure 4-6 and the area relating to cetacean behavioural threshold exceedance is a fraction of this overall BIA, it is determined the cumulative project vessel noise will not substantially impact upon the migration or whales or be detrimental the individual whales or the overall populations.

Impacts from cumulative noise emissions will continue to relate to behavioural disturbance / avoidance only. The Operational Area is not within an area of high shipping density (**Section 4.8.6**), therefore should avoidance behaviour occur it is anticipated that marine fauna would be able to move to an area below the behavioural threshold. Any impacts from cumulative noise emissions on marine fauna are anticipated to be temporary and minor.

7.3.3.4 Species Recovery Plans and Threat Abatement Plans

Woodside has considered information contained in relevant recovery plans and approved conservation advice for cetaceans and marine turtles that identify noise interference as a threat (Section 9). This includes the objectives and actions within the *Conservation management plan for the blue whale: A recovery plan under the Environment Protection and Biodiversity Conservation Act 1999 2015-2025* (Commonwealth of Australia, 2015b), which relate to noise emissions. The *Recovery Plan for Marine Turtles in Australia 2017-2027* (Commonwealth of Australia, 2017) also identifies noise as a potential threat to marine turtles, although this relates to seismic surveys and pile driving. Seismic surveys and pile driving both of present a substantially different risk (low frequency, high intensity pulsed noise) than the underwater noise generated during the Petroleum Activity.

7.3.4 Demonstration of ALARP

The ALARP process performed for the environmental aspect is summarised in **Table 7-9**. This process was completed as outlined in **Section 6.2** and included consideration of all controls, analysis of the risk reduction proportional to the benefit gained, and final acceptance or justification if the control was rejected.

Table 7-9: Noise Emissions – ALARP Summary

Control Measure	Accept / Reject	Reason	Associated Performance Standards
Legislation, Codes and Standards			
EPBC Regulations 2000 – Part 8 Division 8.1 Interacting with cetaceans, including the following measures ⁷ : <ul style="list-style-type: none"> vessels will not travel greater than six knots within 300 m of a cetacean or turtle (caution zone) and not approach closer than 100 m from a whale. vessels will not approach closer than 50 m for a dolphin or turtle and/or 100 m for a whale (with the exception of animals bow riding). if the cetacean or turtle shows signs of being disturbed, vessels will immediately withdraw from the caution zone at a constant speed of less than six knots. vessels will not travel greater than eight knots within 250 m of a whale shark and not allow the vessel to approach closer than 30 m of a whale shark. 	Accept	Implementation of controls for reduced vessel speed around cetaceans can potentially reduce the underwater noise footprint of a vessel and lower the likelihood of noise exposure above impact thresholds. Controls based on legislative requirements and therefore must be adopted.	PS 4.1
Opportunistic reporting of cetacean and whale shark sightings on MODU and project vessels. Sighting reports to be collated and summarised on an annual basis and submitted to the Australian Antarctic Division of the Department of the Environment and Energy to satisfy Condition 1(a)(v) of EPBC Approval Decision 2004/1469	Accept	Collecting of sightings data does not provide benefit in impact reduction but may support environmental knowledge. Controls based on legislative requirements and therefore must be adopted.	PS 4.2
Eliminate			
Eliminate the use of vessels and helicopters	Reject	The use of vessels and helicopters is required to conduct the Petroleum Activity. Control not feasible.	Not applicable
Eliminate flaring for the petroleum	Reject	Flaring is the only feasible and safe way to	Not applicable

⁷For 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.

Control Measure	Accept / Reject	Reason	Associated Performance Standards
activity		manage the reservoir fluids brought to surface and achieve the well objectives. Control is not considered feasible.	
Substitute			
Manage the timing of the removal activity to avoid periods when sensitive receptors may be present in relatively high numbers (e.g., blue and humpback whale migration)	Reject	<p>Would reduce the risk of impacts from noise emissions during environmentally sensitive periods.</p> <p>The benefit that may accrue from avoiding periods of peak whale migration is negligible based on the observation that even with all the oil and gas development (and associated vessel movements) occurring in the Exmouth Basin over the last ten years, the humpback whale population (Stock IV) has grown at an estimated 10% per year. While pygmy blue whales have not recovered to the same extent, there is also little evidence of oil and gas activities consistent with the petroleum activities in this EP resulting in behavioural disturbance.</p> <p>The cost associated with avoiding periods of peak whale density would be several millions of dollars if it requires placing contracted vessels on standby or the Petroleum Activity to be put on hold, delaying the plug and abandonment activities. Given the low risk of impacts associated with underwater noise, it is considered the cost of this additional control is grossly disproportionate to the negligible benefit that may accrue.</p>	Not applicable
Vessel to use anchors to maintain position rather than DP.	Reject	<p>Would complicate and increase risk of works in proximity to subsea infrastructure.</p> <p>Anchoring will cause seabed disturbance. Given the low risk of impacts associated with underwater noise, the increased risks and impacts outweigh the marginal environmental benefit.</p>	Not applicable
Engineer			
Reduction in number of vessels required for the petroleum activities	Reject	<p>May reduce the amount of noise emissions from vessels and helicopters. However, any noise impacts are anticipated to be temporary and minor and relate to behavioural changes only activities required are minimal.</p> <p>The number of vessels required to undertake the activities cannot be reduced and numbers have been chosen based on the engineering assessment. Reducing the number of vessels in the field may lead to unsafe or increased engineering risks during the plug and abandonment activities and is therefore not feasible.</p>	Not applicable

Control Measure	Accept / Reject	Reason	Associated Performance Standards
Administrative			
Engines, compressors and machinery on the MODU and Project Vessels are maintained via the MODU/Vessel Preventative Maintenance System (PMS)	Accept	Maintenance and inspection completed as scheduled on PMS reduces the generated noise emissions and associated impacts. Machinery maintenance is part of normal operations to ensure operating in accordance with manufacturer's guidelines. The control is feasible, standard practice with minimal cost. Benefits outweigh any cost sacrifice.	PS 4.3
<p>Implement adaptive management procedure prior resupply vessel moves alongside MODU, during daylight hours.</p> <p>Adaptive management procedure to include:</p> <ul style="list-style-type: none"> • Training for crew on the MODU • Use of trained vessel crew as MFOs (both vessel and MODU) • Implement monitoring for pygmy blue whales 30 minutes prior to resupply vessel moves alongside the MODU within the Operational Area. • Proceed with move only when no pygmy blue whales have been sighted within 3 km of the MODU and maintain monitoring during the transit of resupply vessels within the Operational Area 	Accept	<p>Control is considered feasible.</p> <p>Given the Operational Areas overlaps and is adjacent to the pygmy blue whale migration BIA, detecting pygmy blue whale presence in the area before supply vessel moves alongside the MODU reduces the likelihood of noise exposure impact or influence on the activity of pygmy blue whales that may be present.</p> <p>There may be costs involved from schedule delays associated with waiting on pygmy blue whale activity to cease / move on. However, benefits outweigh cost/sacrifice</p>	PS 4.4
Pre-watch for marine fauna from the vessel or MODU bridge prior to DP operations and not undertaking DP operations until no marine fauna (such as pygmy blue whale and humpback) are present	Reject	<p>Pre-watch for marine fauna prior to DP operations will identify if any marine fauna are in sight prior to use of DP. This may reduce the instance of behavioural impacts to marine fauna, such as pygmy blue whales, which may be present given the Operational Area overlaps with a migration BIA.</p> <p>A maximum of two vessels (a light construction vessel and a general support vessel) and the MODU will be on DP at any one time during the plug and abandonment activities. DP is also not a constant during the operations, but it is required during certain activities requiring the vessel to be stationary for periods. The noise impacts are anticipated to be temporary and minor and relate to behavioural changes only.</p> <p>Given the low risk of impacts associated with underwater noise and the low vessel use in the general vicinity of the field, which gives the species ample room to move out of the</p>	Not applicable

Control Measure	Accept / Reject	Reason	Associated Performance Standards
		noise behavioural threshold zone. The pre-watch from the vessel and delay of DP operations if necessary is disproportionate to the negligible benefit that may accrue.	
Flaring restricted to a duration necessary to perform the activity for well bleed-off, except in emergency situations.	Accept	Reduces noise emissions to the marine and atmospheric environment. Minimal cost and standard practice. Benefits outweigh cost/sacrifice	PS 3.3

7.3.4.1 ALARP Summary

The risk assessment and evaluation has identified controls (**Table 7-9**) appropriate to the decision type (Decision Type A), that when implemented are considered to manage the impacts of noise emissions generated from MODU and project vessels on marine fauna to ALARP.

Woodside considers the control measures described above are appropriate to reduce the potential impacts of noise emissions generated during the Petroleum Activity on marine fauna. Additional reasonable control measures were identified in **Table 7-9** to further reduce impacts but rejected since the associated cost and sacrifice was grossly disproportionate to any benefit. The impacts are therefore considered reduced to ALARP.

7.3.5 Demonstration of Acceptability

Based on the impact assessment, given the adopted controls, noise emissions from the MODU and project vessels will not result in potential impacts greater than temporary and minor behavioural disturbance to marine fauna.

Further opportunities to reduce the risks and consequences have been investigated above. The adopted controls are consistent with the most relevant regulatory guidelines and good oil-field practice/industry best practice. Woodside has considered information contained in recovery plans and threat abatement plans (**Section 9**). The environmental impacts meet the Woodside environmental risk acceptability criteria (**Section 6.3**). The environmental impact is considered consistent with the principles of ESD:

- **Integration Principle:** P&A activities allow ongoing decommissioning of the Stybarrow field to progress which will achieve favourable short to long term environmental, social and economic outcomes.
- **Precautionary Principle:** The noise emissions aspect, and its potential impacts, are well understood, and there is no risk of serious or irreversible environmental damage from this aspect. There is variability in the presence and timing of some environmental receptors that may be impacted by noise emissions; however, the nature and scale of the potential impacts pose no risk of serious or irreversible environmental impacts.
- **Intergenerational Principle:** The noise emissions aspect will not impact upon the environment such that future generations cannot meet their needs.
- **Biodiversity Principle:** The noise emissions aspect will not impact upon biodiversity or ecological integrity.

On this basis, Woodside considers the impact to be managed to an acceptable level.

7.3.6 Environmental Performance Outcome, Performance Standards and Measurement Criteria

Environmental Performance Outcomes	Controls	Performance Standards	Measurement Criteria
<p>EPO 4 Noise emissions managed to limit impacts to marine fauna to short-term behavioural impacts only (severity level ≤ 2).</p>	<p>C 4.1 EPBC Regulations 2000 – Part 8 Division 8.1 Interacting with cetaceans, including the following measures⁸:</p> <ul style="list-style-type: none"> • vessels will not travel greater than six knots within 300 m of a cetacean or turtle (caution zone) and not approach closer than 100 m from a whale. • vessels will not approach closer than 50 m for a dolphin or turtle and/or 100 m for a whale (with the exception of animals bow riding). • if the cetacean or turtle shows signs of being disturbed, vessels will immediately withdraw from the caution zone at a constant speed of less than six knots. • vessels will not travel greater than eight knots within 250 m of a whale shark and not allow the vessel to approach closer than 30 m of a whale shark. 	<p>PS 4.1 Compliance with EPBC Regulations 2000 – Part 8 Division 8.1 (Regulation 8.05 and 8.06) Interacting with cetaceans.</p>	<p>MC 4.1.1 Records demonstrate no breaches with EPBC Regulations 2000 – Part 8 Division 8.1 Interacting with cetaceans.</p>
	<p>C 4.2 Opportunistic reporting of cetacean and whale shark sightings on MODU and project vessels. Sighting reports to be collated and summarised on an annual basis and submitted to the Australian Antarctic Division of the Department of the Environment and Energy to satisfy Condition 1(a)(v) of EPBC Approval Decision 2004/1469</p>	<p>PS 4.2 Opportunistic sightings of cetaceans and whale sharks reported during the petroleum activity and submitted to the Australian Antarctic Division of the Department of the Environment and Energy to satisfy Condition 1(a)(v) EPBC Approval Decision 2004/1469.</p>	<p>MC 4.2.1 Records of sightings reports submitted to the Australian Antarctic Division of the Department of the Environment and Energy.</p>

⁸For 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.

Environmental Performance Outcomes	Controls	Performance Standards	Measurement Criteria
	<p>C 4.3 Engines, compressors and machinery on the MODU and Project Vessels are maintained via the MODU/Vessel Preventative Maintenance System (PMS)</p>	<p>PS 4.3 Contractor has PMS to ensure engines and power generation equipment, compressors and machinery on the MODU and Project Vessels are maintained.</p>	<p>MC 4.3.1 Records demonstrate MODU/Vessel Contractor maintenance has been satisfactorily completed as scheduled in PMS.</p>
	<p>C 4.4 Implement adaptive management procedure prior resupply vessel moves alongside MODU, during daylight hours during pygmy blue whale migratory seasons (April – July and October – January).</p>	<p>PS 4.4 Implement adaptive management procedure during daylight hours during pygmy blue whale migratory seasons (April – July and October – January). Adaptive management procedure to include:</p> <ul style="list-style-type: none"> • Use of trained vessel crew as MFOs • Trained crew as marine fauna observers monitor for pygmy blue whales 30 minutes prior to resupply vessel moves alongside the MODU within the Operational Area. • Proceed with move only when no pygmy blue whales have been sighted, to the limits of visibility, over the 30 minute monitoring period. 	<p>MC 4.4.1 Records demonstrate trained vessel crew</p>
	<p>MC 4.4.2 Pygmy blue whale sighting records demonstrate trained crew on watch prior to resupply vessel moves alongside the MODU in the Operation Area.</p>	<p>MC 4.4.3 Records demonstrate when pygmy blue whale presence detected resupply activities have not commenced.</p>	
	<p>C 3.3 Flaring restricted to a duration necessary to perform the activity for well bleed-off, except in emergency situations.</p>	<p>PS 3.3 Flaring restricted to a duration necessary to perform the activity for well bleed-off, except in emergency situations.</p>	<p>MC 3.3.1 Records demonstrate that flaring was restricted to the minimum time necessary for well bleed-off activities, except in emergency situations.</p>

7.4 Atmospheric Emissions

7.4.1 Summary of Risk Assessment and Evaluation

Aspect	Source of Hazard	Potential Impact	Severity Factor	Likelihood Factor	Residual Risk	Decision Context	Acceptability
Atmospheric emissions	Exhaust emissions from internal combustion engines and incinerators on MODU, project vessels and helicopters.	Localised and temporary reduction in air quality as a result of greenhouse gas (GHG) emissions, non-GHG emissions, particulates and volatile organic compounds.	10	N/A	-	Type A Low Order Impact	Tolerable
	Flaring and burning of residual hydrocarbons from MODU during well P&A.		10	N/A	-	Type A Low Order Impact	Tolerable
	Venting of residual trapped gas.						

7.4.2 Source of Hazard

7.4.2.1 Internal combustion engines and incinerators

Atmospheric emissions will be generated by the MODU, project vessels and helicopters from internal combustion engines (including all equipment and generators, which may be diesel powered and/or LNG powered) and incineration activities (including onboard incinerators) during the Petroleum Activities Program. Emissions will include SO₂, NO_x, ozone depleting substances, CO₂, particulates and volatile organic compounds (VOCs). The MODU and support vessels will use MDO to power vessel engines, waste incinerators, generators, and mobile and fixed plant and equipment for the duration of the Petroleum Activity.

7.4.2.2 Flaring, burning and venting of residual hydrocarbons

During P&A activities (including well kill, wireline and coil tubing operations), any residual hydrocarbons remaining in the wellbore are expected to be either bullheaded into the reservoir or alternatively, circulated back to the MODU for venting, flaring or burning via a dedicated fluid and gas handling bleed off package. The volumes of hydrocarbon returned to the MODU will depend on how much can be bullheaded into the formation successfully. For the purpose of this assessment, worst case volumes have been considered.

In the event, lubricate and bleed operations are required for well kill, returns from the well can include well kill fluids, residual wellbore fluids, produced water and residual hydrocarbons. Returns will be processed through a three-phase separator. Gas will be flared if there is sufficient volume and pressure for ignition, otherwise it may be cold vented via knock out/surge tanks on the MODU. Liquid hydrocarbons will be diverted to the oil burner to be burned if in small quantities or alternatively stored in tanks for onshore disposal. Flaring requirements will vary based on the type of well:

- **Oil producing wells** - there is expected gas lift gas trapped in the production annulus and small volume of gas at the top of the tubing (for production wells) and potential for trace quantities of injected gas in the production annulus of the gas injection well. Up to about 0.8 MMscf of gas per well and 500 bbl of oil per well may be directed to the flare boom / oil burner. oil volume per well is approximately 500 bbl. It is expected an average of 90 minutes of flaring is estimated per well.
- **Water injection wells** – no expected gas present in wellbore therefore no venting or flaring expected. Although not expected, if gas has migrated into the well it will require bleeding off and/or venting.

7.4.2.3 Venting of residual gas or trapped gas

Small volumes of residual trapped gas may be vented directly subsea during preparatory subsea tree testing to verify well barriers prior to P&A and when the tree cap is removed. The volume estimated is approximately 1000 m³ of gas per tree.

During permanent P&A activities, a well kick may occur. A kick is an undesirable influx of formation fluid into the wellbore. Should the kick contain hydrocarbons, the resultant effect would be a release of a small volume of greenhouse gases via the degasser to the atmosphere during well control operations, known as 'venting'. Venting is required to ensure well integrity is maintained in the event of a kick, thereby avoiding an emergency condition.

7.4.3 Environmental Impact Assessment

Fuel combustion, incineration, and flaring have the potential to result in localised, temporary reduction in air quality in the environment immediately surrounding the discharge point. Potential impacts include a localised reduction in air quality, generation of dark smoke and contribution to greenhouse gas emissions. Given the short duration and exposed location of the MODU and project vessels (which will lead to the rapid dispersion of the low volumes of atmospheric emissions), the potential impacts are expected to be localised, temporary in nature and of no lasting effect.

Venting of hydrocarbon gases may result in a temporary gas plume and a localised contribution to greenhouse gas emissions. There is potential for human health effects for workers in the immediate vicinity of atmospheric emissions. Emissions are expected to quickly dissipate into the surrounding atmosphere and will not change atmospheric conditions as far away as Exmouth, which is considered the nearest residential area (over 50 km to the south-east of the Operational Area). Therefore, any risks associated with off-site human health effects are negligible beyond the immediate zone of release and dispersion. Given the isolated location of the petroleum activity (which will lead to the rapid dispersion of the low volumes of atmospheric emissions) the potential impacts are expected to be localised and no cumulative impacts are anticipated when considered in the context of existing oil and gas operations in the region.

The Petroleum Activity has potential to contribute to GHG emissions from combustion (including flaring) and venting of hydrocarbons. GHG emissions from combustion will be small volumes and therefore would present a negligible contribution to global GHG emissions. Venting of hydrocarbons has potential to contribute slightly higher GHG emissions than combustion activities. However, no routine venting is planned and if venting was to occur it would be for a short duration, therefore actual GHG emissions from venting would also be small volumes and present a negligible contribution to global GHG emissions.

7.4.4 Demonstration of ALARP

A summary of the ALARP process for the environmental aspect is presented in **Table 7-10**. This process was completed as outlined in **Section 6.2** and included consideration of all controls, analysis of the risk reduction proportional to the benefit gained and final acceptance or justification if the control was rejected.

Table 7-10: Atmospheric Emissions - ALARP Summary

Control Measure	Accept / Reject	Reason	Associated Performance Standards
Legislation, Codes and Standards			
Marine Order 97 (Marine Pollution Prevention – Air Pollution), which details requirements for: <ul style="list-style-type: none"> International Air Pollution Prevention (IAPP) Certificate, required by vessel class use of low sulphur fuel when available Ship Energy Efficiency Management Plan, where required 	Accept	Control may slightly reduce the likelihood of air pollution. Control based on legislative requirements and therefore must be adopted.	PS 5.1

Control Measure	Accept / Reject	Reason	Associated Performance Standards
by vessel class <ul style="list-style-type: none"> onboard incinerator to comply with Marine Order 97. 			
OPGGS (Resource Management and Administration) Regulations 2011: Accepted Well Operations Management Plan (WOMP), which describes the well design and barriers to be used to prevent a loss of well integrity and aligns with industry guidance and good practice.	Accept	Compliance with an accepted WOMP that aligns with industry guidance and good practice will ensure a number of barriers are in place and verified, reducing the likelihood of loss of well integrity occurring. Although the consequence would not be reduced, the reduction in likelihood reduces the overall risk. Control based on legislative requirements and therefore must be adopted.	PS 5.2
As-built checks shall be completed during well operations as described in the WOMP.	Accept	Completing as built checks in accordance with an accepted WOMP reduces likelihood of loss of well integrity occurring. Although the consequence would not be reduced, the reduction in likelihood reduces the overall risk.	PS 5.3
Eliminate			
Do not combust fuel.	Reject	Control is not considered feasible. There are no MODUs or project vessels that do not use internal combustion engines.	Not applicable
Do not vent or flare well bleed-off fluids.	Reject	Control is not considered feasible. Venting or flaring of bleed-off fluids is a safety-critical activity.	Not applicable
Do not vent gas during removal of tree cap or for verification of well barriers.	Reject	Control is not considered feasible. Gas may be trapped in the subsea trees or control lines and will be vented directly subsea when valves are opened to access tree, verify barriers and undertake P&A.	Not applicable
Engineering			
Flaring restricted to a duration necessary to perform the activity for well bleed-off.	Accept	Reduces the likelihood of atmospheric emissions impacting air quality. Consequence remains unchanged. The control is feasible, standard practice with minimal cost. Benefits outweigh any cost sacrifice.	PS 3.3
Oil burner will operate efficiently to maximise combustion.	Accept	This control results in a reduction in likelihood of atmospheric emissions impacting air quality. Consequence remains unchanged. The control is feasible, standard practice with minimal cost. Benefits outweigh any cost sacrifice.	PS 5.4
Re-inject wellbore hydrocarbons into the reservoir prior to well abandonment, where practicable.	Accept	Reduces the likelihood of atmospheric emissions impacting air quality through reducing volume of hydrocarbons required to be flared/vented. The control is feasible,	PS 5.5

Control Measure	Accept / Reject	Reason	Associated Performance Standards
		standard practice with minimal cost. Benefits outweigh any cost sacrifice.	
Subsea BOP and RWORS installed and function tested during permanent plugging operations.	Accept	BOP testing reduces the volume of influx and therefore the potential volume of gas vented in the event of a well kick. The control is feasible, standard practice with minimal cost. Benefits outweigh any cost sacrifice.	PS 5.6
Administrative			
Well Control Bridging Document (WCBD) for alignment of Woodside and the MODU contractor to manage the equipment and procedures for preventing and handling a well influx.	Accept	Implementing equipment and procedures in the Well Control Bridging Document will reduce the volume of gas vented in the event of a well influx. The control is feasible, standard practice with minimal cost. Benefits outweigh any cost sacrifice.	PS 5.7

7.4.4.1 ALARP Summary

The risk assessment and evaluation has identified a range of controls (**Table 7-10**) appropriate to the decision type (Decision Type A), that when implemented are considered to manage the impacts of atmospheric emissions from the MODU and project vessels to ALARP.

Woodside considers the control measures described above are appropriate to reduce the atmospheric emissions associated with fuel combustion, incineration, flaring and venting during the Petroleum Activity. Additional reasonable control measures were identified in **Table 7-10** to further reduce impacts but rejected since the associated cost and sacrifice was grossly disproportionate to any benefit. The impacts are therefore considered reduced to ALARP.

7.4.5 Demonstration of Acceptability

Based on the impact assessment, given the adopted controls, atmospheric emissions generated during the petroleum activity will not result in potential impacts greater than a temporary decrease in local air quality with minor impact to the environment or human health with no lasting effects.

Further opportunities to reduce the impacts have been investigated above. The adopted controls are consistent with the most relevant regulatory guidelines and good oil-field practice/industry best practice. Woodside has considered information contained in recovery plans and threat abatement plans (**Section 9**). The environmental impacts meet the Woodside environmental risk acceptability criteria (**Section 6.3**). The environmental impacts are consistent with the principles of ESD:

- **Integration Principle:** Woodside has undertaken a range of studies to determine the approach to decommissioning the Stybarrow field, which have informed Woodside's deliberations. The decommissioning strategy being pursued by Woodside integrates long-term and short-term economic, environmental, social, and equitable considerations.
- **Precautionary Principle:** The impacts associated with atmospheric emissions generated during the Petroleum Activity are well understood, and there is no risk of serious or irreversible environmental damage from this aspect.
- **Intergenerational Principle:** Global warming will affect the ability for future generations to meet their needs. Atmospheric emission from the Petroleum Activity will contribute to the global inventory of GHGs in the atmosphere, however the volumes will be so small that the contribution is considered negligible. Furthermore, the Petroleum Activity cannot reasonably and safely be completed without these GHG emissions.
- **Biodiversity Principle:** Woodside recognises the threat global warming poses to biodiversity. However, the nature and scale of the impacts associated with atmospheric emissions generated during the Petroleum Activity will not impact upon biodiversity or ecological integrity in the long-term.

On this basis, Woodside considers the impact to be managed to an acceptable level.

7.4.6 Environmental Performance Outcome, Performance Standards and Measurement Criteria

Environmental Performance Outcomes	Controls	Performance Standards	Measurement Criteria
EPO 5 Atmospheric emissions are limited to those necessary to maintain well integrity and complete the petroleum activity.	C 3.3 (refer to Section 7.2.7)	PS 3.3 (refer to Section 7.2.7)	MC 3.3.1 (refer to Section 7.2.7)
	C 5.1 Marine Order 97 (Marine Pollution Prevention – Air Pollution), which details requirements for: <ul style="list-style-type: none"> • International Air Pollution Prevention (IAPP) Certificate, required by vessel class • use of low sulphur fuel when available • Ship Energy Efficiency Management Plan, where required by vessel class • onboard incinerator to comply with Marine Order 97. 	PS 5.1 MODU and project vessels compliant with Marine Order 97 (marine pollution prevention – air pollution) to restrict emissions to those necessary to perform the activity.	MC 5.1.1 Marine Assurance inspection records demonstrate compliance with Marine Order 97.
	C 5.2 OPGGS (Resource Management and Administration) Regulations 2011: Accepted Well Operations Management Plan (WOMP), which describes the well design and barriers to be used to prevent a loss of well integrity and aligns with industry guidance and good practice.	PS 5.2 Stybarrow development wells to be permanently plugged, in accordance with the accepted WOMP, including implementation of barriers to prevent a loss of well integrity.	MC 5.2.1 Acceptance letter from NOPSEMA demonstrates the WOMP was accepted by NOPSEMA before the activity commenced.
	C 5.3 As-built checks shall be completed during well operations as described in the WOMP.	PS 5.3 Achieve a minimum acceptable standard of well integrity.	C 5.3.1 Records demonstrate Well Acceptance Criteria have been met.
	C 5.4 Oil burner will operate efficiently to maximise	PS 5.4 Oil burner will have combustion efficiency	MC 5.4.1 Records demonstrate that oil burner is greater

Environmental Performance Outcomes	Controls	Performance Standards	Measurement Criteria
	combustion.	greater than 99%.	than 99% efficient.
	<p>C 5.5 Re-inject wellbore hydrocarbons into the reservoir prior to well abandonment, where practicable.</p>	<p>PS 5.5 Wellbore hydrocarbons are reinjected into the reservoir, where practicable.</p>	<p>MC 5.5.1 Records confirm assessment completed to ensure wellbore hydrocarbons are re-injected where practicable.</p>
	<p>C 5.6 Subsea BOP and RWORS installed, and function tested during permanent plugging operations.</p>	<p>PS 5.6 Subsea BOP specification, installation and function testing compliant with internal Woodside Standards and international requirements (API Standard 54) as agreed by Woodside and MODU contractor.</p>	<p>MC 5.6.1 Records demonstrate that BOP and BOP control system specifications and function testing were in accordance with minimum standards for the expected permanent plugging conditions as agreed by Woodside and MODU contractor.</p>
	<p>C 5.7 Well Control Bridging Document (WCBD) for alignment of Woodside and the MODU contractor to manage the equipment and procedures for preventing and handling a well influx.</p>	<p>PS 5.7 The well is permanently plugged in accordance with the contractor WCBD to ensure no unplanned emissions to air from a well influx, during operations.</p>	<p>MC 5.7.1 Records demonstrate well permanently plugged, in accordance with WCBD.</p>

7.5 MODU and Vessel Discharges

7.5.1 Summary of Risk Assessment and Evaluation

Aspect	Source of Hazard	Potential Impact	Severity Factor	Likelihood Factor	Residual Risk	Decision Context	Acceptability
Routine MODU and vessel discharges within the Operational Area	Routine discharge of sewage, grey water and putrescible wastes to marine environment from MODU and project vessels.	Localised and temporary reduction in water quality adjacent to the discharge point associated with minor increases in nutrients, salinity, temperature and oily water/ chemical residues.	10	N/A	-	Type A Low Order Impact	Tolerable
	Routine discharge of deck and bilge water to marine environment from MODU and project vessels.		10	N/A	-	Type A Low Order Impact	Tolerable
	Routine discharge of brine or cooling water to the marine environment from MODU and project vessels.		10	N/A	-	Type A Low Order Impact	Tolerable

7.5.2 Source of Hazard

7.5.2.1 Sewage, Grey Water and Putrescible Waste

The MODU and project vessels routinely generate/discharge small volumes of treated sewage, putrescible wastes and grey water to the marine environment (impact assessment based on approximate discharge of 15 m³ per vessel/MODU per day), using an average volume of 75 L/person/day and a maximum of 200 persons on board. However, it is noted that vessels such as support vessels will have considerably less persons on board.

7.5.2.2 Deck and Bilge Water

The MODU and project vessels routinely generate/discharge:

- Routine/periodic discharge of relatively small volumes of bilge water. Bilge tanks receive fluids from many parts of the project vessels or MODU. Bilge water can contain water, oil, detergents, solvents, chemicals, particles, biocides and other liquids, solids or chemicals.
- Variable water discharge from MODU/vessel decks directly overboard or via deck drainage systems. Sources could include rainfall events and/or deck activities such as cleaning/wash-down of equipment/decks.

No wastes contaminated with hydrocarbons or chemicals will be routinely discharged from the project vessel deck drains. Drainage from areas of a high risk of hydrocarbon or chemical contamination will be managed to ensure it has an oil content of less than 15 ppm before overboard discharge or sent to shore for disposal. Rainfall and washdown of the decks may result in minor quantities of chemical residues, such as detergent, oil and grease entering the deck drainage system and being possibly discharged overboard.

7.5.2.3 Desalination Brine

Reverse osmosis (RO), distillation or desalination plants on board vessels and the MODU use seawater to produce potable and demineralised water; resulting in reject brine (i.e., hypersaline water) that is discharged to the marine environment. The potable water produced is stored in tanks on board.

During the distillation process, relatively small volumes of reject brine is produced and discharged. Reject brine

discharge is typically 20 to 50 percent higher in salinity than the intake seawater (depending on the desalination process used) and may contain low concentrations of scale inhibitors and biocides, which are used to avoid fouling of pipework (Woodside, 2014).

Models developed by the US EPA (Frick et al., 2001) for temporary brine discharges from vessels assuming no ocean current (i.e., 0 m/s) found brine discharges from the surface dilute 40-fold at 4 m from the source. This modelling can be used as an indicator for predicting horizontal attenuation and diffusion of reject brine; and suggests that the salinity concentration drops below environmental impact thresholds within 4 m of the discharge point.

7.5.2.4 Cooling Water

Seawater is used as a heat exchange medium for cooling machinery engines and other equipment. Seawater is drawn up from the ocean, where it is subsequently de-oxygenated and sterilised by electrolysis (by release of chlorine from the salt solution) and then circulated as coolant for various equipment through the heat exchangers (in the process transferring heat from the machinery), prior to discharge to the ocean. Upon discharge, it will be warmer than the ambient water temperature. Cooling water is often treated with additives including scale inhibitors and biocide to avoid fouling of pipework. Scale inhibitors and biocide are usually used at low dosages, and are usually consumed in the inhibition process, so there is little or no residual chemical concentration remaining upon discharge.

In some instances, fresh water or central cooling systems may be fitted. In these systems, fresh water is used in a closed circuit to cool down the engine room machinery, and then further cooled by sea water in a seawater cooler.

Seawater used for cooling purposes will be routinely discharged at a temperature expected to be less than 70°C and rates ~50 m³/d.

7.5.3 Environmental Impact Assessment

The water quality assessment undertaken in 2019 (Cardno, 2019) indicated metal and hydrocarbon concentrations in surface waters within the Operational Area were low and consistent with reference sites and the region more broadly (**Section 4.4**). Discharges from the MODU and support vessels would be quickly dispersed and diluted such that any temporary change in water quality above those baseline values will be limited to the vicinity of the discharge point for a very short time. Marine fauna within the Operational Area are likely to be transient; however, they may be come in direct contact with the releases (by passing through the immediate discharge area). If contact does occur with any marine fauna, it will be for a short duration, such that exposure time may not be of sufficient duration to cause a toxic effect. Given the small volumes of discharges, the water depth of release and the rapid dilution, the likelihood of ecological impacts to marine fauna is highly unlikely. The next subsections examine in more detail the environmental impact of each of the identified routine vessel discharges.

7.5.3.1 Water Quality

Sewage, Grey Water and Food Waste

The main 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, E. coli, faecal coliform, volatile and semi-volatile organic compounds, phenol, hydrogen sulphide, metals, surfactants and phthalates.

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 platform and at five different water depths confirmed 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). 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. Studies investigating the effects of nutrient enrichment from offshore sewage discharges indicate that the influence of nutrients in open marine areas is much less significant than that experienced in enclosed areas (McIntyre and Johnston, 1975).

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 receptors, such as

fish, reptiles, birds and cetaceans, in significant numbers within 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.

Given the offshore deep-water location, any routine and non-routine discharges of sewage and greywater and putrescible wastes from activities associated with the Petroleum Activity will be temporary in nature and have a minor localised impact to water quality in the immediate vicinity of the discharge point. The Operational Area is located more than 12 nm from land, which exceeds the exclusion zones required by Marine Order 96 (Marine Pollution Prevention – Sewage) 2018 and Marine Order 95 (Marine Pollution Prevention – Garbage) 2013.

Deck and Bilge Water

Deck drainage and treated bilge may contain a range of chemicals, oil, grease and solid material. This particulate matter can cause an increase in the turbidity of the receiving waters close to the point of discharge. The addition of these substances into the marine environment will result in a change ambient water quality; however, these discharges are expected to rapidly dilute in the water column (Shell, 2010). Discharges will disperse and dilute rapidly, with concentrations significantly dropping with distance from the discharge point.

Bilge water and deck drainage discharges, which may include non-organic contaminants, will rapidly dilute. As such, no significant impacts from the planned routine discharges 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.

Due to the small volumes of deck drainage, the very low levels of contaminants likely to be entrained in the discharge and the rapid dilution and dispersal that will result in the open ocean, the environmental effects will be temporary and localised. The discharge of deck drainage is considered temporary and minor and relates to a localised reduction in water quality, with no significant impacts to marine fauna anticipated.

Desalination Brine and Cooling Water

The key physicochemical stressors that are associated with reject brine and cooling water discharge include salinity, pH, temperature and chemical toxicity. Water quality of the surrounding environment may be altered through the addition of chemicals and an increase in salinity. Scale inhibitors and biocides are commonly used within the systems described above to prevent fouling. Scale inhibitors are typically low molecular weight phosphorous compounds that are water-soluble, and only have acute toxicity to marine organisms about two orders of magnitude higher than typically used in the water phase (Black et al., 1994). The biocides typically used in the industry are highly reactive and degrade rapidly (Black et al., 1994).

The potential impacts on water quality due to cooling water discharge include chlorine toxicity and increased water temperatures. Reject brine water is typically 20 to 50% higher in salinity to the surrounding water and, based on models developed by the US EPA (Frick et al., 2001), discharges of brine water will sink through the water column where it will be rapidly mixed with receiving waters and dispersed by ocean currents, decreasing in salinity rapidly as distance from source increases.

Generally, reject brine and cooling water containing chemical additives are inherently safe at the low dosages used. They are usually consumed in the inhibition process, so there is little or no residual chemical concentration remaining upon discharge. Woodside undertook modelling of continuous wastewater discharges (including cooling water) for its Torosa South-1 drilling program in the Scott Reef complex (Woodside, 2014). This study predicted that discharge water temperature decreases quickly as it mixes with the receiving waters, with the discharge water temperature being <1 °C above ambient within 100 m (horizontally) of the discharge point, and 10 m vertically (Woodside, 2014). As such, any potential impacts to water quality are expected to be limited to 100 m of the source of the discharge where concentrations are highest.

Discharge of desalination brine will be quickly dispersed and diluted to undetectable levels within a few metres of the discharge point. Given the relatively low volume of discharge, the relatively low increase in salinity and the open ocean environment, the discharge of reverse osmosis brine streams is considered temporary and minor and relates to a localised reduction in water quality, with no significant impacts to marine fauna anticipated.

Discharge of cooling water will be subject to turbulent mixing and loss of heat to the surrounding waters. The area of detectable increase in seawater temperature is likely to be less than 10 m radius. The impact of cooling water discharge is considered temporary and minor and relates to a localised reduction in water quality, with no significant

impacts to marine fauna anticipated.

7.5.3.2 Marine Fauna

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 receptors, such as fish, reptiles, birds and cetaceans, in significant numbers within the Operational Area is unlikely. It is possible that marine fauna transiting the Operational Area may come into contact with these discharges (e.g. marine turtles, humpback whales, whale sharks; **Section 4.7**). However, given the localised extent of cumulative impacts from multiple vessel discharges and limited exposure, within the Operational Area, significant impacts to marine fauna are not expected.

7.5.3.3 Plankton

Research suggests 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.

Discharged brine sinks through the water column where it is rapidly mixed with receiving waters and dispersed by ocean currents. As such, any potential impacts are expected to be limited to the source of the discharge where concentrations are highest. Studies indicate that effects from increased salinity on planktonic communities in areas of high mixing and dispersion are generally limited to the point of discharge only (Azis et al., 2003).

Planktonic productivity in the NWMR is low. No significant impacts from the planned routine discharges are expected, because of the minor quantities involved, the expected localised mixing zone and high level of dilution into the open water marine environment of the Operational Area. The Operational Area is located more than 12 nm from land, which exceeds the exclusion zones required by Marine Order 96 (Marine pollution prevention – sewage) 2018 and Marine Order 95 (Marine pollution prevention – garbage) 2013.

7.5.3.4 Species Recovery Plans and Threat Abatement Plans

Woodside has considered information contained in relevant recovery plans for cetaceans and marine turtles that identify chemical discharges/pollution as a threat (**Section 9**). This includes the objectives and actions within *the Recovery Plan for Marine Turtles in Australia 2017–2027* (Commonwealth of Australia, 2017), which relate to discharges.

7.5.4 Demonstration of ALARP

The ALARP process for the environmental aspect is summarised in **Table 7-11**. This process was completed as outlined in **Section 6.2** and included consideration of all controls, analysis of the risk reduction proportional to the benefit gained and final acceptance or justification if the control was rejected.

Table 7-11: Routine Vessel Discharges - ALARP Summary

Control Measure	Accept / Reject	Reason	Associated Performance Standards
Legislation, Codes and Standards			
Marine Order 96 – Pollution prevention – Sewage (as appropriate to vessel class) which include the following requirements: <ul style="list-style-type: none"> Valid International Sewage Pollution Prevention (ISPP) Certificate Sewage systems that comply with Regulation 9 of Annex IV including a sewage 	Accept	Controls based on legislative requirements, must be accepted. Reduces potential impacts of inappropriate discharge of sewage. Control is feasible, standard practice with minimal cost. Benefits outweigh any cost sacrifice.	PS 6.1

Control Measure	Accept / Reject	Reason	Associated Performance Standards
<p>treatment plant, sewage comminuting and disinfecting system and a sewage holding tank</p> <ul style="list-style-type: none"> • discharge of non-treated sewage will only occur >12 nm from the nearest land • discharge of treated sewage using a certified sewage treatment plant will only occur at >3 nm from the nearest land • discharge of sewage will occur at a moderate rate while vessel is in transit at speed greater than 4 knots. 			
<p>Marine Order 95 – Pollution prevention – Garbage (as appropriate to vessel class) 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>	Accept	<p>Controls based on legislative requirements must be accepted. Reduces probability of garbage being discharged to sea. Control is feasible, standard practice with minimal cost. Benefits outweigh any cost sacrifice.</p>	PS 6.2
<p>Marine Order 91 – Oil (as relevant to vessel class) requirements, which include mandatory measures for the processing of oily water prior to discharge:</p> <ul style="list-style-type: none"> • Machinery space bilge/oily water shall have International Maritime Organisation (IMO) approved oil filtering equipment (oil/water separator) with an online monitoring device to measure Oil in Water (OIW) content to be less than 15 ppm prior to discharge. • IMO approved oil filtering equipment shall also have an alarm and an automatic stopping device or be capable of recirculating in the event that OIW concentration exceeds 15 ppm. • A deck drainage system shall be capable of controlling the content of discharges for areas of high risk of fuel/oil/grease or hazardous chemical contamination. • There shall be a waste oil 	Accept	<p>Controls based on legislative requirements must be accepted. Reduces potential impacts of planned discharge of oily water to the environment. Control is feasible, standard practice with minimal cost. Benefits outweigh any cost sacrifice.</p>	<p>PS 6.3.1 PS 6.3.2</p>

Control Measure	Accept / Reject	Reason	Associated Performance Standards
storage tank available, to restrict oil discharges. <ul style="list-style-type: none"> In the event that machinery space bilge discharges cannot meet the oil content standard of <15 ppm without dilution or be treated by an IMO approved oil/water separator, they will be contained onboard and disposed of onshore. Valid International Oil Pollution Prevention Certificate. 			
Eliminate			
Storage, transport and treatment/disposal onshore of sewage, greywater, putrescible and bilge wastes.	Reject	This control would present additional safety and hygiene hazards resulting from the storage, loading and transport of the waste material. Distance of activity offshore also makes the implementation of this control not feasible.	Not Applicable
Engineering			
Where there is potential for loss of primary containment of oil and chemicals on the MODU, deck drainage must be collected via a closed drainage system, e.g. drill floor.	Accept	Reduces the likelihood of contaminated deck drainage water being discharged to the marine environment. No change in consequence would occur. Control is feasible, standard practice with minimal cost. Benefits outweigh any cost sacrifice.	PS 6.4

7.5.4.1 ALARP Summary

The risk assessment and evaluation has identified a range of controls (**Table 7-11**) appropriate to the decision type (Decision Type A), that when implemented are considered to manage the impacts of routine MODU and Vessel discharges to ALARP.

Woodside considers the control measures described above are appropriate to reduce the potential impacts from routine MODU and Vessel discharges. Additional reasonable control measures were identified in **Table 7-11** to further reduce impacts but rejected since the associated cost and sacrifice was grossly disproportionate to any benefit. The impacts are therefore considered reduced to ALARP.

7.5.5 Demonstration of Acceptability

Based on the impact assessment, given the adopted controls, routine MODU and Vessel discharges will not result in impacts greater than temporary and minor reduction in water quality with no lasting effects.

Further opportunities to reduce the impacts have been investigated above. The adopted controls are consistent with the most relevant regulatory guidelines and good oil-field practice/industry best practice. No concerns or objections regarding the routine MODU and Vessel discharges to the marine environment have been raised by relevant stakeholders. The environmental impacts meet the Woodside environmental risk acceptability criteria (**Section 6.3**). The environmental impacts are consistent with the principles of ESD:

- Integration Principle:** Woodside has undertaken a range of studies to determine the approach to

decommissioning the Stybarrow field, which have informed Woodside's deliberations. The decommissioning strategy being pursued by Woodside integrates long-term and short-term economic, environmental, social, and equitable considerations.

- **Precautionary Principle:** Routine MODU and Vessel Discharges, and their potential impacts to the marine environment, are well understood, and there is no risk of serious or irreversible environmental damage from this aspect.
- **Intergenerational Principle:** Routine MODU and Vessel Discharges generated during the Petroleum Activity will not impact upon the environment such that future generations cannot meet their needs.
- **Biodiversity Principle:** Routine MODU and Vessel Discharges generated during the Petroleum Activity will not impact upon biodiversity or ecological integrity.

On this basis, Woodside considers the impact to be managed to an acceptable level.

7.5.6 Environmental Performance Outcome, Performance Standards and Measurement Criteria

Environmental Performance Outcomes	Controls	Performance Standards	Measurement Criteria
<p>EPO 6</p> <p>Routine MODU and Project Vessel discharges comply with Marine Order requirements to restrict discharges to those necessary to perform the Petroleum Activity</p>	<p>C 6.1</p> <p>Marine Order 96 – Pollution Prevention – Sewage (as appropriate to vessel class) which include the following requirements:</p> <ul style="list-style-type: none"> • Valid International Sewage Pollution Prevention (ISPP) Certificate • Sewage systems that comply with Regulation 9 of Annex IV including a sewage treatment plant, sewage comminuting and disinfecting system and a sewage holding tank • discharge of non-treated sewage will only occur >12 nm from the nearest land • discharge of treated sewage using a certified sewage treatment plant will only occur at >3 nm from the nearest land • discharge of sewage will occur at a moderate rate while vessel is in transit at speed greater than 4 knots. 	<p>PS 6.1</p> <p>MODU and Project Vessels compliant with Marine Order 96 – Marine Pollution Prevention – Sewage.</p>	<p>MC 6.1.1</p> <p>Records demonstrate MODU and Project Vessels are compliant with Marine Order 96.</p>
	<p>C 6.2</p> <p>Marine Order 95 – Pollution Prevention – Garbage (as appropriate to vessel class) 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>PS 6.2</p> <p>MODU and Project Vessels compliant with Marine Order 95 – Marine Pollution Prevention – Garbage.</p>	<p>MC 6.2.1</p> <p>Records demonstrate MODU and Project Vessels are compliant with Marine Order 95.</p>

Environmental Performance Outcomes	Controls	Performance Standards	Measurement Criteria
	<p>C 6.3 Marine Order 91 – Oil (as relevant to vessel class) requirements, which include mandatory measures for the processing of oily water prior to discharge:</p> <ul style="list-style-type: none"> • Machinery space bilge/oily water shall have International Maritime Organisation (IMO) approved oil filtering equipment (oil/water separator) with an online monitoring device to measure Oil in Water (OIW) content to be less than 15 ppm prior to discharge. • IMO approved oil filtering equipment shall also have an alarm and an automatic stopping device or be capable of recirculating in the event that OIW concentration exceeds 15 ppm. • A deck drainage system shall be capable of controlling the content of discharges for areas of high risk of fuel/oil/grease or hazardous chemical contamination. • There shall be a waste oil storage tank available, to restrict oil discharges. • In the event that machinery space bilge discharges cannot meet the oil content standard of <15 ppm without dilution or be treated by an IMO approved oil/water separator, they will be contained onboard and disposed of onshore. • Valid International Oil Pollution Prevention Certificate. 	<p>PS 6.3.1 MODU and Project Vessels compliant with Marine Order 91 – Marine Pollution Prevention – Oil.</p>	<p>MC 6.3.1 Records demonstrate MODU and Project Vessels are compliant with Marine Order 91.</p>
		<p>PS 6.3.2 Discharge of machinery space bilge/oily water meet oil content standard of less than 15 ppm without dilution.</p>	<p>MC 6.3.2 Records demonstrate discharge specification from the machinery space bilge/oily water management system met for MODU and Project Vessels</p>
	<p>C 6.4 Where there is potential for loss of primary containment of oil and chemicals on the MODU, deck drainage must be collected via a closed</p>	<p>PS 6.4 Contaminated drainage contained, treated and/or separated before discharge.</p>	<p>MC 6.4.1 Records demonstrate MODU has a functioning closed drainage system which contains, treats and/or separates contaminated drainage before</p>

Environmental Performance Outcomes	Controls	Performance Standards	Measurement Criteria
	drainage system, e.g. drill floor.		discharge.

7.6 Plug and Abandonment Discharges

7.6.1 Summary of Risk Assessment and Evaluation

Aspect	Source of Hazard	Potential Impact	Severity Factor	Likelihood Factor	Residual Risk	Decision Context	Acceptability
Planned subsea discharges associated with P&A	Discharge of cleaning acid (scale dissolver).	Localised and temporary reduction in water and sediment quality	10	N/A	-	Type A Low Order Impact	Tolerable
	Discharge control fluids (valve actuation, pressure testing and BOP function testing).						
	Discharge of residual trapped fluids (inhibited seawater and hydrocarbons) during depressurisation of trees, removal of corrosion cap and disconnection of jumpers and flying leads						
	Discharge of grit, flocculant, metal swarf and cement during wellhead removal.						
Planned MODU discharges associated with P&A	Discharge of well kill and clean out fluids (brine, additives, MEG, LCM).	Localised and temporary reduction in water and sediment quality	30	N/A	-	Type A Low Order Impact	Tolerable
	Discharge of residual well fluids (formation water, inhibited seawater and WBM) during well kill and clean out.						
	Discharge of cement, cement spacers and additives from cementing activities.						
Planned MODU discharges associated with P&A (contingent)	Discharge of WBM, metal swarf, cement and formation rock cuttings from milling.	Localised and temporary reduction in water and sediment quality	10	N/A	-	Type A Low Order Impact	Tolerable
	Discharge of WBM and cement cuttings from drilling out cement plugs.						
	Discharge of reservoir sand with residual hydrocarbon.						

7.6.2 Source of Hazard

The operational discharges associated with the well P&A, including discharges associated with preparatory activities, the MODU based P&A and the removal of well infrastructure are summarised in Table 7-12.

Table 7-12: Summary of discharges associated with the P&A activity

Activity	Discharge Description	Discharge Location and Control	Indicative Volume
Preparatory Activities for P&A			
Marine growth removal and cleaning	Scale dissolver (acid based)	Subsea	100 L per well
Function and pressure testing (actuation of valves)	Hydraulic control fluid ⁹	Subsea	30 L per well
Disconnection of Hydraulic Flying Leads	Hydraulic control fluid	Subsea	10 L per well
Disconnection of production and annulus flowlines	Treated seawater with residual hydrocarbon (< 30 ppm)	Subsea	7.5 m ³
Depressurising trees and control lines	Inhibited seawater with residual hydrocarbons (< 30 ppm)	Subsea	600 L per well
Corrosion cap removal	Inhibited seawater with residual hydrocarbons (< 30 ppm) ¹⁰	Subsea	80 L per well
Plug and Abandonment Activities			
Cement unit test	Cement slurry (mainly cement and water, with small volume of cement additives and stabilisers)	Discharged from MODU through cement discharge line, which may be up to 10m above sea surface	Up to 10 m ³
Function testing BOP	Small volume of BOP control fluid released during BOP installation and routine testing (every 7 days).	Subsea Discharge	90 L per BOP test
Well Kill ¹¹ (Fluid returned to Well Bleed-off Package)	Well kill fluid (weighted brine) mixed with residual wellbore fluids (formation water, inhibited seawater, WBM)	Processing Location: Processed through MODU well bleed-off package.	Discharge volume determined by success of bullheading. Estimate volume ~ 30 - 150 m ³ per well
		Discharge Control: Discharged from MODU below sea surface, if OIW < 30 ppm.	
Well Clean Out (Fluid and solids returned to mud system)	Well clean-out fluid (weighted brine, surfactants, high viscosity gel pills, loss circulation material) mixed with residual fluid in the tubing and annular spaces (WBM, completion fluid, inhibited seawater, small quantity of residual NWBM)	Processing Location: Processed through MODU mud system.	~ 400 – 700 m ³ (per well)
		Discharge Control: Discharged from MODU below sea surface where oil content is less than 1% by volume.	

⁹ Activity and associated discharge may be conducted during preparatory activities and may also be required during rig-based P&A activities.

¹⁰ Gas releases are discussed and assessed in **Section 7.4**

¹¹ Base case for well kill is to bullhead residual fluids in the reservoir. Fluids will only be circulated out of the well and processed through the well bleed off package as a contingency if bullheading is unsuccessful.

Activity	Discharge Description	Discharge Location and Control	Indicative Volume
	Circulating the residual base oil component of NWBM from the annulus space (B or C-annulus remediation)	Processing Location: Base oil to be circulated to mud system for processing. Discharge Control: Base oil will be retained and disposed of onshore.	Not Applicable - base oil disposed onshore.
Mud pit and tank washing	Wash fluids mixed with residual drilling fluids and brines, cement fluids and dry bulk chemicals	From MODU, below sea surface where oil content is less than 1% by volume.	Variable based on operations
Installing cement plugs	Small volume of cement spacer fluid and cement slurry (cement and cement additives) will be circulated back to MODU for discharge after each cement job.	Discharged from MODU below sea surface	10 m ³ per cement job
	Excess cement slurry in the cement pump unit and surface lines will be flushed and discharged after each cement job	Discharged from MODU below sea surface	5 m ³ per cement job
Dry bulks	Following completion of P&A activities, excess cement, barite and bentonite (dry bulks) may be required to be discharged.	Discharged as dry bulk or slurry, below sea surface	100 tonnes of cement 120 tonnes of barite 120 tonnes of bentonite
	Dry cement may be vented and blown overboard during the pneumatic transfer process (onboard transfer operations)	Vented from tank and blown overboard as dry bulk.	10 tonnes per well
Plug and Abandonment Activities – Contingent			
Milling	WBM, metal swarf, cement and formation rock	Processing Location: Processed through MODU solids control system Discharge Control: Discharged from MODU below sea surface where oil content is less than 1% by volume.	1600 m ³ of WBM 14 m ³ of metal swarf 6 m ³ of cement 8 m ³ of formation rock
Drilling out cement plugs	WBM (brine and high viscosity sweeps) used to drill out the cement plugs will be circulated back to MODU with cement cuttings for treatment prior to discharge	Processing Location: Processed through MODU mud system Discharge Control: Discharged from MODU below sea surface where oil content is less than 1% by volume.	250 m ³ of WBM 25 m ³ of cement cuttings
Sand Removal (Stybarrow-11 (H-4) well only)	Unblocked sand from the well may be circulated to the well bleed off package on the MODU. A Dual Pot Sand Filter or Cyclonic Desander will be	Sand will be discharged from MODU if residual oil is less than 1 % on dry sand. If discharges specification	Maximum volume of reservoir sand is approximately 66 tonnes. ¹²

¹² Sand volume is based on theoretical production tubing volume of 33 m³ and sand density of 2000 kg/m³

Activity	Discharge Description	Discharge Location and Control	Indicative Volume
	installed within the bleed off package to separate the sand from the hydrocarbons and circulation fluids.	is not met, sand will be transported to shore for treatment and disposal.	
Wellhead Removal			
Abrasive water jet cutting of wellhead	Flocculant and grit	Flocculant and grit discharged within the wellbore below mudline. Small volumes may be released to the seabed depending on the depth of the cut. A small volume may be released to the seabed if the cut is made at or near the mudline.	Grit: 4 tonnes per well Flocculant: 250 L per well
Mechanical cutting of wellhead (or diamond wire cutting)	Metal and cement cuttings from well infrastructure and lubrication for the cutting tool	Cuttings are expected to be discharged within the well. A small volume may be released to the seabed if the cut is made at or near the mudline.	Negligible volumes may be released to surface sediments

7.6.2.1 Subsea discharges associated with preparatory activities for P&A

Small planned chemical discharges may occur during preparation of the P&A and during well infrastructure removal activities. These subsea discharges are associated with typical inspection, maintenance and repair (IMR) activities and can include:

- Discharges of water-glycol based control fluids from valve functioning activities (note: valve functioning can occur during MODU based P&A);
- Discharges of cleaning acid (scale dissolver) to clean wellhead connector and remove marine growth and carbonate scale from subsea trees prior to P&A;
- Discharges of residual trapped wellbore fluids (predominately inhibited seawater with residual hydrocarbon) during subsea tree preparations (e.g., depressurisation of trees and control lines, corrosion cap removal).
- Discharges associated with the disconnection of remaining production and annulus flowlines and hydraulic flying leads from the subsea trees. Disconnection is required to enable clear access to the trees for P&A and final removal. If lines cannot be disconnected they may be cut using an ROV operated cutting tool and generate minor volumes of metal and plastic swarf. Residual fluids that may be drained from the lines includes treated seawater (30 ppm residual hydrocarbon, scale inhibitor, methanol, hydraulic fluid and demulsifier).

Small volumes of chemicals may be discharged intermittently and for short durations as part of the preparatory activities for P&A. These fluids will be discharged subsea, directly to the marine environment.

7.6.2.2 Well Kill and Cleanout Fluids and Residual Wellbore Fluids

During P&A activities, fluids will be circulated back to the MODU for treatment, prior to either being discharged or sent to shore for onshore disposal. Depending on the operation, returned fluids may include reservoir fluids, residual tubing and annulus fluids, brine, WBM or solids. There are a number of chemicals that are already present in the well from either the time of drilling or injected during operations. The majority of chemicals that may be present are low toxicity and biodegradable.

Fluids Returned to the Bleed off Package

If well kill fluid fails to be bullhead pumped into the well, reservoir fluids may need to be bled off at the MODU through the bleed off package. The bleed off package will be used to separate water-based components from the hydrocarbons and direct the hydrocarbons to be flared, vented or incinerated, depending on a number of factors

including the volume, weather conditions, and safety requirements as documented in relevant procedures for this activity.

All well kill fluids and produced formation water received to the MODU during well kill will be treated via the water filtration package component of the bleed off package to less than 30 ppm oil in water content and discharged overboard or sent for onshore disposal. The bleed-off package is designed to handle fluids and cannot handle solids. It will be used for well kill operation only where the well status allows line-up to the bleed-off package.

Fluids and Solids returned to the mud system

During well clean out, the wellbore will be circulated clean by pumping well clean out fluids (including weighted brines, seawater, hi-viscosity pills and other chemical additives as required) into the well. These fluids will be returned to the surface mixed with residual fluids remaining in the production tubing and annular spaces (predominately WBM and inhibited seawater). Returned fluids will be sent to the MODU's mud system and mud pits (tanks). Fluids may be discharged if they meet less than 1% oil concentration. Should clean out/circulation brine be contaminated with residual base oil or NWBM, it will be captured and stored on the MODU for discharge if oil concentration is <1% by volume or returned to shore if discharge requirements cannot be met.

Skimming may be used to remove separated hydrocarbons where possible (and stored for onshore disposal) but dilution with seawater will not occur to achieve the less than 1% oil concentration requirement. Operational efficiencies will be explored throughout the campaign to minimise activities like pit cleaning. Ideally this will only occur at the end of the campaign, resulting in a single fluid discharge with a maximum of 1% oil.

7.6.2.3 Cementing Fluids, Cement and Grout

Cementing fluids, including cementing mix water, may require discharge to the marine environment under various scenarios.

Upon arrival on location at the Operational Area, the rig may be required to perform a cement unit test, or 'dummy cement job'. Discharges from the test are made through the usual cement unit discharge line, which may be up to 10 m above the sea level and occur as a cement slurry. The slurry is usually a mix of cement and water (~10 m³); however, may sometimes contain stabilisers or chemical additives.

After each cement job, leftover cement slurry in the cement pump unit and the surface lines is flushed and discharged to the sea to prevent clogging of the lines and equipment. This is estimated to be about 20 m³ per well. In the event the cement job does not meet barrier requirements, the cement will be drilled out and cement operation redone.

Cement spacers can be used as part of the cementing process, within the well casing, to assist with cleaning of the casing sections prior to cement flow through. The spacers may consist of either seawater or a mixture of fresh water with weighting agents and other additives to aid with the cleaning of casing and cement placement. A dye may be added to the spacer where the cement is returned to the seabed surface; it is used to provide a pre-indicator of cement overflow to the seabed surface, to ensure adequate cement height.

Following completion of all plugging operations at end of campaign, excess cement (dry bulk, after well operations are completed) will either be: used for subsequent wells; provided to the next operator at the end of the drilling program (as it remains on the rig); or if these options aren't practicable, discharged to the marine environment as dry bulk or as a slurry. The process that will be followed to determine discharge is the last option is presented in **Figure 7-2**.

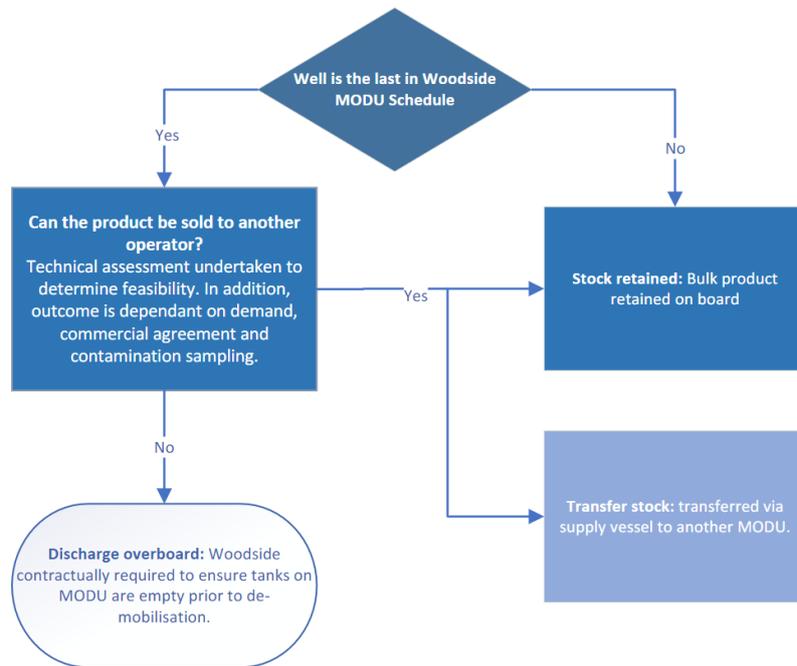


Figure 7-2: Management process for excess bulk product

7.6.2.4 BOP and Well P&A Control Fluids

Subsea fluids are likely to be released during permanent plugging for abandonment activities including well infrastructure removal. These substances include hydraulic fluids, subsea control fluids, dye, glycol, brine or seawater with traces of gas and liquid hydrocarbons. During permanent plugging activities, the control system for the subsea tree operates in open loop, resulting in approximately 10 m³ of control fluid being expected to be discharged per well.

The BOP is required to be regularly function tested, as defined by legislative requirements. The BOP is function tested during assembly and maintenance and during operation on the seabed. As part of this testing, small volumes of BOP control fluid (generally consisting of water mixed with a glycol based detergent or equivalent water based anti-corrosive additive) is released to the marine environment. The BOP will be function tested about every seven days (when a pressure test is not occurring) and pressure tested about every 21 days as per API 53 (an American Petroleum Institute standard for Well Control Equipment Systems for Drilling Wells). The estimated volume of BOP control fluid per function is up to about 1500 L per test.

7.6.2.5 Removal of Well Infrastructure

The removal of wellhead will result in routine discharge of grit/flocculants (from abrasive water jet cutting) and/or metal swarf (from mechanical or diamond wire cutting). Discharges from cutting of well infrastructure are expected to be confined predominately within the well and settle on the top permanent plug. During final cut through the conductor pipe, small amounts of will be released below the mudline to sediments immediately surrounding the well. Should cutting at a shallower depth be required, these discharges may be released to the seabed surface. For the mechanical cutting tool, discharges will be limited to small quantities of metal and cement cuttings from the infrastructure itself as well as small quantities of lubricant. For the abrasive water jet cutting method, discharges include a small amount of grit and flocculant.

7.6.2.6 Contingency Milling

During plugging activities, there is a potential contingency activity where the well casing needs to be milled out (up to 4 x 30 m plugs or 120 m per well). This will produce milled swarf, drilled cement cuttings and formation rock and will be completed using WBM. At the end of section milling, the WBM circulating system may be discharged if contaminated with swarf, to prevent reuse and consequent equipment damage. The volume of discharged WBM is conservatively estimated to be 1600 m³ per well. Operational efficiencies will be explored throughout the campaign to minimise discharge volumes.

7.6.2.7 Contingency Produced Sand Treatment

There may be some produced sand in one well due to the failure of a sand screen. The produced sand is expected to be contaminated with hydrocarbons. The sand may need to be circulated to the MODU, where it may be handled by equipment onboard. If the 1% by weight on dry sand discharge standard cannot be met, the produced sand will be retained onboard for onshore disposal.

7.6.2.8 Contingency Marine Riser Clean Out

There is potential for the marine riser and BOP to be susceptible to rust and other minor build up between wells. This can lead to operational issues. To avoid this, the marine riser will be recovered to deck and inspected. If needed, the equipment will be cleaned over a banded area with fluids returned to tanks on the MODU. The BOP cavities will also be cleaned before deployment and, if equipment needs to be cleaned after deployment, large diameter brushes, clean drill pipe and high rate circulation subs will be available to enable riser cleaning/flushing to the MODU mud pits.

7.6.3 Environmental Impact Assessment

The identified potential impacts associated with P&A related discharges include a localised and temporary reduction in water and localised change in seabed sediment quality, as well as localised burial of benthic biota (species) and change to habitats and communities.

A number of direct and indirect impact pathways are identified include:

- 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 physico-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.

The Operational Area is situated in offshore waters (about 55 km north-west of Exmouth) in water depths of approximately 790 m – 850 m. The abiotic habitat in the area as concluded by BMT Oceanica (2016) is comprised of deep, soft, unconsolidated sediment, which is relatively flat and featureless. Large areas of soft ooze and fine mud sediments were observed between water depths of 600 to 900 m.

Cardno (2019) observed only unconsolidated sediment within WA-32-L, with no areas of hard substrate (with the exception of the Stybarrow field equipment). Few epifauna and demersal or benthic fish were observed by Cardno (2019), which is consistent with similar deep water habitats in the region, with heart urchins, grenadier fish and decapods the most commonly observed taxa.

Infauna sampling by ROV cores yielded very few infauna at impact and control sites in WA-32-L, indicating low density but widely distributed infauna assemblages (Cardno, 2019). This is consistent with other surveys in the region (e.g., RPS, 2013).

Some fluids are discharged at the sea surface (or just below); and some are discharged subsea or at the seabed. All chemicals that may be operationally released or discharged to the marine environment must be selected and approved as per the Chemical Selection and Assessment Environment Guideline (**Section 3.9**). Therefore, any chemicals selected and potentially released are expected to be of low toxicity and biodegradable.

Subsea Discharges

Discharges of small volumes of chemicals (such as cleaning acids, hydraulic fluids and trapped wellbore fluids primarily inhibited seawater with residual hydrocarbons < 30 ppm) will be discharged subsea and are expected to rapidly disperse in the water column, falling quickly below threshold levels for acute toxic effects to marine fauna. Any potential impacts would be confined to localised change in the water quality immediately surrounding the release location. Impacts to transient marine fauna are not expected, particularly given the low sensitivity of the immediate environment within the Operational Area. Potential toxicity to benthic marine fauna associated with bare sediments or attracted and attached to subsea infrastructure (such as fish, infauna and sessile filter feeding organisms) are unlikely. Impacts relate to a localised, temporary (hours) and minor reduction in water quality in the immediate vicinity of the release.

Well Kill, Well Clean Out and Residual Wellbore Fluid Discharges

Discharges such as well kill and wellbore cleanout fluids are typically inert and of low toxicity. These fluids are mostly brine, with a small proportion of chemical additives such as surfactants, biocide, corrosion inhibitor, oxygen scavenger, monoethylene glycol and guar gum. Once circulated through the wellbore, these fluids will contain residual wellbore fluids which are likely to be predominately inhibited seawater with residual quantities of hydrocarbons (< 30 ppm), as well as completion brine, packer fluid, WBM and NWBM that were used during the initial drilling of the wells. Any change to water quality is expected to be localised and temporary. As this is an intermittent batch discharge, any change in water quality will be short term as discharges are discrete and of short duration. Rapid dilution due to prevailing ocean currents in the open water environment would lead to any changes in water quality such as low toxicity contaminants being temporary (only for the duration of the discharge) and reducing water quality within a short distance of the discharge location.

The combination of low toxicity and rapid dilution of unrecoverable WBM (and contingency NWBM) discharged in association with drill cuttings are of little risk of direct toxicity to water-column biota (Neff et al., 2000). Neff (2010) explains the lack of toxicity and low bioaccumulation potential of the drilling muds means the effects of the discharges are highly localised and are not expected to spread through the food web (of which planktonic species are the basis).

Indicative components of the residual completion brine and WBM have a low toxicity. Bentonite and a chemical from the family of XC polymers (Xanthan Gum or similar) are listed as 'E' category fluids under the OCNS and are included on the OSPAR list of chemicals used and discharged offshore are considered to 'pose little or no risk to the environment' (PLONOR). These metals are present primarily as insoluble mineralised salts. Consequently, they are not released in significant amounts to the pore water of marine sediments and have low bioavailability to those benthic fauna that may come into contact with the discharged barite (Crecelius et al., 2007; Neff, 2008).

The residual WBM and bentonite sweeps have very low toxicities and are included on the PLONOR list. They may, however, cause physical damage to benthic organisms by abrasion or clogging, or through changes in sediment texture that can inhibit the settlement of planktonic polychaete and mollusc larvae (Swan et al., 1994). However, these impacts are expected to be negligible, due to the low volumes that will be discharged and rapid biodegradation and dispersion of WBM drilling fluids (Terrens et al., 1998). The dilution of solid elements of the WBM into substrate largely depends on the energy level of the local environment and the 'mixing' that occurs but is expected to occur rapidly after release (especially with WBM).

Base fluids for NWBM, which may be found in residual volumes in the wells, are designed to be low toxicity and biodegradable in offshore marine sediments. Biodegradation can result in a low oxygen (anoxic) environment, resulting in changes in benthic community structure. However, given the small volumes that may be discharged, impacts to benthic habitats and communities will be negligible.

Cuttings and Solids Discharges

The P&A activities occur with a riser fitted, creating a closed loop system. Small volumes of cement cuttings, formation cuttings and reservoir sands with unrecoverable fluids are brought to the surface via the riser and discharged below the water line from the MODU (if with discharge specifications), resulting in fluids rapidly diluting and dispersing through the water column. The dispersion and fate of the solids are determined by particle size and density of the unrecoverable fluids; the larger solid particles will drop out of suspension and deposit in proximity to the well site (tens of metres) with potential for localised spreading downstream, while the fluids and finer particles will remain in suspension and will be transported away from the well site, rapidly diluting and eventually depositing over a larger area (hundreds of metres) downstream of the well site.

Elevated TSS will occur and will be highest at the point of discharge in the water column, rapidly decreasing with depth and distance over a period of short duration (minutes). The finer particles (associated with the drilling fluids) will remain in suspension and are transported further before settling on the seabed over a wider area (hundreds of metres) downstream of the well site (defined as an area of influence). They will form an undetectable thin sediment veneer with negligible ecological impact to benthic biota. Within the area of influence, fluids are likely to be naturally reworked into surface sediment layers through bioturbation (IOGP, 2016).

Cuttings and fine solids discharged from the surface (though below the waterline) are generally confined to a maximum of 500 m from the discharge point (IOGP, 2016). For the petroleum activity, because the volumes of swarf, cement cuttings, formation cuttings and reservoir sand are only associated with contingency activities and would be in low volumes, the extent of the environment impacted is expected to be significantly lower than what is stated in the literature, which is based on drilling new wells with higher volumes of solids.

The discharge of unblocked reservoir sand will result in a localised, temporary decrease in water quality due to

turbidity and residual hydrocarbons. Given the relatively small volume of produced sand that may be discharged (much smaller than the volume of cuttings discharged during typical drilling activities), water quality will recover rapidly once the discharge is ceased. Given the water depths in the Operational Area are >800 m, the sand-sized particles will be distributed as a very thin layer dispersed over a 100's of metres. Impacts to benthic fauna from smothering will be negligible.

Cement

Impacts of cement on the marine environment are associated mainly with smothering of surrounding benthic and/or infauna communities. Cement is the most common material currently used in artificial reefs around the world (OSPAR, 2010) and is not expected to pose any toxicological impacts to receptors from leaching or direct contact.

Minimum cement (100 t), barite (120 t) and bentonite (120 t) volumes are required to be stored on the MODU for use in well control and P&A activities. While volumes are calculated before use to minimise excess, the requirement for additional volumes on the MODU for operational contingencies means there may be greater than the minimum onboard at the end of campaign. Discharge of excess cement, barite and bentonite may occur as dry bulk or as a slurry. Dry bulk has the potential to disperse across a wider area, but at lower concentration, compared to slurry which would have a greater tendency to settle on the seafloor closer to the well location. In either case, discharges are not expected to widely disperse before settling on the seabed. Reduction in water quality from bulk discharges will be temporary and subject to rapid dispersion and dilution by prevailing currents away from the discharge location. Impacts to plankton populations will therefore be localised over the duration of the plume and would be expected to return to previous conditions within a relatively short period of time.

The potential impacts to benthic communities caused by smothering from a surface release of cement are expected to be minimal due to the high dispersal by ocean currents and short-term duration of these discharges. Cement is inert and does not pose toxicological impacts. As described above, barite and bentonite have very low toxicities and are considered by OSPAR to pose little or no risk to the environment (PLONAR). They may, however, cause physical damage to benthic organisms by abrasion or clogging, or through changes in sediment texture that can inhibit the settlement of planktonic polychaete and mollusc larvae (Swan et al., 1994). However, these impacts are expected to be negligible, given this is a one off discharge, and due to rapid biodegradation and dispersion of bulk discharges (Terrens et al., 1998). Any impacts to soft sediment communities is not expected to affect the diversity or ecosystem function in this area and is only considered a localised impact with no lasting effect.

P&A Fluids (Bulk Discharges)

Well kill/clean out brine and WBM may be bulk discharged at the end of specific P&A activities, where there is a requirement to change the fluid system or the fluid cannot be re-used (due to deterioration/contamination). A small quantity of WBM and NWBM residue (<1%) may also be discharged at the sea surface while cleaning the mud pits, typically at the conclusion of P&A activities or when changing between fluid types.

Discharge of brine or WBM will result in a buoyant plume of fine materials that will rapidly dilute and decrease in turbidity levels immediately away from the discharge point. WBM samples collected by Jones et al. (2021) from the mud pits just before discharge during the Greater Western Flank-2 drilling campaign were ~90% silt sized (<62.5 µm) with a mean diameter of 12 µm (gel-polymer) and 33 µm (KCl-polymer). Total suspended solid (TSS) levels in the gel-polymer mud and KCl-polymer mud were 257 g/L and 245 g/L respectively. Jones et al. (2021) used an ROV to observe mud pit discharges and reported the discharge to exit the discharge outlet as a jet of material in a distinctive cloud-like plume descending rapidly to the seabed and growing in diameter with increasing depth.

The subsea plume can be expected to disperse over a wide area (up to several kilometres), with no discernible sediment deposition on the seabed and no physical or biological impacts, particularly given the water depth of the Stybarrow wells (790 m – 850 m). Impacts beyond the 500 m zone of ecological impact for the wells as described for cuttings, fine solids and retained fluids discharge is not expected.

Well Infrastructure Removal

As the planned wellhead cutting depth is below the mudline, discharges from cutting the wellheads (grit, flocculants, and small quantities of metal cuttings) are expected to be confined predominantly within the well. During the final cut and removal, small amounts will be released below the mudline to sediments localised around the well. If cutting at a shallower depth is required, these discharges may be released to the seabed surface. Wellhead cuttings discharges are low volumes of inert material and any impact relates to a localised, temporary, and minor change in water quality, with no significant impacts to marine fauna anticipated.

Following wellhead severance, the remaining water-based casing and annulus fluids become exposed to the sea.

The small volumes and non-instantaneous nature of the release of the well fluids is expected to result in rapid dilution to a no-effect concentration within metres of the release location. Therefore, impacts will be limited to negligible.

KEFs

The Operational Area overlaps the Continental Slope Demersal Fish Communities KEF and the Canyons linking the Cuvier Abyssal Plain and the Cape Range Peninsula KEF. The values and sensitivities of the Cuvier Abyssal Plain and the Cape Range Peninsula KEF occur on a broad scale outside of the Operational Area. There is potential for limited impacts on demersal fish habitat, e.g., seafloor however, given the low toxicity of the fluids to be used and the small volumes for the petroleum activity, the likelihood of any significant impact to marine biota is considered to be low.

As described above, the sediment deposition from the discharge of P&A fluids, residual wellbore fluids, cementing fluids, subsea fluids and fine solids (cuttings and reservoir sands) will be highly localised around each well location. Within the conservatively applied zone of potential ecological impact (500 m radius around each well), only a very small portion of the Continental Slope Demersal Fish Communities KEF (0.002%) and Canyons linking the Cuvier Abyssal Plain and the Cape Range Peninsula KEF (0.009%) will be affected. The fishes that constitute the KEFs are mobile and are expected to move away from areas affected by drilling discharges and fluids before experiencing impacts that result in injury or mortality. The benthic habitats around the Stybarrow wells are widely distributed in the region, hence there are no constraints on available habitat for demersal fish displaced by the discharge of P&A fluids. As a result, the environmental consequence of impacts to the Continental Slope Demersal Fish Communities KEF and the Canyons linking the Cuvier Abyssal Plain and the Cape Range Peninsula KEF will be minor with no lasting effect.

7.6.3.1 Cumulative Impacts

No cumulative impacts to water quality are expected to occur, as discharged sediments are predicted to settle in between the P&A activities for each well.

7.6.3.2 Species Recovery Plans and Threat Abatement Plans

Woodside has considered information contained in relevant recovery plans and approved conservation advice for cetaceans and marine turtles that identify chemical discharges/pollution as a threat (**Section 9**). This includes the objectives and actions with the *Recovery Plan for Marine Turtles in Australia 2017–2027* (Commonwealth of Australia, 2017), which relate to discharges.

7.6.4 Demonstration of ALARP

The ALARP process for the environmental risk is summarised in **Table 7-13**. This process was completed as outlined in **Section 6.1** and included consideration of all controls, analysis of the risk reduction proportional to the benefit gained and final acceptance or justification if the control was rejected.

Table 7-13: Plug and Abandonment Discharges - ALARP Summary

Control Measure	Accept / Reject	Reason	Associated Performance Standards
Legislation, Codes and Standards			
No discharge of produced sand to sea except when oil concentration is lower than 1% by weight on dry sand.	Accept	The residual hydrocarbons standard represents a low environment risk and produced sand not meeting this standard may have an unacceptable environmental impact.	PS 7.1
Eliminate			
Fluids circulated to the MODU mud system which are contaminated with less than 1% oil by volume are not discharged	Reject	Whilst this is feasible it is not considered standard practice. This control would result in significant cost, labour and resources due to the volumes of fluids expected that would require handling. Other cost/sacrifice elements	Not applicable

Control Measure	Accept / Reject	Reason	Associated Performance Standards
to the marine environment.		which are considered include: <ul style="list-style-type: none"> • Further treatment of fluids onshore is required to ensure a standard suitable landfill: Class II disposed locally (e.g. Karratha); Class III Landfill requires transport to Geraldton or Perth. • Potential delays during permanent plugging activity if transfer operations are delayed due to weather or operational issues • Additional environmental impact incurred (air emissions, vessel discharges) from vessel use and onshore trucking for transporting and disposal of fluids. • Disposal via onshore treatment does not eliminate an environmental impact. These options have their own impacts and therefore disadvantages if implemented. Is control may result in a slight reduction in the consequence to the marine environment due to small volume of oil (<1% by content) not being discharged. However, generates onshore disposal consequences. Control not adopted as cost/sacrifice outweighs benefit.	
Return bulk cement, barite and bentonite for onshore disposal	Reject	Control is not considered feasible. The technical requirements to be able to undertake this safely are unresolved due to: <ul style="list-style-type: none"> • Significant risks with tank high pressure differentials to transfer material onshore • High risk with the vessel to waste truck transfer due to tank corrosion concerns and pressure relief valve issues. Control is not considered as it is not considered feasible.	Not applicable
Engineering			
Well Bleed Off Package During well kill activities, returned well kill fluids and produced water will be processed through the water treatment package of the dedicated fluid and gas handling bleed off package. Fluid will be treated to less than 30 ppm oil in water content prior to discharge to the environment. If this cannot be met, fluids will be returned to shore.	Accept	By treating fluids prior to overboard discharge, the consequence of the release on the environment is reduced. Although no change in likelihood is provided, the decrease in consequence results in an environmental benefit. Control is feasible, standard practice with minimal cost. Benefits outweigh any cost sacrifice.	PS 7.2
MODU Mud System During well clean-up and when fluid is being circulated to the mud system (brine, WBM and	Accept	By treating fluids prior to overboard discharge, the consequence of the release on the environment is reduced. Although no change in likelihood is provided, the decrease in	PS 7.3

Control Measure	Accept / Reject	Reason	Associated Performance Standards
clean-up fluids) potentially contaminated with wellbore fluids and residual hydrocarbons, fluids will be captured in the MODU mud tanks for discharge if oil concentration is less than 1% by volume. If discharge requirements cannot be met fluids will be disposed onshore.		consequence results in an environmental benefit. Control is feasible, standard practice with minimal cost. Benefits outweigh any cost sacrifice.	
Mud pit wash residue will be measured for oil content prior to discharge.	Accept	Ensuring <1% oil content will provide a small reduction in consequence when residue is discharged to the environment. Control is feasible, standard practice with minimal cost. Benefits outweigh any cost sacrifice.	PS 7.4
Drilled cement, formation rock and swarf cuttings returned to the MODU will be discharged below the water line.	Accept	Discharge of cement, formation rock and swarf cuttings below the water line will reduce carriage and dispersion of solids, thereby reducing the consequence of solids discharges during the petroleum activity. Control is feasible, standard practice with minimal cost. Benefits outweigh any cost sacrifice.	PS 7.5
Administrative			
Fluids used for P&A activities including brine, WBM, cementing, and subsea control fluids and additives will have an environmental assessment completed prior to use.	Accept	Environmental assessment of chemicals will reduce the consequence of impacts resulting from discharges to the marine environment by ensuring chemicals have been assessed for environmental acceptability through Woodside's chemical assessment process (section 3.9). Planned discharges are required for the safe execution of activities and therefore no reduction in likelihood can occur. Control is feasible, standard practice with minimal cost. Benefits outweigh any cost sacrifice.	PS 7.6
Bulk operational discharges conducted under MODU's Permit to Work (PTW) system (to operate discharge valves/pumps).	Accept	The MODU's PTW may slightly reduce the likelihood of bulk discharges occurring, but it is unlikely to be significant given that bulk discharges are often operationally required and cannot be eliminated. Control is feasible, standard practice with minimal cost. Benefits outweigh any cost sacrifice.	PS 7.7
Options for use of excess bulk cement, bentonite and barite will be managed as per Figure 7-2 and only discharged to the marine environment as a last option.	Accept	Using excess bulk cement, bentonite and barite for subsequent campaigns would eliminate the bulk discharge to the marine environment and eliminate the likelihood and consequence of impacts from such activities. Control is feasible and can be implemented with minor costs. Benefits outweigh any cost	PS 7.8

Control Measure	Accept / Reject	Reason	Associated Performance Standards
		sacrifice.	

7.6.4.1 ALARP Summary

The risk assessment and evaluation has identified a range of controls (**Table 7-13**) appropriate to the decision type (Decision Type A), that when implemented are considered to manage the impacts of operational discharges associated with P&A activities to ALARP.

Woodside considers the control measures described above are appropriate to reduce the potential impacts of operational discharges associated with the P&A of the Stybarrow wells. Additional reasonable control measures were identified in **Table 7-13** to further reduce impacts but rejected since the associated cost or sacrifice was grossly disproportionate to any benefit. The impacts are therefore considered reduced to ALARP.

7.6.5 Demonstration of Acceptability

Based on the impact assessment, given the adopted controls, operational discharges associated with the P&A of the Stybarrow wells will not result in potential impacts greater than temporary and minor reduction in water quality, with no lasting effects.

Further opportunities to reduce the impacts have been investigated above. The adopted controls are consistent with the most relevant regulatory guidelines and good oil-field practice/industry best practice. No concerns or objections regarding the impacts associated with the operational discharges associated with the P&A activity have been raised by relevant stakeholders. Woodside has considered information contained in recovery plans and threat abatement plans (**Section 9**). The environmental impacts meet the Woodside environmental risk acceptability criteria (**Section 6.3**). The environmental impacts are consistent with the principles of ESD:

- **Integration Principle:** Woodside has undertaken a range of studies to determine the approach to decommissioning the Stybarrow field, which have informed Woodside’s deliberations. The decommissioning strategy being pursued by Woodside integrates long-term and short-term economic, environmental, social, and equitable considerations.
- **Precautionary Principle:** Operational discharges associated with the P&A activity, and their potential impacts, are well understood, and there is no risk of serious or irreversible environmental damage from this aspect.
- **Intergenerational Principle:** Operational discharges associated with the P&A activity will not impact upon the environment such that future generations cannot meet their needs.
- **Biodiversity Principle:** Operational discharges associated with the P&A activity will not impact upon biodiversity or ecological integrity in the long-term.

On this basis, Woodside considers the impact to be managed to an acceptable level.

7.6.6 Environmental Performance Outcome, Performance Standards and Measurement Criteria

Environmental Performance Outcomes	Controls	Performance Standards	Measurement Criteria
EPO 7 Impacts from operational discharges associated with P&A activities limited to localised, temporary changes in water and sediment quality in the vicinity of the discharge location.	C 7.1 No discharge of produced sand to sea except when oil concentration is lower than 1% by weight on dry sand.	PS 7.1 Produced sand containing > 1% by weight oil on dry sand taken onshore for disposal.	MC 7.1.1 Records demonstrate produced sand containing > 1% by weight oil on dry sand has been taken onshore for disposal.
	C 7.2 Well Bleed Off Package During well kill activities, returned well kill fluids and produced water will be processed through the water treatment package of the dedicated fluid and gas handling bleed off package. Fluid will be treated to less than 30 ppm oil in water content prior to discharge to the environment. If this cannot be met, fluids will be returned to shore.	PS 7.2 Less than 30 ppm oil in water content achieved before discharge of fluids from well bleed off package water filtration system.	MC 7.2.1 Records demonstrate that discharge criteria were met before discharge or fluids were contained.
	C 7.3 MODU Mud System During well clean-up and when fluid is being circulated to the mud system (brine, WBM and clean-up fluids) potentially contaminated with wellbore fluids and residual hydrocarbons, fluids will be captured in the MODU mud tanks for discharge if oil concentration is less than 1% by volume. If discharge requirements cannot be met fluids will be disposed onshore.	PS 7.3 Fluids containing >1% oil concentration by volume taken onshore for disposal.	MC 7.3.1 Records demonstrate fluids containing >1% hydrocarbons have been taken onshore.
	C 7.4 Mud pit wash residue will be measured for oil content prior to discharge.	PS 7.4 Less than 1% by volume oil content achieved before discharge of fluids from mud pit wash.	MC 7.4.1 Records demonstrate that discharge criteria were met before discharge or fluids were contained.
	C 7.5	PS 7.5	MC 7.5.1

Environmental Performance Outcomes	Controls	Performance Standards	Measurement Criteria
	Drilled cement, formation rock and swarf cuttings returned to the MODU will be discharged below the water line.	Cement, formation rock and swarf cuttings discharged below the water line.	Records confirm solids discharge chute/line is below the water line.
	<p>C 7.6 All chemicals and fluids used for P&A activities including brine, WBM, cementing, and subsea control fluids and additives be reviewed and accepted under the Woodside chemical assessment process prior to use.</p>	<p>PS 7.6 All chemicals and fluids intended or likely to be discharged to the marine environment reviewed and accepted under the Woodside chemical assessment process prior to use.</p>	<p>MC 7.6.1 Records demonstrate chemical selection, assessment and approval process for chemicals and fluids has been followed.</p>
	<p>C 7.7 Bulk operational discharges conducted under MODU's Permit to Work (PTW) system (to operate discharge valves/ pumps).</p>	<p>PS 7.7 All bulk operational discharges conducted under MODU's PTW system.</p>	<p>MC 7.7.1 Records demonstrate that bulk discharges are conducted under the MODU PTW system.</p>
	<p>C 7.8 Options for use of excess bulk cement, bentonite and barite will be managed as per Figure 7-2 and only discharged to the marine environment as a last option.</p>	<p>PS 7.8 No bulk cement, bentonite or barite discharged without documented ALARP assessment.</p>	<p>MC 7.8.1 Records demonstrate that prior to discharge of excess bulk cement, bentonite or barite, options for use were assessed.</p>

7.7 Solid Waste Generation

7.7.1 Summary of Risk Assessment and Evaluation

Aspect	Source of Hazard	Potential Impact	Severity Factor	Likelihood Factor	Residual Risk	Decision Context	Acceptability
Solid Waste Generation	Hazardous and non-hazardous waste generated during MODU and project vessel operations.	Increase waste to landfill. Additional usage of onshore waste reception facilities. Availability of materials from recycling.	10	N/A	-	Type A Low Order Impact	Tolerable
	Disposal of recovered well infrastructure		10	N/A	-	Type A Low Order Impact	Tolerable

7.7.2 Source of Hazard

7.7.2.1 MODU and Project Vessels

The MODU and project vessels generate a variety of hazardous and non-hazardous solid wastes, including domestic and industrial wastes. These include aluminium cans, bottles, paper and cardboard, scrap steel, chemical containers, batteries, and medical wastes. Wastes on-board are managed in accordance with the on-board Waste Management Plan.

Solid waste is segregated on-board the project vessels and stored in designated skips and waste containers. Wastes are segregated into the categories of:

- non-hazardous waste (or general waste)
- hazardous waste
- recyclables (further segregation is conducted in line with practices at existing Woodside operations in the region).

General non-hazardous waste includes domestic and galley waste, and recyclables such as scrap materials, packaging, wood and paper and empty containers. Volumes of non-hazardous waste generated on vessels are generally minor.

Hazardous wastes are defined as those that are or contain ingredients harmful to health or the environment. Hazardous wastes likely to be generated on-board the project vessels include oil-contaminated materials (such as sorbents, filters, and rags), chemical containers and batteries. The volumes of generated hazardous wastes are also generally minor.

7.7.2.2 Recovered Well Infrastructure

Well infrastructure, including production tubing, casing, wellheads and subsea trees will be recovered for onshore treatment and disposal. The production tubing and casing will be recovered by the MODU during permanent plugging of the wells. Other well infrastructure above the mudline including the wellheads and subsea trees will be recovered by the MODU directly following P&A activities or recovered using an offshore support vessel during the Stybarrow subsea infrastructure removal campaign. The recovery of well infrastructure will generate industrial waste mainly comprising of steel, polymers and smaller quantities of other materials that will require onshore handling and disposal at licenced facilities. Waste generated from decommissioning of well infrastructure could contribute to the increasing pressure on local landfills if not managed appropriately through consideration of the waste hierarchy and alternative

means of disposing to landfill. There is also the potential for recovered infrastructure to be incorrectly classified and disposed of inappropriately leading to contamination of waste streams.

Woodside is committed to re-use, repurposing and recycling as much of the decommissioning infrastructure as practicable. Any wastes generated during the petroleum activities, including recovery of well infrastructure, will be disposed in accordance with a Waste Management Plan. The Waste Management Plan will apply the following waste management hierarchy to minimise the amount of waste entering landfill:

- Reuse
- Repurpose
- Recycle
- Landfill

All waste streams will be managed in accordance with applicable legislative requirements, or in accordance with international guidance where applicable, for example:

- *Hazardous Waste (Regulation of Exports and Imports) Act 1989* (Cth) which implements the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal
- Environmental Protection (Controlled Waste) Regulations 2004 (WA)
- MARPOL: International Convention for the Prevention of Pollution from Ships
- International Finance Corporation: EHS Guidelines: Environmental Waste Management.

7.7.3 Environmental Impact Assessment

7.7.3.1 MODU and Support Vessels

All solid waste generated during the Petroleum Activity will be transported to and managed appropriately by third parties. Environmental impacts associated with onshore disposal relate to the small incremental increase in waste volumes received at the onshore licensed waste recycling and disposal sites. The environmental impacts associated with waste disposal onshore are anticipated to be minor, based on the minor quantities involved and recycling of some materials.

Hazardous waste materials will be classified and managed in accordance with the waste management procedures. This will include ensuring hazardous materials are disposed of by suitable waste management facilities. The measured concentrations of potential contaminants deposited during production, such as NORM and mercury, are low. Specific management plans for contaminated equipment recovered from the seabed are not required.

7.7.3.2 Recovered Well Infrastructure

Environmental impacts associated with the disposal of subsea infrastructure, specifically the wellheads and xmas trees, will depend on the waste management approach:

- Reuse of subsea infrastructure has no or very minor environmental impact.
- Recycling of subsea infrastructure requires energy use associated with a recycling process (e.g., use of heat etc). The use of energy has no or very minor environmental impact.
- The disposal of subsea infrastructure to landfill contributes to the overall volume of waste going to landfill each year.

Whilst the volumes of waste material associated with the subsea infrastructure are relatively minor compared to the volume of waste going to landfill in Australia each year (estimated at 20 million tonnes each year (Australian Bureau of Statistics, 2020)), the exploration of reducing waste to landfill through recycling and other waste management practices is part of the *National Waste Policy Action Plan 2019* (Commonwealth of Australia, 2019). In addition, Woodside utilises an ALARP approach to waste impact reduction and follow the waste management hierarchy.

Whilst Woodside's waste management philosophy follows the waste management hierarchy, in some instances it is not always feasible to reuse or recycle decommissioned infrastructure. If some well infrastructure waste goes to landfill the environmental impacts are anticipated to be minor, based on the relatively small quantities involved.

Hazardous waste materials will be classified and managed in accordance with the waste management procedures. This will include ensuring hazardous materials are disposed of by suitable waste management facilities.

7.7.4 Demonstration of ALARP

The ALARP process for the environmental aspect is summarised in **Table 7-14**. This process was completed as outlined in **Section 6.2** and included consideration of all controls, analysis of the risk reduction proportional to the benefit gained and final acceptance or justification if the control was rejected.

Table 7-14: Waste Generation - ALARP Summary

Control Measure	Accept / Reject	Reason	Associated Performance Standards
Legislation, Codes and Standards			
Marine Order 95 – Marine Pollution Prevention—Garbage (as appropriate to vessel class), prescribes matters necessary to give effect to Annex V of MARPOL, which prohibits the discharge of all garbage into the sea, except as provided otherwise.	Accept	Legislative requirements to be followed reduces the potential for contamination between hazardous and non-hazardous wastes by requiring waste segregation on the MODU and Project Vessels in accordance with a waste management plan. The control is based on a legislative requirement and therefore must be adopted.	PS 8.1
Disposal of any hazardous waste associated with the subsea infrastructure will comply with relevant State and Commonwealth legislation: <ul style="list-style-type: none"> Commonwealth Hazardous Waste (Regulation of Exports and Imports) Act 1989 WA Environmental Protection (Controlled Waste) Regulations 2004. 	Accept	Legislative requirements to be followed reduce the likelihood of incorrect disposal of infrastructure. The control is based on a legislative requirement and therefore must be adopted.	PS 8.2
Administrative			
Implement an infrastructure disposal and resource recovery strategy that: <ul style="list-style-type: none"> monitors and tracks waste from recovery to end state considers the waste hierarchy when determining appropriate end state for waste describes contingency procedures for dealing with contaminants offshore and onshore. 	Accept	Reduces the risk of unsuitable disposal through efficient use of resources and reduces the risk of unplanned contamination of waste streams during disposal. Control is feasible and can be implemented with minimal cost. Control considered standard practice. Benefits outweigh cost sacrifice.	PS 8.3
Undertake engagement with waste contractors to identify potential waste disposal pathways.	Accept	Waste management practices will aim to reduce the volume of waste to landfill. Control is feasible and can be implemented with minimal cost. Control considered standard practice. Benefits outweigh cost sacrifice.	PS 8.4

7.7.4.1 ALARP Summary

The risk assessment and evaluation has identified a range of controls (**Table 7-14**) appropriate to the decision type (Decision Type A), that when implemented are considered to manage the impacts of solid waste generation from the petroleum activity to ALARP.

Woodside considers the control measures described above are appropriate to reduce the potential impacts of waste generation. No additional controls were identified. The impacts are therefore considered reduced to ALARP.

7.7.5 Demonstration of Acceptability

Given the adopted controls, waste generation will not result in potential impacts greater than minor due to the materials handled onshore for disposal or recycling.

Waste generation cannot be eliminated. The adopted controls are considered good oil-field practice/industry best practice. No concerns or objections regarding waste generation have been raised by relevant stakeholders. The environmental impact meets the Woodside environmental risk acceptability criteria (Section 6.3). The environmental impacts are consistent with the principles of ESD:

- **Integration Principle:** P&A activities allow ongoing decommissioning of the Stybarrow Field to progress which will achieve favourable short to long term environmental, social and economic outcomes.
- **Precautionary Principle:** The waste generation aspect, and its potential impacts, are well understood, and there is no risk of serious or irreversible environmental damage from this aspect.
- **Intergenerational Principle:** The waste generation aspect will not impact upon the environment such that future generations cannot meet their needs.
- **Biodiversity Principle:** The waste generation aspect will not impact upon biodiversity or ecological integrity.

Woodside considers the impact to be managed to an acceptable level.

7.7.6 Environmental Performance Outcome, Performance Standards and Measurement Criteria

Environmental Performance Outcomes	Controls	Performance Standards	Measurement Criteria
EPO 8 Waste generated is segregated and disposed of onshore in accordance with relevant legislation	C 8.1 Marine Order 95 – Marine Pollution Prevention— Garbage (as appropriate to vessel class), prescribes matters necessary to give effect to Annex V of MARPOL, which prohibits the discharge of all garbage into the sea, except as provided otherwise.	PS 8.1 MODU and Project Vessels compliant with Marine Order 95.	MC 8.1.1 Records demonstrate MODU and Project Vessels are compliant with Marine Order 95.
	C 8.2 Disposal of any hazardous waste associated with the subsea infrastructure will comply with relevant State and Commonwealth legislation: <ul style="list-style-type: none"> Commonwealth <i>Hazardous Waste (Regulation of Exports and Imports) Act 1989</i> WA Environmental Protection (Controlled Waste) Regulations 2004. 	PS 8.2 Disposal of any hazardous waste associated with the well infrastructure is compliant with the Commonwealth <i>Hazardous Waste (Regulation of Exports and Imports) Act 1989</i> and the WA Environmental Protection (Controlled Waste) Regulations 2004.	MC 8.2.1 Records demonstrate disposal of hazardous waste associated with the well infrastructure was compliant with relevant Commonwealth and State legislation.
	C 8.3 Implement an infrastructure disposal and resource recovery strategy that: <ul style="list-style-type: none"> monitors and tracks waste from recovery to end state considers the waste hierarchy when determining appropriate end state for waste describes contingency procedures for dealing with contaminants offshore and onshore. 	PS 8.3 Decommissioning waste generated from infrastructure removal is managed in accordance with the infrastructure disposal and resource recovery strategy.	MC 8.3.1 Records demonstrate compliance against an infrastructure disposal and resource recovery strategy.
	C 8.4 Undertake engagement with waste contractors to identify potential waste disposal pathways.	PS 8.3 Engagement with relevant waste contractors to identify potential waste disposal pathways will be undertaken and inform the infrastructure disposal	MC 8.1.3 Records demonstrating relevant waste contractors have been engaged.

Environmental Performance Outcomes	Controls	Performance Standards	Measurement Criteria
		and resource recovery strategy.	

7.8 Seabed Disturbance

7.8.1 Summary of Risk Assessment and Evaluation

Aspect	Source of Hazard	Potential Impact	Severity Factor	Likelihood Factor	Residual Risk	Decision Context	Acceptability
Physical disturbance to seabed	Disturbance to seabed from MODU station keeping (mooring installation or deployment of DP positioning equipment)	Disturbance of seabed habitat and associated communities.	10	N/A	-	Type A Low Order Impact	Tolerable
	Installation of BOP tethering system						
	Disturbance to seabed from subsea cleaning and preparation for permanent plugging activities (water jetting, marine growth removal, sediment relocation) and use of ROV						
	Disturbance to seabed from cutting and removal well infrastructure, including disconnection of ancillary equipment and installation of mud mats for equipment laydown.						
	ROV operations						

7.8.2 Source of Hazard

7.8.2.1 MODU Positioning

A description of the seabed disturbance caused from MODU positioning activities has been summarised below, depending on whether a moored MODU or DP MODU is used to conduct P&A activities.

MODU Mooring Installation and Anchor Hold Testing (Moored MODU only)

A moored semi-submersible MODU may be used for the petroleum activity, which would require moorings to be set on the seabed. The standard mooring system aboard the Diamond Ocean Apex (an indicative moored MODU) consists of eight (3 ¼") x 4,200 ft. RQ5 chains, eight (3 ¾") x 8,800 ft. wires, and eight 15T Stevpris MK6 anchors with an individual footprint of approximately 30 m². The capacity of the standard mooring system may be expanded to a 12-point mooring system, depending on the outcomes of the mooring analysis.

Anchors and chains from semi-submersible MODUs come into contact with the seabed during the deployment and removal of the MODU. Anchors are laid and retrieved by a support vessel, which carries the anchors to position and deploys them directly on the seabed. If the anchors are dragged accidentally during laying or retrieval, a larger localised area may be temporarily disturbed around the anchor locations.

Moorings will be placed in a radius around the well of up to 4000 m and a mooring analysis will be undertaken to

determine the appropriate mooring pattern. The area of seabed affected by anchoring operations depends upon water depth, currents, size of the vessels and anchors, and length of anchor chain (NERA, 2018a). As part of mooring preparations, anchor holding testing may be conducted and may result in short-term, localised anchor drag on the seabed. The planned anchoring activities will be within the parameters defined in the *Anchoring of Vessels and Floating Facilities EP Reference Case* (Department of Industry, Innovation and Science, undated) during the petroleum activity, including:

- installation of moorings, buoys, equipment or other infrastructure for a period of up to two years
- wet storage on seabed of anchor chains etc., during activities up to two years
- activities with total areas of seabed disturbance less than 13,000 m²
- locations of water depth greater than 70 m. This boundary is set to exclude areas of sensitive primary producer habitats (e.g. corals, seagrass) that occur in shallower waters.

Installation of Transponders for DP Positioning (DP MODU)

If a DP MODU is used to complete the petroleum activity, transponders will need to be deployed to maintain position at the required location. The transponders are typically deployed in an array on the seabed, using clump weights comprising concrete, for the duration of P&A activities at each well, and are recovered at the end, generally by ROV. If clump weights are used, they will be recovered following completion of the P&A campaign.

7.8.2.2 Preparatory Activities for P&A

Installation of BOP Tethering System

A BOP tether system may be used to manage wellhead fatigue during the P&A activities. This system is planned to consist of clump weights weighing about 25 tonnes each, although the use of suction pilling may be considered instead of clump weights. There would be around four to eight clump weights used, though this may change once seabed and current conditions are better understood. The clump weights would be placed about 20 to 40 m from the wellhead, then the tether would be connected and tensioned using an ROV. If suction piles have to be used instead of clump weights, four 160-inch piles would be needed per tether system. The BOP tether system will result in localised seabed disturbance. The BOP tethering system will be recovered following completion of the P&A campaign.

Subsea cleaning and sediment relocation

Subsea cleaning activities include removing marine growth and mineral deposits from infrastructure such as the subsea trees and wellheads and if required, relocating sediment that has built up around well infrastructure to enable clear access for connection to the BOP and MODU. Cleaning and marine growth removal may be done in various ways. Those that have the potential to impact the seabed include use of high-pressure water and/or brushes on ROVs. Sediment removal involves using an ROV-mounted suction pump unit to remove sediment that has built up around the well infrastructure.

Disconnection and laydown of ancillary equipment connected to the subsea trees

ROV operated cutting tools may be required to sever the remaining connected flying leads and jumpers from the subsea tree. Once severed, the equipment will be laid on the seabed temporarily for recovery as part of the Stybarrow Subsea Removal campaign defined in the Stybarrow Equipment Removal and Field Management EP.

Installation of mud mats and other ancillary equipment during preparatory activities

It is expected at least three mud mats will be required to be deployed on the seabed adjacent to the wells to allow the three non-drill through trees to be disconnected from the wellbore and temporarily wet parked on the seabed whilst permanent plugging of the well is being conducted. In the event of any unforeseen issues with gaining access to the wellbore through the other subsea trees, further mud mats may be required if P&A activities cannot be conducted with the tree still connected. Deployment of mud mats is expected to result in temporary seabed disturbance of 3.5 m by 3.5 m per mud mat near the location of each well. Mud mats will be recovered following recovery of the subsea trees.

7.8.2.3 Cutting and removal of well infrastructure

Well infrastructure removal activities may be conducted from the MODU directly following permanent plugging of the

wells, or later using a light construction vessel or anchor handling vessel as part of the Stybarrow subsea infrastructure removal campaign. To enable the recovery of the well infrastructure above the mudline, sediment that has built up around the infrastructure may require relocation (about 3 - 5 m below the mudline for recovery of the wellheads). Relocating sediment involves using an ROV-mounted suction pump/dredging unit, with sediment relocated nearby.

Removal of the wellheads will involve internal cutting, which may result in localised sediment relocation and temporary increase in turbidity, metal swarf generated during the cutting activity is expected to remain within the wellbore with only a small quantity released to the seabed in the localised area around the wellhead. If internal cutting is not possible, the wellhead will be cut externally as close to the mudline as practicable. An external cut is expected to generate metal swarf and cement cuttings that will be deposited in the localised area around the well. Removal activities would result in localised disturbance including temporary increased turbidity and relocation of sediment.

The subsea trees and wellheads may be set down on the seabed in the immediate vicinity of removal for a period to enable safe rigging before recovery. Placement of the subsea infrastructure and wellheads on the seabed will result in temporary seabed disturbance and causing turbidity and increased suspension of sediment.

7.8.2.4 ROV Operations

The use of the ROV during the petroleum activity may result in temporary seabed disturbance and suspension of sediment causing increased turbidity as a result of working close to, or occasionally on, the seabed. ROV use close to or on the seabed is limited to that required for effective and safe subsea activities. The footprint of a typical ROV is about 2.5 m × 1.7 m.

7.8.3 Environmental Impact Assessment

MODU station keeping, subsea cleaning and preparation, installation of mud mats, well infrastructure removal and ROV operations are likely to result in localised to short-term, physical modification to the seabed and localised disturbance to soft sediments.

Benthic habitats within the footprint of the infrastructure laydown consist of soft, unconsolidated sediments which host sparse assemblages of filter- and deposit-feeding epifauna and infauna, as well as demersal fishes. These soft sediment habitats, and associated biological communities, are widely represented throughout the NWMR and are not considered to be of particular conservation significance.

Results from the pre-decommissioning environmental survey within the Stybarrow field (Cardno, 2019) are presented in **Section 4.4**. This survey found that sediment contamination was localised to areas of disturbance (e.g., drilling centres) with low levels of infauna and demersal fauna, which is consistent with other locations of similar depths.

Given the concentrations of potential contaminants in sediments were all below the guideline value-high concentrations (Commonwealth of Australia and New Zealand Government, 2018), elevated turbidity and seabed disturbance is not anticipated to have toxic impacts to marine fauna in the water column, or toxic impacts to smothered benthic habitats.

Concentrations of the sediment radionuclides (including NORM) were low and uniform, with small variations attributed to depth and/or variations in sediment size and were therefore thought representative of background conditions at all stations (Cardno, 2019). Radiation assessments of the Stybarrow equipment found very low levels of NORMs, with little NORMs apparently deposited in equipment during production (SA Radiation, 2018). No impacts from NORMs are therefore anticipated during seabed disturbance.

Visual surveys indicate very sparse benthic communities in the Stybarrow field, with soft sediments the only benthic habitat type observed in the field. This habitat type is very widely represented in the region. Installation of equipment on or near the seabed (e.g., the BOP, clump weights for the BOP tether system, etc.) will result in disturbance of the bare sediment habitat. This disturbance will be localised to the footprint of the equipment and is expected to be in the order of 10's of square metres. The habitats affected will recover over time following removal of the equipment. Consequently, the impacts to benthic habitats will be limited to widely represented habitat, localised, and will recover over time.

Sediment relocation (if required), along with activities near the seabed, will result in sediment resuspension. This will result in localised, short-term increases in turbidity. Resuspended sediments are expected to settle within 10's to 100's of meters, and the sediment plume will be localised around and down current from wellheads. Elevated turbidity and disturbance of seabed habitat and associated communities from seabed disturbance will be confined to sediment

burrowing infauna and surface epifauna invertebrates, such as filter feeders in the immediate vicinity. These species are considered to have low sensitivity to localised physical disturbance of subsea infrastructure and wellheads. Any impacts are anticipated to be localised and minor, given the low densities of benthic organisms (refer **Section 4.4**) and representation of the infauna communities within the Operational Area and the broader region.

The Operational Area overlaps the Canyons linking the Cuvier Abyssal Plain and the Cape Range Peninsula and Continental Slope Demersal Fish Communities KEFs; therefore, seabed disturbance may directly disturb a very small, localised area of the key ecological feature (KEF). Any disturbed areas are anticipated to recolonise over a 12-month period, any impact is determined to be temporary, localised, and minor.

7.8.4 Demonstration of ALARP

The ALARP process for the environmental aspect is summarised in **Table 7-15**. This process was completed as outlined in **Section 6.2** and included consideration of all controls, analysis of the risk reduction proportional to the benefit gained and final acceptance or justification if the control was rejected.

Table 7-15: Seabed Disturbance - ALARP Summary

Control Measure	Accept / Reject	Reason	Associated Performance Standards
Eliminate			
Only use DP MODU (no anchoring required).	Reject	It is feasible to use a DP MODU and would eliminate seabed disturbance and associated impacts to benthic communities from anchor placement and movement. However, impacts of anchoring are assessed as low. While Woodside plans to use a DP MODU, flexibility is required to meet General Direction obligations and other contractual and operational constraints. Cost of implementation is considered grossly disproportionate to the benefit gained.	Not applicable
Eliminate ROV use	Reject	The use of ROVs (including work close to or occasionally landed on the seabed) is required during wellhead removal and field management activities. ROV usage is already limited to only that required to conduct the work effectively and safely.	Not applicable
Eliminate equipment removal	Reject	Leaving the equipment <i>in situ</i> has been investigated.	Not applicable
Engineering			
Undertake Project-specific Mooring Design Analysis (for moored MODU)	Accept	The mooring design analysis determines the number and spread of anchors required based on sediment type and seabed topography, reducing the likelihood of anchor drag leading to seabed disturbance. Mooring analysis is common practice and cost of implementing control is proportionate to the potential environmental benefit.	PS 9.1
Clump weights and transponders will be recovered from the seabed upon completion of P&A activities (for DP MODU)	Accept	If a DP MODU is used to complete the petroleum activity, transponders will need to be deployed to maintain position at the required location. The transponders are typically deployed in an array on the seabed, using clump weights comprising concrete, for the	PS 9.2

Control Measure	Accept / Reject	Reason	Associated Performance Standards
		duration of P&A activities at each well, and are recovered at the end, generally by ROV. If clump weights are used, they will be recovered	
Separate			
Do not use ROV close to, or on, the seabed.	Reject	Control is not considered feasible. The use of ROV (including working close and landing on the seabed) is critical as the ROV is the main tool used to guide and manipulate equipment during P&A 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.	Not applicable
Administrative			
Wet parked items will be tracked and removed from the seabed	Accept	Ensures inventory of equipment is maintained and no wet parked items are unintentionally left <i>in situ</i> . The control is feasible, standard practice with minimal cost. Benefits outweigh any cost sacrifice.	PS 9.3
Environmental monitoring of the seabed before and after the Petroleum Activity to assess any impacts to the seabed.	Reject	Environmental monitoring would not result in any additional information about the seabed above what is provided by the Woodside Well Location and Site Appraisal Data Sheet and mooring design analysis. Therefore, no additional reductions in likelihood or consequence would occur. Control is considered grossly disproportionate. Monitoring will not reduce the consequence or likelihood of any impacts to the seabed, and the cost associated with the level of monitoring required to accurately assess any impacts greatly outweighs the benefits gained. Although adoption of this control could be used to verify EPOs, alternative controls identified also allow demonstration that the environmental outcome has been met based on the nature of the activity (i.e., predictable impacts) and relatively low sensitivity of the area.	Not applicable

7.8.4.1 ALARP Summary

The risk assessment and evaluation has identified a range of controls (**Table 7-15**) appropriate to the decision type (Decision Type A), that when implemented are considered to manage the impacts from seabed disturbance to ALARP.

Woodside considers the control measures described above are appropriate to reduce the potential impacts from seabed disturbance during the petroleum activity. Additional reasonable control measures were identified in **Table 7-15** to further reduce impacts but rejected since the associated cost and sacrifice was grossly disproportionate to any benefit. The impacts are therefore considered reduced to ALARP.

7.8.5 Demonstration of Acceptability

Based on the impact assessment, given the adopted controls, seabed disturbance as a result of the petroleum activity will not result in potential impacts greater than temporary and minor reduction in water quality and disturbance to seabed habitat and benthic communities.

Further opportunities to reduce the impacts have been investigated above. The adopted controls are consistent with the most relevant regulatory guidelines and good oil-field practice/industry best practice. No concerns or objections regarding the impacts associated with planned seabed disturbance have been raised by relevant persons. Woodside has considered information contained in recovery plans and threat abatement plans (**Section 9**). The environmental impacts meet the Woodside environmental risk acceptability criteria (**Section 6.3**). The environmental impacts are consistent with the principles of ESD:

- **Integration Principle:** Woodside has undertaken a range of studies to determine the approach to decommissioning the Stybarrow field, which have informed Woodside's deliberations. The decommissioning strategy being pursued by Woodside integrates long-term and short-term economic, environmental, social, and equitable considerations.
- **Precautionary Principle:** The planned seabed disturbance, and its potential impacts, are well understood, and there is no risk of serious or irreversible environmental damage from this aspect.
- **Intergenerational Principle:** The planned seabed disturbance as a result of the petroleum activity will not impact upon the environment such that future generations cannot meet their needs.
- **Biodiversity principle:** The planned seabed disturbance as a result of the petroleum activity will not impact upon biodiversity or ecological integrity in the long-term.

On this basis, Woodside considers the impact to be managed to an acceptable level.

7.8.6 Environmental Performance Outcome, Performance Standards and Measurement Criteria

Environmental Performance Outcomes	Controls	Performance Standards	Measurement Criteria
EPO 9 No impacts to benthic habitats greater than a severity level of 2 within the Operational Area during the petroleum activity.	C 9.1 Undertake Project-specific Mooring Design Analysis (for moored MODU)	PS 9.1 Seabed disturbance from MODU mooring limited to that required to ensure adequate MODU station holding capacity.	MC 9.1.1 Records demonstrate Mooring Design Analysis completed and implemented during anchor deployment.
	C 9.2 Clump weights and transponders will be recovered from the seabed upon completion of P&A activities (for DP MODU)	PS 9.2 Seabed disturbance from clump weights and transponders limited to that required for the petroleum activity.	MC 9.2.1 Records demonstrate recovery of clump weights and transponders from the seabed
	C 9.3 Wet parked items will be tracked and removed from the seabed	PS 9.3 Wet parked equipment inventory maintained, with equipment removed from the seabed.	MC 9.3.1 Records demonstrate wet parked equipment is recorded and removed.

8 Environmental Risk Assessment and Evaluation: Unplanned Events

The purpose of this section is to address the requirements of Regulations 13(5) and 13(6) of the Environment Regulations by assessing and evaluating all the identified impacts and risks associated with the Petroleum Activity and associated control measures that will be applied to reduce the impacts and risks to ALARP and an acceptable level. This section presents the environmental impacts and risks associated with unplanned events of the Petroleum Activity.

Table 8-1 summarises the impact and risk analysis for the aspects associated with the unplanned events. A comprehensive risk and impact assessment for each of the unplanned events, and subsequent control measures proposed by Woodside to reduce the risk and impacts to ALARP and acceptable levels, are detailed in the subsections.

Table 8-1: Summary of the Environmental Risk Analysis For Unplanned Events

Aspect	Environmental									Socio-economic			Risk Assessment & Evaluation			
	Marine Mammals	Marine Reptiles	Fish	Seabirds / Shorebirds	Seabed / Benthic Habitat	Water Quality	Air Quality	Marine Protected Areas	Key Ecological Features	Commercial Fisheries	Shipping	Tourism / Recreation	Severity Factor	Likelihood Factor	Residual Risk	Acceptability
Hydrocarbon Release from a Loss of Well Control – Section 8.2																
Loss of hydrocarbons (Stybarrow or Eskdale crude oil) to the marine environment due to loss of well containment during P&A	X	X	X	X		X		X		X	X	X	300	0.03	9	Tolerable
Hydrocarbon Release from Vessel Collision or Bunkering Incident – Section 8.3																
Surface release of MDO from a project vessel as a result of an external impact (vessel collision) which ruptures an MDO tank.	X	X	X	X		X		X		X	X	X	100	0.1	10	Tolerable
Release of MDO or jet fuel during a bunkering or refuelling incident.	X	X	X	X		X							10	0.3	3	Tolerable
Marine Fauna Interaction – Section 8.4																
Accidental collision between project vessel and marine fauna.	X	X											30	0.1	3	Tolerable
Introduction of Invasive Marine Species – Section 8.5																
Movement of project vessels and immersible equipment from known high invasive marine species risk areas.					X					X		X	100	0.1	10	Tolerable
Unplanned Spills of Chemicals and Hydrocarbons – Section 8.6																
Accidental discharge of drilling and P&A fluids (brine, WBM, base oil, cementing fluids and residual wellbore fluids) to the marine environment due to failure of slip joint packers, bulk transfer hose/fitting, leaks during P&A activities such as wireline activities, emergency disconnect sequence or from MODU operations.	X	X	X	X	X	X							10	0.3	3	Tolerable
Minor spills and leaks of chemicals and hydrocarbons on the vessel deck reaching the marine environment and from subsea equipment (such as ROVs).	X	X	X	X	X	X							10	0.3	3	Tolerable
Loss of Solid Hazardous and Non-hazardous Wastes (including Dropped Objects) – Section 8.7																
Accidental loss of waste (hazardous and non-hazardous) to the marine environment	X	X	X	X	X	X			X				10	0.3	3	Tolerable
Dropped objects resulting in disturbance to benthic habitats					X				X				10	0.3	3	Tolerable

8.1 Quantitative Spill Risk Assessment Methodology

Quantitative hydrocarbon spill modelling was performed by RPS (RPS, 2022a, 2022b) on the worst-case credible release scenarios for the loss of well containment and vessel collision using a three-dimensional (3D) hydrocarbon spill trajectory and weathering model, SIMAP (Spill Impact Mapping and Analysis Program). SIMAP is designed to simulate the transport, spreading and weathering of specific hydrocarbon types under the influence of changing meteorological and oceanographic forces. The loss of containment during bunkering scenario was not modelled as this scenario has the same hydrocarbon type, release location, and substantially smaller volume than the vessel collision scenario; hence the environmental risks from the bunkering incident will be contained within the EMBA defined by the vessel collision scenario modelling results.

The stochastic model within SIMAP performs a large number of simulations for a given release site, randomly varying the release time for each simulation. The model uses the spill time to select samples of current and wind data from a long time series of wind and current data. Hence, the transport and weathering of each slick will be subject to a different sample of wind and current conditions. More simulations will tend to use the most commonly occurring conditions, while conditions that are more unusual will be represented less frequently.

Results of the replicate simulations are statistically analysed and mapped to define contours of percentage probability of contact at identified thresholds around the hydrocarbon release point. The stochastic approach captures a wide range of potential weathering outcomes under varying environmental conditions, which is reflected in the aggregated spatial outcomes showing the areas that might be affected by sea surface and subsurface hydrocarbons.

The modelling outcomes are presented in **Section 8.2** and **Section 8.3** and provide a conservative understanding of where hydrocarbons could travel in any metocean condition. The modelling does not consider any of the spill prevention, mitigation and response capabilities that would be implemented in response to the spill. Therefore, the modelling results represent the maximum extent of the EMBA.

Environmental receptors selected for the modelling are chosen based on protected area status, sensitivity of habitats to impact and societal values. Appendix A presents the locations of the environmental receptors used in the modelling.

8.1.1 Worst-case Hydrocarbon Spill Scenarios

To determine potential impacts of an unplanned hydrocarbon release, representative worst-case scenarios (in terms of volume and location) were assessed. The credible worst case hydrocarbon spill scenarios that could occur as a result of an unplanned event during the petroleum activity have been summarised in **Table 8-3**.

Table 8-2: Summary of worst-case hydrocarbon spill scenarios

Worst-case Scenario	Number of spill simulations	Hydrocarbon type	Release type and Location	Total spill volume (m ³)	Release duration
Loss of well containment	300*	Stybarrow crude	Subsea release from the Stybarrow-7 production well	10,264	73 days
Vessel collision	300*	Marine diesel	Surface release at DTM location	1,000	Instantaneous
Bunkering incident	300*	Marine diesel	Surface release at DTM location	37.5	Instantaneous

* 100 runs in each season – summer (October to March), transitional (April and September) and winter (May to August)

Loss of Well Containment Scenario

A 73-day release of Stybarrow crude from the Stybarrow-7 (H-2) at the seabed was modelled for summer, transitional and winter seasons. Stybarrow crude is heavier and more persistent than Eskdale crude and the Stybarrow-7 (H-2) well had the greatest cumulative release volume of all the wells within the scope of the Petroleum Activity. Hence a release from the Stybarrow-7 (H-2) well was determined to have a greater potential for environmental impact and

was used at the basis for the worst-case scenario. The release volume and duration for the worst-case loss of well containment was determined by a Woodside engineering study. This study considered a range of factors, such as the hydrocarbon type, reservoir characteristics and well design. The study took a conservative approach when estimating reservoir pressure, with the scenario pressure likely to be substantially higher than the actual pressure in the well. This approach is consistent with the precautionary principle described in **Section 2.1.3**. The release duration of 73 days was based on the time required to kill the Stybarrow-7 (H-2) well by drilling a relief well.

Vessel Collision Scenario

A 1,000 m³ surface release of marine diesel over 1 hour, to represent the loss of containment resulting from a vessel collision was modelled at the Stybarrow Disconnectable Turret Mooring (DTM) buoy location (deemed to be a representative location for vessel-based activities considered in this EP) for summer, winter and transitional seasons. This volume and location are considered appropriate, although conservative, for informing the approximate spatial extent of potential impacts from a worst-case credible release from a vessel collision event during the Petroleum Activity. The volume is consistent with the guidance from AMSA (2015), which recommends using the entire volume of the largest fuel tank onboard a vessel for contingency planning. The volumes of the largest fuel tanks onboard vessels undertaking the Petroleum Activity are likely to be substantially smaller than 1,000 m³, making the environmental risk assessment inherently conservative. Vessels will use marine diesel, with no heavy or intermediate fuel oils used.

Bunkering Scenario

The guidance provided by AMSA (2015) for a bunkering spill under continuous supervision is considered appropriate, given bunkering will be constantly supervised. The maximum credible release volume during refuelling is calculated as transfer rate multiplied by 15 minutes of flow. The detection time of 15 minutes is seen as conservative but applicable after failure of multiple barriers followed by manual detection and isolation of the fuel supply. Based on an expected pumping rate of 150 m³/hour and a conservative time of 15 minutes to shut down the pumping operation once the fuel spill had been identified, a total release volume of around 37.5 m³ is proposed as the worst-case credible volume for a bunkering incident. The release location was assumed to be where Stybarrow FPSO was previously moored during operations.

8.1.2 Hydrocarbon Properties

The physical characteristics of Stybarrow crude and marine diesel as used in the hydrocarbon spill modelling studies are summarised in **Table 8-3** and **Table 8-4**.

Stybarrow crude is a Group IV oil (heavy-persistent) based on categorisation and classification by International Tanker Owners Pollution Federation (2011a). It has a high density of 916.9 kg/m³ (API of 22.8) and a low pour point of -36 °C. Marine diesel is a Group II oil (light-persistent) based on categorisation and classification by International Tanker Owners Pollution Federation (2011a). It has a density of 829.1 kg/m³ (API of 37.6) and a low pour point of -14 °C.

Table 8-3: Summary of physical properties of Stybarrow crude and marine diesel (RPS, 2022a, 2022b)

Characteristic	Stybarrow Crude	Marine Diesel
Density (kg/m ³)	916.9 (at 15 °C)	829.1 (at 25 °C)
API	22.8	37.6
Dynamic Viscosity (cP)	45.5 (at 20 °C)	4.0 (at 25 °C)
Pour Point (°C)	-36	-14
Wax Content (%)	16.8	-
Asphaltenes (%)	< 0.5	-
Hydrocarbon Property Category	Group 4	Group 2
Hydrocarbon Property Classification	Heavy persistent	Light persistent

Table 8-4: Boiling point ranges for Stybarrow crude and marine diesel (RPS, 2022a, 2022b)

Oil Type	Component	Volatile (%)	Semi-volatile (%)	Low Volatility (%)	Residual (%)
	Boiling Point (°C)	<180 (C ₄ -C ₁₀)	180-260 (C ₁₁ -C ₁₅)	260-380 (C ₁₆ -C ₂₀)	>380 >C ₂₀
Stybarrow crude	% total	3.1	23.7	30.6	42.6
Marine diesel		6.0	34.6	54.4	5.0

8.1.3 Hydrocarbon Exposure Values

As described in **Section 4.2**, the spatial extent of the EMBA has been derived using stochastic hydrocarbon fate and transport modelling of the worst-case credible release scenarios. To present this large amount of simulated data in a meaningful way and to inform the impact and risk assessment and environmental management actions, appropriate hydrocarbon exposure values were applied to each of the hydrocarbon components. NOPSEMA (2019) recommends selecting hydrocarbon exposure values that broadly reflect the range of consequences that could occur at various concentrations.

The EMBA presented in **Figure 4-1** was defined using exposure thresholds values presented in **Table 8-5**.

Table 8-5: Summary of exposure thresholds used to define the EMBA

Hydrocarbon Component	Units	EMBA Exposure Value
Surface hydrocarbons	g/m ²	1
Shoreline hydrocarbons	g/m ²	10
Entrained hydrocarbons	ppb	100
Dissolved aromatic hydrocarbons	ppb	50

As the weathering of different components of hydrocarbons (surface, entrained and dissolved) differs due to the influence of the metocean conditions, the EMBA combines the potential spatial extent of the different hydrocarbon components. The EMBA also includes areas that are predicted to experience shoreline contact with hydrocarbons above threshold concentrations.

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. Furthermore, as the weathering of different fates of hydrocarbons (surface, entrained and dissolved) differs due to the influence of the metocean transport mechanism, a different EMBA is presented for each fate. These EMBA together define the spatial extent for the existing environment, which is described in **Section 0**. Hydrocarbon contact below the defined thresholds may occur outside the EMBA and socio-cultural EMBA; however, the effects of these low exposure values will be limited to temporary exceedance of water quality triggers.

Table 8-6 presents justification for the exposure thresholds used to define the EMBA. The table also details how different exposure threshold values are relevant to the impact assessment for an MDO release (**Section 8.3**).

Table 8-6: Descriptions of hydrocarbon exposure thresholds

Exposure Levels	Threshold Exposure Value	Description
Surface Hydrocarbons		
Low	1 g/m ²	It is recognised that 1 g/m ² represents the practical limit of observing hydrocarbon sheens in the marine environment. This exposure value is below the levels that would cause ecological impacts but is considered relevant to approximate the area of effect to socio-economic receptors. This exposure value has been used to define the spatial extent of the EMBA from surface hydrocarbons
Moderate	10 g/m ²	This value is considered appropriate to assess ecological impact risk, as it is the estimate for the minimum thickness of oil that will result in harm to seabirds through ingestion from preening of contaminated feathers, or the loss of thermal protection of their feathers. This has been estimated by at 10 to 25 g/m ² (French-McCay, 2009; Kooops et al., 2004). Furthermore, based on literature reviews on aquatic birds and marine mammals (Clark, 1984; Engelhardt, 1983; Geraci, 1988; Jenssen, 1994), the exposure value for harmful impacts is 10 g/m ² . This exposure value is used to determine the risk of exposure that can cause adverse impact to turtles, seasnakes, marine mammals and seabirds. This threshold was selected as a reasonable and conservative value to apply to the risk evaluation with respect to surface hydrocarbons.
High	50 g/m ²	This high exposure value for surface oil is above the minimum threshold observed to cause ecological effect. At this concentration surface hydrocarbons would be clearly visible on the sea surface.
Shoreline Hydrocarbons		
Low	10 g/m ²	This low exposure value defines the area for potential socio-economic impacts (for example, reduction in aesthetic value of the area). This exposure value has been used to define the spatial extent of the EMBA from shoreline hydrocarbons.
Moderate	100 g/m ²	The concentration for exposure to hydrocarbons stranded on shorelines is derived from levels likely to cause adverse impacts to intertidal habitats and associated fauna. Studies have reported oil thicknesses of 0.1 mm (100 g/m ²) as the lethal exposure values for benthic epifaunal invertebrates on intertidal habitats (rock, artificial or human-made) and in intertidal sediments (mud, silt, sand and gravel) (French McCay, 2004; French McCay et al., 2003; French-McCay, 2009). It is also the impact threshold assumed for oiling of birds (French McCay, 2004). This exposure value has been used to inform the risk evaluation with respect to accumulated shoreline hydrocarbons and the threshold for shoreline response, based on possible clean-up options.
High	1,000 g/m ²	This high exposure value predicts the area likely to require intensive clean-up effort.
Entrained Hydrocarbons		
Low	10 ppb	Total submerged hydrocarbons, also referred to as 'total water-accommodated fraction' or entrained hydrocarbons, encompass oil droplets in the water column. Much of the published scientific literature does not provide sufficient information to determine if toxicity is caused by the dissolved or the entrained hydrocarbon component, but rather the toxicity of total submerged hydrocarbons. Variation in the methodology of the water-accommodated fraction may account for much of the observed wide variation in reported threshold values, which also depend on the test organism, duration of exposure, oil type and the initial oil concentration.

Exposure Levels	Threshold Exposure Value	Description
		The 10 ppb exposure value represents the very lowest concentration and corresponds with the lowest trigger levels for total hydrocarbons in water recommended in the <i>Australian and New Zealand Guidelines for Fresh and Marine Water Quality: Volume 1 - the Guidelines</i> (Australian and New Zealand Environment and Conservation Council and Agriculture and Resource Management Council of Australia and New Zealand, 2000).
Moderate	100 ppb	This exposure value is considered conservative in terms of potential sub-lethal impacts to most species and lethal impacts to sensitive species based on literature for toxicity testing. Total oil toxicity acute effects of total oil as LC50 for molluscs range from 500 to 2000 ppb. A wider range of LC50 values have been reported for species of crustacea and fish from 100 to 258,000,000 ppb (Clark et al., 2001; Gulec et al., 1997; Gulec and Holdway, 2000) and 45 to 465,000,000 ppb (Barron et al., 2004; Gulec and Holdway, 2000) respectively. This exposure value has been used to define the spatial extent of the EMBA from total submerged hydrocarbons and used to describe environmental sensitivities within the EMBA. This exposure value has been used to inform the risk evaluation with respect to entrained hydrocarbons and used to describe environmental sensitivities within the EMBA.
Dissolved Aromatic Hydrocarbons		
Low	10 ppb	This low exposure value establishes the planning area for scientific monitoring (based on potential for exceeding water quality triggers).
Moderate	50 ppb	This exposure value approximates toxic effects, particularly sub-lethal effects to sensitive species (NOPSEMA, 2019). French-McCay et al. (2002) indicates an average 96-hour LC50 of around 50 ppb could serve as an acute lethal threshold. For most marine organisms, a concentration of between 50 and 400 ppb is considered to be more appropriate for risk evaluation. This exposure value has been used to inform the risk evaluation with respect to dissolved hydrocarbons and used to describe environmental sensitivities within the EMBA.

8.1.4 Scientific Monitoring

A planning area for scientific monitoring is defined with reference to the low-exposure entrained value of 10 ppb detailed in *Oil Spill Modelling* (NOPSEMA, 2019). This low exposure threshold is based on the potential for exceeding water quality triggers.

The scientific environmental monitoring program would be activated in accordance with the Petroleum Activity OPEP, or any release event with the potential to contact sensitive environmental receptors. A scientific monitoring program would be activated following a Level 2 or Level 3 unplanned hydrocarbon release, or any release event that has the potential to contact sensitive environmental receptors (as described further in **Section 10.4.7**)

8.2 Hydrocarbon Release from a Loss of Well Control

8.2.1 Summary of Risk Assessment and Evaluation

Aspect	Source of Hazard	Potential Impact	Severity Factor	Likelihood Factor	Residual Risk	Decision Context	Acceptability
Unplanned Hydrocarbon release due to loss of well containment	Loss of hydrocarbons (Stybarrow or Eskdale crude oil) to the marine environment due to loss of well containment during P&A	Temporary, widespread reduction in water quality with potential for toxicity effects to marine fauna and flora, oiling of offshore, nearshore and shoreline habitats. Impacts to socio-economic receptors.	300	Highly Unlikely (0.03)	9	Type B Higher order risk	Tolerable

8.2.2 Source of Hazard

Woodside has identified a well blowout as the scenario with the worst-case credible environmental outcome as a result of loss of well containment. A loss of well containment is an uncontrolled release of reservoir hydrocarbon or other well fluids to the environment. A blowout is an incident where formation fluid flows out of the well or between formation layers after all the predefined technical well barriers (e.g. the BOP) or activation of the same has failed.

Industry Experience

A risk assessment by AMSA of oil spills in Australian ports and waters (Det Norske Veritas, 2011) concluded:

- overall national exceedance frequency for oil spills from offshore drilling in Australia is 0.033 for spills > 1 tonne/year decreasing to 0.008 for spills > 100 tonnes/year
- probability of a blow-out from a well intervention is 1×10^{-4} (0.0001, or 0.01%), considerably lower than drilling activities (International Association of Oil and Gas Producers 2010).

Woodside has a good history of implementing industry standard practice in well design and construction. In the company's 60-year history, it has not experienced any well containment events that have resulted in significant releases or significant environmental impacts. Industry experience shows loss of well containment during P&A activities are very rare. The credible release volumes for loss of well containment during P&A activities are typically much lower than exploration or production drilling, as the reservoirs intersected by wells being P&A are usually depleted.

Therefore, in accordance with the risk matrix, Woodside considers a loss of well containment and resulting blowout event a 'highly unlikely' event as it has not occurred in the Company's history.

Worst Case Credible Scenario – Loss of Well Containment

As described in **Section 8.1.1**, Woodside has identified a loss of well containment from the Stybarrow-7 (H-2) production well as the worst-case credible release within the scope of the Petroleum Activity as the well is considered the highest flowing (total release volume) well. The worst-case credible loss of well containment scenario was guided by the *Calculation of Worst-case Discharge (WCD)* (Society of Petroleum Engineers, 2015) and *Australian Offshore Titleholders Source Control Guideline* (APPEA, 2021).

During the permanent plugging activities, there may be a requirement to cut and remove the tubing string and production packer to install cement barriers. The worst-case scenario has been based on the duration following removal of the tubing in the wellbore and prior to installation of cement barriers. Given the worst-case loss of well containment applies to a constructed well, actual as built and known well flow performance were used for modelling discharge calculations.

As the Stybarrow field contains a gas injection well (Eskdale-4), there is also a credible scenario for a loss of well containment to occur from this well, however, this is within the assessment of impacts to the marine environment and modelling conducted for the highest producing oil well. A loss of well containment could result from a number of scenarios, including from damage to the subsea tree or wellhead during permanent plugging operations. All potential credible scenarios are considered to be conservatively covered by the worst-case scenario modelled and risk assessed in this section.

Refer to **Section 8.1.1** for further information on the worst-case credible loss of well containment, such as hydrocarbon properties, release duration and release volumes.

8.2.3 Stochastic Oil Spill Modelling Results

Spill modelling undertaken by RPS APASA, on behalf of Woodside, to determine the fate of hydrocarbon released from the loss of well containment scenario, based on the assumptions in **Table 8-2**. Modelling considered metocean conditions throughout the year; this was done to inform the determination of consequence of loss of well control during intervention at any time of the year.

The Stybarrow crude contains about 3.1% (by mass) that should evaporate within the first 12 hours (BP < 180 °C), a further 23.7% should evaporate within the first 24 hours (180 °C < BP < 265 °C), and an additional 30.6% would likely evaporate over several days to a week (265 °C < BP < 380 °C). Approximately, 42.6% (by mass) of the crude will not evaporate, but rather persist in the environment and gradually decay over time. The persistent characteristics of the crude and the absence of aromatic components indicate that it has been exposed to bacterial degradation within the reservoir and as such can be classified as a biodegraded crude. An indicative weathering plot of Stybarrow crude is provided as **Figure 8-2**.

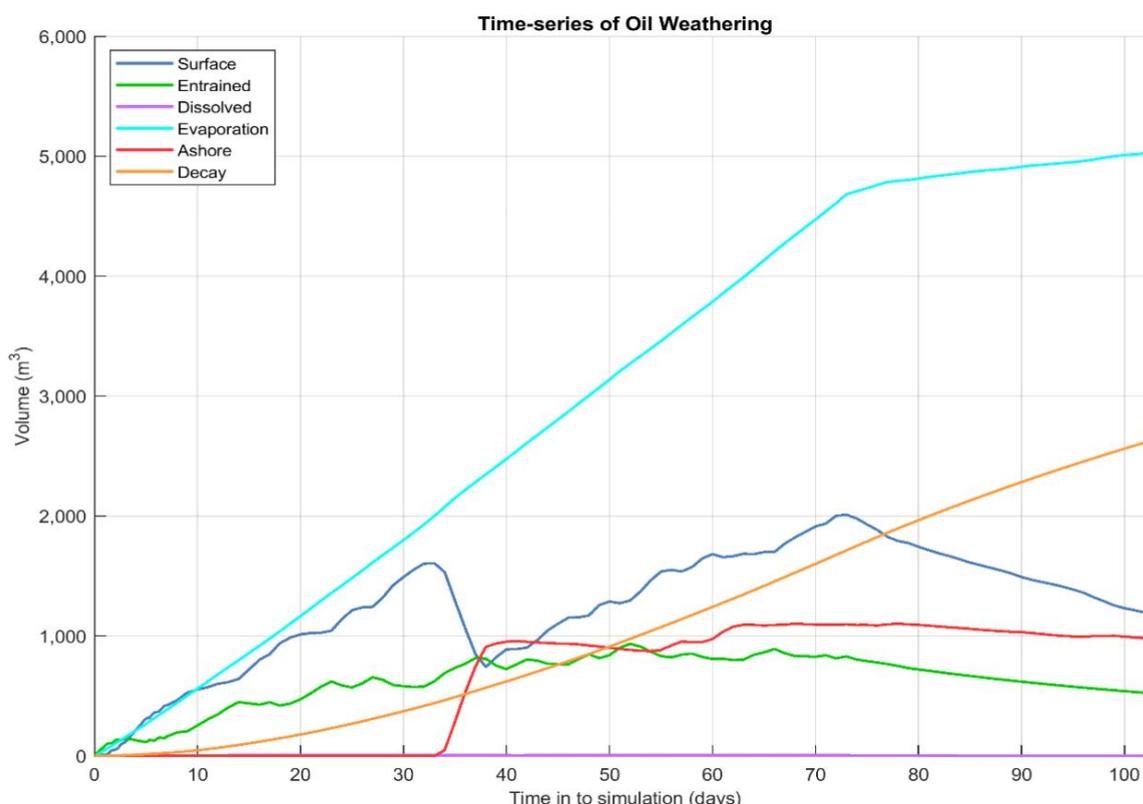


Figure 8-1: Predicted weathering and fates for the simulation that resulted in the maximum volume of oil ashore from the loss of well containment scenario (from RPS, 2022b)

8.2.3.1 Surface Hydrocarbons

Exposure Thresholds	Units
<p>Low Exposure ($> 1 \text{ g/m}^2$)</p>	<p>In the event of the loss of well containment scenario occurring, surface hydrocarbons at or above 1 g/m^2 (threshold related to socio-cultural EMBA) are forecast to potentially occur up to 1,977 km north-west of the release location.</p> <p>Four AMPs (Argo-Rowley AMP, Carnarvon AMP, Gascoyne AMP and Ningaloo AMP) were predicted to be exposed by floating oil at the low threshold across the three seasons, with probabilities ranging from 1 to 100%. Abrolhos AMP and Montebello AMP were predicted to be exposed by floating oil at the low threshold across only the summer and transitional conditions, with probabilities ranging from 1 – 29%. The Gascoyne AMP was predicted to record 100% probabilities during transitional and winter conditions and 99% during summer conditions. The minimum time before exposure at the Gascoyne AMP at the low threshold 0.25 days during winter conditions.</p> <p>Seven KEFs were predicted to be within the low exposure threshold, however all are subsea features and hence will not be exposed directly to hydrocarbons.</p> <p>Waters around Barrow Island Marine Management Area recorded floating oil exposure at the low threshold (during summer conditions only (21% probability), while Muiron Islands recorded exposure during summer (9%) and transitional (6%) conditions.</p> <p>Floating oil exposure at the low threshold was predicted during summer conditions only (8%) for Montebello Marine Park, whereas exposure to Ningaloo Marine Park was predicted for all three seasons (summer 40%, transitional 20% and winter 8%).</p>
<p>Moderate Exposure ($> 10 \text{ g/m}^2$)</p>	<p>In the event of the loss of well containment scenario occurring, surface hydrocarbons at or above 10 g/m^2 (threshold related to ecological EMBA) are forecast to potentially occur up to 142 km west of the release location.</p> <p>There was no exposure at the moderate threshold to any receptors other than Gascoyne AMP and the two KEFs that overlap the modelled release location (Table 8-7).</p>
<p>High Exposure ($> 50 \text{ g/m}^2$)</p>	<p>No receptors were predicted to be contacted by floating oil above the high exposure threshold (Table 8-7).</p>

Table 8-7: Summary of sensitive receptors exposed to surface hydrocarbon from a worst-case subsea loss of well containment for moderate and high surface hydrocarbon exposure thresholds

Receptor Group	Receptor	Moderate Exposure Threshold		High Exposure Threshold	
		Probability of Contact (%)	Shortest Time to Contact (days)	Probability of Contact (%)	Shortest Time to Contact (days)
Australian Marine Parks	Gascoyne	24	12.29	0	0
KEFs	Canyons linking the Cuvier Abyssal Plain and the Cape Range Peninsula	100	0.25	0	0
	Exmouth Plateau	1	23.46	0	0
	Continental Slope Demersal Fish Communities	91	2.04	0	0

8.2.3.2 Shoreline Accumulated Hydrocarbons

Exposure Thresholds	Units
<p>Low Exposure ($\geq 10 \text{ g/m}^2$)</p>	<p>The probability of accumulation on any shoreline at, or above, the low threshold ($\geq 10 \text{ g/m}^2$) was greatest during transitional conditions at 48%, while the minimum time before shoreline accumulation was 3.88 days (transitional conditions). The maximum volume of oil ashore for a single spill above the low threshold was greatest during summer at 322.3 m^3 and reduced to 52.9 m^3 for winter conditions. The maximum lengths of shoreline contacted at the low threshold was 382.8 km during summer conditions (Table 8-8).</p> <p>The Exmouth shoreline recorded the greatest probabilities of oil accumulation at the low threshold during summer, transitional and winter seasons with probabilities of 48%, 45% and 18%, respectively. Additionally, Cunningham Island also demonstrated a probability of low threshold accumulation during summer conditions of 48%.</p> <p>During the transitional period, Exmouth recorded the quickest times before shoreline oil accumulation for the low exposure threshold with a minimum time of 3.13 days.</p>
<p>Moderate Exposure ($\geq 100 \text{ g/m}^2$)</p>	<p>The Exmouth shoreline also recorded the greatest probabilities of oil accumulation for the moderate thresholds which had occurred during summer (31%) (Table 8-8).</p> <p>During the transitional period, Exmouth recorded the quickest times before shoreline oil accumulation for the moderate exposure threshold with a minimum time of 3.25 days.</p>
<p>High Exposure ($\geq 1,000 \text{ g/m}^2$)</p>	<p>The Exmouth shoreline also recorded the greatest probabilities of oil accumulation for the high thresholds which had occurred during summer (14%). Additionally, accumulation at the high threshold ($\geq 1,000 \text{ g/m}^2$) was recorded during summer and transitional conditions and the maximum lengths predicted during these seasonal conditions were 7.7 km and 8.7 km, respectively.</p> <p>The Exmouth shoreline was also predicted to experience the greatest peak volume ashore of 322.3 m^3, occurring during summer conditions (Table 8-8).</p> <p>During the summer period, Muiron Islands recorded the quickest times before shoreline oil accumulation for the high exposure threshold with a minimum time 4.04 days.</p>

Table 8-8: Summary of sensitive receptors exposed to shoreline accumulated hydrocarbon from a subsea loss of well containment scenario for moderate and high shoreline accumulation exposure thresholds

Receptor	Mean Load on Shoreline (g/m ²)	Peak Load on Shoreline (g/m ²)	Medium Exposure Threshold (> 100 g/m ²)			High Exposure Threshold (> 1,000 g/m ²)		
			Probability of Accumulated Oil (%)	Average Length of Oiled Shoreline (km)	Maximum Length of Oiled Shore (km)	Probability of Accumulated Oil (%)	Average Length of Oiled Shoreline (km)	Maximum Length of Oiled Shore (km)
Airlie Island	88	515	13	1.7	2.9	0	0	0
Angel Island	46	213	1	1.9	1.9	0	0	0
Ashburton	24	646	8	21.9	68.3	0	0	0
Ashburton Island	56	689	4	64.8	70.2	0	0	0
Ashmore Reef	45	133	3	1.6	2.9	0	0	0
Barrow Island	60	680	28	11.2	23.1	0	0	0
Bedout Island	27	124	2	1.4	1.9	0	0	0
Bernier Island	22	186	6	5	7.7	0	0	6
Bessieres Island	69	916	4	5.1	7.7	0	0	0
Bezout Island	71	588	3	2.2	2.9	0	0	0
Boodie Island	186	2253	28	3.6	7.7	5	1.2	3
Broome	45	602	8	34	49.1	0	0	0
Browse Island	34	199	5	3.5	4.8	0	0	0
Carnarvon	37	1076	9	5.5	11.5	3	1	8
Clerke Reef	46	576	21	3	5.8	0	0	2
Cohen Island	41	192	5	1.7	1.9	0	0	0
Cunningham Island	81	511	26	3.8	5.8	0	0	2

Receptor	Mean Load on Shoreline (g/m ²)	Peak Load on Shoreline (g/m ²)	Medium Exposure Threshold (> 100 g/m ²)			High Exposure Threshold (> 1,000 g/m ²)		
			Probability of Accumulated Oil (%)	Average Length of Oiled Shoreline (km)	Maximum Length of Oiled Shore (km)	Probability of Accumulated Oil (%)	Average Length of Oiled Shoreline (km)	Maximum Length of Oiled Shore (km)
Derby - West Kimberley	12	1343	6	4.6	11.5	2	1	1
Direction Island	84	301	4	1	1	0	0	0
Dirk Hartog Island	73	211	1	1	1	0	0	17
Dorre Island	26	632	6	9.9	10.6	0	0	6
Eaglehawk Island	72	898	5	8.4	9.6	0	0	0
Enderby Island	31	968	6	5.8	6.7	0	0	0
Exmouth	77	1995	31	41.6	97.2	14	4.3	18
Flat Island	122	2011	26	19.1	40.4	8	7	8.7
Fly Island	210	1027	14	2.5	3.8	2	1	1
Gidley Island	124	370	3	1.9	1.9	0	0	0
Goodwyn Island	67	507	5	2.1	2.9	0	0	0
Imperieuse Reef	94	660	26	6	8.7	0	0	2
Karratha	20	414	8	6.4	15.4	0	0	0
Keast Island	21	125	2	1	1	0	0	0
Kendrew Island	243	1164	6	1.8	1.9	5	1.7	1.9
Kingfisher Islands	9	130	2	1	1	0	0	0
Lacepede Islands	15	138	2	1.4	1.9	0	0	0
Legendre Island	28	358	5	2.3	2.9	0	0	0

Receptor	Mean Load on Shoreline (g/m ²)	Peak Load on Shoreline (g/m ²)	Medium Exposure Threshold (> 100 g/m ²)			High Exposure Threshold (> 1,000 g/m ²)		
			Probability of Accumulated Oil (%)	Average Length of Oiled Shoreline (km)	Maximum Length of Oiled Shore (km)	Probability of Accumulated Oil (%)	Average Length of Oiled Shoreline (km)	Maximum Length of Oiled Shore (km)
Little Turtle Islet	42	108	1	1	1	0	0	0
Locker Island	80	421	8	1	1	0	0	0
Lombok	100	351	3	1	1	0	0	2
Lowendal Island	50	433	25	2.3	3.8	0	0	0
Malus Island	27	302	5	2.5	2.9	0	0	0
Mangrove Islands	18	182	2	2.9	3.8	0	0	0
Mary Anne Group	39	352	3	5.8	6.7	0	0	0
Mermaid Reef	92	349	22	4.8	4.8	0	0	0
Middle Island	112	1007	24	4.8	8.7	1	1	3
Montebello Islands	49	606	20	14.1	20.2	0	0	0
Muiron Islands	131	1815	31	7.3	16.4	7	2.5	3.8
North Island	91	1380	7	8.8	14.4	2	1.4	5
Observation Island	96	554	12	1.5	1.9	0	0	0
Passage Islands	105	672	18	9.8	27.9	0	0	0
Peak Island	325	2461	20	2.9	2.9	2	1	1
Pelsaert Group	874	2229	6	1	1	3	1	2
Ragnard Islands	23	141	4	1.4	1.9	0	0	0
Rivoli Islands	119	1521	9	5.9	10.6	2	2.9	2.9
Rosemary Island	331	1506	5	10.6	10.6	3	2.9	2.9

Receptor	Mean Load on Shoreline (g/m ²)	Peak Load on Shoreline (g/m ²)	Medium Exposure Threshold (> 100 g/m ²)			High Exposure Threshold (> 1,000 g/m ²)		
			Probability of Accumulated Oil (%)	Average Length of Oiled Shoreline (km)	Maximum Length of Oiled Shore (km)	Probability of Accumulated Oil (%)	Average Length of Oiled Shoreline (km)	Maximum Length of Oiled Shore (km)
Round Island	83	295	9	1	1	0	0	0
Sandy Islet	207	349	6	2.5	2.9	0	0	0
Scott Reef North	28	593	8	10.7	16.4	0	0	0
Scott Reef South	23	335	11	11.9	16.4	0	0	0
Seringapatam Reef	22	369	8	7	10.6	0	0	0
Serrurier Island	45	784	14	3	8.7	0	0	0
Shark Bay	66	656	6	3.4	7.7	0	0	11
Sumba Timur	31	185	1	9.6	9.6	0	0	1
Sunday Island	180	1134	15	1.7	1.9	2	1	2
Table Island	305	1081	6	1.9	1.9	2	1	1
Thevenard Island	182	626	10	4	10.6	0	0	0
Tortoise Island	79	344	5	1.9	1.9	0	0	0
Twin Island	89	266	3	1.9	1.9	0	0	0
Wallabi Group	45	172	2	1.9	1.9	0	0	8
West Lewis Island	11	112	1	1	1	0	0	0
Whalebone Island	222	782	3	1	1	0	0	0
Wyndham - East Kimberley	635	788	7	7.1	16.4	0	0	0
Indonesia	6	213	3	5.8	8.7	0	0	0

8.2.3.3 Dissolved Hydrocarbons

Exposure Thresholds	Units
Low Exposure (≥ 10 ppb)	<p>Excluding the two KEF receptors that the release location resides within (Canyons linking the Cuvier Abyssal Plain and the Cape Range Peninsula; and Continental Slope Demersal Fish Communities KEFs), the Gascoyne AMP recorded the highest probability of exposure at the low threshold during all seasonal conditions within the 0–10 m depth layer (summer 4%, transitional 7% and 5% winter conditions).</p> <p>The highest concentration in the 0–10 m depth layer was predicted to occur within the Continental Slope Demersal Fish Communities KEF during all seasons within concentrations of 28 ppb, 33 ppb and 35 ppb under summer, transitional and winter conditions, respectively.</p> <p>Within the 10–20 m depth layer, the greatest probability of exposure above the low threshold was 6% recorded within the Canyons linking the Cuvier Abyssal Plain and the Cape Range Peninsula KEF during summer conditions. The greatest maximum instantaneous concentration for the above-mentioned receptors was 38 ppb under summer conditions.</p> <p>The probability of accumulation on any shoreline at, or above, the low threshold (≥ 10 g/m²) was greatest during transitional conditions at 48%, while the minimum time before shoreline accumulation was 3.88 days (transitional conditions). The maximum volume of oil ashore for a single spill above the low threshold was greatest during summer at 322.3 m³ and reduced to 52.9 m³ for winter conditions. The maximum lengths of shoreline contacted at the low threshold was 382.8 km during summer conditions (Table 8-8).</p>
Moderate Exposure (≥ 50 ppb)	No receptors were predicted to be contacted by dissolved oil above the moderate exposure threshold.

8.2.3.4 Entrained Hydrocarbons

Exposure Thresholds	Units
Low Exposure (≥ 10 ppb)	<p>Entrained hydrocarbons in the 0-10 m depth layer above the low (> 10 ppb) exposure threshold were predicted to be transported up to 620 km west from the release location.</p> <p>Within the 0–10 m depth layer, the Gascoyne AMP and two KEF receptors that the release location resides within (Canyons linking the Cuvier Abyssal Plain and the Cape Range Peninsula; and Continental Slope Demersal Fish Communities KEFs) had all recorded 100% probability of exposure at the low threshold during all three seasons (Table 8-9).</p> <p>The maximum entrained hydrocarbon concentration was 2,245 ppb predicted during summer conditions at the Canyons linking the Cuvier Abyssal Plain and the Cape Range Peninsula KEF. Within the 10–20 m depth layer the number and extent of receptors exposed to entrained hydrocarbons reduced. The probabilities at the low threshold predicted for the Gascoyne AMP during summer, transitional and winter conditions, were 4%, 5% and 5%, respectively.</p>
Moderate Exposure (≥ 100 ppb)	<p>Entrained hydrocarbons in the 0-10 m depth layer above the high (> 100 ppb) exposure threshold were predicted to be transported up to 108 km north from the release location.</p> <p>Within the 0–10 m depth layer, the Gascoyne AMP and two KEF receptors that the release location resides within (Canyons linking the Cuvier Abyssal Plain and the Cape Range Peninsula; and Continental Slope Demersal Fish Communities KEFs) had all recorded 100% probability of exposure at the high threshold during all three seasons. Exposure at the high threshold was also recorded at Exmouth Plateau KEF (winter 1%), Commonwealth waters adjacent to Ningaloo Reef KEF (2% summer) and Ningaloo AMP (2% summer). There was no exposure at the high threshold predicted within the 10–20 m depth layer, except for Canyons linking the Cuvier Abyssal Plain and the Cape Range Peninsula which the release location resides within.</p>

Table 8-9: Summary of sensitive receptors exposed to entrained hydrocarbons from a subsea loss of well containment scenario at low and high entrained hydrocarbon exposure thresholds

Receptor Group	Receptor	Probability of Entrained Oil (%)		Maximum Predicted Instantaneous Entrained Oil Concentration (ppb)
		Low Exposure Threshold (> 10 ppb)	High Exposure Threshold (> 100 ppb)	
Australian Marine Park	Carnarvon Canyon	5	0	16
	Gascoyne	100	100	453
	Ningaloo	50	2	108
Interim Marine and Coastal Regionalisation of Australia	Pilbara (offshore)	33	0	62
	Pilbara (nearshore)	4	0	16
	Ningaloo	33	0	98
	Zuytdorp	4	0	16
KEFs	Canyons linking the Cuvier Abyssal Plain and the Cape Range Peninsula	100	100	2,245
	Ancient coastline at 125 m depth contour	26	0	41
	Exmouth Plateau	80	1	102
	Commonwealth waters adjacent to Ningaloo Reef	50	2	108
	Continental Slope Demersal Fish Communities	100	100	1121
Marine Management Areas	Muiron Islands	3	0	13
Marine Parks	Ningaloo	4	0	14
Reefs, Shoals and Banks	Ningaloo Reef	22	0	94

8.2.4 Environmental Impact Assessment

The following environmental impact assessment is based on potential impacts and risks to the physical environment and biological and socio-economic receptors within the area affected by hydrocarbons at the moderate exposure values.

8.2.4.1 Biological Receptors

Potential sensitive receptors in the vicinity of the spill area will include fish, marine mammals, marine reptiles and seabirds at the sea surface, may come into contact with the crude oil leading to potential impacts. Each of these receptors is discussed below.

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Marine Fauna

Plankton

The effects of hydrocarbons on plankton have been well studied in controlled laboratory and field situations. The different life stages of a species often show widely different tolerances and reactions to oil pollution. Usually the eggs, larval and juvenile stages will be more susceptible than the adults. Surface and entrained oil could impact fish eggs and larvae due to entrainment in surface slicks. However, fish eggs and larvae are highly dispersive and are carried significant distances by ocean currents. Any impacts to fish eggs and larvae are not anticipated to significantly impact on fish populations (International Tanker Owners Pollution Federation, 2011b).

Post-spill studies on plankton populations are few, but those that have been done have shown either no effects or temporary minor effects (Varela et al., 2006). The prime reason put forward to explain the lack of observed effects is that many marine species produce very large numbers of eggs and larval stages to overcome natural losses (such as through predation by other animals; adverse hydrographical and climatic conditions; or failure to find a suitable habitat and adequate food). Therefore, it is unlikely that any localised losses of eggs or larvae caused by a single oil spill event in the open ocean, would have no discernible effect on the size or health of future adult populations in the area.

A possible exception to this would be if the oil spill were to coincide with, and be transported to, a mass synchronous spawning event, such as that which is known to occur for corals in the region (Gilmour et al., 2016; Rosser and Baird, 2009; Simpson et al., 1993). Lethal and sub-lethal effects of water-accommodated fractions of oils have been reported for coral gametes at lesser concentrations than predicted for adult colonies ((Haapkylä et al., 2007; International Petroleum Industry Environmental Conservation Association, 1992; Loya and Rinkevich, 1980).

Recently spawned gametes and larvae may be especially vulnerable to oil spill effects since they are generally positively buoyant and would be exposed to surface slicks. The potential consequences of this vulnerability, in the unlikely event of a worst-possible release event occurring, would be mitigated by the very large numbers of eggs and larvae released (as discussed above).

Marine Mammals

A range of marine mammal species were identified as potentially occurring within the EMBA (**Section 4.7.1**). Marine mammals (whales, dolphins and dugongs) come to the sea surface to breathe air. They are therefore theoretically vulnerable to exposure to oil spill impacts caused by contact with hydrocarbons at the sea surface. Whales and dolphins are smooth-skinned, hairless mammals so oil tends not to stick to their skin and since they do not rely on fur for insulation, they will not be as sensitive to the physical effects of oiling.

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, 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 (Deepwater Horizon Natural Resource Damage Assessment Trustees, 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.

Baleen whales (such as humpback whales) are more likely to ingest oil than toothed whales due to their physiology and behaviour. Spilled oil may also foul the baleen fibres of baleen whales, thereby impairing food-gathering efficiency or resulting in the ingestion of oil or oil-contaminated prey. Baleen whales may therefore be vulnerable to floating oil if feeding. Weathered oil residues from an oil spill event may persist for long periods, causing a potential risk to baleen whales' feeding systems. It should be noted that adult humpback whales, which are seasonally present and relatively abundant in the region, are not thought to be feeding during their migration through the region. Pygmy blue whales have been observed exhibiting behaviours consistent with foraging near North West Cape during their annual migration (Thums et al., 2022).

The most common whale species in the North West Shelf region is the humpback whale (*Megaptera novaeangliae*) which

Summary of Potential Impacts to Environmental Values

migrates through the region, during their movement along the Western Australian coast. Humpback whale migration in this region is characterised by three directional phases, these are:

- Northbound phase – starts June, peaks July and tapers off by early August
- Transitional phase (peak numbers expected at this time) – occurring late August and early September
- Southbound phase – occurring early August until the end of November (this phase is segmented by 2–3-week delay in appearance of peak numbers of cow/calf pairs after the main migratory body has passed).

The moderate exposure value area of the EMBA extends over known migratory paths for the humpback whale and the pygmy blue whale. In the northwest region, the pygmy blue whale migrates along the continental slope. The northbound component of this migration takes place from May to mid-August, with a peak in July/August, and the southbound component occurs from late October to November/December, with a few isolated individuals moving south in January. A spill during migratory periods for either humpback or pygmy blue whales may affect a substantial portion of the biological population of either species; however, the entire population would not credibly be impacted, and impacts would largely be sub-lethal.

Shoreline accumulation above the moderate threshold may occur as far south as the Abrolhos Islands, which host a population of Australian sea lions. Sea lions may be oiled by shoreline accumulations, which may result in mortality due to loss of insulation or ingestion of hydrocarbons when cleaning their coat. Any hydrocarbons accumulating at the Abrolhos islands would be highly weathered and is likely to be tar balls.

Modelling indicated the moderate floating and shoreline oil threshold would not occur in habitats for coastal dolphin species or dugongs. These taxa are not expected to be impacted by floating oil from a worst-case loss of well control.

Marine Reptiles

Marine turtles are vulnerable to the effects of hydrocarbon spills at all life stages (eggs, post hatchlings, juveniles and adults) whilst in the water or onshore (National Oceanic and Atmospheric Administration, 2010); however, there is little documented evidence of the effect of hydrocarbons on turtles. Adult sea turtles exhibit no avoidance behaviour when they encounter hydrocarbon spills (National Oceanic and Atmospheric Administration, 2010). Oiling can also irritate and injure skin, which is most evident on pliable areas such as the neck and flippers (Lutcavage et al., 1995). A stress response associated with this exposure 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). Post-mortem investigations on dead loggerhead turtles from the Mediterranean implicated oil as a cause of death in a number of cases (Gramentz, 1988). In these cases, tar balls were found in the mouth and gastro-intestinal tract of the turtles, suggesting ingestion of tar balls as a possible cause of death.

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 (National Oceanic and Atmospheric Administration, 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).

Within the moderate exposure value area of the EMBA, important areas for marine turtles that may be exposed to hydrocarbons in a broad-scale spill include many beach shorelines on islands and the mainland coast which are known to host important turtle nesting activity. Turtle nesting on beaches at these locations may be vulnerable through the shoreline accumulation of oil. In addition, in the nesting season, adult turtles will tend to aggregate in the inter-nesting areas adjacent to the nesting beaches, increasing the vulnerability of turtles in this area in the event of a hydrocarbon spill due to greater turtle densities. Eggs may become directly exposed to hydrocarbons as a result of female turtles becoming oiled from surface oil exposure or when crossing shorelines, resulting in the transfer of hydrocarbons to eggs during nest preparation and laying, which may in turn effect embryo development or lead to embryo mortality (National Oceanic and Atmospheric Administration, 2010).

Newly hatched turtles entering the water from nesting beaches are likely to be highly susceptible to oiling from either shoreline accumulated oil or surface oil, however impacts would be highly seasonal and limited to the periods when hatchlings emerge from the nests 6-8 weeks following nesting by adults.

Sea Snakes

Several species of sea snake may occur in the moderate exposure value area of the EMBA. The sensitivity of sea snakes to hydrocarbon spills has been poorly studied. It is expected that susceptibility will be due to their need to surface in order to breathe. Impacts to sea snakes from direct contact with hydrocarbons are likely to result in similar physical effects to those recorded for marine turtles. They may include potential damage to the dermis and irritation to mucus membranes of the eyes, nose and throat (International Tanker Owners Pollution Federation, 2011c). 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.

Sea snakes may also be susceptible to toxic effects through ingestion of contaminated prey items. It is predicted any interface with hydrocarbons is unlikely to cause an impact to significant numbers, given the widespread distribution of this fauna group

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within the North West Shelf region.

Sea snakes typically occur in continental shelf waters around islands, shoals and the mainland coast. Much of the EMBA for the floating, entrained and dissolved fractions occurs in relatively deep water that does not contain sea snake habitat.

Fish (including Sharks and Rays and Commercial Species)

Potential direct impacts to fishes from exposure to oil may include gill contamination, enlarged livers, fin erosion, metabolic stress, reduced production and survival of eggs and larvae, and reduced survival and growth of recruits (Giari et al., 2012; Theodorakis et al., 2012). Fish may also ingest entrained oil or contaminated food leading to physiological impacts.

The toxicity of dispersed hydrocarbons to fish species has been the subject of a large number of laboratory studies. In general, fish mortalities and/or ecosystem level impacts are rarely observed following oil spills, as for example, evidenced by the lack of any shifts in species composition or abundance of coastal fishes following the Deepwater Horizon spill in the Gulf of Mexico (Fodrie and Heck, 2011). Exposure to dissolved hydrocarbons from crude oil may delay embryo development in some fish potentially prolonging their susceptibility to mechanical damage as well as increased levels of mortality (Carls et al., 2008).

Near the sea surface, fish are likely to be able to detect and avoid contact with surface slicks and as a result, fish mortalities rarely occur in open waters from floating oils (International Tanker Owners Pollution Federation, 2011b). Pelagic fish and shark species are therefore generally not highly susceptible to impacts from hydrocarbon spills. Demersal fish species living and feeding on or near the seabed in deeper waters are not likely to be affected by surface and entrained oil in open waters. The floating, entrained and dissolved hydrocarbon phases are not predicted to occur in coastal waters (< 20 m) and hence are very unlikely to affect demersal and benthic fish assemblages.

Whale sharks ram or filter feed on plankton, krill and fish bait near or on the water surface and they are often observed swimming near the surface during seasonal aggregations. This mode of feeding may result in the ingestion of entrained hydrocarbons, similar to baleen whales. A hydrocarbon spill during the annual aggregation of whale sharks off the Ningaloo Coast may result in a higher environmental risk, however modelling studies indicated that entrained and dissolved hydrocarbons would not occur above impact thresholds in the foraging BIA off Ningaloo Reef.

Several species of threatened sawfish were identified as potentially occurring within the EMBA. These species are all benthic and typically occur in coastal waters. Hence, they are very unlikely to be exposed to floating, entrained or dissolved hydrocarbons.

Seabirds and Migratory Shorebirds

Offshore waters are potential foraging grounds for seabirds associated with the coastal roosting and nesting habitat (e.g., Ningaloo, Muiron Islands, Barrow Island etc.). Foraging and breeding BIAs for a number of birds overlap the Operational Area and the EMBA (Table 4-8).

Seabirds and migratory birds are particularly vulnerable to contact with floating hydrocarbons, which may mat feathers. This may lead to hypothermia from loss of insulation, and to ingestion of hydrocarbons when preening to remove hydrocarbons; both impacts may result in mortality (Hassan and Javed, 2011).

Seabirds generally do not exhibit avoidance behaviour to floating hydrocarbons. Physical contact of seabirds with surface slicks is by several exposure pathways—primarily immersion, ingestion, and inhalation. Such contact with hydrocarbons may result in (AMSA, 2015; International Petroleum Industry Environmental Conservation Association, 2004):

- plumage fouling and hypothermia (loss of thermoregulation)
- decreased buoyancy and consequent increased potential to drown
- inability to fly or feed
- anaemia
- pneumonia
- and irritation of eyes, skin, nasal cavities and mouths.

Longer-term exposures may potentially impact seabird populations through loss of reproductive success, malformation of eggs or chicks (AMSA, 2015), or mortality of individuals from oiling of feathers or the ingestion of hydrocarbons.

In the event of a major spill, there is the potential for seabirds, and resident, non-breeding overwintering shorebirds that use the nearshore waters for foraging and resting, to be exposed to entrained, dissolved, and accumulated hydrocarbons. This could result in lethal or sublethal effects. Although breeding oceanic seabird species can travel long distances to forage in offshore waters, most breeding seabirds tend to forage in waters near their breeding colony. This results in relatively higher seabird densities in these areas during the breeding season, making these areas particularly sensitive in the event of a spill.

Pathways of biological exposure that can result in impact may occur through ingesting contaminated fish (nearshore waters) or invertebrates (intertidal foraging grounds such as beaches, mudflats and reefs). Ingestion can also lead to internal injury to sensitive membranes and organs (International Petroleum Industry Environmental Conservation Association, 2004). Whether the toxicity of ingested hydrocarbons is lethal or sublethal 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.

Summary of Potential Impacts to Environmental Values

Benthic Habitats

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 (top 20 m). However, modelling predicted that entrained and dissolved hydrocarbons would not occur in areas of sensitive benthic habitats such as corals, macroalgae and seagrasses, with the in-water hydrocarbon phases above impact thresholds restricted to relatively deep water.

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.

Shoreline Habitats: Mangroves, Sandy Beaches and Rocky Shores

Mangrove habitat along the Ningaloo, Pilbara, Kimberley and Indonesian coastlines may be exposed to accumulations of oil above impact thresholds. Oil 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 (National Oceanic and Atmospheric Administration, 2014). Oil 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). Mangroves provide a range of ecosystem services, such as nursery habitat and sediment stabilisation. Loss of mangroves may result in indirect effects to other components of the environment.

Sandy beaches are widespread in the Ningaloo, Pilbara, Kimberley and Indonesian coastlines and provide habitat for nesting turtles, roosting seabirds and migratory shorebirds. Accumulation of hydrocarbons may result in impacts to these fauna through oiling (refer to Section 8.2.4.1). Oil accumulation may also result in impacts to macrofauna in the intertidal beach zone, such as polychaetes (de la Huz et al., 2005; Junoy et al., 2005), which may result in indirect impacts to migratory birds which feed on sandy beaches and intertidal zones.

Rocky shores also occur widely in the EMBA. Exposed rocky shores are less vulnerable to oil accumulation than mangroves and sandy beaches, as the oil is typically remobilised by wave action. However, intertidal biota may be impacted by oil accumulation due to smothering and toxic effects. This may result in changes to biological communities, although recovery is expected to occur within month to years.

Protected Areas

Numerous protected areas, including Australian Marine Parks, Western Australian Marine Parks, Marine Management Areas and National Parks, and the Ningaloo World Heritage Area, have the potential to be contacted by oil above impact thresholds. The environmental values and sensitivities of these protected areas are described in Section 4.6.5 and the potential impacts to the biological values within the protected areas are described in Sections 8.2 and 8.3. Impacts to socio-economic values within protected areas are described in Section 4.8.

Socio-economic Receptors

Fisheries

The EMBA overlaps a number of Commonwealth and State Managed Fisheries (refer to **Section 4.8.2**). The in-water phases of the oil from a worst-case loss of well containment are constrained to relatively deep water and will not credibly impact upon fisheries exploiting demersal fish resources. There may be an exclusion zone implemented by fisheries management agencies in the event of a spill, however this would be a temporary measure and the spatial extent is expected to be localised.

Impacts to fishes from a worst-case loss of well containment, described in **Section 8.2.4.1**, are expected to be relatively minor. Hence, effects of exploited fish resources are not expected to occur. However, other effects to fisheries may occur as a result of a spill, such as oiling of fishing gear and perceived reduction in fish quality by consumers. These impacts may result in a reduction in value of commercial fisheries, although these impacts could only occur in a very limited number of fisheries.

No impacts to traditional fisheries are expected to occur.

Tourism and Recreation

There is a wide variety of nature-based tourism and recreational activities including recreational fishing that occurs in the EMBA for the worst-case spill scenarios. Tourism is an important industry for the Ningaloo Coast, Pilbara and Kimberley regions, as well as Indonesia – all of which may be impacted by shoreline accumulations of oil. Much of the tourism in these areas is concentrated along the coastline, although some of the offshore islands also attract visitors such as the Muiron Islands. Shoreline accumulations of hydrocarbons may result in temporary closures of coastal areas and may also reduce the aesthetic value of the environment. These impacts may lead to a reduction in tourism activity and consequent economic impacts.

Summary of Potential Impacts to Environmental Values

Oil and Gas

A number of oil and gas operators have operations within the moderate exposure value area within the EMBA. In the event of a large-scale spill, petroleum production operations in the region would likely remain unaffected, as floating oil above the moderate exposure value was not predicted to impact upon any existing production facilities.

Shipping

The impact on shipping in the event of a worst-case discharge is likely to be limited to the potential for minor modification of shipping routes through the implementation of exclusion zones to avoid the spill. Shipping operations may be affected by spill response efforts by way of a 'Notice to Mariners' being issued to avoid the area, leading to the potential diversion from normal shipping routes.

Defence

Military exercise areas are located at Exmouth associated with Royal Australian Air Force Base Learmonth. These training zones overlap the moderate exposure value area within the EMBA. However, they are designated for aerial training and are unlikely to be impacted by a hydrocarbon spill.

Indigenous

Any oil that reaches the coastline from a large-scale spill has potential to impact on registered sites and indigenous heritage places along the coastline.

In the unlikely event of an oil spill, shoreline accumulated oil may affect sensitive artefacts or areas, which could damage their heritage value. Furthermore, personnel accessing the area to implement response strategies have potential to damage or destroy heritage values of the area.

Shorelines

A number of shorelines are predicted to be at risk of shoreline accumulation above 10 g/m² whereby the shoreline socio-cultural EMBA extends beyond the shoreline EMBA where ecological impact could occur.

The socio-cultural EMBA is based on low thresholds, whereby a visible sheen could occur. This sheen is not expected to impact access to, or use of shorelines.

8.2.4.2 Species Recovery Plans and Threat Abatement Plans

Woodside has considered information contained in relevant recovery plans for marine fauna that identify marine pollution as a threat (**Section 9**). This includes the objectives and actions within the following plans:

- Recovery plan for marine turtles in Australia 2017-2027 (Commonwealth of Australia, 2017)
- Recovery Plan for the Grey Nurse Shark (*Carcharias taurus*) (Department of the Environment, 2014)
- Sawfish and River Shark Multispecies Recovery Plan (Commonwealth of Australia, 2015a)

8.2.5 Demonstration of ALARP

The ALARP process for the environmental aspect is summarised in **Table 8-10**. This process was completed as outlined in **Section 6.1.4** and included consideration of all controls, analysis of the risk reduction proportional to the benefit gained and final acceptance or justification if the control was rejected.

Table 8-10: Stybarrow Loss of Well Containment - ALARP Summary

Control Measure	Accept / Reject	Reason	Associated Performance Standards
Legislation, Codes and Standards			
The P&A activity to be managed in accordance with NOPSEMA accepted Well Operations Management Plan (WOMP), which includes the following requirements: <ul style="list-style-type: none"> • Two barriers have been maintained • Well barrier integrity is tested and verified • Wells are permanently abandoned and left in a safe state 	Accept	Compliance with an accepted WOMP that aligns with industry guidance and good practice will ensure barriers are in place and verified, reducing the likelihood of loss of well integrity occurring. Although the consequence of a well blowout would not be reduced, the reduction in likelihood reduces the overall risk. Control is based on a legislative requirement under the Offshore Petroleum and Greenhouse Gas Storage (Resource Management and Administration) Regulations 2011. The control must be adopted.	PS 10.1
The P&A activity to be managed in accordance with the NOPSEMA accepted MODU Safety Case, which includes the following: <ul style="list-style-type: none"> • Planned maintenance requirements for well control equipment • testing requirements of well control equipment • verification requirements of safety critical equipment 	Accept	The accepted safety case includes control measures to reduce the risk of an unplanned release of hydrocarbons as a result of loss of well containment. Compliance with the accepted Safety Case may reduce the likelihood of loss of well integrity occurring. Although the consequence of a well blowout would not be reduced, the reduction in likelihood reduces the overall risk. Control is based on a legislative requirement under the Offshore Petroleum and Greenhouse Gas Storage (Safety) Regulations 2009. The control must be adopted	PS 10.2
Eliminate			
Do not plug and abandon the wells.	Reject	Whilst not conducting P&A activities would eliminate the risk, the wells require intervention to achieve the status of permanent abandonment. Control is therefore not considered feasible.	Not applicable

Control Measure	Accept / Reject	Reason	Associated Performance Standards
Engineering			
Subsea BOP installed, and function tested during permanent plugging operations.	Accept	Testing of the BOP will reduce the likelihood of a blowout resulting in release of hydrocarbons to the marine environment. In the event of a blowout, this control would not reduce the consequence, although the reduction in likelihood reduces the overall risk ranking. The control is feasible, standard practice with minimal cost. Benefits outweigh any cost sacrifice.	PS 10.3
Administrative			
Implement requirements for permanent well abandonment: <ul style="list-style-type: none"> well barrier as per the internal Woodside Standard(s) placement, length, material and verification of a permanent barrier. 	Accept	This procedure will reduce the likelihood of a spill occurring from a suspended or abandoned well. Although changes in severity wouldn't occur, the reduction in likelihood results in a reduction in overall risk. The control is feasible, standard practice with minimal cost. Benefits outweigh any cost sacrifice.	PS 10.4
Pollution Control			
An approved Source Control Emergency Response Plan (SCERP) shall exist prior to drilling each well, including feasibility and any specific considerations for relief well kill.	Accept	The SCERP will describe the responses to a loss of well control including ROV intervention on BOP, use of capping stack to contain well, and the relief well. All of these responses are aimed at reducing the duration of the hydrocarbon release, resulting in a reduction in consequence and overall risk. The control is feasible, standard practice with minimal cost. Benefits outweigh any cost sacrifice.	PS 10.5
In the event of a spill, emergency response activities implemented in accordance with the OPEP (per Table 11-)	Accept	Implementing the OPEP efficiently to deal with unplanned hydrocarbon spills will help to reduce impacts to the marine environment. The control is feasible and standard practice. Costs associated with implementing response strategies vary dependant on nature and scale of spill event. Benefits outweigh any cost sacrifice.	PS 10.6
Arrangements supporting the activities in the OPEP (per Table 11-13) will be tested to ensure the OPEP can be implemented as planned.	Accept	Testing the OPEP activities would not reduce the likelihood, but response activities may reduce the consequence. The control is feasible and standard practice. Moderate costs associated with conducting exercises for the purpose of testing arrangements. Benefits outweigh any cost sacrifice.	PS 10.7.1 PS 10.7.2

8.2.5.1 ALARP Summary

The risk assessment and evaluation has identified a range of controls (**Table 8-10**) appropriate to the decision type (Decision Type B), that when implemented are considered to manage the risks and consequences from a highly unlikely unplanned hydrocarbon release as a result of a loss of well containment to ALARP.

Woodside considers the control measures described above are appropriate to reduce the potential risks of a loss of well containment. As no reasonable additional/alternative controls were identified that would future reduce the risks and consequences without grossly disproportionate sacrifice, the risks and consequences are therefore ALARP.

8.2.6 Demonstration of Acceptability

The impact assessment has determined, given the adopted controls, the risk of a highly unlikely unplanned hydrocarbon release as a result of a loss of well containment during P&A activities represents a tolerable risk. Woodside considers higher current 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 following considerations:

Internal Context

The petroleum activity is consistent with Woodside corporate policies, culture, processes, standards, structure and systems as outlined in the Demonstration of ALARP and Environmental Performance Outcomes, including:

- Woodside Our Values (Appendix A)
- Woodside Risk Management Policy
- Engineering Standards – Well Barriers
- Well Acceptance Criteria Procedure
- Drilling and Completions – Well Control Procedure
- Woodside Engineering Standard – Rig Equipment
- Source Control Emergency Response Planning Guideline (SCERP Guidelines)
- Oil 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 (**Section 10**).

External Context

Woodside recognises its licence to operate from a regulator and societal perspective is based on historical performance, complying with appropriate policies, standards and procedures, and understanding external expectations. External consultation, outlined below, has been undertaken prior to the petroleum activity:

- Woodside has consulted with AMSA and WA DoT on spill response strategies. In accordance with the Memorandum of Understanding between Woodside and AMSA, a copy of the Oil Pollution First Strike Plan was provided to AMSA and WA DoT.
- Other interested persons have been consulted (**Section 5.7**) and their feedback incorporated into this EP where appropriate.
- The impact assessment has determined there is unlikely to be a major long-term environmental impact on the offshore environment or sensitive nearshore and shoreline habitats from a loss of well containment.
- By providing additional measures to prevent loss of well containment, in addition to oil spill response measures that are commensurate with the current risk rating, location and sensitivity of the receiving environment (including social and aesthetic values), Woodside believes this addresses societal concerns to an acceptable level.

Other Requirements (includes laws, policies, standards and conventions)

Impact assessment has been informed by risk-based analysis, including hydrocarbon spill modelling. The proposed control measures are consistent with industry legislation, codes and standards, good industry practice and professional judgement including:

- subsea BOP function testing in accordance with API Standard 53, 5th Edition

- Offshore Petroleum and Greenhouse Gas Storage (Resource Management and Administration) Regulations 2011: accepted WOMP for P&A activities
- notification of reportable and recordable incidents to NOPSEMA, if required, in accordance with **Section 11.7.4**
- mutual aid Memorandum of Understanding for relief well drilling is in place. Woodside develops a SCERP for each well, which is signed off by the Drilling Engineering Manager and maintains a list of rigs that are currently operating in Western Australia.

Environmental Context

The EMBA overlaps a number of BIAs for threatened and migratory species, as well as a number of State and Commonwealth MPAs and the Ningaloo Coast WHA. BIAs within the Operational Area include pygmy blue whale migration BIA, pygmy blue whale distribution BIA, and wedge-tailed shearwater breeding BIA. Relevant recovery plans and consideration advice has been considered during the impact assessment. The petroleum activity is not considered to be inconsistent with the overall recovery objectives and actions of any of the applicable recovery plans or threat abatement plans. Regard has been given to relevant conservation advice and wildlife conservation plans during the assessment of potential impacts.

Acceptability Statement

The likelihood of a loss of well containment event occurring is highly unlikely, given the adopted controls. The adopted controls are considered consistent with industry legislation, codes and standards, and professional judgement and a risk-based assessment has been conducted to better understand the potential consequences and plan oil spill response. As demonstrated in **Section 9**, the potential impacts of an unplanned hydrocarbon release from loss of well containment is not inconsistent with the relevant objectives and actions of any applicable recovery plans or threat abatement plans.

The environmental risks meet the Woodside environmental risk acceptability criteria (**Section 6.3**). The environmental risks are consistent with the principles of ESD:

- **Integration Principle:** Woodside has undertaken a range of studies to determine the approach to decommissioning the Stybarrow field, which have informed Woodside's deliberations. The decommissioning strategy being pursued by Woodside integrates long-term and short-term economic, environmental, social, and equitable considerations.
- **Precautionary Principle:** The risks and consequences from a highly unlikely unplanned hydrocarbon release as a result of a loss of well containment are well understood, and there is no risk of serious or irreversible environmental damage from this aspect. The risk assessment was informed by industry-standard modelling, which includes the worst-case credible spill scenario, incorporates inherent conservatism and is consistent with the precautionary principle.
- **Intergenerational Principle:** The risks and consequences from a highly unlikely unplanned hydrocarbon release as a result of a loss of well containment will not impact upon the environment such that future generations cannot meet their needs. P&A of the Stybarrow development wells is required to mitigate unplanned releases that could potential occur from Stybarrow wells in the future.
- **Biodiversity Principle:** The risks and consequences from a highly unlikely unplanned hydrocarbon release as a result of a loss of well containment will not impact upon biodiversity or ecological integrity in the long-term. The adopted controls Woodside will implement reduce the risk of a hydrocarbon release from a loss of well containment to ALARP.

On this basis, Woodside considers the risk to be managed to an acceptable level.

8.2.7 Environmental Performance Outcome, Performance Standards and Measurement Criteria

Environmental Performance Outcomes	Controls	Performance Standards	Measurement Criteria
EPO 10 No loss of well integrity resulting in loss of hydrocarbons to the marine environment during the petroleum activity.	C 10.1 The P&A activity to be managed in accordance with NOPSEMA accepted Well Operations Management Plan (WOMP), which includes the following requirements: <ul style="list-style-type: none"> • Two barriers have been maintained • Well barrier integrity is tested and verified • Wells are permanently abandoned and left in a safe state 	PS 10.1 Accepted WOMP in place for the Stybarrow P&A activity to manage risks associated with plug and abandonment activities.	MC 10.1.1 WOMP Acceptance Letter
	C 10.2 The P&A activity to be managed in accordance with the NOPSEMA accepted MODU Safety Case, which includes the following: <ul style="list-style-type: none"> • Planned maintenance requirements for well control equipment • testing requirements of well control equipment • verification requirements of safety critical equipment 	PS 10.2 Accepted Safety Case in place for the Stybarrow P&A activity to manage risks associated with loss of well integrity.	MC 10.2.1 Safety Case Acceptance Letter
	C 10.3 Subsea BOP installed, and function tested during permanent plugging operations.	PS 10.3 Subsea BOP specification, installation and function testing compliant with internal Woodside Standards and international requirements (API Standard 53) as agreed by Woodside and MODU contractor.	C 10.3.1 Records demonstrate that BOP and BOP control system specifications and function testing were in accordance with minimum standards for the expected permanent plugging conditions as agreed by Woodside and MODU contractor.
	C 10.4 Implement requirements for permanent well abandonment:	PS 10.4 Woodside abandons the wells according to internal Woodside Procedure.	MC 10.4.1 Records demonstrate Well Acceptance Criteria have been met.

Environmental Performance Outcomes	Controls	Performance Standards	Measurement Criteria
	<ul style="list-style-type: none"> well barrier as per the internal Woodside Standard(s) placement, length, material and verification of a permanent barrier. 		
	<p>C 10.5 An approved Source Control Emergency Response Plan (SCERP) shall exist prior to drilling each well, including feasibility and any specific considerations for relief well kill.</p>	<p>PS 10.5 SCERP is in place to ensure feasibility of performing a well kill operation.</p>	<p>MC 10.5.1 An approved Well Source Control Emergency Response Plan</p>
	<p>C 10.6 In the event of a spill, emergency response activities implemented in accordance with the OPEP (per s 11.9).</p>	<p>PS 10.6 In the event of a spill, emergency response activities implemented in accordance with the OPEP (per s. 11.9).</p>	<p>MC 10.6.1 Completed incident documentation.</p>
	<p>C 10.7 Arrangements supporting the activities in the OPEP (per s. 11.9) will be tested to ensure the OPEP can be implemented as planned.</p>	<p>PS 10.7.1 Arrangements supporting the activities in the OPEP (per s. 11.9) will be tested to ensure the OPEP can be implemented as planned.</p>	<p>MC 10.7.1.1 Testing of arrangement records confirm that emergency response capability has been maintained.</p>
		<p>PS 9.7.2 Woodside procedure demonstrates a minimum level of trained personnel, for core roles in the OPEP (per s. 11.9), are maintained.</p>	<p>MC 9.7.1.2 Emergency Management dashboard confirms that minimum level of personnel trained for core OPEP roles are available.</p>

8.3 Hydrocarbon Release from Vessel Collision or Bunkering Incident

8.3.1 Summary of Risk Assessment and Evaluation

Aspect	Source of Hazard	Potential Impact	Severity Factor	Likelihood Factor	Residual Risk	Decision Context	Acceptability
Unplanned surface release of marine diesel oil	Surface release of MDO from a project vessel as a result of an external impact (vessel collision) which ruptures an MDO tank.	Temporary and localised reduction in water quality with potential for toxicity effects to marine fauna and flora, oiling of offshore, nearshore and shoreline habitats.	100	0.1	10	Type A Lower Order Risk	Tolerable
	Release of MDO or jet fuel during a bunkering or refuelling incident.	Impacts to socio-economic receptors.	10	0.3	3	Type A Lower Order Risk	Tolerable

8.3.2 Source of Hazard

8.3.2.1 Surface Release of Marine Diesel Oil from a Project Vessel as a Result of an External Impact (Vessel Collision) Which Ruptures a Marine Diesel Oil Tank

The temporary presence of the MODU and project vessels in the Operational Area during the petroleum activity will result in a navigational hazard for other marine users (such as commercial shipping) within the immediate area (as discussed in **Section 7.1.3**). This navigational hazard could result in a third-party vessel colliding with the MODU or a project vessel, resulting a loss of hydrocarbons from a fuel tank rupture.

A MODU will have a total marine diesel capacity of approximately 966 to 1400 m³ (up to 3640 m³ for DP MODU), that is distributed through a number of isolated tanks. MODU fuel tanks are located in the MODU pontoons, typically located on the inner sides of pontoons and can be over 10 m below the waterline. As such, a spill from MODU fuel tanks as a result of a vessel collision is not credible.

A typical project vessel (e.g., a light construction or subsea support vessel) is likely to have multiple isolated marine diesel tanks distributed throughout the hull of the vessel. The marine diesel storage capacity of a support vessel can be in the order of 1000 m³ (total) that is distributed through multiple isolated tanks typically located mid-ships. In the unlikely event of a vessel collision involving a project vessel during the petroleum activity, 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. Project vessel fuel oil capacities are presented in **Section 3**.

The indicative largest single fuel tank on a support vessel is 350 m³ (**Table 3-10**) and presents the maximum worst-case credible release volume in the event of a vessel collision. This worst-case vessel collision spill volume is consistent with guidance from AMSA (2015). A 1,000 m³ marine diesel release was modelled at the DTM buoy (considered to be a representative location for the hydrocarbon spill risk assessment). The modelled volume is larger than the credible worst-case vessel collision spill as a contingency and makes use of spill modelling commissioned for the Stybarrow Decommissioning and Field Management EP.

A review of the potentially active commercial fisheries (**Section 4.8.2**) along with consultation feedback (**Section 5**), determines it unlikely there will be active commercial fishing in the area. In addition, there are no recognised shipping routes in or near the Operational Area, with the nearest shipping fairway designated by AMSA located approximately 21 km to the north and west (Figure 4-15). Analysis of shipping traffic data indicates commercial vessels do use the general area. A vessel collision resulting in the rupture of a fuel tank would only credibly occur if a support vessel was struck by a large vessel (e.g., large container carrier) moving at cruising speed. Smaller vessels, such as typical fishing boats, would not credibly result in a fuel tank leak from a support vessel in the event of a collision.

All project vessels will use marine diesel as fuel, with no use of heavy or intermediate fuel oils.

Industry Experience

Registered vessels or foreign flag vessels in Australian waters are required to report events to the Australian Transport Safety Bureau (ATSB), AMSA or Australian Search and Rescue (AusSAR).

From a review of the ATSB marine safety and investigation reports, one vessel collision occurred in 2011/12 that resulted in a spill of 25–30 L of oil into the marine environment as a result of a collision between a tug and support vessel off Barrow Island. Two other vessel collisions occurred in 2010, one in the port of Dampier, where a support vessel collided with a barge being towed. Minor damage was reported and no significant injury to personnel or pollution occurred. The second 2010 vessel collision involved a vessel under pilot control in port connecting with a vessel alongside a wharf, causing it to sink. No reported pollution resulted from the sunken vessel. These incidents demonstrate the likelihood of only minor volumes of hydrocarbons being released during the highly unlikely event of a vessel collision.

From 2010 to 2011, the ATSB's annual publication defines the individual safety action factors identified in marine accidents and incidents: 42% related to navigation action (2011). Of those, 15% related to poor communication and 42% related to poor monitoring, checking and documentation (ATSB, 2011). The majority of these related to the grounding instances.

Credible Scenarios

For a vessel collision to result in the worst-case scenario of a hydrocarbon spill potentially impacting an environmental receptor, several factors must align as follows:

- The identified causes of vessel interaction must result in a collision.
- The collision must have enough force to penetrate the vessel hull.
- The collision must be in the exact 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 environmental risk analysis and evaluation identified and assessed a range of potential scenarios that could result in a loss of vessel structural integrity, resulting in damage to fuel storage tank(s) and a loss of marine diesel to the marine environment (**Table 8-11**). The scenarios considered damage to single and multiple fuel storage tanks in a project vessel and MODU due to dropped objects and various combinations of vessel to vessel and vessel to MODU collisions. In summary:

- It is not a credible scenario that the total storage volume of the MODU would be lost, as fuel is stored in more than one tank.
- It is not a credible scenario that a storage tank on the MODU would be damaged due to the location of the tanks within the hull, behind the bilge tanks, below the waterline.
- It is not a credible scenario that a collision between the support vessel and MODU would damage any storage tanks, due to the location of the tanks on both vessel types and secondary containment.
- It is highly unlikely that the full volume of the largest storage tank on a support vessel would be lost.

The last scenario considered was a collision between the support vessel or light construction vessel with a third-party vessel (i.e. commercial shipping, other petroleum related vessels and commercial fishing vessels). This was assessed as being credible but highly unlikely, given the standard vessel operations and equipment in place to prevent collision at sea, the standby role of a support vessel (low vessel speed) and its operation in close proximity to the MODU (exclusion areas), and the construction and placement of storage tanks. Potential spill volumes for these scenarios are summarised in the **Table 8-11**.

Given the offshore location of the Stybarrow field, vessel grounding is not considered a credible risk.

Table 8-11: Summary of credible hydrocarbon spill scenario as a result of vessel collision

Scenario	Hydrocarbon Volumes	Preventative and Mitigation Controls	Credibility
Breach of MODU fuel tanks due to vessel collision.	MODU has a fuel oil storage capacity of about 966 to 1400 m ³ (up to 3640 m ³ for DP MODU), distributed through multiple tanks.	Fuel tanks are located on the inside of pontoons and protected by location below water line, protection from other tanks, e.g. bilge tanks. The draught of vessel and location of tanks in terms of water line prevent the tanks from being breached.	Not credible Due to location of tanks.
Breach of support vessel fuel tanks due to collision with MODU.	Activity support vessel has multiple marine diesel tanks typically ranging between 22 to 105 m ³ each.	Typically, double wall tanks that are located mid ship (not bow or stern). Slow support vessel speeds when in proximity to MODU.	Not credible Collision with MODU at slow speeds is highly unlikely and, if it did occur, is highly unlikely to result in a breach of support vessel (low energy contact from slow moving vessel).
Breach of light construction vessel / anchor handling vessel fuel tanks due to collision with third-party vessel, including commercial shipping and fishing.	Largest volume of a single tank is likely to be <350 m ³ .	Tank locations midship (not bow or stern).	Credible Light construction vessel – third-party vessel collision could potentially result in the release from a fuel tank.
Breach of project support vessel fuel tanks due to support vessel – other vessel collision including commercial shipping/fisheries.	Activity support vessel has multiple marine diesel tanks typically ranging between 22 to 105 m ³ each.	Typically, double wall tanks that are located midship (not bow or stern). Vessels are not anchored and steam at low speeds when relocating within the Operational Area or performing MODU standby duties. Normal maritime procedures would apply during such vessel movements.	Credible Activity support vessel – other vessel collision could potentially result in the release from a fuel tank.

8.3.2.2 Release of Marine Diesel Oil due to Leaking or Ruptured Bunker Transfer Equipment

Bunkering of marine diesel between support vessels and the MODU as well as the possible refuelling of cranes, helicopters and other equipment may take place on the MODU and project vessels during the Petroleum Activity. Bunkering incidents may occur as the result of a damaged refuelling hose, coupling failures, loss of connection, vessel collision or loss of vessel position.

Three credible scenarios for the loss of containment of marine diesel during bunkering operations have been identified:

- Partial or total failure of a bulk transfer hose or fittings during bunkering, due to operational stress or other integrity issues could spill marine diesel to the deck and/or into the marine environment. This would be in the order of less than 200 L, based on the likely volume of a bulk transfer hose (assuming a failure of the dry break and complete loss of hose volume).
- Partial or total failure of a bulk transfer hose or fittings during bunkering, combined with a failure in procedure to shutoff fuel pumps, for a period of up to five minutes, resulting in approximately 50 m³ marine diesel lost to the deck and/or into the marine environment.
- Partial or total failure of a bulk transfer hose or fittings during helicopter refuelling could spill aviation jet fuel to the helicopter deck and/or into the marine environment. All helicopter refuelling activities are closely supervised and leaks on the helideck are considered to be easily detectable. In the event of a leak, transfer

would cease immediately. The credible volume of such a release during helicopter refuelling would be in the order of <100 L.

The guidance provided by AMSA (2015) for a bunkering spill under continuous supervision is considered appropriate, given bunkering will be constantly supervised. The maximum credible release volume during refuelling is calculated as transfer rate multiplied by 15 minutes of flow. The detection time of 15 minutes is seen as conservative but applicable after failure of multiple barriers followed by manual detection and isolation of the fuel supply. Based on an expected pumping rate of 150 m³/hour and a conservative time of 15 minutes to shut down the pumping operation once the fuel spill had been identified, a total release volume of around 37.5 m³ is proposed as the worst-case credible volume for a bunkering incident.

8.3.3 Stochastic Oil Spill Modelling Results

The low viscosity (4 cP) indicates marine diesel will spread quickly when released and will form a thin to low thickness film on the sea surface, increasing the rate of evaporation. Generally, about 6.0% of the marine diesel mass should evaporate within the first 12 hours (BP < 180 °C).

About 40.6% of the marine diesel mass should evaporate within the first 24 hours (180 °C < BP < 265 °C). After several days 95% of the marine diesel mass should evaporate (265 °C < BP < 380°C). Around 5% (by mass) of marine diesel will not evaporate at atmospheric temperatures and will persist in the environment. An indicative weathering plot of marine diesel is provided as **Figure 8-2**, with the characteristics summarised in **Table 8-3** and

Table 8-4.

Some heavy components contained in marine diesel have a strong tendency to physically entrain into the upper water column in the presence of moderate winds (in other words, > 12 knots) and breaking waves, but can re-float to the surface if these energies abate.

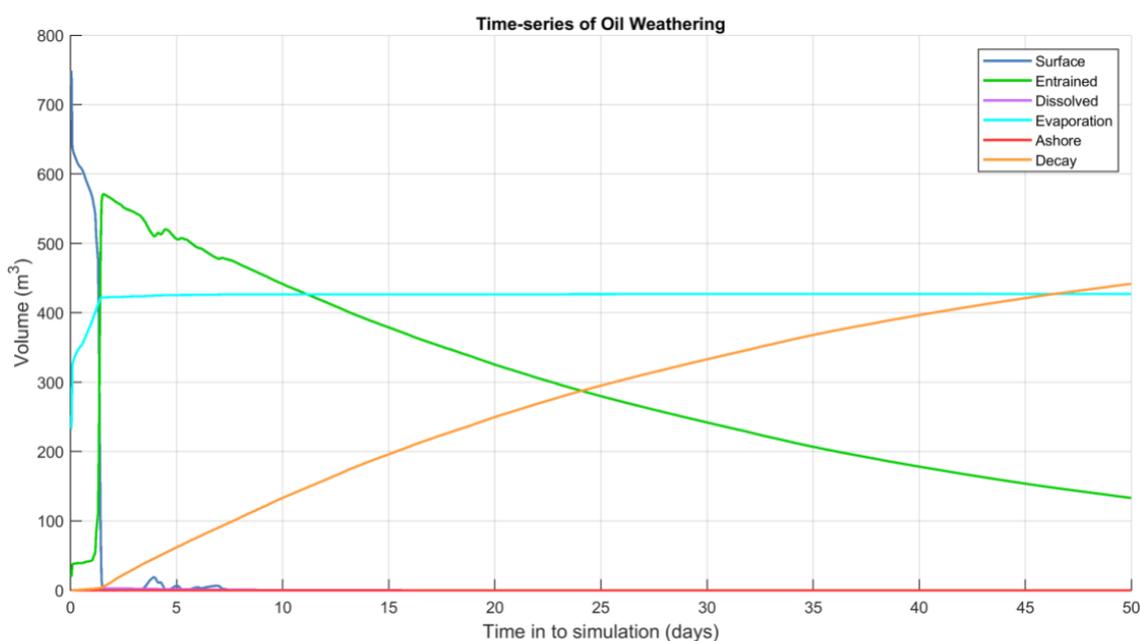


Figure 8-2: Predicted weathering and fates graph for marine diesel for the vessel collision scenario simulation that led to the largest swept area of floating oil above 50 g/m² (from RPS, 2022a)

8.3.3.1 Environment that May Be Affected

The EMBA for the worst-case MDO release, combined with the worst-case loss of well containment release described in **Section 8.2**, is presented in **Figure 4-1**. The outer extent of the EMBA is derived from the oil spill modelling defined using the hydrocarbon exposure thresholds in Section 8.1.3 and is based on the combined area of contact for all hydrocarbon components (surface, shoreline dissolved and entrained hydrocarbons). The modelling results below are presented for each hydrocarbon component at the hydrocarbon exposure thresholds defined in **Table 8-6**.

8.3.3.2 Surface Hydrocarbons

Exposure Thresholds	Units
Low Exposure ($> 1 \text{ g/m}^2$)	<p>Surface hydrocarbons at the low exposure value are predicted to travel up to 164 km north-east of the release location. Receptors with the potential to be contacted at the low exposure value are:</p> <ul style="list-style-type: none"> • Gascoyne AMP • Canyons linking the Cuvier Abyssal Plain and the Cape Range Peninsula KEF • Exmouth Plateau KEF • Continental Slope Demersal Fish Communities KEF
Moderate Exposure ($> 10 \text{ g/m}^2$)	<p>Surface hydrocarbons at the moderate exposure value are predicted to travel up to 92 km south-west of the release location. Receptors with the potential to be contacted at the moderate exposure value are (refer to Table 8-12):</p> <ul style="list-style-type: none"> • Gascoyne AMP • Canyons linking the Cuvier Abyssal Plain and the Cape Range Peninsula KEF • Continental Slope Demersal Fish Communities KEF
High Exposure ($> 50 \text{ g/m}^2$)	<p>Surface hydrocarbons at the high exposure value are predicted to travel up to 79 km north-east of the release location. Receptors with the potential to be contacted at the high exposure value are (refer to Table 8-12):</p> <ul style="list-style-type: none"> • Gascoyne AMP • Canyons linking the Cuvier Abyssal Plain and the Cape Range Peninsula KEF • Continental Slope Demersal Fish Communities KEF

Table 8-12: Summary of sensitive receptors exposed to surface hydrocarbons from a worst-case marine diesel spill (vessel collision) for moderate and high surface hydrocarbon exposure thresholds

Receptor	Probability of Surface Hydrocarbon Exposure (%)		Minimum Time before Surface Hydrocarbon Exposure (days)	
	Moderate	High	Moderate	High
Gascoyne AMP	32	22	0.17	0.21
Canyons linking the Cuvier Abyssal Plain and the Cape Range Peninsula KEF	22	16	0.08	0.08
Continental Slope Demersal Fish Communities KEF	100	100	0.04	0.04

8.3.3.3 Shoreline Accumulated Hydrocarbons

Exposure Thresholds	Units
Low Exposure ($\geq 10 \text{ g/m}^2$)	No predicted shoreline accumulation of hydrocarbons at or above the low exposure threshold.
Moderate Exposure ($\geq 100 \text{ g/m}^2$)	No predicted shoreline accumulation of hydrocarbons at or above the moderate exposure threshold.
High Exposure	No predicted shoreline accumulation of hydrocarbons at or above the high exposure threshold.

Exposure Thresholds	Units
(≥ 1,000 g/m ²)	

8.3.3.4 Dissolved Hydrocarbons

Exposure Thresholds	Units
Low Exposure (≥ 10 ppb)	<p>Dissolved hydrocarbons at the low exposure value are predicted to travel up to 157 km south-south-west of the release location. Receptors with the potential to be contacted at the low exposure value are:</p> <ul style="list-style-type: none"> • Gascoyne AMP • Canyons linking the Cuvier Abyssal Plain and the Cape Range Peninsula KEF • Exmouth Plateau KEF • Continental Slope Demersal Fish Communities KEF
Moderate Exposure (≥ 50 ppb)	<p>Dissolved hydrocarbons at the moderate exposure value are predicted to travel up to 40 km south-south-west of the release location. Receptors with the potential to be contacted at the moderate exposure value are (refer to</p> <p>Table 8-13):</p> <ul style="list-style-type: none"> • Gascoyne AMP • Canyons linking the Cuvier Abyssal Plain and the Cape Range Peninsula KEF • Continental Slope Demersal Fish Communities KEF
High Exposure (≥ 400 ppb)	<p>Dissolved hydrocarbons at the high exposure value are predicted to travel up to 2 km south-south-west of the release location. Receptors with the potential to be contacted at the high exposure value are (refer to</p> <p>Table 8-13):</p> <ul style="list-style-type: none"> • Gascoyne AMP • Canyons linking the Cuvier Abyssal Plain and the Cape Range Peninsula KEF • Continental Slope Demersal Fish Communities KEF

Table 8-13: Summary of sensitive receptors exposed to dissolved hydrocarbon from a worst-case marine diesel spill (vessel collision) for moderate and high dissolved hydrocarbon exposure thresholds in the top 10 m below the sea surface

Receptor	Probability of Dissolved Hydrocarbon Exposure (%)		Maximum Instantaneous Concentration (ppb)
	Moderate (50 ppb)	High (400 ppb)	
Carnarvon Canyon AMP	8	-	197
Canyons linking the Cuvier Abyssal Plain and the Cape Range Peninsula KEF	16	-	306
Continental slope demersal fish communities KEF	42	1	525

8.3.3.5 Entrained Hydrocarbons

Exposure Thresholds	Units
Low Exposure (≥ 10 ppb)	<p>Entrained hydrocarbons at the low exposure value are predicted to travel up to 1,295 km north-north-west of the release location. Receptors with the potential to be contacted at the low exposure value are:</p> <ul style="list-style-type: none"> • Seven Australian Marine Parks: Abrolhos AMP, Argo-Rowley Terrace AMP, Carnarvon Canyon AMP, Gascoyne AMP, Montebello AMP, Shark Bay AMP, and Ningaloo AMP • KEFs: Canyons linking the Cuvier Abyssal Plain and the Cape Range Peninsula KEF, Ancient coastline at 125 m depth contour KEF, Wallaby Saddle KEF, Exmouth Plateau KEF, Commonwealth waters adjacent to Ningaloo Reef KEF, Perth Canyon and Adjacent shelf break, and other west coast canyons KEFs, Western demersal slope and associated fish communities KEF, and Continental slope demersal fish communities KEF • Muiron Islands Marine Management Area • Ningaloo Marine Park
Moderate Exposure (≥ 100 ppb)	<p>Entrained hydrocarbons at the high exposure value are predicted to travel up to 507 km south-south-west of the release location. Receptors with the potential to be contacted at the high exposure value are (refer to Table 8-14):</p> <ul style="list-style-type: none"> • Three Australian Marine Parks: Carnarvon Canyon AMP, Gascoyne AMP, and Ningaloo AMP • KEFs: Canyons linking the Cuvier Abyssal Plain and the Cape Range Peninsula KEF, Ancient coastline at 125 m depth contour KEF, Exmouth Plateau KEF, Commonwealth waters adjacent to Ningaloo Reef KEF and Continental slope demersal fish communities KEF

Table 8-14: Summary of sensitive receptors exposed to entrained hydrocarbons from a worst-case marine diesel spill (vessel collision) for moderate entrained hydrocarbon exposure threshold

Receptor	Maximum Instantaneous Entrained Hydrocarbon Concentration (ppb)	Probability of Instantaneous Entrained Hydrocarbon Exposure (%)
Carnarvon Canyon AMP	118	2
Gascoyne AMP	12,507	41
Ningaloo AMP	318	2
Canyons linking the Cuvier Abyssal Plain and the Cape Range Peninsula KEF	26,040	40
Ancient coastline at 125 m depth contour KEF	278	2
Exmouth Plateau KEF	1,523	14
Commonwealth waters adjacent to Ningaloo Reef KEF	318	2
Continental slope demersal fish communities KEF	43,090	85

8.3.4 Environmental Impact Assessment

The environmental impact assessment below is based on the worst-case marine diesel spill from a vessel collision. A marine diesel spill from a bunkering incident is similar in nature to the vessel collision scenario (same release location and hydrocarbon type) but substantially smaller in scale (release volume is approximately 4% of the vessel collision scenario). The potential impacts of surface, entrained, and dissolved hydrocarbons from a marine diesel spill from a vessel collision are similar to those described for the loss of well containment (refer to **Section 8.2.4**), however there are some important differences:

- Unlike the worst-case loss of well containment scenario, a worst-case marine diesel spill from a vessel collision will not result in shoreline accumulation at or above the low, moderate, or high thresholds
- The worst-case marine diesel spill from a vessel collision occurs at the sea surface and hence is more available to rapid weathering than the seabed release from a worst-case loss of well containment
- Marine diesel has a much higher portion of volatile hydrocarbons than Stybarrow crude and will weather much more rapidly
- Marine diesel has a greater water-soluble fraction and is more easily entrained than Stybarrow crude, resulting in greater potential for this hydrocarbon type to impact upon receptors sensitive to these hydrocarbon phases.

Based on the points above, a worst-case marine diesel spill from a vessel collision has substantially smaller potential for impacts to sensitive receptors. Marine fauna that are susceptible to floating oil, such as air-breathing fauna and seabirds, have a much lower chance of encountering marine diesel than Stybarrow crude, and the impacts of such an encounter will generally pose a lower risk of mortality. Given the absence of shoreline accumulation above the ecological impact threshold, impacts to shorebirds, nesting turtles and turtle hatchlings will not credibly occur.

The entrained and dissolved hydrocarbon phases from a worst-case marine diesel spill from a vessel collision may extend considerably further than the same phases from a worst-case loss of well control. Modelling results indicate the entrained and dissolved phases would occur in continental slope and oceanic waters, with either of these phases occurring in continental shelf waters above ecological impact thresholds. Both phases would also be concentrated within the top 20 m of the water column. As such, pelagic biota such as planktonic communities, fishes and sharks may be impacted. However, given the widespread nature of these receptors and the transient nature of the

hydrocarbon hazard, impacts are expected to be localised and recover rapidly.

The Gascoyne, Ningaloo and Carnarvon Canyon AMPs are within the EMBA and have the potential to receive concentrations of entrained oil (at 100 ppb). Pelagic biota that may be impacted by entrained hydrocarbons are part of the environmental values of these protected areas. However, given the nature and scale of the potential impacts of a marine diesel spill, it is not anticipated that the AMP values will be compromised.

Several KEFs occur within the EMBA for a worst-case marine diesel spill from a vessel collision. These KEFs are all associated with benthic features and their environmental values will not credibly be impacted by a worst-case marine diesel spill from a vessel collision, as the hydrocarbons will be concentrated near the sea surface.

8.3.4.1 Species Recovery Plans and Threat Abatement Plans

Woodside has considered information contained in relevant recovery plans for marine fauna that identify marine pollution as a threat (**Section 8**). This includes the objectives and actions within the following plans:

- Recovery plan for marine turtles in Australia 2017-2027 (Commonwealth of Australia, 2017)
- Recovery Plan for the Grey Nurse Shark (*Carcharias taurus*) (Department of the Environment, 2014)
- Recovery plan for the white shark (*Carcharodon carcharias*) (Department of Sustainability, Environment, Water, Population and Communities, 2013)
- Sawfish and River Shark Multispecies Recovery Plan (Commonwealth of Australia, 2015a)

8.3.5 Demonstration of ALARP

The ALARP process for the environmental aspect is summarised in **Table 8-15**. This process was completed as outlined in **Section 6.1.4** and included consideration of all controls, analysis of the risk reduction proportional to the benefit gained and final acceptance or justification if the control was rejected.

Table 8-15: Marine Diesel Release – ALARP Summary

Control Measure	Accept / Reject	Reason	Associated Performance Standards
Legislation, Codes and Standards			
MODU and project support vessel compliant with navigation safety requirements including the Navigation Act 2012 and any subsequent Marine Orders (21 & 30), which specify: <ul style="list-style-type: none"> • navigation (including lighting, compass/radar), bridge and communication equipment will comply with appropriate marine navigation and vessel safety requirements • Automatic Identification System (AIS) is fitted and maintained in accordance with Regulation 19-1 of Chapter V of SOLAS • crew performing vessel bridge-watch will be qualified in accordance with AMSA Marine Order Part 3: Seagoing Qualifications or certified training equivalent 	Accept	Legislative requirements to be followed which reduces the risk of third-party vessel interactions due to ensuring safety requirements are fulfilled and other marine users are aware of the presence of the MODU and support vessels. The control is feasible, standard practice with minimal cost. Benefits outweigh any cost sacrifice.	PS 1.1

Control Measure	Accept / Reject	Reason	Associated Performance Standards
Establishment of a 500 m safety exclusion zone around MODU/infrastructure removal vessel and communicated to marine users.	Accept	Control is based on legislative requirements and must be adopted; reduces likelihood of vessel collision with third parties. Third-party vessels must navigate the exclusions zone to reduce the risk. The control is feasible, standard practice with minimal cost. Benefits outweigh any cost sacrifice.	PS 1.2
Marine Order 91 (marine pollution prevention – oil) 2014, requires Ship Oil Pollution Emergency Plan (SOPEP)/Spill Monitoring Programme Execution Plan (SMPEP) (as appropriate to vessel class).	Accept	By ensuring a SOPEP/SMPEP is in place for the vessel, the likelihood of a spill entering the marine environment is reduced. Although no significant reduction in consequence could result, the overall risk is reduced. Control is based on a legislative requirement and must be adopted. The control is feasible, standard practice with minimal cost. Benefits outweigh any cost sacrifice.	PS 12.1
Eliminate			
Eliminate use of vessels.	Reject	Control not considered feasible. The use of vessels is required to conduct the petroleum activities.	Not applicable
The MODU/project vessel brought into port to refuel.	Reject	Control is not considered feasible and does not eliminate the fuel transfer risk. It is not operationally practical to transit MODU/project vessel back to port for refuelling based on the frequency of the refuelling requirements and distance from the nearest port (Onslow ~ 129 km away). Eliminates the risk in the Operational Area, However, moves risk to another location. Therefore, no overall benefit. Significant cost sacrifice due to schedule delay and vessel transit costs and day rates. Control grossly disproportionate to the benefit gained and therefore not adopted.	Not applicable
No refuelling of helicopter on MODU.	Reject	Control is not considered feasible given the distance of the Operational Area from the airports suitable for helicopter operations. Helicopter flights cannot be eliminated and may be required in emergency situations.	Not applicable
Substitute			
The MODU and project vessel will use marine diesel. No intermediate or heavy fuel oils will be used.	Accept	Marine diesel is a light fuel oil and is less persistent in the marine environment than intermediate or heavy fuel oils. Limiting project vessels to marine diesel reduces the risk to the marine environment in the event of a spill. Control is feasible, standard practice with minimal cost. Benefits outweigh any cost sacrifice.	PS 11.1

Control Measure	Accept / Reject	Reason	Associated Performance Standards
Engineering			
<p>Bunkering equipment controls:</p> <ul style="list-style-type: none"> All hoses that have a potential environmental risk following damage or failure shall be linked to the MODU's preventative maintenance system. All bulk transfer hoses shall be tested for integrity before use (tested in accordance with Original Equipment Manufacturer recommendations) and recertified annually as a minimum. There shall be dry-break couplings and flotation on fuel hoses. There shall be an adequate number of appropriately stocked, located and maintained spill kits. 	Accept	<p>Reduces the likelihood of a spill occurring. Although no significant reduction in consequence could result, the overall risk is reduced. Control is feasible, standard practice with minimal cost. Benefits outweigh any cost sacrifice.</p>	<p>PS 12.2.1 PS 12.2.2 PS 12.2.3</p>
Separate			
<p>Support vessel is designated for standby during MODU based P&A activities to assist in third party vessel interactions. Standby vessel will undertake actions to prevent unplanned interactions with third party vessels such as:</p> <ul style="list-style-type: none"> Maintaining 24-hour radio watch on designated radio channel(s) Performing continuous surveillance and warn MODU of any approaching vessels reaching the 500 m petroleum safety zone. When complying with COLREGS, approach any vessel attempting to transit through the 5500 m zone and contact vessel by all available means. <p>Standby vessel will monitor and advise the MODU if:</p> <ul style="list-style-type: none"> MODU navigation signals are defective. Visibility becomes restricted. Any buoys in the area 	Accept	<p>Control provides a reduction in likelihood of a collision with a third-party vessel. The control is standard industry practice and can be implemented with minimal cost. Support vessels are available routinely in the Operational Area during the petroleum activity to conduct standby duties as defined in the One Marine Charterers Instructions. Benefits outweigh cost/sacrifice.</p>	<p>PS 11.2</p>

Control Measure	Accept / Reject	Reason	Associated Performance Standards
are not holding position or are not working as expected.			
Administrative			
Develop a SIMOPS Plan to manage rig interactions with other vessels that may be conducting other Stybarrow decommissioning activities concurrently with well P&A within the Operational Area	Accept	SIMOPS Plan contains detail such as communications requirements, exclusion zones and entry/exit requirements and roles and responsibilities – which can help reduce likelihood of vessel collision. Control is standard practice and can be implemented at minimal cost. Benefits outweigh cost/sacrifice.	PS 11.3
Contractor procedures include requirements to be implemented during bunkering/refuelling operations, including: <ul style="list-style-type: none"> • A completed PTW and/or Job Safety Assessment (JSA) shall be implemented for the hydrocarbon bunkering/refuelling operation. • Visual monitoring of gauges, hoses, fittings and the sea surface during the operation. • Hose checks prior to commencement. • Bunkering/refuelling will commence in daylight hours. If the transfer is to continue into darkness, the JSA risk assessment must consider lighting and the ability to determine if a spill has occurred. • Hydrocarbons shall not be transferred in marginal weather conditions 	Accept	Reduces the likelihood of a spill occurring. Although no significant reduction in consequence could result, the overall risk is reduced. Control is feasible, standard practice with minimal cost. Benefits outweigh any cost sacrifice.	PS 12.3
AHO notified of activity no less than four working weeks prior to undertaking the petroleum activity	Accept	Notification to AHO will enable them to generate navigation warnings. Control is feasible, standard practice with minimal cost. Benefits outweigh any cost sacrifice.	PS 1.3
Notify relevant fishing industry government departments, representative bodies and licence holders of activities prior to commencement and upon completion of activities.	Accept	Communicating the activities to other marine users ensures they are informed and aware, thereby reducing the likelihood of interfering with other marine users. Control is feasible, standard practice with minimal cost. Benefits outweigh any cost sacrifice.	PS 1.4

Control Measure	Accept / Reject	Reason	Associated Performance Standards
Notify DoD at least five weeks prior to the scheduled activity commencement date	Accept	Notification was requested by DoD during consultation. Communicating the activities to other marine users ensures they are informed and aware, thereby reducing the likelihood of interfering with other marine users. Control is feasible, standard practice with minimal cost. Benefits outweigh any cost sacrifice.	PS 1.5
Notify AMSA JRCC of activities 24–48 hours of undertaking the petroleum activities	Accept	Communicating the activities to other marine users ensures they are informed and aware, thereby reducing the likelihood of interfering with other marine users. Control is feasible, standard practice with minimal cost. Benefits outweigh any cost sacrifice.	PS 1.6
Pollution Control			
In the event of a spill, emergency response activities implemented in accordance with the OPEP (per Table 11-)	Accept	Implementing the OPEP efficiently to deal with unplanned hydrocarbon spills will help to reduce impacts to the marine environment. The control is feasible and standard practice. Costs associated with implementing response strategies vary dependant on nature and scale of spill event. Benefits outweigh any cost sacrifice.	PS 10.6
Arrangements supporting the activities in the OPEP (per Table 11-13) will be tested to ensure the OPEP can be implemented as planned.	Accept	Testing the OPEP activities would not reduce the likelihood, but response activities may reduce the consequence. The control is feasible and standard practice. Moderate costs associated with conducting exercises for the purpose of testing arrangements. Benefits outweigh any cost sacrifice.	PS 10.7.1 PS 10.7.2

8.3.5.1 ALARP Summary

The risk assessment and evaluation has identified a range of controls (**Table 8-15**) appropriate to the decision type (Decision Type A), that when implemented are considered to manage the risks and consequences from an unplanned hydrocarbon release (marine diesel) as a result of a vessel collision or incident during bunkering or refuelling activities to ALARP.

Woodside considers the control measures described above are appropriate to reduce the potential risks of a marine diesel hydrocarbon release. As no reasonable additional/alternative controls were identified that would future reduce the risks and consequences without grossly disproportionate sacrifice, the risks and consequences are therefore ALARP.

8.3.6 Demonstration of Acceptability

Based on the impact assessment, given the adopted controls, the risk of a marine diesel spill from a vessel collision or bunkering/refuelling incident will be reduced to a tolerable level. An unlikely, unplanned marine diesel spill from a vessel collision may result in a substantial impact to the environment and community, where recovery of ecosystem function could take several years (1 – 3 years). For an unplanned marine diesel spill from bunkering or refuelling activities, may result in minor, temporary impacts to the marine environment, where the ecosystem functions recover

with little to no intervention.

Further opportunities to reduce the risks and consequences have been investigated above. The adopted controls are consistent with the most relevant regulatory guidelines, good oil-field practice/industry best practice, and in some cases are above industry best practice and meet legislative requirements of Marine Orders 30 and 21. Woodside has considered information contained in recovery plans and threat abatement plans (**Section 9**). The environmental risks meet the Woodside environmental risk acceptability criteria (**Section 6.3**). The environmental risks are consistent with the principles of ESD:

- **Integration Principle:** Woodside has undertaken a range of studies to determine the approach to decommissioning the Stybarrow field, which have informed Woodside's deliberations. The decommissioning strategy being pursued by Woodside integrates long-term and short-term economic, environmental, social, and equitable considerations.
- **Precautionary Principle:** The risks and consequences from an unlikely unplanned marine diesel spill as a result of a vessel collision or bunkering/refuelling incident are well understood, and there is no risk of serious or irreversible environmental damage from this aspect. The marine diesel spill risk assessment was informed by industry-standard modelling, which includes highly conservative assumptions to inform the worst-case credible spill scenario. The spill modelling outcomes incorporate inherent uncertainty and are consistent with the precautionary principle.
- **Intergenerational Principle:** The risks and consequences from an unlikely unplanned marine diesel spill as a result of a vessel collision or bunkering/refuelling incident will not impact upon the environment such that future generations cannot meet their needs. Plug and abandonment of the Stybarrow development wells is required to mitigate unplanned releases that could potential occur from Stybarrow wells in the future.
- **Biodiversity Principle:** The risks and consequences from an unlikely unplanned marine diesel spill as a result of a vessel collision or bunkering/refuelling incident will not impact upon biodiversity or ecological integrity in the long-term. The controls Woodside will implement reduce the risk of a marine diesel spill from a vessel collision or incident during bunkering/refuelling to ALARP.

On this basis, Woodside considers the risk to be managed to an acceptable level.

8.3.7 Environmental Performance Outcome, Performance Standards and Measurement Criteria

Environmental Performance Outcomes	Controls	Performance Standards	Measurement Criteria
EPO 11 No release of hydrocarbons to the marine environment due to a vessel collision during the petroleum activity.	C 1.1 (refer to Section 7.1.6)	PS 1.1 (refer to Section 7.1.6)	MC 1.1.1 (refer to Section 7.1.6)
	C 1.2 (refer to Section 7.1.6)	PS 1.2 (refer to Section 7.1.6)	MC 1.2.1 (refer to Section 7.1.6)
	C 1.3 (refer to Section 7.1.6)	PS 1.3 (refer to Section 7.1.6)	MC 1.3.1 (refer to Section 7.1.6)
	C 1.4 (refer to Section 7.1.6)	PS 1.4 (refer to Section 7.1.6)	MC 1.4.1 (refer to Section 7.1.6)
	C 1.5 (refer to Section 7.1.6)	PS 1.5 (refer to Section 7.1.6)	MC 1.5.1 (refer to Section 7.1.6)
	C 1.6 (refer to Section 7.1.6)	PS 1.6 (refer to Section 7.1.6)	MC 1.6.1 (refer to Section 7.1.6)
	C 11.1 The MODU and project vessel will use marine diesel. No intermediate or heavy fuel oils will be used.	PS 11.1 MODU and Project Vessels to operate on marine diesel during the petroleum activity; no intermediate or heavy fuel oils will be used.	MC 11.1.1 Records demonstrate MODU and project vessels are operating on marine diesel.
	C 11.2 Support vessel is designated for standby during MODU based P&A activities to assist in third part vessel interactions. Standby vessel will undertake actions to prevent unplanned interactions with third party vessels such as: <ul style="list-style-type: none"> • Maintaining 24-hour radio watch on designated radio channel(s) • Performing continuous surveillance and warn MODU of any approaching vessels reaching the 500 m petroleum safety zone. • When complying with COLREGS, approach any vessel attempting to transit through the 5500 m zone and contact vessel by all available means. Standby vessel will monitor and advise the	PS 11.2 Define role of support vessels in maintaining petroleum safety zone, preventing unplanned third-party vessel interactions, monitoring the effectiveness of navigation controls (e.g. signals), and warning third-party vessels of navigation hazards.	MC 11.2.1 Records of non-conformance against controls maintained.

Environmental Performance Outcomes	Controls	Performance Standards	Measurement Criteria
	MODU if: <ul style="list-style-type: none"> • MODU navigation signals are defective. • Visibility becomes restricted. • Any buoys in the area are not holding position or are not working as expected. 		
	C 11.3 Develop a SIMOPs Plan to manage rig interactions with other vessels that may be conducting other Stybarrow decommissioning activities concurrently with well P&A within the Operational Area.	PS 11.3 MODU and applicable vessels compliant with approved SIMOPs Plan.	MC 11.3.1 Records demonstrate approved SIMOPs Plan in place prior to any simultaneous operations with the MODU.
	C 10.6 (refer to Section 8.2.7)	PS 10.6 (refer to Section 8.2.7)	MC 10.6 (refer to Section 8.2.7)
	C 10.7 (refer to Section 8.2.7)	PS 10.7.1 (refer to Section 8.2.7)	MC 10.7.1 (refer to Section 8.2.7)
		PS 10.7.2 (refer to Section 8.2.7)	MC 10.7.2 (refer to Section 8.2.7)
EPO 12 Undertake the petroleum activity in a manner that will prevent an unplanned release of hydrocarbons to the marine environment from bunkering and refuelling activities that results in a substantial change in water quality which may adversely impact on biodiversity, ecological integrity, social amenity or	C 12.1 Marine Order 91 (marine pollution prevention – oil) 2014, requires Ship Oil Pollution Emergency Plan (SOPEP)/Spill Monitoring Programme Execution Plan (SMPEP) (as appropriate to vessel class).	PS 12.1 Appropriate initial responses prearranged and drilled in the event of a hydrocarbon spill, as appropriate to vessel class.	MC 12.1.1 Marine assurance records demonstrate compliance with Marine Order 91.
	C 12.2 Bunkering equipment controls: <ul style="list-style-type: none"> • All hoses that have a potential environmental risk following damage or failure shall be linked to the MODU's preventative 	PS 12.2.1 To ensure damaged equipment is replaced prior to failure.	MC 12.2.1 Records confirm the MODU bunkering equipment is subject to systematic integrity checks.

Environmental Performance Outcomes	Controls	Performance Standards	Measurement Criteria
human health.	maintenance system. <ul style="list-style-type: none"> All bulk transfer hoses shall be tested for integrity before use (tested in accordance with Original Equipment Manufacturer recommendations) and recertified annually as a minimum. There shall be dry-break couplings and flotation on fuel hoses. There shall be an adequate number of appropriately stocked, located and maintained spill kits. 	PS 12.2.2 All diesel transfer hoses to have dry break couplings and pressure rating suitable for intended use.	MC 12.2.2 Records confirm presence of dry break of couplings and flotation on fuel hoses.
		PS 12.2.3 To ensure adequate resources are available to allow implementation of SOPEP.	MC 12.2.3 Records confirm presence of spill kits.
	C 12.3 Contractor procedures include requirements to be implemented during bunkering/refuelling operations, including: <ul style="list-style-type: none"> A completed PTW and/or Job Safety Assessment (JSA) shall be implemented for the hydrocarbon bunkering/refuelling operation. Visual monitoring of gauges, hoses, fittings and the sea surface during the operation. Hose checks prior to commencement. Bunkering/refuelling will commence in daylight hours. If the transfer is to continue into darkness, the JSA risk assessment must consider lighting and the ability to determine if a spill has occurred. Hydrocarbons shall not be transferred in marginal weather conditions 	PS 12.3 Compliance with Contractor procedures for the management of bunkering/helicopter operations.	MC 12.3.1 Records demonstrate bunkering/refuelling undertaken in accordance with contractor bunkering procedures.

8.4 Marine Fauna Interaction

8.4.1 Summary of Risk Assessment and Evaluation

Aspect	Source of Hazard	Potential Impact	Severity Factor	Likelihood Factor	Residual Risk	Decision Context	Acceptability
Interaction with marine fauna	Accidental collision between project vessel and marine fauna within the operational area.	Potential injury to or death of protected marine fauna species.	30	0.1	3	Type A Low Order Risk	Tolerable

8.4.2 Source of Hazard

Movements of the project vessels in and around the Operational Area undertaking the petroleum activity may present a potential hazard to slow-moving marine megafauna (cetaceans, marine turtles, or whale sharks). Vessel movements can result in collisions between the vessel (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 factors that contribute to the frequency and severity of impacts due to collisions vary greatly due to vessel type, vessel operation (specific activity, speed), physical environment (e.g. water depth), the type of animal potentially present and their behaviours.

Project vessels used during the petroleum activities may include anchor handling vessels, light construction vessels (if required for well infrastructure removal) or general offshore support vessels. Project vessels will be stationary or moving at low speeds during the plug and abandonment activities. Project vessels will be used for preparatory activities, well removal activities (if not conducted on the MODU) and during MODU based P&A to transport equipment and materials between the MODU and port (e.g. Dampier, Onslow, Exmouth). One offshore support vessel will remain on standby duties, within the Operational Area during the MODU based campaign. Support vessels do not anchor within the Operational Area during the activities due to water depth; therefore, vessels will utilise DP.

8.4.3 Environmental Impact Assessment

Vessel collisions have been known to contribute to the mortality of marine fauna that spend time at the surface (i.e., breathing and feeding), including resident and migrating turtles (Hazel et al., 2007) and migratory whales (Jensen and Silber, 2004; Laist et al., 2001). For cetaceans, whale sharks and turtles, the risk of lethal collision is a function of abundance of animals in the Operational Area, probability of a collision and the probability of that collision being fatal.

The likelihood of vessel/fauna collision being lethal is influenced by vessel speed—the greater the speed at impact, the greater the risk of mortality (Jensen and Silber, 2004; Laist et al., 2001). Vanderlaan and Taggart (2007) found that the chance of lethal injury to a large whale as a result of a vessel strike increases from about 20% at 8.6 knots to 80% at 15 knots. Project vessels within the Operational Area are likely to be travelling less than 8 knots (and will often be stationary) within the 500 m zone for the MODU. Therefore, the chance of a vessel collision with protected species resulting in a lethal outcome is considered unlikely. The risk of marine life getting caught in operating thrusters is unlikely, given the low presence of individuals, combined with the avoidance behaviour commonly displayed during dynamic positioning operations.

8.4.3.1 Cetaceans

As described above, vessel speed influences the probability of a vessel collision with a cetacean and also whether a collision may result in lethal injury (Vanderlaan and Taggart, 2007). Additionally, behaviour of individuals may also influence the likelihood of a collision occurring. Although large cetaceans are expected to show localised avoidance in response to vessel noise, studies have reported limited behavioural response to approaching ships (McKenna et

al., 2015) and individuals engaging in behaviours such as feeding, mating or nursing may be less aware of their surroundings and more susceptible to collision (Laist et al., 2001).

No known key aggregation areas for marine mammals (resting, breeding or feeding) are located within or immediately adjacent to the Operational Area. However, individuals may occasionally be present in the Operational Area, including pygmy blue whales and humpback whales during seasonal migrations (**Section 4.7.2**). Ten listed threatened and migratory species of cetacean (nine whale species and one dolphin species) were identified as potentially occurring in or having habitat in the Operational Area (**Table 4-7**).

The reaction of whales to the approach of a vessel is quite variable. Some species remain motionless when in the vicinity of a vessel, while others are known to be curious and often approach vessels that have stopped or are slow-moving, although they generally do not approach, and sometimes avoid, faster moving vessels (Richardson et al., 1995). Species may also show avoidance to vessel noise as the vessel approaches (as described in **Section 7.3**). Dolphins show preference for coastal habitats over deep offshore waters. This reduces the likelihood of dolphin species being encountered in the Operational Area and interacting with vessels.

According to the data of Vanderlaan and Taggart (2007), it is estimated that the risk of lethal injury to a large whale as a result of a vessel strike is less than 10% at a speed of 4 knots. Vessel-whale collisions at this speed are uncommon and, based on reported data contained in the NOAA database (Jensen and Silber, 2004) there are only two known instances of collisions when the vessel was travelling at less than 6 knots; both of these were from whale-watching vessels that were deliberately positioned amongst whales. Smaller cetaceans, such as dolphins, comprise a lower proportion of vessel collision records (DoEE, 2016), though it is difficult to determine if this is due to a lower collision rate or lower detection rate of incidents. Dolphins often engage in bow riding which may make them more vulnerable to entanglement with propellers or thrusters compared to larger cetaceans.

The worst-case consequence from a vessel strike would be the fatality of a single cetacean; however, as they would represent an individual within the local population, it is not expected to result in an impact to the viability or long-term survival of a population.

8.4.3.2 Sharks and Rays

Shark and ray species, with the exception of whale sharks, spend minimal amount of time at the sea surface and collisions with individual sharks or rays is considered unlikely.

Whale sharks are at risk from vessel strikes as they spend time feeding at the sea surface. Whale sharks have been shown to spend approximately 25% of their time less than 2 m from the surface and greater than 40% in the upper 15 m of the water column (Gleiss et al., 2013; Wilson et al., 2006). Whale sharks may traverse offshore North West Shelf waters, including the Operational Area, during their migrations to and from aggregation areas along the Ningaloo coast. Seasonal aggregations along the Ningaloo coast can be variable, although usually between March and July, with peak numbers recorded in April and May (Sleeman et al., 2010). Outside of this period, individuals may still be present. Given the slow speeds at which project vessels operate, collisions with individual whale sharks are considered unlikely.

8.4.3.3 Turtles

The Recovery Plan for Marine Turtles in Australia recognises turtles are at risk from vessel strikes, particularly in shallow coastal foraging habitats and internesting areas where there are high numbers of recreational and commercial vessels (Commonwealth of Australia, 2017). There is limited data about the incidence of marine turtle vessel strikes. Hazel and Gyuris (2006) note that at least 65 turtles were killed annually from 1999 to 2002 as a result of collisions with vessels on the Queensland east coast. Green turtles, followed by loggerhead turtles, comprised the majority of vessel-related records (Hazel and Gyuris, 2006); however, all species of marine turtle have been involved in vessel strikes (Commonwealth of Australia, 2017). It is reasonable to assume the higher the speed of collision, the greater the risk of mortality, but contact with the propeller would be lethal at almost all speeds. Studies have shown turtles are less likely to flee from a fast-moving vessel, presumably because of poor hearing and visual senses than from a slow-moving vessel (Hazel et al., 2007).

Five marine turtle species were identified as potentially occurring in the Operational Area (see **Table 4-7**). The Operational Area does not contain any BIAs for turtles. The nearest marine turtle nesting sites occur on the North West Cape, which is approximately 41 km from the Operational Area. Marine turtles are not expected to be in the Operational Area in high numbers, even during nesting and inter-nesting periods, given the distance from the known nesting beaches. Given the slow speeds at which project vessels operate, collisions with individual marine turtles are

considered unlikely.

8.4.3.4 Species Recovery Plans and Threat Abatement Plans

Woodside has considered information contained in relevant recovery plans for marine fauna that identify vessel collision as a threat (Section 9). This includes the objectives and actions within the following plans:

- Conservation management plan for the blue whale: A recovery plan under the *Environment Protection and Biodiversity Conservation Act 1999* 2015-2025 (Commonwealth of Australia, 2015b)
- Recovery plan for marine turtles in Australia 2017-2027 (Commonwealth of Australia, 2017)

8.4.4 Demonstration of ALARP

The ALARP process for the environmental aspect is summarised in **Table 8-16**. This process was completed as outlined in **Section 6.2** and included consideration of all controls, analysis of the risk reduction proportional to the benefit gained and final acceptance or justification if the control was rejected.

Table 8-16: Marine Fauna Interactions – ALARP Summary

Control Measure	Accept / Reject	Reason	Associated Performance Standards
Legislation, Codes and Standards			
EPBC Regulations 2000 – Part 8 Division 8.1 Interacting with cetaceans, including the following measures ¹³ : <ul style="list-style-type: none"> • Project vessels will not travel greater than six knots within 300 m of a cetacean or turtle (caution zone) and not approach closer than 100 m from a whale. • Project vessels will not approach closer than 50 m for a dolphin or turtle and/or 100 m for a whale (with the exception of animals bow riding). • If the cetacean or turtle shows signs of being disturbed, project vessels will immediately withdraw from the caution zone at a constant speed of less than six knots. • Project vessels will not travel greater than eight knots within 250 m of a whale shark and not allow the vessel to approach closer than 30 m of a whale shark. 	Accept	Reduces interaction risk to cetaceans (modified to include turtles and whale sharks). Controls based on legislative requirements must be accepted. Control is feasible, standard practice with minimal cost.	PS 13.1
Engineering			
The use of dedicated MFOs on	Reject	Given that support vessel bridge crews already	Not applicable

¹³For 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.

Control Measure	Accept / Reject	Reason	Associated Performance Standards
support vessels for the duration of each activity to watch for whales and provide direction about and monitor compliance with Part 8 of the EPBC Regulations.		maintain a constant watch during operations in compliance with the Woodside Marine – Charterers Instructions, additional MFOs would not significantly further reduce the risk. Additional cost of MFOs considered unnecessary. Disproportionate. The cost/ sacrifice outweighs the benefit gained.	
Passive acoustic monitoring to detect cetaceans in the vicinity of the vessels	Reject	The cost of a passive acoustic monitoring system has been estimated to be unacceptably high and would require several permanent mooring locations in the Operational Area with real-time monitoring and analysis. Given the project vessels would be stationary or moving slowly, it is considered the cost is disproportionate to the benefit that may be gained.	Not applicable
Separate			
Avoid periods of marine fauna sensitivity (such as humpback whale migration).	Reject	Would reduce the risk of interactions during environmentally sensitive periods. The benefit that may accrue from avoiding periods of peak humpback whale migration is negligible based on the observation that even with all the oil and gas development (and associated vessel movements) occurring in the Exmouth Basin over the last ten years, the humpback whale population (Stock IV) has grown at an estimated 10% per year. While pygmy blue whales have not recovered to the same extent, they is also little evidence of oil and gas activities consistent with the petroleum activities in this EP resulting in behavioural disturbance. The cost associated with avoiding periods of peak whale density would be several millions of dollars if it requires placing contracted vessels on standby or the Petroleum Activity to be put on hold, delaying the P&A activities. Given the low risk of impacts associated with underwater noise, it is considered the cost of this additional control is grossly disproportionate to the negligible benefit that may accrue.	Not applicable
Administrative			
Environmental awareness induction provided to all marine crew to advise marine fauna interaction requirements.	Accept	Providing induction to personnel assists in understanding obligations regarding marine fauna interactions. Control is feasible, standard practice with minimal cost.	PS 13.2

8.4.4.1 ALARP Summary

The risk assessment and evaluation has identified a range of controls (**Table 8-16**) appropriate to the decision type (Decision Type A), that when implemented are considered to manage the risks and consequences of potential vessel

collision with protected marine fauna to ALARP.

Woodside considers the adopted control measures described above (**Table 8-16**) are appropriate to reduce the potential risks of vessel collision with protected marine fauna. As no reasonable additional/alternative controls were identified that would future reduce the risks and consequences without grossly disproportionate sacrifice, the risks and consequences are therefore ALARP.

8.4.5 Demonstration of Acceptability

The impact assessment has determined that, given the adopted controls, a vessel collision with marine fauna represents a tolerable, low current risk rating that is unlikely to result in a risk consequence to marine fauna greater than a minor, temporary impact to species. Relevant BIAs overlapping the Operational Area include the Pygmy Blue Whale Migration and Distribution BIAs. Relevant recovery plans and conservation advice has been considered during the impact assessment, and the petroleum activity is not considered to be inconsistent with the overall recovery objectives and actions of these recovery plans and conservation advice (**Section 9**).

The adopted controls are consistent with industry good practice and professional judgement and meet the requirements of Part 8 (Division 8.1) of the EPBC Regulations 2000. No concerns or objections regarding marine fauna interaction risks have been raised by relevant stakeholders. The environmental risks meet the Woodside environmental risk acceptability criteria (**Section 6.3**). The environmental risks are consistent with the principles of ESD:

- **Integration Principle:** Woodside has undertaken a range of studies to determine the approach to decommissioning the Stybarrow field, which have informed Woodside's deliberations. The decommissioning strategy being pursued by Woodside integrates long-term and short-term economic, environmental, social, and equitable considerations.
- **Precautionary Principle:** The risks and consequences of a vessel collision with marine fauna are well understood, and there is no risk of serious or irreversible environmental damage from this aspect.
- **Intergenerational Principle:** The risks and consequences of a vessel collision with marine fauna will not impact upon the environment such that future generations cannot meet their needs.
- **Biodiversity Principle:** The risks and consequences of a vessel collision with marine fauna will not impact upon biodiversity or ecological integrity in the long-term.

On this basis, Woodside considers the risk to be managed to an acceptable level.

8.4.6 Environmental Performance Outcome, Performance Standards and Measurement Criteria

Environmental Performance Outcomes	Controls	Performance Standards	Measurement Criteria
<p>EPO 13 No vessel strikes with protected marine fauna (whales, whale sharks, turtles) during the petroleum activity</p>	<p>C 13.1 EPBC Regulations 2000 – Part 8 Division 8.1 Interacting with cetaceans, including the following measures¹⁴:</p> <ul style="list-style-type: none"> vessels will not travel greater than six knots within 300 m of a cetacean or turtle (caution zone) and not approach closer than 100 m from a whale. vessels will not approach closer than 50 m for a dolphin or turtle and/or 100 m for a whale (with the exception of animals bow riding). if the cetacean or turtle shows signs of being disturbed, vessels will immediately withdraw from the caution zone at a constant speed of less than six knots. vessels will not travel greater than eight knots within 250 m of a whale shark and not allow the vessel to approach closer than 30 m of a whale shark. 	<p>PS 13.1 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 13.1.1 Records demonstrate no breaches with EPBC Regulations 2000 – Part 8 Division 8.1 Interacting with cetaceans and application of these regulations to whale sharks and marine turtles.</p>
	<p>C 13.2 Environmental awareness induction provided to all marine crew to advise marine fauna interaction requirements.</p>		<p>PS 13.2 Environmental awareness induction provided to project vessel marine crew before activities to advise marine fauna interaction requirements.</p>

¹⁴For 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.

8.5 Introduction of Invasive Marine Species

8.5.1 Summary of Risk Assessment and Evaluation

Aspect	Source of Hazard	Potential Impact	Severity Factor	Likelihood Factor	Residual Risk	Decision Context	Acceptability
Invasive marine species	Movement of project vessels and immersible equipment from known high invasive marine species risk areas.	Introduction of invasive marine species to areas, leading to impact to native species.	100	0.1	10	Type A Lower Order Risk	Tolerable

8.5.2 Source of Hazard

During the petroleum activity, MODU and project vessels will be transiting to and from the Operational Area, potentially including mobilising from beyond Australian waters. The vessels considered for use as part of this Petroleum Activity are defined in **Section 3.7**).

The MODU and project vessels have the potential to introduce Invasive Marine Species (IMS) through:

- discharges of vessel ballast water containing IMS
- translocation of species through biofouling of vessel hull or niches (such as sea chests, bilges or strainers)
- translocation of species on submerged equipment.

IMS typically require hard substrate in the photic zone; therefore, requiring shallow waters to become established. Highly disturbed, shallow-water environments such as shallow coastal waters, ports and marinas are more susceptible to IMS colonisation, whereas IMS are generally unable to successfully establish in deep-water ecosystems and open-water environments. The Operational Area is deep offshore in open waters, away from shorelines and critical habitat, therefore they are not conducive to the settlement and establishment of IMS.

Should a MODU or project vessel be mobilised from international waters, there is the potential for transferring IMS from international waters into the Operational Area and to Australia if the vessel is required to sail to a port. All vessels (including the MODU) entering Australian waters are subject to IMS risk management requirements. Woodside applies additional IMS risk management requirements for all vessels undertaking the Petroleum Activity.

8.5.2.1 Ballast Water

The Commonwealth Department of Climate Change, Energy, the Environment and Water (DCCEEW) is the lead agency with responsibility for managing ballast water. Vessels manage ballast water in accordance with International Maritime Organisation (IMO) International Convention for the Control and Management of Ships' Ballast Water and Sediments Convention, IMO Guidelines, the mandatory Australian Ballast Water Management Requirements (Version 8) (Department of Agriculture, Water and the Environment, 2020) are enforced under the Commonwealth *Biosecurity Act 2015* and associated local measures intended to minimise the risk of transplanting harmful aquatic organisms and pathogens from ships' ballast water and associated sediments, while maintaining ship safety.

Vessels arriving from overseas or intending to discharge internationally sourced trim or ballast water within Australian waters, are required to have undertaken a ballast water exchange in accordance with DCCEEW requirements. exchanged ballast water in accordance with DCCEEW requirements. The Australian Ballast Water Management Requirements (Version 8) are now aligned with the BWM Convention:

- All vessels must carry a valid Ballast Water Management Plan (BWMP) and valid Ballast Water Management Certificate (BWMC), as appropriate to vessel class.
- Vessels with a Ballast Water Management System (BWMS) should also carry a Type Approval Certificate

specific to the type of BWMS;

- All vessels must maintain a complete and accurate Ballast Water Record System detailing all ballast water movements
- All vessels should submit a Ballast Water report. Reporting obligations differ for vessels operating domestically and vessels travelling internationally. Vessels arriving from an international location and intending to discharge internationally sourced ballast water must submit a Ballast Water Report at least 12 hours prior to arrival. Domestic trading vessels can request a low risk exemption through a Domestic Risk Assessment. All applications must be submitted through MARS.

From September 2019, all vessels that use ballast water are required to meet the Regulation D2 discharge standard of the International Convention for the Control and Management of Ships' Ballast Water and Sediments (the Convention) at their next renewal survey. Vessels using ballast water exchange as their primary ballast water management method are required to phase out this management method and meet the Regulation D2 discharge standard. Vessels may meet this standard by installing an International Maritime Organisation (IMO) Type Approved ballast water management system, or as specified within the Convention.

The project vessels will exchange ballast water outside ports where possible.

The proposed control measures for IMS introduced by ballast water are consistent with the Australian Ballast Water Management Requirements (Revision 8) and consistent with good oilfield practice.

8.5.2.2 Biofouling

Biofouling on the MODU and project vessel hulls, external niche areas and immersible equipment pose a potential risk of IMS in Australian waters. Under the National Biofouling Management Guidelines for the Petroleum Production and Exploration Industry and IMO Guidelines for the control and management of ships' biofouling to minimise the transfer of invasive aquatic species (resolution MEPC.207(62)), DCCEEW guidelines and Woodsides IMS Management process, a risk assessment approach is applied to manage biofouling.

Woodsides IMS Management Procedure is defined in **Section 11.3**. To minimise the potential risk of introducing IMS as a result of the petroleum activity, all applicable MODU, project vessels and immersible equipment will be subject to Woodside's IMS risk assessment process (unless exempt as outlined in **Section 11.3**). The completed IMS risk assessment must show that IMS risk is low for each project vessel and associated immersible equipment, prior to entering the Operational Area as defined under this EP.

8.5.3 Environmental Impact Assessment

IMS are a subset of Non-indigenous Marine Species (NIMS) that have been introduced into a region beyond their natural biogeographic range resulting in impacts to social/cultural, human health, economic and/or environmental values. NIMS are species that have the ability to survive, reproduce and establish founder populations. However, not all NIMS introduced into an area will thrive or cause demonstrable impacts and the majority of NIMS around the world are relatively benign and few have spread widely beyond sheltered ports and harbours. NIMS are only considered IMS when they result in impacts to environmental values and/or have social/cultural, economic and/or human health impacts.

Potential IMS have historically been introduced and translocated around Australia by a variety of natural and human means, including marine fouling and ballast water. Potential IMS vary from one region to another depending on various environmental factors such as water temperature, salinity, nutrient levels and habitat type, which dictate their survival and invasive capabilities. IMS typically require hard substrate in the photic zone; therefore, requiring shallow waters to become established. Highly disturbed, shallow-water environments such as shallow coastal waters, ports and marinas are more susceptible to IMS colonisation, whereas IMS are generally unable to successfully establish in deep-water ecosystems and open-water environments where the rate of dilution and the degree of dispersal are high.

The successful establishment of translocated marine pests via either ballast or hull fouling depends primarily on:

- colonisation and establishment of the marine pest on a vector (vessel, equipment or structure) in a donor region (for example, a home port, harbour or coastal project site where a marine pest is established)
- survival of the marine pests on the vector during the voyage from the donor to the recipient region
- colonisation (for example, by reproduction or dislodgement) of the recipient region by the marine pest,

followed by successful establishment of a viable new local population.

The deep offshore open waters (approximately 800-850 m) of the Operational Area are not conducive to the settlement and establishment of IMS. The Operational Area water depths preclude light penetration to the seabed and the Operational Area is distant from any coastline (> 41 km) and critical shoreline habitats. The likelihood that any marine organisms could become established at the field is unlikely.

8.5.3.1 Habitats and Biological Communities

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)
- outcompete indigenous species for food, space or light
- interbreed with local species, creating hybrids such that the endemic species is lost.

These changes to the local marine environment result in changes to the natural ecosystem.

Epifauna and infauna in the Operational Area may be 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. Benthic habitats in the Operational Area generally consists of sparse populations of sessile filter feeders (e.g., sponges, soft corals etc.), infauna, and a mobile epibiota (e.g., crustaceans, echinoderms, and molluscs).

However, while the MODU and project vessels have the potential to introduce IMS into the Operational Area, the deep offshore open waters of the Operational Area (approximately 810 - 850 m) are not conducive to the settlement and establishment of IMS. Furthermore, the Operational Area is far from shallow water habitats where IMS typically become established. The likelihood of IMS being introduced and establishing viable populations within the Operational Area or immediate surrounds is considered not credible. Accordingly, impact to benthic habitats and communities from IMS are not considered credible.

8.5.3.2 Key Ecological Features

As outlined above in Habitats and Biological Communities (**Section 8.5.3.1**), establishment of IMS within the Operational Area is not considered credible, due to water depths of approximately 800 – 850 m not being conducive for introduction and establishment of IMS on the seafloor.

8.5.3.3 Socio-Economic Environment

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.

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 the low likelihood of IMS translocation to, and colonisation of, environments within the Operational Area, project activities will not result in establishment of IMS, and as such not adversely affect other marine user activities in the region.

Based on the detailed impact evaluation, the magnitude of potential impacts of a change to the functions, interests or activities of other users is minor (see Table 8-17).

Table 8-17: Evaluation of risks and impacts from marine pest translocation

IMS Introduction Location	Credibility of Introduction	Consequence of Introduction	Likelihood
Introduced to Operational Area and establishment on the seafloor or subsea structures.	Not Credible		
	The deep offshore open waters of the Operational Area, away from shorelines and/or critical habitat, more than 41 km from a shoreline and in waters 800 - 850 m deep are not conducive to the settlement and establishment of IMS.		
Introduced to Operational Area and establishment on a MODU or project vessel.	Credible	Environment – Not Credible	Highly Unlikely
	There is potential for the transfer of marine pests between MODU, project vessels within the Operational Area.	<p>The translocation of IMS from a colonised MODU or project vessel to shallower environments via natural dispersion is not considered credible, given the distances of the Operational Area from nearshore environments (i.e., greater than 12 nm from shore and in water depths greater than 50 m). There is therefore no credible environmental risk and the assessment is limited to Woodside’s reputation.</p> <p>Reputational Assessment</p> <p>If IMS were to establish on a project vessel (i.e. MODU, light construction vessels, support vessels), this could potentially impact the vessel operationally through the fouling of intakes, result in translocation of an IMS into the Operational Area and, 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 infected areas), which would be costly to perform.</p> <p>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.</p>	<p>Interactions between project vessel will be limited during the Petroleum Activities Program, with minimum 500 m safety exclusion zones being adhered to around the MODU, and interactions limited to short periods of time alongside (i.e., during backloading, bunkering activities). There is also no direct contact (i.e., they are not tied up alongside) during these activities.</p> <p>Spread of marine pests via ballast water or spawning in these open ocean environments is also considered remote.</p>
Transfer between project vessels and from project vessels to other marine environments beyond the Operational Area.	Not Credible		
	<p>This risk is considered so remote that it is not credible for the purposes of the activity.</p> <p>The transfer of a marine pest between project vessels was already considered remote, given the offshore open ocean environment (i.e., transfer pathway discussed above).</p> <p>For a marine pest to then establish into a mature spawning population on the new project vessel (which would have been through Woodside’s IMS process) and then transfer to another environment is not considered credible (i.e., beyond the Woodside risk matrix).</p> <p>Project vessels will be located in an offshore, open ocean, deep environment, where IMS survival is implausible. Furthermore, this marine pest once transferred would need to survive on a new vessel with good vessel hygiene (i.e., has been through Woodside’s risk assessment process), and survive the transport back from the Operational Area to shore. In the event it was to survive this trip, it would then need to establish a viable population in nearshore waters.</p>		

8.5.4 Demonstration of ALARP

The ALARP process for the environmental aspect is summarised in **Table 8-18**. This process was completed as outlined in **Section 6.2** and included consideration of all controls, analysis of the risk reduction proportional to the benefit gained and final acceptance or justification if the control was rejected.

Table 8-18: Introduction of Invasive Marine Species - ALARP Summary

Control Measure	Accept / Reject	Reason	Associated Performance Standards
Legislation, Codes and Standards			
MODU and project vessels will manage their ballast water using one of the approved ballast water management options, as specified in the Australian Ballast Water Management Requirements.	Accept	Controls based on legislative requirements under the <i>Biosecurity Act 2015</i> must be accepted. Control is feasible, standard practice with minimal cost. Benefits outweigh any cost sacrifice.	PS 14.1
MODU and project vessels will manage their biosecurity risk associated with biofouling as specified in the Australian Biofouling Management Requirements.	Accept	Reduces the likelihood of transfer of marine pests between vessels within the Operational Area. No change in consequence would occur. Controls based on legislative requirements under the <i>Biosecurity Act 2015</i> – must be adopted.	PS 14.2
Eliminate			
Mandatory dry-dock cleaning of vessels and cleaning of immersible equipment before entry to the Operational Area to reduce risk of IMS introduction.	Reject	Substantial costs and would affect schedule, resulting in potential delays. Significant cost deemed grossly disproportionate to very low risk, given controls already in place.	Not applicable
Substitute			
Source project vessels based in Australia only.	Reject	Sourcing vessels from Australian waters may result in a slight reduction in the likelihood of introducing IMS to the Operational Area; however, it does not completely eliminate the risk of IMS introduction. The potential cost of implementing this control could be high, given the potential supply issues associated with only locally-sourcing project vessels.	Not applicable
Engineering			
No ballast water exchange	Reject	Ballast water exchange is critical for maintaining vessel stability.	Not applicable
Administrative			
Woodside's IMS risk assessment process will be applied to the MODU, project vessels and immersible equipment undertaking the petroleum activity that enter the Operational Area. Based on the outcomes, management options commensurate with the risk will be implemented to minimise the likelihood of IMS being introduced.	Accept	Risk assessment process includes initial risk screening and the application of appropriate controls measures to be implemented. In doing so, the likelihood of transferring marine pests between the MODU, project vessels, and immersible equipment within Operational Area is reduced. No change in consequence would occur. Control is feasible and can be implemented at minimal cost. Control is considered good practice and implemented across all of Woodside's operations. Benefits outweigh any cost sacrifice.	PS 14.3.1 PS 14.3.2

8.5.4.1 ALARP Summary

The risk assessment and evaluation has identified a range of controls (**Table 8-18**) appropriate to the decision type (Decision Type A), that when implemented are considered to manage the risks and consequences of IMS introduction associated with the petroleum activity to ALARP.

Woodside considers the control measures described above (**Table 8-18**) are appropriate to reduce the risks of introduced IMSAs no reasonable additional/alternative controls were identified that would future reduce the risks and consequences without grossly disproportionate sacrifice, the risks and consequences are therefore ALARP.

8.5.5 Demonstration of Acceptability

The impact assessment has determined that, given the adopted controls, the risk of IMS introduction during the petroleum activity represents a tolerable, low risk. The translocation of IMS may result in a minor, localised and temporary impact and the likelihood of introducing IMS to the Operational Area is considered highly unlikely.

Further opportunities to reduce the risks and consequences have been investigated above. The adopted controls are considered good oil-field practice/industry best practice. No concerns or objections regarding introduced IMS risks have been raised by relevant persons. The environmental risks meet the Woodside environmental risk acceptability criteria (**Section 9**). The environmental risks meet the Woodside environmental risk acceptability criteria (**Section 6.3**). The environmental risks are consistent with the principles of ESD:

- **Integration Principle:** Woodside has undertaken a range of studies to determine the approach to decommissioning the Stybarrow field, which have informed Woodside's deliberations. The decommissioning strategy being pursued by Woodside integrates long-term and short-term economic, environmental, social, and equitable considerations.
- **Precautionary Principle:** The risks and consequences of translocation of IMS to the Operational Area during the petroleum activity are well understood. While the impacts of the introduction of IMS are uncertain, the risk of IMS introduction is ALARP because of the controls that will be implemented and the unsuitable environment in the Operational Area (i.e., deep water unsuited for IMS survival).
- **Intergenerational Principle:** The risks and consequences of translocation of IMS to the Operational Area during the petroleum activity will not impact upon the environment such that future generations cannot meet their needs.
- **Biodiversity Principle:** While the impacts of the introduction of IMS are uncertain, the risks and consequences of translocation of IMS to the Operational Area during the petroleum activity is considered ALARP because of the controls that will be implemented and the unsuitable environment in the Operational Area (i.e., deep water unsuited for IMS survival). The introduction of IMS risk will not impact upon biodiversity or ecological integrity in the long-term.

On this basis, Woodside considers the risk to be managed to an acceptable level.

8.5.6 Environmental Performance Outcome, Performance Standards and Measurement Criteria

Environmental Performance Outcomes	Controls	Performance Standards	Measurement Criteria
EPO 14 No introduction and establishment of invasive marine species into the Operational Area as a result of the petroleum activity	C 14.1 MODU and project vessels will manage their ballast water using one of the approved ballast water management options, as specified in the Australian Ballast Water Management Requirements.	PS 14.1 MODU and project vessels (including foreign vessels not party to the International Convention for the Control and Management of Ships' Ballast Water and Sediments 2004 (BWM Convention) to manage ballast water using one of the approved ballast water management options, as specified in the Australian Ballast Water Management Requirements.	MC 14.1.1 Ballast Water Records System maintained by vessels which verifies compliance against Australian Ballast Water Management Requirements.
	C 14.2 MODU and project vessels will manage their biosecurity risk associated with biofouling as specified in the Australian Biofouling Management Requirements.	PS 14.2 Compliance with Australian Biofouling Management Requirements.	MC 14.2.1 Records of implementation of biofouling management measure and pre-arrival reporting.
	C 14.3 Woodside's IMS risk assessment process will be applied to the MODU, project vessels and immersible equipment undertaking the petroleum activity that enter the Operational Area. Based on the outcomes, management options commensurate with the risk will be implemented to minimise the likelihood of IMS being introduced.	PS 14.3.1 Prior to entering the Operational Area, MODU, project vessels and relevant immersible equipment are determined to be low risk ¹⁵ of introducing IMS of concern and maintain this low-risk status during the petroleum activity.	MC 14.3.1.1 Records of IMS risk assessments maintained for the MODU, project vessels and relevant immersible equipment entering the Operational to undertake the petroleum activity.
		PS 14.3.2 In accordance with Woodside's IMS risk assessment process, the IMS risk assessments will be undertaken by an authorised environment adviser who has completed relevant Woodside IMS training or by qualified and experienced IMS inspector.	MC 14.3.2.1 Records confirm that the IMS risk assessments undertaken by an Environment Adviser or IMS inspector (as relevant).

¹⁵ 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.

8.6 Unplanned Spills of Chemicals and Hydrocarbons

8.6.1 Summary of Risk Assessment and Evaluation

Aspect	Source of Hazard	Potential Impact	Severity Factor	Likelihood Factor	Residual Risk	Decision Context	Acceptability
Minor spills and leaks of chemicals and hydrocarbons	Accidental discharge of drilling and P&A fluids (brine, WBM, base oil, cementing fluids and residual wellbore fluids) to the marine environment due to failure of slip joint packers, bulk transfer hose/fitting, leaks during P&A activities such as wireline activities, emergency disconnect sequence or from MODU operations.	Localised and temporary reduction in water quality adjacent to the discharge and minor adverse toxicity effects to surface and water column biota.	10	0.3	3	Type A Lower Order Risk	Tolerable
	Minor spills and leaks of chemicals and hydrocarbons on the vessel deck reaching the marine environment and from subsea equipment (such as ROVs).	Localised and temporary reduction in water quality adjacent to the discharge and minor adverse toxicity effects to surface and water column biota.	10	0.3	3	Type A Lower Order Risk	Tolerable

8.6.2 Source of Hazard

The petroleum activity requires handling, use and transfer of hydrocarbons and chemicals on the MODU and project vessels and subsea at the well locations. During operations involving chemicals and hydrocarbon, there is the potential for a release or loss of containment to occur that could result in minor chemical or hydrocarbon spills to the marine environment. A minor loss of containment of chemical or hydrocarbon can occur from the following:

- Deck spills of stored hydrocarbon/chemicals or equipment
- Failure of hydraulic hoses
- Leaks from fluid lines, tanks and during wireline activities
- Failures during bulk fluid transfers
- Failure of the slip joint packer on the MODU releasing well fluids to the marine environment
- Activation of the Emergency Disconnect Sequence

All chemicals selected for use that may be released or discharged to the marine environment during the petroleum activity are assessed as per Woodside Chemical Selection and Assessment (**Section 3.9**). This assessment process is used to demonstrate that the potential impacts of the chemicals that may be released are acceptable and ALARP.

8.6.2.1 Unplanned Deck Spills

Deck spills can result from spills from stored hydrocarbons/chemicals or equipment. Project vessels typically store hydrocarbon/chemicals in various volumes (20 L, 205 L; up to approximately 4000–6000 L). Storage areas are typically set up with effective primary and secondary bunding to contain any 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).

Minor leaks during P&A activities with a live well are described to include leaks such as:

- leaks from the lubricator, stuffing box and hose or fitting failure, which are expected to be less than 10 L (0.01 m³)
- loss of containment – fluids – surface holding tanks
- back loading of raw slop fluids in an Intermediate Bulk Containers
- stuffing box leak / under pressure
- draining of lubricator contents
- excess grease / lubricant leaking from the grease injection head
- wind-blown lubricant dripping from cable / on deck
- lubricant used to lubricate hole.

Woodside's operational experience demonstrates that spills are most likely to originate from hydraulic hoses and have been less than 100 L, with an average volume <10 L.

8.6.2.2 Unplanned Subsea Spills

Subsea spills can result from a loss of containment of fluids from subsea equipment including the BOP or ROVs. A review of these spills to the marine environment in the past 12 months showed subsea spills did not exceed approximately 26 L in Woodside's Drilling function.

The ROV hydraulic fluid is supplied through hoses containing approximately 20 L of fluid. Hydraulic lines to the ROV arms and other tooling may become caught resulting in minor leaks to the marine environment. Small volume hydraulic leaks may occur from equipment operating via hydraulic controls subsea (subsea control fluid). These include the diamond wire cutter, bolt tensioning equipment, ROV tooling etc.

8.6.2.3 Spills and Leaks from Fluid Transfers

A support vessel will bulk transfer WBM, brine and other fluids required for P&A to the MODU, if and when required. During MODU operations, chemicals required for P&A (drill fluids, cementing fluids, brine) will be transferred and mixed in storage tanks prior to use and subsequently recirculated out of the wellbore after use (where they are potentially contaminated with residual wellbore fluids and hydrocarbons) and transferred to processing and treatment systems (well bleed off package, mud pits). There is potential leaks or small spills may occur due to incorrect line-ups or equipment failure when transferring fluids. Failure of a transfer hose or fittings during a transfer or backload, as a result of an integrity or fatigue issue, could result in a spill of fluids to either the bunded deck or into the marine environment.

The most likely spill volume of drill fluid is likely to be less than 0.2 m³, based on the volume of the transfer hose and the immediate shutoff of the pumps by personnel involved in the bulk transfer process. However, the worst-case credible spill scenario could result in up to 8 m³ of drill fluid being discharged. This scenario represents a complete failure of the bulk transfer hose combined with a failure to follow procedures, requiring transfer activities to be monitored, coupled with a failure to immediately shut off pumps (e.g. mud pumped through a failed transfer hose for a period of about five minutes).

8.6.2.4 Well Fluids - Slip Joint Packer Failure

The slip joint packer enables compensation for the dynamic movement of the MODU (heave) in relation to the static location of the BOP. A partial or total failure of the slip joint packer could result in a loss of well fluids to the marine environment. The likely causes of this failure include a loss of pressure in the pneumatic (primary) system combined with loss of pressure in the back-up (hydraulic) system.

Sequential failure of both slip joint packers (pneumatic and hydraulic) would trigger the alarm and result in a loss of the volume of fluid above the slip joint (conservatively 1.5 m³), plus the volume of fluid lost in the one minute (maximum) taken to shut down the pumps. At a flow rate of 3.8 m³ per minute, this volume would equate to an additional 3.8 m³. In total, it is expected that this failure would result in a loss of 5.3 m³.

Failure of either of the slip joint packers at a rate not large enough to trigger the alarms could result in an undetected loss of 20 bbl (3 m³) maximum, assuming a loss rate of 10 bbl/hr and that MODU personnel would likely walk past the moon pool at least every two hours.

8.6.2.5 Drilling Fluids - Activation of the Emergency Disconnect Sequence

The EDS is an emergency system that provides a rapid means of shutting in the well (i.e. BOP closed) and disconnecting the MODU from the Lower Disconnect package of the WOCS/WORS or BOP. The EDS could be manually activated due to an identified threat to the safety of the MODU, including loss of MODU station keeping resulting from loss of multiple moorings, potential collision by a third-party vessel or a loss of well control.

During operations, activating the EDS could result in a subsurface release of a combination of WBM and solids at the seabed. The volume of material released depends on the water depth and, hence, the length of the riser (i.e. the entire riser volume would be lost), typically volumes could be between 150 – 165 m³ depending on water depth.

8.6.3 Environmental Impact Assessment

8.6.3.1 Release of P&A fluids and other chemicals

Fluids required for P&A (including weighted brine, water-based mud, cement and cementing additives) is made up of the components detailed in **Section 3.8**, including a variety of chemicals with low toxicity, incorporated into the selected drilling fluid system to meet specific technical requirements. If released to the marine environment impacts would be highly localised. Any release would be confined to the open waters of the Operational Areas that would not reach any sensitive receptors. Components of the fluid would settle in the water column and be subject to dilution. Given the low toxicity of P&A fluids, any impacts on water quality from unplanned discharges would be minor and localised.

Minor leaks and spills of other chemicals including hydraulic fluid and typical operational oils and greases are expected to only occur in minor quantities (less than 20 L). Hydraulic oils behave similarly to marine diesel when spilled to the marine environment. These are medium oils of light to moderate viscosity. They have a relatively rapid spreading rate and will dissipate quickly in ocean conditions. Any impact is temporary and minor. Impact will decrease rapidly as the release dilutes and disperses in the marine environment. No impacts are predicted to benthic habitat communities in the Operational Area.

The accidental discharge (spill/leak) of minor volumes of P&A chemicals, hydraulic fluid and other hydrocarbon has the potential to result in a localised reduction in water quality and a minor potential for toxicity impacts to plankton and fish populations (surface and water column biota). Large, more mobile fauna are likely to be transient within the Operational Area and toxic impacts are unlikely to occur to these species. The potential impacts would most likely be highly localised and restricted to the immediate area in the footprint of the release.

8.6.3.2 Release of residual well fluids

Impacts from the release of well fluids from slip joint packer failure have been inferred from a loss of well containment (**Section 8.2**). This is considered to provide a highly conservative basis for assessing environmental impacts, given the nature and scale of the credible worst-case spill scenario resulting from a release of approximately 5 m³ of fluids versus a loss of containment. The biological consequences of a release of well fluids on open water sensitive receptors relate to the potential for slight and temporary impacts to water quality, sediment quality and benthic habitats in the immediate vicinity of the release location.

8.6.3.3 Species Recovery Plans and Threat Abatement Plans

Woodside has considered information contained in relevant recovery plans for marine fauna that identify marine pollution as a threat (**Section 9**).

8.6.4 Demonstration of ALARP

The ALARP process for the environmental aspect is summarised in **Table 8-19**. This process was completed as outlined in **Section 6.2** and included consideration of all controls, analysis of the risk reduction proportional to the benefit gained and final acceptance or justification if the control was rejected.

Table 8-19: Minor Spills of Chemicals and Hydrocarbons - ALARP Summary

Control Measure	Accept / Reject	Reason	Associated Performance Standards
Legislation, Codes and Standards			
Marine Order 91 (marine pollution prevention – oil) 2014, requires Ship Oil Pollution Emergency Plan (SOPEP)/Spill Monitoring Programme Execution Plan (SMPEP) (as appropriate to vessel class).	Accept	By ensuring a SOPEP/SMPEP is in place for the vessel, the likelihood of a spill entering the marine environment is reduced. Although no significant reduction in consequence could result, the overall risk is reduced. Control is based on a legislative requirement and must be adopted. The control is feasible, standard practice with minimal cost. Benefits outweigh any cost sacrifice.	PS 12.1
Engineering			
Where there is potential for loss of primary containment of oil and chemicals on the MODU, deck drainage must be collected via a closed drainage system (e.g. drill floor).	Accept	Reduces the likelihood of contaminated deck drainage water being discharged to the marine environment. No change in consequence would occur. Control is feasible, standard practice with minimal cost. Benefits outweigh any cost sacrifice.	PS 6.4
Project vessels have self-containing hydraulic oil drip tray management system.	Accept	Requirements for self-containing hydraulic oil drip tray management system would reduce the likelihood of contaminants being discharged to the marine environment. No change in consequence would occur. The control is feasible, standard practice with minimal cost. Benefits outweigh any cost sacrifice.	PS 15.2
Marine riser's telescopic joint to be: <ul style="list-style-type: none"> comprised of a minimum of two packers (one hydraulic and one pneumatic) pressure tested in accordance with manufacturers recommendations. 	Accept	Reduces the likelihood of equipment failure leading to an unplanned release of drilling fluids. Although the consequence of an unplanned release would be reduced, the reduction in likelihood reduces the overall risk providing an overall environmental benefit. The control is feasible, standard practice with minimal cost. Benefits outweigh any cost sacrifice.	PS 15.3
Below-deck storage of all hydrocarbons and chemicals.	Reject	Reduces the likelihood of contaminated deck drainage water being discharged to the marine environment. The consequence is unchanged.	Not applicable
A reduction in the volumes of chemicals and hydrocarbons stored onboard the vessel.	Reject	Reduces the likelihood of a deck spill from entering the marine environment. The consequence is unchanged.	Not applicable

Control Measure	Accept / Reject	Reason	Associated Performance Standards
Separate			
Liquid chemical and fuel storage areas are bunded or secondarily contained when they are not being handled/moved temporarily.	Accept	Implementation of procedures for chemical storage and handling on the MODU and project vessels will reduce the consequence of impacts resulting from unplanned discharges to the marine environment by ensuring chemicals have been assessed for environmental acceptability. The control is feasible, standard practice with minimal cost. Benefits outweigh any cost sacrifice.	PS 15.4
Administrate			
Fluids and additives intended or likely to be discharged to the marine environment will have an environmental assessment completed before use.	Accept	Reduces the consequence of impacts resulting from discharges to the marine environment by ensuring chemicals have been assessed for environmental acceptability (refer to Section 3.9). Planned discharges are required for safely executing activities; therefore, no reduction in likelihood can occur. The control is feasible, standard practice with minimal cost. Benefits outweigh any cost sacrifice.	PS 7.6
Critical hoses outside bunded areas (such as ROVs) are inspected and maintained as part of PMS.	Accept	Maintenance and inspection completed as scheduled on PMS reduces the risk of leaks to the marine environment. Control is feasible, standard practice with minimal cost. Benefits outweigh any cost sacrifice.	PS 15.5
Contractor procedure for managing P&A fluids transfers onto, around and off the MODU, which requires: <ul style="list-style-type: none"> • emergency shutdown systems for stopping losses of containment (e.g. burst hoses) • break-away dry-break couplings for oil-based mud hoses • transfer hoses to have floatation devised to allow detection of a leak • the valve line-up will be checked prior to commencing mud transfers • constant monitoring of the transfer process • direct radio communications • completed PTW and JSA showing contractor procedures are implemented 	Accept	Reduces the likelihood of an unplanned release occurring. Although no change in consequence would occur, the reduction in likelihood decreases the overall risk, providing environmental benefit. Control is feasible and can be implemented with minimal cost. It is standard practice for Woodside to review contractor systems prior to performing activity. Benefits outweigh cost/sacrifice.	PS 15.6

Control Measure	Accept / Reject	Reason	Associated Performance Standards
<ul style="list-style-type: none"> recording and verification of volumes moved to identify any losses mud pit dump valves locked closed when not in use for mud transfers and operated under a PTW. 			
Check for the functionality of: <ul style="list-style-type: none"> mud tanks mud tank room transfer hoses SBM base fluid transfer lines and storage Well bleed off lines and storage tanks 	Accept	Verifying functionality prior to use reduces the likelihood of a spill or leak occurring and reduces the potential consequences (by limiting volume released). The control is feasible, standard practice with minimal cost. Benefits outweigh any cost sacrifice.	PS 15.7
Spill kits positioned in high-risk locations around the rig (near potential spill points such as transfer stations).	Accept	Spill kits would reduce the likelihood of a deck spill from entering the marine environment. The consequence is unchanged. The control is feasible, standard practice with minimal cost. Benefits outweigh any cost sacrifice.	PS 15.8

8.6.4.1 ALARP Summary

The risk assessment and evaluation has identified a range of controls (**Table 8-19**) appropriate to the decision type (Decision Type A), that when implemented are considered to manage the risks and consequences of an accidental minor spill or leak of chemicals or hydrocarbons during the Petroleum Activity to ALARP.

Further opportunities to reduce the risks and consequences have been investigated above (**Table 8-19**). The adopted controls are consistent with the most relevant regulatory guidelines, good oil-field practice/industry best practice. No reasonable additional/alternative controls were identified that would future reduce the risks and consequences without grossly disproportionate sacrifice, the risks and consequences are therefore ALARP.

8.6.5 Demonstration of Acceptability

The impact assessment has determined that, given the adopted controls, the risks and consequences of a minor spill or leak of chemicals or hydrocarbons during the petroleum activity represent a tolerable risk level. A minor spill or leak of chemical or hydrocarbon may result in minor, short term impacts on species and habitat (not affecting ecosystem function) or biological attributes. BIAs within the Operational Area include pygmy blue whale migration and distribution BIAs and the Wedge Tailed Shearwater Breeding BIA. However, these species are not expected to be impacted.

Further opportunities to reduce the risk have been investigated in **Table 8-19**. The adopted controls are considered consistent with industry legislation, codes and standards, good oil-field practice/industry best practice and professional judgement. No concerns or objections regarding the risk of minor spills and leaks of chemicals and hydrocarbons have been raised by relevant persons. Woodside has considered information contained in recovery plans and threat abatement plans (**Section 9**). The environmental risks meet the Woodside environmental risk acceptability criteria (**Section 6.3**). The environmental risks are consistent with the principles of ESD:

- Integration principle:** Woodside has undertaken a range of studies to determine the approach to decommissioning the Stybarrow field, which have informed Woodside’s deliberations. The decommissioning strategy being pursued by Woodside integrates long-term and short-term economic, environmental, social, and equitable considerations.

- **Precautionary Principle:** The risks and consequences of a minor spill or leak of chemicals or hydrocarbons during the petroleum activity are well understood, and there is no risk of serious or irreversible environmental damage from this aspect.
- **Intergenerational principle:** The risks and consequences of a minor spill or leak of chemicals or hydrocarbons during the petroleum activity will not impact upon the environment such that future generations cannot meet their needs.
- **Biodiversity principle:** The risks and consequences of a minor spill or leak of chemicals or hydrocarbons during the petroleum activity will not impact upon biodiversity or ecological integrity.

On this basis, Woodside considers the risk to be managed to an acceptable level.

8.6.6 Environmental Performance Outcome, Performance Standards and Measurement Criteria

Environmental Performance Outcomes	Controls	Performance Standards	Measurement Criteria
EPO 15 No unplanned release of hazardous chemicals or hydrocarbon to the marine environment greater than a Severity Level 2 ¹⁶ during the petroleum activity.	C 12.1 (refer to Section 8.3.7)	PS 12.1 (refer to Section 8.3.7)	MC 12.1 (refer to Section 8.3.7)
	C 6.4 (refer to Section 7.5.6)	PS 6.4 (refer to Section 7.5.6)	MC 6.4.1 (refer to Section 7.5.6)
	C 15.1 Project vessels have self-containing hydraulic oil drip tray management system.	PS 15.1 To contain any on-deck spills of hydraulic oil.	MC 15.1.1 Records demonstrate project installation vessel is equipped with self-containing hydraulic oil drip tray management system.
	C 15.2 Marine riser's telescopic joint to be: <ul style="list-style-type: none"> comprised of a minimum of two packers (one hydraulic and one pneumatic) pressure tested in accordance with manufacturers recommendations. 	PS 15.2 MODU's joint packer designed and maintained to reduce hydrocarbons discharged to the environment.	MC 15.2.1 Records demonstrate that MODU's joint packer is compliant.
	C 15.3 Liquid chemical and fuel storage areas are bunded or secondarily contained when they are not being handled/moved temporarily.	PS 15.3 Failure of primary containment in storage areas does not result in loss to the marine environment.	MC 15.3.1 Records confirms all liquid chemicals and fuel are stored in bunded/secondarily contained areas when not being handled/moved temporarily.
	C 7.6 (refer to Section 7.6.6)	PS 7.6 (refer to Section 7.6.6)	MC 7.6.1 (refer to Section 7.6.6)
	C 15.4 Critical hoses outside bunded areas (such as ROVs) are inspected and maintained as part of PMS.	PS 15.4 Critical hoses outside bunded areas (such as ROVs) are identified and regularly inspected, maintained and replaced as part of the PMS.	MC 15.4.1 Records in the PMS demonstrate inspections of critical hoses comply with equipment specifications.
	C 15.5	PS 15.5	MC 15.5.1

¹⁶ Defined as 'Measurable but limited impact (< 1 year) on marine environment, limited community impact (< 1 month)'

Environmental Performance Outcomes	Controls	Performance Standards	Measurement Criteria
	<p>Contractor procedure for managing P&A fluids transfers onto, around and off the MODU, which requires:</p> <ul style="list-style-type: none"> • emergency shutdown systems for stopping losses of containment (e.g. burst hoses) • break-away dry-break couplings for oil-based mud hoses • transfer hoses to have floatation devised to allow detection of a leak • the valve line-up will be checked prior to commencing mud transfers • constant monitoring of the transfer process • direct radio communications • completed PTW and JSA showing contractor procedures are implemented • recording and verification of volumes moved to identify any losses <p>mud pit dump valves locked closed when not in use for mud transfers and operated under a PTW.</p>	Compliance with Contractor procedures to limit accidental loss to the marine environment.	Records demonstrate fluid transfers are performed in accordance with the applicable contractor procedures.
	<p>C 15.6 Check for the functionality of:</p> <ul style="list-style-type: none"> • mud tanks • mud tank room • transfer hoses • SBM base fluid transfer lines and storage • Well bleed off lines and storage tanks 	<p>PS 15.6 Functionality checks on mud handling equipment prevents unacceptable use or discharge of SBM/base oil and residual hydrocarbon during well P&A.</p>	<p>MC 15.6.1 Records demonstrate the presence and functionality of the specified equipment.</p>
	<p>C 15.7 Spill kits positioned in high-risk locations around the rig (near potential spill points such as transfer stations).</p>	<p>PS 15.7 Spill kits to be available for use to clean up deck spills.</p>	<p>MC 15.7.1 Records confirms that spill kits are present, maintained, and suitably stocked.</p>

8.7 Loss of Solid Hazardous and Non-hazardous Wastes, including Dropped Objects

8.7.1 Summary of Risk Assessment and Evaluation

Aspect	Source of Hazard	Potential Impact	Severity Factor	Likelihood Factor	Residual Risk	Decision Context	Acceptability
Loss of solid hazardous and non-hazardous wastes	Accidental loss of waste (hazardous and non-hazardous) to the marine environment	Localised decline in water quality, toxic effects to marine fauna and potential injury to fauna.	10	0.3	3	Type A Low Order Impact	Tolerable
	Dropped objects resulting in disturbance to benthic habitats	Disturbance of benthic habitat and associated communities.	10	0.3	3	Type A Low Order Impact	Tolerable

8.7.2 Source of Hazard

8.7.2.1 Solid Wastes

The MODU and project vessels will generate a variety of solid wastes, including domestic and industrial wastes. These include aluminium cans, bottles, paper and cardboard, scrap steel, chemical containers, batteries and medical wastes.

Waste is segregated on-board the MODU and project vessels and stored in designated skips and waste containers, in accordance with the vessel specific waste management plan. Wastes are segregated into the categories of:

- non-hazardous waste (or general waste)
- hazardous waste
- recyclables (further segregation is conducted in line with practices at existing Woodside operations in the region).

There is the potential for solid wastes to be accidentally lost overboard to the marine environment, particularly during adverse weather events and back loading activities and due to incorrect waste storage. Waste items lost overboard are typically small wind-blown items such as plastic containers and cardboard.

8.7.2.2 Dropped Objects

There is the potential for objects to be dropped overboard from the MODU or project vessels to the marine environment. Small items dropped may include personal protective gear (such as glasses, gloves, hard hats) and small tools (such as spanners). There is also potential for larger equipment to be dropped during the petroleum activity, particularly during recovery of the well infrastructure from the seabed. If well infrastructure is dropped during the recovery activities, attempts will be made to locate and recover the lost equipment. Therefore, these impacts are expected to be temporary in nature. The spatial extent in which dropped objects can occur is restricted to the Operational Area

8.7.3 Environmental Impact Assessment

8.7.3.1 Solid Waste

The potential impacts of solid wastes accidentally discharged to the marine environment include direct pollution and contamination of the environment and secondary impacts relating to potential contact of marine fauna with wastes, resulting in entanglement or ingestion and leading to injury and death of individual animals. The temporary or permanent loss of waste materials into the marine environment is not likely to have a significant environmental impact, based on the location of the Operational Area, the types, size and frequency of wastes that could occur, and species present.

Hazardous solid wastes such as paint cans, oily rags, etc., can cause localised contamination of the water through a release of toxins and chemicals. Given the likely small volumes of any unplanned solid waste discharge, and the occasional nature of the event, these would result in temporary and highly localised changes to the water quality.

The unplanned discharge of solid wastes can result in mortality to fauna, either through contamination or physical injury depending on the nature of the waste. Marine fauna, including fish, seabirds and shorebirds, marine mammals and marine reptiles may be impacted through ingestion or entanglement of waste or through exposure to toxic chemicals. Ingestion or entanglement of marine fauna has the potential for physical harm which may limit feeding/foraging behaviours 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 as a key threatening process under the EPBC Act in August 2003 (Commonwealth of Australia, 2018). Impacts to species including fish, birds, marine mammals and marine reptiles from the unplanned discharge of solid waste is unlikely given low occurrence of unplanned discharges and the location of the activities at significant distance from sensitive habitats. Significant impacts are unlikely to occur at an individual level and will not occur at a population level, nor result in the decrease of the quality of the habitat such that the extent of these species is likely to decline.

The temporary or permanent loss of waste materials into the marine environment will have no lasting effect on any species or water quality, based on the types, size and frequency of wastes that could occur.

8.7.3.2 Dropped Objects

In the unlikely event of loss of an object being dropped to the marine environment (including loss of larger objects such as well infrastructure), potential impacts would be limited to localised physical impacts on benthic communities over the footprint of the lost object. In most cases, objects will be able to be recovered and therefore these impacts will also be temporary in nature. Attempts will be made to locate and recover any well infrastructure accidentally dropped during the petroleum activity. Physical impacts from dropped objects are anticipated to be localised and minor and be associated with sediment burrowing infauna and surface epifauna invertebrates, particularly filter feeders, inhabiting the seabed directly over the infrastructure footprint. Any elevated turbidity would be very localised and temporary and is therefore not expected to have any significant impact to environment receptors, such as filter feeders. Lifting of well infrastructure would only occur after successful permanent plugging of a well. A loss of well containment from a dropped infrastructure impacting a well is not credible.

The temporary or permanent loss of dropped objects into the marine environment is likely to result in a localised impact only, as the benthic communities associated with the Operational Area are of low sensitivity and are broadly represented throughout the Northwest Marine Region. The Operational Area overlaps the Canyons linking the Cuvier Abyssal Plain and the Cape Range Peninsula KEF, therefore, seabed disturbance from dropped objects may directly disturb a very small, localised area of the KEF. Given the nature and scale of risks and consequences from dropped objects, no lasting effect is expected to seabed sensitivities associated with the Operational Area. Further, considering the types, size and frequency of dropped objects that could occur, it is unlikely a dropped object would have a significant impact on any benthic community.

8.7.3.3 Species Recovery Plans and Threat Abatement Plans

Woodside has considered information contained in relevant recovery plans advice for marine fauna that identify marine debris as a threat (**Section 9**). This includes the objectives and actions within the *Recovery Plan for Marine Turtles in Australia 2017–2027* (Commonwealth of Australia, 2017) and *Threat Abatement Plan for the Impacts of Marine Debris on the Vertebrate Wildlife of Australia's Coasts and Oceans* (Commonwealth of Australia, 2018), which relate to marine debris.

The Threat Abatement Plan for the impacts of marine debris on the vertebrate wildlife of Australia's coasts and oceans (Commonwealth of Australia, 2018) identifies EPBC Act-listed species for which there are scientifically

documented adverse impacts resulting from marine debris. Marine turtles and seabirds in particular may be at risk from plastics which may cause entanglement or be mistaken for food (e.g. DoEE, 2018; Commonwealth of Australia, 2017) and ingested causing damage to internal tissues and potentially preventing feeding activities. In the worst instance this could have a lethal affect to an individual. Marine debris has been identified as threat in the Recovery Plan for Marine Turtles in Australia (2017–2027).

While the threat abatement plan for impacts of marine debris on vertebrate marine life does not list explicit management actions for non-related industries (Commonwealth of Australia, 2018) management controls will reduce the risk of unplanned discharge of solid waste.

8.7.4 Demonstration of ALARP

The ALARP process for the environmental aspect is summarised in **Table 8-20**. This process was completed as outlined in **Section 6.2** and included consideration of all controls, analysis of the risk reduction proportional to the benefit gained and final acceptance or justification if the control was rejected.

Table 8-20: Loss of Solid Hazardous and Non-Hazardous Waste - ALARP Summary

Control Measure	Accept / Reject	Reason	Associated Performance Standards
Legislation, Codes and Standards			
Marine Order 95 – Pollution prevention – Garbage (as appropriate to vessel class) 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.	Accept	Controls based on legislative requirements must be accepted. Reduces probability of garbage being discharged to sea. Control is feasible, standard practice with minimal cost. Benefits outweigh any cost sacrifice.	PS 6.2
Administrative			
Drilling and Completions waste arrangements, which require: <ul style="list-style-type: none"> dedicated space for waste segregation bins and skips on the MODU records of all waste to be disposed, treated or recycled waste streams handled and managed according to their hazard and recyclability class all non-putrescible waste (excludes all food, grey water or sewage waste) to be transported disposed of onshore. 	Accept	Control reduces the likelihood of an unplanned release of solid hazardous or non-hazardous waste to the marine environment. The consequence remains unchanged. Control is considered standard practice and can be implemented at minimal cost. Environmental benefit outweighs cost sacrifice.	PS 16.1
Project vessel waste arrangements, which require: <ul style="list-style-type: none"> dedicated waste segregation bins records of all waste to be disposed, treated, or recycled 	Accept	Control reduces the likelihood of an unplanned release of solid hazardous or non-hazardous waste to the marine environment. The consequence remains unchanged. Control is considered standard practice and can be implemented at minimal cost. Environmental benefit outweighs cost sacrifice.	PS 16.2

Control Measure	Accept / Reject	Reason	Associated Performance Standards
<ul style="list-style-type: none"> waste streams to be handled and managed according to their hazard and recyclability class. 			
<p>MODU and project vessels' work procedures implemented for lifts, bulk transfers and cargo loading, which require:</p> <ul style="list-style-type: none"> Security of loads shall be checked before 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. 	Accept	<p>Reduces the likelihood of an unplanned release. Lifting, bulk transfer and cargo loading procedures will ensure lifts are performed in a safe manner and reduce likelihood of a dropped object event.</p> <p>Control is considered standard practice and can be implemented at minimal cost. Environmental benefit outweighs cost sacrifice.</p>	PS 16.3
<p>MODU and project vessel inductions include control measures and training for crew in dropped object prevention.</p>	Accept	<p>By ensuring crew are appropriately trained in dropped object prevention, the likelihood of a dropped object event is reduced.</p> <p>Control is considered standard practice and can be implemented at minimal cost. Environmental benefit outweighs cost sacrifice.</p>	PS 16.4
<p>ROV, crane or support vessel may be used to attempt recovery of solid wastes or equipment lost overboard. Where safe and practicable for this activity will consider:</p> <ul style="list-style-type: none"> risk to personnel to retrieve object whether the location of the object is in recoverable water depths object's proximity to subsea infrastructure ability to recover the object (i.e. nature of object, lifting equipment or, ROV availability and suitable weather). <p>Any material dropped objects / waste that remain in the title will undergo an impact assessment and be added to the inventory.</p>	Accept	<p>Potentially reduces consequence by recovering dropped object/waste from the marine environment.</p>	PS 16.5.1 PS 16.5.2

8.7.4.1 ALARP Summary

The risk assessment and evaluation has identified a range of controls (**Table 8-20**) appropriate to the decision type

(Decision Type A), that when implemented are considered to manage the potential risk and consequences of a loss of solid hazardous and non-hazardous wastes, including dropped objects to ALARP.

Woodside considers the control measures described above are appropriate to reduce the potential risks and consequences of a loss of solid hazardous and non-hazardous wastes, including dropped objects to the marine environment. As no reasonable additional/alternative controls were identified that would future reduce the risks and consequences without grossly disproportionate sacrifice, the risks and consequences are therefore ALARP.

8.7.5 Demonstration of Acceptability

The impact assessment has determined that, given the adopted controls, a loss of solid hazardous and non-hazardous wastes, including dropped objects represents a low current risk rating that is unlikely to result in a risk consequence greater than a temporary, localised impact to environment receptors. Relevant recovery plans and conservation advice has been considered during the impact assessment, and the petroleum activity is not considered to be inconsistent with the overall recovery objectives and actions of these recovery plans and conservation advice (**Section 9**).

The adopted controls are consistent with industry good practice and professional judgement. No concerns or objections regarding the loss of solid hazardous and non-hazardous wastes (including dropped objects) have been raised by relevant persons. The environmental risks meet the Woodside environmental risk acceptability criteria (**Section 6.3**). The environmental risks are consistent with the principles of ESD:

- **Integration Principle:** Woodside has undertaken a range of studies to determine the approach to decommissioning the Stybarrow field, which have informed Woodside's deliberations. The decommissioning strategy being pursued by Woodside integrates long-term and short-term economic, environmental, social, and equitable considerations.
- **Precautionary Principle:** The risks and consequences from the accidental loss of solid hazardous and non-hazardous waste or dropped objects are well understood, and there is no risk of serious or irreversible environmental damage from this aspect.
- **Intergenerational Principle:** The risks and consequences from the accidental loss of solid hazardous and non-hazardous waste or dropped objects will not impact upon the environment such that future generations cannot meet their needs.
- **Biodiversity Principle:** The risks and consequences from the accidental loss of solid hazardous and non-hazardous waste or dropped objects will not impact upon biodiversity or ecological integrity.

On this basis, Woodside considers the risk to be managed to an acceptable level.

8.7.6 Environmental Performance Outcome, Performance Standards and Measurement Criteria

Environmental Performance Outcomes	Controls	Performance Standards	Measurement Criteria
EPO 16 No unplanned releases of solid hazardous or non-hazardous waste or incidents of dropped objects to the marine environment greater than a Severity Level 1 ¹⁷ during the petroleum activity.	C 6.2 (refer to Section 7.5.6)	PS 6.2 (refer to Section 7.5.6)	MC 6.2.1 (refer to Section 7.5.6)
	C 16.1 Drilling and Completions waste arrangements, which require: <ul style="list-style-type: none"> dedicated space for waste segregation bins and skips on the MODU records of all waste to be disposed, treated or recycled waste streams handled and managed according to their hazard and recyclability class all non-putrescible waste (excludes all food, grey water or sewage waste) to be transported disposed of onshore. 	PS 16.1 Hazardous and non-hazardous waste will be managed in accordance with the Drilling and Completions waste arrangements.	MC 16.1.1 Records demonstrate compliance against Drilling and Completions waste arrangements.
	C 16.2 Project vessel waste arrangements, which require: <ul style="list-style-type: none"> dedicated waste segregation bins records of all waste to be disposed, treated, or recycled waste streams to be handled and managed according to their hazard and recyclability class. 	PS 16.2 Hazardous and non-hazardous waste managed in accordance with the project vessels' waste arrangements	MC 16.2.1 Records demonstrate compliance against project vessels' waste arrangements.
	C 16.3	PS 16.3	MC 16.3.1

¹⁷ Defined as 'Measurable but limited impact (< 1 year) on marine environment, limited community impact (< 1 month)'

Environmental Performance Outcomes	Controls	Performance Standards	Measurement Criteria
	<p>MODU and project vessels' work procedures implemented for lifts, bulk transfers and cargo loading, which require:</p> <ul style="list-style-type: none"> • Security of loads shall be checked before 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. 	<p>All lifts conducted in accordance with applicable MODU/ project vessels' work procedures to limit potential for dropped objects.</p>	<p>Records show lifts conducted in accordance with the applicable MODU/project vessels' work procedures.</p>
	<p>C 16.4 MODU and project vessel inductions include control measures and training for crew in dropped object prevention.</p>	<p>PS 16.4 MODU and project vessels crews aware of requirements for dropped object prevention.</p>	<p>MC 16.4.1 Records show dropped object prevention training is provided to the MODU/project vessels.</p>
	<p>C 16.5 ROV, crane or support vessel may be used to attempt recovery of solid wastes or equipment lost overboard. Where safe and practicable for this activity will consider:</p> <ul style="list-style-type: none"> • risk to personnel to retrieve object • whether the location of the object is in recoverable water depths • object's proximity to subsea infrastructure • ability to recover the object (i.e. nature of object, lifting equipment or, ROV availability and suitable weather). <p>Any material dropped objects / waste that remain in the title will undergo an impact assessment and be added to the inventory.</p>	<p>PS 16.5.1 Any solid waste / equipment dropped to the marine environment will be recovered where safe and practicable to do so.</p>	<p>MC 16.5.1 Records detail the recovery attempt consideration and status of any waste /equipment lost to marine environment.</p>
		<p>PS 16.5.2 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 16.5.2.1 Incident reporting records demonstrate outcomes of the safe and practicable evaluation, including an impact assessment for material items lost to the marine environment.</p> <p>MC 16.5.2.2 Records demonstrate that material items left in title are added to the inventory.</p>

9 Recovery Plan and Threat Abatement Plan Assessment

This section provides an assessment to demonstrate that the petroleum activity is not inconsistent with any relevant recovery plans or threat abatement plans.

Relevant recovery plans and threat abatement plans to the Petroleum Activity and the receiving environment are:

- *Recovery Plan for Marine Turtles in Australia 2017–2027* (Commonwealth of Australia, 2017)
- *Conservation management plan for the blue whale: A recovery plan under the Environment Protection and Biodiversity Conservation Act 1999 2015-2025* (Commonwealth of Australia, 2015b)
- *Conservation management plan for the southern right whale: a recovery plan under the Environment Protection and Biodiversity Conservation Act 1999 2011-2021* (Department of Sustainability, Environment, Water, Population and Communities, 2012)
- *Sawfish and River Shark Multispecies Recovery Plan* (Commonwealth of Australia, 2015a)
- *Threat Abatement Plan for the Impacts of Marine Debris on the Vertebrate Wildlife of Australia's Coasts and Oceans* (Commonwealth of Australia, 2018)
- *National Recovery Plan for Threatened Albatrosses and Giant Petrels* (Department of Sustainability, Environment, Water, Population and Communities, 2011)
- *Recovery Plan for the Grey Nurse Shark (Carcharias taurus)* (Department of the Environment, 2014)
- *Recovery Plan for the White Shark (Carcharodon carcharias)* (Department of Sustainability, Environment, Water, Population and Communities, 2013)
- *Wildlife Conservation Plan for Seabirds* (Commonwealth of Australia, 2020a)
- *Wildlife Conservation Plan for Migratory Shorebirds* (Commonwealth of Australia, 2015c)

Objectives and relevant actions from the above plans have been identified in **Table 9-1**. The table includes an assessment on whether the petroleum activity, including resulting impacts and risks identified in **Section 1** and **Section 8** are inconsistent with those objectives and actions.

Table 9-1: Assessment of the petroleum activity against the objectives and actions defined in relevant recovery plans and threat abatement plans

Recovery / Threat Abatement Plan	Relevant Action Areas / Objectives	Assessment of Consistency
Recovery Plan for Marine Turtles in Australia 2017–2027	Action Area A3: Reduce the impacts from marine debris <ul style="list-style-type: none"> Understand the threat posed to green turtle NWS stock by marine debris. Determine the extent to which marine debris is impacting Western Australian loggerhead turtles. 	Not inconsistent Section 8.7 considers the impacts of unplanned releases of solid hazardous and non-hazardous wastes and considers the potential risks to marine turtles. Appropriate controls have been considered and adopted to reduce the risk of unplanned releases of solid hazardous and non-hazardous wastes to ALARP and acceptable levels
	Action Area A4: Minimise chemical and terrestrial discharge <ul style="list-style-type: none"> Ensure spill risk strategies and response programs adequately include management for marine turtles and their habitats, particularly in reference to 'slow to recover habitats', such as nesting habitat, seagrass meadows or coral reefs. 	Not inconsistent Sections 7.5 and Section 7.6 address the impacts from routine discharges to marine turtles. Sections 8.2, 8.3 and 8.6 considers the risks from accidental release of chemicals and hydrocarbons to marine turtles. Spill risk strategies and response program include management measures for turtles and their nesting habitats. Appropriate controls have been considered and adopted to reduce the impacts and risks of planned and unplanned releases of chemicals to the marine environment to ALARP and acceptable levels.
	Action Area A8: Minimise light pollution <ul style="list-style-type: none"> 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. 	Not inconsistent Section 7.2 considers the impacts from project vessel lighting on marine turtles. Given the Operational Area location, project vessel lighting is not anticipated to displace marine turtles from critical habitats. Light emissions may cause localised and temporary behavioural disturbance to transient individual marine turtles. The level of disturbance is not considered to result in displacement of adult turtles from critical habitat. Appropriate controls have been considered and adopted to reduce the impacts of light emissions to ALARP and acceptable levels.
Conservation Management Plan for the Blue Whale 2015–2025	Action Area A.2: Assessing and addressing anthropogenic noise <ul style="list-style-type: none"> Assessing the effect of anthropogenic noise on blue whale behaviour 	Not inconsistent Section 7.3 considers the potential impacts to pygmy blue whales. Noise generated by the Petroleum Activity is anticipated to result in localised, minor and temporary behavioural disturbance to individuals only. The Operational Area overlaps a pygmy blue whale migration and distribution BIA. Controls have been evaluated (Section 7.3.4) as appropriate to be manage noise such that any blue whale continues to utilise the area without injury. Appropriate controls have been considered and adopted to reduce the impacts of noise emissions to ALARP and acceptable levels.

Recovery / Threat Abatement Plan	Relevant Action Areas / Objectives	Assessment of Consistency
	<p>Action Area A.3: Anthropogenic noise in biologically important areas will be managed such that any blue whale continues to utilise the area without injury</p>	<p>Not inconsistent</p> <p>Section 7.3 considers the potential impacts to pygmy blue whales. Noise generated by the Petroleum Activity is anticipated to result in localised, minor, and temporary behavioural disturbance to individuals only.</p> <p>The Operational Area overlaps pygmy blue whale distribution and migration BIAs. Controls have been evaluated (Section 7.3.4) as appropriate to be manage noise such that any blue whale continues to utilise the area without injury.</p> <p>Appropriate controls have been considered and adopted to reduce the impacts of noise emissions to ALARP and acceptable levels.</p>
	<p>Action Area A.4: Minimising vessel collisions</p> <ul style="list-style-type: none"> • 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. 	<p>Not inconsistent</p> <p>Section 8.4 considers the potential impacts to pygmy blue whales. Vessel collisions with pygmy blue whales are unlikely to occur, given the very slow vessel speeds within the confined Operational Area.</p> <p>Appropriate controls including adherence to EPBC Regulations 2000 – Part 8 Division 8.1 (Regulation 8.05 and 8.06) Interacting with cetaceans have been adopted to reduce the risks of marine fauna interactions to ALARP and acceptable levels.</p>
	<p>Action Area B.3: Describing spatial and temporal distribution and defining biologically important habitat</p> <ul style="list-style-type: none"> • Identify migratory pathways between breeding and feeding grounds. • Assess timing and residency within BIAs. 	<p>Not inconsistent</p> <p>Appendix A, Section 2.5 presents details of the timing and residency of pygmy blue whales within BIAs. The section includes a review of literature to identify migratory pathways between breeding and feeding grounds.</p>
<p>Conservation management plan for the southern right whale: a recovery plan under the <i>Environment Protection and Biodiversity Conservation Act 1999</i> 2011-2021</p>	<p>Threat A2: Assessing and addressing anthropogenic noise (shipping, industrial and seismic)</p>	<p>Not inconsistent</p> <p>Section 7.3 considers the potential impacts to southern right whales. Noise generated by the Petroleum Activity is anticipated to result in localised, minor, and temporary behavioural disturbance to individuals only.</p> <p>Appropriate controls have been considered and adopted to reduce the impacts of noise emissions to ALARP and acceptable levels.</p>
	<p>Threat A 5: Addressing vessel collisions</p>	<p>Not inconsistent</p> <p>Section 8.4 considers the potential impacts to southern right whales. Vessel collisions with southern right whales are unlikely to occur, given the very slow vessel speeds within the confined Operational Area and the distribution of the species.</p> <p>Appropriate controls including adherence to EPBC Regulations 2000 – Part 8 Division 8.1 (Regulation</p>

Recovery / Threat Abatement Plan	Relevant Action Areas / Objectives	Assessment of Consistency
		8.05 and 8.06) Interacting with cetaceans have been adopted to reduce the risks of marine fauna interactions to ALARP and acceptable levels.
Sawfish and River Shark Multispecies Recovery Plan	<p>Objective 5: Reduce and, where possible, eliminate adverse impacts of habitat degradation and modification on sawfish and river shark species</p> <ul style="list-style-type: none"> Identify risks to important sawfish and river shark habitat and measures needed to reduce those risks. <p>Objective 6: Reduce and, where possible, eliminate any adverse impacts of marine debris on sawfish and river shark species.</p>	<p>Not inconsistent</p> <p>Section 7.8 considers the impact of seabed disturbance on sawfish and river shark species. Given the low level of seabed disturbance from the Petroleum Activity and the lack of suitable habitat for sawfish and river shark within the Operational Area, impacts are not anticipated.</p> <p>Section 8.2 and Section 8.3 considers the impact of a hydrocarbon release on a variety of habitats, including sawfish and river shark habitat within the EMBA.</p> <p>Appropriate controls have been considered and adopted to reduce the risk of unplanned hydrocarbon releases to ALARP and acceptable levels.</p> <p>Not inconsistent</p> <p>Section 8.7 considers the impacts of unplanned releases of solid hazardous and non-hazardous wastes and considers the potential risks to sawfish and river shark species.</p> <p>Appropriate controls have been considered and adopted to reduce the risk of unplanned releases of solid hazardous and non-hazardous wastes to ALARP and acceptable levels.</p>
Threat Abatement Plan for the Impacts of Marine Debris on the Vertebrate Wildlife of Australia's Coasts and Oceans	<p>Objective 1: Contribute to long-term prevention of marine debris.</p> <ul style="list-style-type: none"> Limit the amount of single use plastic material lost to the environment in Australia. 	<p>Not inconsistent</p> <p>Section 8.7 considers the impacts of unplanned releases of solid hazardous and non-hazardous wastes and considers the potential risks to marine fauna.</p> <p>Appropriate controls have been considered and adopted to reduce the risk of unplanned releases of solid hazardous and non-hazardous wastes to ALARP and acceptable levels.</p>
Whale Shark Management with Particular Reference to Ningaloo Marine Park	None. However, identifies boat strike as a risk to whale shark	<p>Not inconsistent</p> <p>Section 8.4 considers the potential impacts of vessel collisions on whale shark. Vessel collisions with whale shark are unlikely to occur, given the very slow vessel speeds within the confined Operational Area.</p>
National Recovery Plan for Threatened Albatrosses and Giant Petrels 2011 to 2016	Marine-based threats to the survival and breeding success of albatrosses and giant petrels foraging in waters under Australian jurisdiction are quantified and reduced	<p>Not inconsistent</p> <p>Section 7.2 considers the impacts from project vessel lighting on seabirds. Any collision between the birds and project vessels as a result of the attraction are highly unlikely due to the lack of aggregation areas for birds over the Operational Area and slow-moving project vessels.</p>
Recovery Plan for the	Objective 7: Improve understanding of the threat of	Not inconsistent

Recovery / Threat Abatement Plan	Relevant Action Areas / Objectives	Assessment of Consistency
Grey Nurse Shark (<i>Carcharias taurus</i>)	pollution and disease to the grey nurse shark	Section 8.2, Section 8.3 and Section 8.6 considers the risks from accidental release of chemicals and hydrocarbons to grey nurse shark. Appropriate controls have been considered and adopted to reduce the risk of unplanned hydrocarbon release to ALARP and acceptable levels.
Recovery Plan for the White Shark (<i>Carcharodon carcharias</i>)	Objective 7: Continue to identify and protect habitat critical to the survival of the white shark and minimise the impact of threatening processes within these areas	Not inconsistent Section 8.2, Section 8.3 and Section 8.6 considers the risks from accidental release of chemicals and hydrocarbons to white shark. Appropriate controls have been considered and adopted to reduce the risk of unplanned hydrocarbon release to ALARP and acceptable levels.
Wildlife Conservation Plan for Seabirds	Action 2h: Enhance contingency plans to prevent and/or respond to environmental emergencies that have an impact on seabirds and their habitats	Not inconsistent Section 8.2, Section 8.3 and Section 8.6 considers the risks from accidental release of chemicals and hydrocarbons to seabirds. Appropriate controls have been considered and adopted to reduce the risk of unplanned hydrocarbon release to ALARP and acceptable levels.
Wildlife Conservation Plan for Migratory Shorebirds	No relevant actions identified	Not applicable

10 Hydrocarbon Spill Response

As required by the Environment Regulations, Woodside has prepared the Stybarrow Plug and Abandonment Oil Pollution Emergency Plan (OPEP) (refer to **Appendix A**). The OPEP is the primary reference document and key control measure to be implemented in the event of an oil spill during the petroleum activities. It has been developed as a formal means of establishing the processes and procedures to ensure Woodside maintains a constant vigilance and readiness to prevent and, where required, respond to and effectively manage oil spill incidents that may occur. The OPEP has been developed to comply with the Environment Regulations.

This section of the EP provides a description of the proposed oil spill response strategies based on the worst-case spill scenarios. The response strategies presented are based on the outcome of a Strategic Net Environmental Benefit Analysis (NEBA). For each of the proposed response strategies, their benefits and constraints are presented, along with an assessment of the associated risks and impacts that may occur from their implementation.

10.1 Spill Response Levels

To establish oil spill response arrangements that can be scaled up or down depending on the nature of the incident by integrating with other local, regional, national and industry plans and resources, Woodside uses a tiered response approach. The criteria for determining the hydrocarbon spill 'Levels' for the purpose of the spill response have been adopted from the *National Plan for Maritime Environmental Emergencies* (AMSA, 2020) and are described in **Table 10-1**. The 'level-rating' for oil spill response provides a magnitude description of the potential impact and the effort to support oil spill response.

The 'Level' is determined by the relevant Incident Controller or Corporate Incident Management Team (CIMT) Leader. The roles and responsibilities, and related competencies for each CIMT position are described in Woodside's *Incident and Crisis Management Procedure*, position-specific *Duty Cards* and the *Security and Emergency Management Competency Dashboard*.

Typically, Level 1 spill responses can be resourced using shipboard or port-located spill kits. Vessels are required to maintain a current SOPEP and appropriate spill kits, response capabilities and trained personnel. Likewise, designated ports and harbours are required to have at least Level 1 response capability on site.

For Level 2 and 3 spills, Woodside maintains a broad set of spill response capabilities. Woodside also has contracts and Memoranda of Understanding (MoUs) with national and international third-party spill response providers to ensure response capabilities can be engaged.

Table 10-1: Worst-case spill scenarios for the petroleum activities and incident classification used to inform spill response

Level	Level Definition	Stybarrow Decommissioning and Field Management Activities Spill Scenarios
Level 1	An incident will have minor or limited impacts on the environment which can be controlled by the resources normally available onsite without the need to mobilise Woodside IMT or other external resources.	
	An incident: <ul style="list-style-type: none"> occurs within a single jurisdiction with simple IAP required resourced from within one area where environment would be isolated and/or natural recovery expected within weeks wildlife impacts are limited to individual fauna that has no immediate concern of shoreline impact with a Woodside Risk Matrix Consequence Level 1-2. 	MDO spill from bunkering incident (37.5 m ³ MDO)
Level 2	An incident will have substantial impacts to the environment and cannot be controlled by the use of onsite resources alone and required external resources and support to combat the situation.	
	An incident: <ul style="list-style-type: none"> occurs across multiple jurisdictions 	MDO spill from vessel collision (1,000 m ³ MDO)

Level	Level Definition	Stybarrow Decommissioning and Field Management Activities Spill Scenarios
	<ul style="list-style-type: none"> with outline of the IAP required that requires intra-state resources with significant environmental impacts, recovery may take months, remediation required with wildlife impacts to groups of fauna or threatened fauna where shoreline impact is expected with a Woodside Risk Matrix Consequence Level 3+. 	
Level 3	An incident will have serious impacts to the environment and occurs across multiple/international jurisdictions and requires mobilisation of state, national or international resources and support to combat the situation.	
An incident: <ul style="list-style-type: none"> occurs across multiple/international jurisdictions with detailed IAP required that requires national or international resources with significant environmental area impacted, recovery may take months, remediation required with wildlife impacts to large numbers of fauna with a Woodside Risk Matrix Consequence Level 4+. 		Subsea LOWC over 73 days (10,264 m ³ Stybarrow crude)

10.2 Source of Risk

This EP has identified the worst-case and credible hydrocarbon spill scenarios as:

- Level 1: 37.5 m³ bunkering incident (refer to **Section 8.1**)
- Level 2: fuel tank rupture from a vessel collision, resulting in a surface release of 1,000 m³ MDO (refer to **Section 8.1**).
- Level 3: subsea LOWC of 10,264 m³ Stybarrow Crude over 73 days (refer to **Section 8.1**)

10.3 Strategic Net Environmental Benefit Analysis of Response Options

In the oil spill response planning process, Woodside has adopted a comprehensive strategic NEBA methodology to select and justify the appropriate response strategy combinations for the credible and worst-case hydrocarbon spill scenario. A NEBA was conducted to select the potential oil spill response strategies in the event of a Level 2 MDO spill and Level 3 Stybarrow Crude spill (**Table 10-2**). The focus of these NEBAs was to understand the consequences of ‘no action’ and to select an oil spill response strategy that delivered a net environmental benefit using the OPEP Priorities.

The NEBA methodology used is described as follows:

- LIST the response strategies available.
- IDENTIFY the benefit, environmental impact and operational challenge of each response strategy.
- EVALUATE the viability of each response strategy in a particular credible scenario.
- FILTER the result to identify all the viable strategies for a particular credible scenario.
- FORMULATE options of different strategy combinations.
- COMPARE these options and select the preferred option of strategy combination.

From these results, the priority application ZONE of each strategy was identified in the preferred strategy combination by selecting the:

- primary response strategy, which has been confirmed to be used and should be applied as soon as possible
- secondary response strategy, which will be only applied if needed and practical

- nil response strategy, which is a non-preferred option, will not be used and does not identify a net environmental benefit.

In the event of an oil spill, an Operational NEBA will be performed to select spill response options that have a net environmental benefit. It is likely spill response will involve a combination of response options and will evolve over time as conditions change.

Table 10-2: Strategic net environmental benefit analysis of response option for hydrocarbon spills

Spill Response Strategy	Overview of Environmental Benefits	Associated Environmental Risks/Impacts	Operational Constraints	Apply Response		Primary or Secondary Response	Justification Note
Source Control – Vessel Control	Limits or prevents further discharge of hydrocarbons to the marine environment by halting the spill (for example, transferring fuel to another tank).	No significant impacts.	Health and safety considerations may delay implementation under certain circumstances (such as vapours).	Level 2 – MDO	Yes	Primary	Control at the vessel will always be attempted as the immediate primary response to halt further spill to marine environment.
				Level 3 – Crude (Loss of well control)	N/A	-	
Source Control - Subsea Intervention	Prevents further discharge of hydrocarbons to the marine environment by halting the spill.	No significant impacts. Impacts and risks from subsea intervention similar to those described for routine vessel operations.	Health and safety considerations may delay implementation under certain circumstances (e.g., LEL's). MODU operability. ROV availability.	Level 2 – MDO	N/A	-	Subsea source control will always be attempted as the immediate primary response to halt further spill to marine environment for subsea releases (when safe to do so).
				Level 3 – Crude (Loss of well control)	Yes	Primary	
Source Control – Relief Well	Prevents further discharge of hydrocarbons to the marine environment by halting the spill through the drilling of a relief well.	No significant impacts. Impacts and risks from MODU operations similar to those described for routine drilling operations.	Alternate MODU potentially required. Hardware & consumables. Associated logistics.	Level 2 – MDO	N/A	-	Relief well remains the base-case for full well containment. Initiated concurrently with alternate source control options.
				Level 3 – Crude (Loss of well control)	Yes	Primary	
Source Control – Capping Stack	Prevents further discharge of hydrocarbons to the marine environment by halting the spill.	No significant impacts. Impacts and risks from capping stack installation similar to those described for routine vessel operations.	Health and safety considerations may delay implementation under certain circumstances (e.g., LEL's). Environmental conditions influence deploy ability.	Level 2 – MDO	N/A	-	Capping stack represents temporary containment solution until relief well successfully intersect wellbore and restores full well control. Initiated concurrently with alternate source control options.
				Level 3 – Crude (Loss of well control)	Yes	Primary	
Source Control – Subsea First Response Toolkit (SFRT)	Facilitates debris clearance and SSDI to enable subsequent source control operations.	No significant impacts. Impacts and risks from SFRT deployment similar to those described for routine vessel operations. See SSDI below.	Associated logistics from Fremantle / Henderson. Deployment vessel.	Level 2 – MDO	N/A	-	Initiated concurrently with alternate source control options. May be required throughout source control operations.
				Level 3 – Crude (Loss of well control)	Yes	Primary	
Monitor and Evaluate (including operational monitoring)	Constant monitoring and evaluation by surveillance is a mandatory strategy required for real-time decision-making during a spill event.	Risks/impacts from operations of monitoring vessels and aircraft (for example, emissions such as air, noise and liquid waste, marine fauna interaction, interference with other users).	Weather conditions may put constraints on visual observations (vessel and aerial). Vessel and aerial surveillance constrained to daylight hours. Stringent safety management requirements for aerial and marine operations. Potential coordination of multiple vessels/aircraft within limited area (simultaneous operations).	Level 2 – MDO	Yes	Primary	Surveillance activities ensure constant monitoring and evaluation of the spill.
				Level 3 – Crude (Loss of well control)	Yes	Primary	
Dispersant – Surface Application	Application of surface dispersant may reduce the volumes of hydrocarbons contacting sensitive surface receptors. Dispersant can also enhance biodegradation and may reduce 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. 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.	Not applicable for MDO spills due to rapid dispersion and spreading. Crude oil may only be amendable to dispersion for 24 to 48 hours after release. Spill modelling of the LOWC scenario (RPS, 2022b) predicts no instances where the slick is >50 g/m ² (which is considered the minimum threshold for effective surface dispersant application).	Level 2 – MDO	No	-	Stybarrow Crude and MDO are not predicted to reach spill thicknesses that can be effectively treated with surface dispersant. The use of surface dispersant could unnecessarily introduce additional chemical substances to the marine environment.
				Level 3 – Crude (Loss of well control)	No	-	

Spill Response Strategy	Overview of Environmental Benefits	Associated Environmental Risks/Impacts	Operational Constraints	Apply Response		Primary or Secondary Response	Justification Note
			Chemical dispersant application is therefore not recommended as a beneficial option for the LOWC as the spill is not predicted to reach the minimum thickness for surface dispersants to be effective in increasing the dispersal rate of the spill. Applying dispersants to a thin slick is likely to result in dispersant droplets passing through the slick without binding to the hydrocarbon. This has the potential of introducing more chemicals into the marine environment.				
Dispersant – Subsea Application (SSDI)	SSDI may reduce the surface concentrations of hydrocarbons and in doing so reduce the risk of exposure to birds and surfacing marine fauna. Application of SSDI may reduce VOCs at surface (to below LELs) to enable the safe deployment of a capping stack.	Discharge of dispersant into environment. Adds chemical to environment when it is not likely to impact high or extreme environmental receptors. Increases entrainment of hydrocarbon in the water column, which may impact some oceanic and benthic organisms.	Effectiveness of response strategy Health, safety & environmental considerations may delay implementation. Mobilisation & deployment of SSDI equipment. Crude oil may only be amenable to dispersion for 24 to 48 hours after release.	Level 2 – MDO	No	-	Strategy aims to increase dispersion (entrainment of fine oil droplets) and reduce the amount of oil expressing at sea surface and may reduce volume of oil loading on shorelines. Potential reduction of VOCs at surface to safe marine operations.
				Level 3 – Crude (Loss of well control)	Yes	Secondary	
Containment and recovery	If effective, can physically remove floating surface oil from the water, thereby preventing shoreline impacts. Recovered oil may be reprocessed.	Operation of vessels (such as burn fuel, physical presence, discharges) for placing and moving booms. Equipment- and labour intensive. Waste disposal of recovered hydrocarbons. Cleaning and disposal of contamination from boom.	Boom deployment may be delayed in serious incident where safety of personnel is priority. Wind and surface currents are key constraint for the boom operation in the open ocean. Current speed for boom (approx. 1 knot depending on boom and angle). Inefficient and impractical on thin slicks, in inclement weather or high seas Oil recovery typically <10% of the oil spilled in open ocean environments. Requires surface oil thick enough for the response option to be effective Bonn Agreement Oil Appearances Code 4 (discontinuous true oil colour) and 5 (continuous true oil colour). Spill modelling of the LOWC scenario predicted that no slick would be > 50 g/m ² (Hook et al., 2016)(RPS, 2022b) and hence the surface slick will not reach the required threshold (>50 g/m ²) for containment and recovery to be a feasible response strategy.	Level 2 – MDO	No	-	Marine 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.
				Level 3 – Crude (Loss of well control)	No	-	
Shoreline Protection	Can deflect hydrocarbons from shoreline receptors for capture and recovery or dilute into water column.	Physical disturbance to intertidal and shoreline habitats from operating vessels and booms (such as anchoring booms and vessels). Defective booms. Operation of vessel (such as burn fuel, physical	Wind, surface currents and tidal ranges are key constraints for operation of shoreline booms. Most feasible in locations where access to the coastline allows vehicles and vessels to undertake operations.	Level 2 – MDO	No	-	Modelling predicts no shoreline accumulation associated with the worst-case scenario ≥10 g/m ² .

Spill Response Strategy	Overview of Environmental Benefits	Associated Environmental Risks/Impacts	Operational Constraints	Apply Response		Primary or Secondary Response	Justification Note
		presence, discharges). Cleaning of contaminated booms and waste disposal of recovered hydrocarbons and water. Waste disposal of recovered hydrocarbons.		Level 3 – Crude (Loss of well control)	Yes	Primary	Modelling shows relatively high probability of contact, above impact and response thresholds for the LOWC scenario. The effectiveness of this response will be dependent on local bathymetry, sea state, currents, tidal variations and wind conditions at the time of implementation.
Mechanical Dispersion	May be applicable for the localised entrainment of surface oil but is not considered to have a significant effect on removing oil from the surface.	May temporarily increase the concentration of entrained and dissolved oil in the vicinity of submerged shallow water receptors (such as corals, seagrass and macroalgae). Operation of vessel (such as burn fuel, physical presence, discharges).	Offshore vessels are designed not to cavitate, so not efficient at breaking up hydrocarbon films. Small particle size required otherwise material resurfaces. Wind speeds above 20 knots provide natural dispersion, making this method redundant. Cannot be performed where there are high concentrations of vapour.	Level 2 – MDO	No	-	Mechanical dispersion uses vessels with propellers that can cavitate. The turbulence created helps break up surface slicks, dispersing hydrocarbons into the column where biodegradation is enhanced due to smaller droplet sizes. This strategy requires vessels on site with engines that cavitate. Wave action provides some effect.
				Level 3 – Crude (Loss of well control)	No	-	
In-Situ Burning	Removes oil from environment.	Operation of a four-vessel spread (two boom sweep, one igniter, one observer). Particulates (smoke) in air with associated health risks. Incomplete combustion may produce toxic chemicals.	Need to build a thick film for ignition (5 to 10 mm). Wind is a key constraint, calm seas and ideal conditions are considered necessary for booming operations to get a thick film thickness and safe ignition. Availability of fire boom.	Level 2 – MDO	No	-	Not applicable as insufficient surface slick thickness predicted. The experience and expertise are not readily available in Australia.
				Level 3 – Crude (Loss of well control)	No	-	
Shoreline Clean Up	Can reduce stranded oil on shorelines and reduce remobilisation of oil.	Physical disturbance to shoreline habitats from staging areas and clean-up activities. Contamination via spreading oil beyond shorelines. Labour-intensive. Logistics. Waste management.	Shoreline characteristics (substrate type, beach type, exposure to wave action, biological, social, heritage or economic resources, amount of hydrocarbon present) and access requirements.	Level 2 – MDO	No	-	Modelling predicts no shoreline accumulation associated with the worst-case scenario $\geq 10 \text{ g/m}^2$. Modelling shows relatively high probability of contact, above impact and response thresholds for the LOWC scenario. The overall benefit of this response strategy should be assessed for each receptor based on a NEBA, especially if the oiling is light. Consideration should be given to secondary impacts likely to occur with this response strategy, such as habitat disturbance, direct disturbance to breeding or nesting fauna, erosion and waste contamination in staging areas.
				Level 3 – Crude (Loss of well control)	Yes	Primary	
Natural Recovery	No additional impacts associated with response activities.	No additional impacts.	No constraints.	Level 2 – MDO	Yes	Primary	Makes use of the natural degradation and weathering process to break down and remove surface oil and stranded hydrocarbons. Effectively, this response strategy means no direct action other than monitor and evaluate spill trajectory and rate of habitat/community recovery.
				Level 3 – Crude (Loss of well control)	Yes	Primary	
Scientific Monitoring	Primary tool for determining the extent, severity and persistence of environmental impacts from oil spills, and determine how effective	Labour intensive. Logistics. Operation of vessel (such as burn fuel, physical	Weather conditions may constrain visual observations (vessel and aerial). Stringent safety management requirements for aerial and marine	Level 2 – MDO	Yes	Primary	Applicable to Level 2/3 spills to monitor impact and recovery from oil spill events. The type and extent of scientific monitoring will depend on the nature
				Level 3 – Crude (Loss of well control)	Yes	Primary	

Spill Response Strategy	Overview of Environmental Benefits	Associated Environmental Risks/Impacts	Operational Constraints	Apply Response		Primary or Secondary Response	Justification Note
	the oil spill response is in protecting the environment.	presence, discharges). Noise from support vessels and helicopters. Vessel collision. Obstacles to other sea users.	operations. Potential coordination of multiple vessels and aircraft within limited area (simultaneous operations).	control)			and scale of oil contact to sensitive receptor locations as determined through monitor and evaluate activities.
Oiled Wildlife Response	Pre-oiling activities including onshore exclusion barriers, hazing and pre-emptive capture used to reduce incidence of animals becoming oiled.	Labour-intensive. Logistics. Operation of vessel (such as burn fuel, physical presence, discharges). Hazing: stress to individuals, accidentally drive oiled wildlife into oil, separate groups/individuals (such as parent/offspring pairs) or disturb nesting and foraging behaviours. Pre-emptive capture and post-oiled collection: Risk of injury and inappropriate field collection/handling during pre-emptive capture and after oiled collection. Rehabilitation: inadequate/inappropriate animal husbandry, leading to stress, injury or death. Inappropriate relocation points leading to disorientation and stress.	Wind is a key constraint, calm seas and ideal conditions are considered necessary for capture operations. Weather constraints for use of aerial observation and tracking fauna. Navigation of multiple vessels within a small area. Availability of suitable space/location in township to handle rehabilitation and fauna treatment.	Level 2 – MDO	Yes	Primary	Applicable where surface hydrocarbons cause oiling risk to marine fauna. Applicable to Level 2/3 spills.
				Level 3 – Crude (Loss of well control)	Yes	Primary	
Waste Management	Benefits outweigh impacts. Oiled waste removed from site by trained contractors and dealt with at an approved waste management facility.	Labour intensive. Logistics.	Low persistence hydrocarbon expected to generate minimal (if any) waste. Logistics constraints in moving waste from site to approved waste facility.	Level 2 – MDO	Yes	Secondary	Applicable where surface hydrocarbons cause oiling risk to shorelines and for oiled wildlife response operations.
				Level 3 – Crude (Loss of well control)	Yes	Primary	

10.4 Environmental Impact and Risk Assessment for Spill Response Activities

While spill response activities are intended to reduce the potential environmental consequences of a hydrocarbon spill, they can introduce new impacts and risks. In the event of a hydrocarbon spill, response strategies will be implemented where possible to reduce environmental impacts to ALARP. The response strategies deemed appropriate, based on the predicted nature and scale of the worst-case spill scenarios identified for Stybarrow plug and abandonment activities, have been identified via the strategic NEBA and ALARP demonstration (refer to **Section 10.3** and Appendix A).

The OPEP (Appendix A) provides selected response strategies in the event of a spill, being:

- source control – vessel control
- source control – relief well drilling, capping stack and subsea first response toolkit (SFRT)
- monitor and evaluate (including operational monitoring)
- subsea dispersant injection
- shoreline protection
- shoreline clean-up
- natural recovery
- scientific monitoring
- oiled wildlife response
- waste management.

The following sub-sections present the suitable response spill strategies identified in **Table 10-2**, the impacts and risks associated with their implementation, and control measures for reducing impacts and risks to ALARP and acceptable levels. **Section 10.5** assesses their effectiveness and the adequacy of resourcing available to support spill response strategies to further justify reducing impacts and risks to ALARP and acceptable levels.

Typical environmental aspects, impacts and risks that may arise from conducting spill response activities are similar to those already described in **Sections 1** and **Section 8** for planned activities and unplanned events, particularly for vessel-based operations. The greatest potential for impacts additional to those described for routine activities is from oiled wildlife response operations.

A number of response strategies, namely Source Control, Monitor and Evaluate (including Operational Monitoring), Shoreline Protection, Shoreline Clean-up, Scientific Monitoring and Oiled Wildlife Response, include components of their response activities that are vessel-based, and the impacts and risks associated with their implementation from vessels are assessed previously in this EP and relate to:

- Physical presence (**Section 7.1**)
- Vessel discharges and emissions (light, noise, atmospheric, routine and non-routine discharges, seabed disturbance, waste management in **Sections 7.2** to **Section 7.7**)
- Unplanned discharges (hydrocarbon spills, solids and liquids in **Sections 8.2, 8.3, 8.6** and **8.7**)
- Marine fauna interaction (**Section 8.4**)
- Introduction of invasive marine species (**Section 8.5**).

As such, impacts and risks relating to the above aspects associated with the spill response strategies are not considered further in this assessment.

10.4.1 Spill Response: Source Control

The purpose of this section is to describe Woodside's strategy relating to Source Control to:

- limit the release of oil discharged to the marine environment and prevent further release of oil by isolating the source of the release
- manage to ALARP and acceptable levels the risks and impacts of the Source Control response strategy to environmental sensitivities.

The strategy includes identifying the risks and impacts associated with Source Control, which includes considering the benefits associated with vessel control. It then demonstrates these impacts and risks can be reduced to ALARP and acceptable levels, enabling source control to be a primary response strategy.

Specifically, this section includes:

- identification of the potential impacts of source control, which includes discussion on source control effectiveness, demonstrating the application of source control can reduce the total volume of oil ashore
- demonstration of oil spill preparedness
- controls in place to mitigate the impacts and risks of source control on sensitive environmental receptors
- demonstration that the source control strategy proposed by Woodside is ALARP and acceptable
- environmental performance outcomes, performance standards and measurement criteria for source control.

10.4.1.1 Summary of Activity – Vessel Control

The project vessels will have a current SOPEP (as appropriate to vessel class) in accordance with the requirements of MARPOL Annex I (Prevention of Pollution by Oil). This plan outlines responsibilities, specific procedures and resources available for an oil or chemical spill. Spills that occur beyond the capability of the vessel will be managed in accordance with Woodside's *Stybarrow Plug and Abandonment OPEP*.

Source Control: Vessel Control	
Initiation Criteria	Notification of Level 1 Oil Spill.
Activation Time	Immediately, noting safety of personnel as the priority.
Resources	Vessel Master and crew trained in vessel specific SOPEP procedures. On-board spill equipment, as per vessel specific SOPEP.
Termination Criteria	Release of oil to the marine environment has ceased and the workplace environment is deemed environmentally safe and free of hydrocarbons.

Vessel Source Control methods are implemented as the primary response strategy for responding to single point releases from hull leakage and spills in the event of a vessel collision. Vessel Source Control will be activated immediately by persons onboard, under the direction of the Vessel Master, to reduce or control the discharge, and conducted according to the vessel-specific MARPOL-compliant SOPEP for vessels, as required under International Convention for Protection of the Sea (Prevention of Pollution from Ships) Act 1983; AMSA Marine Orders – Part 91 and Part 94; and MARPOL Annexes I and III. Vessel Source Control activities will always consider human health and safety.

Vessel Source Control activities will depend on the type of incident but may include:

- closing valves, isolating pipework and shutting down pumps
- using temporary patches or bungs/plugs to seal holes to prevent further releases, until more permanent measures can be taken
- transferring product between tanks on the vessel or between vessels, in the event of a leaking tank or rupture from a vessel collision
- using spill response equipment located around the vessel, including small booms, absorbent pads, spill absorbent litter, spill recovery containers, permissible cleaning agents and other materials available onboard to clean up spilled material on deck. Remaining oily spill residues on decks or other surfaces may be washed into drains leading to the oil-water separator system to treat the effluent before discharge.

10.4.1.2 Summary of Activity – Source Control – Relief Well

The basis of assessment for relief well drilling source control relates to the potential subsea release of crude oil from a worst-case loss of containment from the Stybarrow well.

The primary response document for the implementation of well kill operations via a relief well in the event of a loss of well control (LOWC) is the Activity Source Control Emergency Response Plan (Activity SCERP) and SCERP Guideline. The particulars of the relief well location, design and dynamic kill plan will be detailed in the Activity SCERP.

The relief well response strategy will be implemented for LOWC spills only. A relief well is the primary response strategy for responding to a LOWC and is a necessity to intercept the uncontrolled hydrocarbon zones from the well and to stop or limit further pollution, in this case, crude oil, into the marine environment. The relief well is designed to be drilled via a MODU at a location at a safe distance from the flowing well.

A conservative approach has been adopted for the assessment of a LOWC by modelling the worst-case release scenario of 10,264 m³ crude oil over 73 days.

Source Control – Relief Well activities include:

- Establishment of the Source Control Functional Support Team (FST)
- Implementation of the Activity Source Control Emergency Response Plan (SCERP) inclusive of a Relief Well Plan
- Activation of the APPEA Memorandum of Understanding: Mutual Aid to source and mobilise a MODU and AHTS vessels within the region or source a suitable MODU from international waters (if required)
- Mobilisation of resources (including Woodside, third-party responder and Contractor Drilling personnel) to oversee relief well drilling operations

A single relief well would be required to kill the well.

Source Control: Relief Well	
Initiation Criteria	Release of Stybarrow Crude via LOWC
Activation Time	Within 2 hours of CIMT Leader notifying Source Control Operations Coordinator
Resources	APPEA Memorandum of Understanding: Mutual Aid Alternate MODU plus AHTS vessels Casing and wellhead equipment Consumables Engineering and operational support services Specialist well control service providers
Termination Criteria	Well kill achieved and barriers reinstated

Response Arrangements – Relief Well Procedure

Activity Source Control Emergency Response Plan (SCERP)

Execution plans for a relief well will be similar to a standard well. A relief well is typically drilled as a vertical hole down to a planned deviation (“kick-off”) point, where it is turned toward the target well using directional drilling technology and tools. Dynamic kill well control commences after the target well is intersected, by pumping drilling fluid down the relief well into the incident well to kill the flow. Cement may follow to seal the original well bore.

Casing and wellhead inventories will be maintained to ensure there is always equipment readily available to drill a relief well.

Woodside has Master Service Agreements in place for specialist assistance to help with engineering and operational support for relief well planning and execution.

MODU Specifications

An alternate dynamically positioned (DP) or moored semi-submersible MODU must be capable of operating within 850 m water depth, have a BOP meeting or exceeding APIS53 requirements and if moored, have a minimum of eight-point mooring system.

MODU Availability / Tracking

If the primary MODU undertaking the activity is non-operable, Woodside would seek an alternate MODU located regionally in the first instance. The MODU would be sourced under the arrangements of the APPEA Memorandum of Understanding: Mutual Aid agreement. Over the period of the proposed activity, Woodside anticipate there would be multiple alternate MODUs located within Australian waters capable of undertaking relief well drilling operations in the Stybarrow field. The status of these MODUs along with AHTS vessels is monitored by Woodside on a monthly basis during the activity.

In the event that a suitable MODU is unavailable within the region at the time of the activity, an alternate MODU would be sought from Southeast Asia to undertake the relief well drilling operation. Woodside actively monitors current MODU market availability through an independent market analyst and MODU broker service.

Response Timing – Relief Well

The APPEA Memorandum of Understanding: Mutual Aid allows for ‘best endeavours’ for a MODU to be made available. It is anticipated a regionally available MODU could be secured and mobilised to site within 21 days.

Sourcing an alternate MODU from international waters represents a worst-case scenario and has been used to inform the WCD oil spill trajectory modelling and the overall preparedness needs analysis for Woodside to gain control of the well.

It is estimated that it could take up to 73 days to drill and dynamically kill the incident well, assuming the worst case of needing to source a MODU from Southeast Asia. The general tasks and approximate timings to engage and mobilise a MODU to field are:

- Suspend operations and secure well (under APPEA MoU), source and contract MODU and mobilise to location. Estimated total duration of 21 days for a MODU within the region or up to 44 days from South-east Asia. Concurrently secure regulatory approval.
- Drill well to intercept point (approx. 13.5 days)
- Intercept and kill well (approx. 15.5 days).

Legislative and Other Considerations – Relief Well

The MODU contracted to undertake relief well drilling operations will require an Australian Safety Case (accepted by NOPSEMA) and Safety Case Revision.

In the event that an alternate MODU is required, pending technical capability review, Woodside shall prioritise engaging a locally/ regionally available MODU and vessels with existing Safety Case with best endeavours arrangements under the APPEA Memorandum of Understanding: Mutual Aid. The in-force Woodside Safety Case Revision would be leveraged to expedite the development of a MODU-specific Safety Case Revision for the relief well drilling operation. In this scenario, Woodside consider a Scope of Validation is suitable to undertake relief well drilling operations.

Should a MODU be required from an international location, in addition to availability and technical capability review, priority shall be given to a MODU that has previously operated in Australian Jurisdiction where a historical Safety Case (and Scope of Validation) may form the basis of a regulatory submission to NOPSEMA.

Where a MODU is engaged that has neither a current/ historical Safety Case and scope of validation, these documents shall be developed in consultation with both the MODU Operator and NOPSEMA immediately following contractual engagement and simultaneously with mobilisation to field.

Whilst the revision and acceptance timeframes for Safety Cases / Safety Case Revisions / Scope of Validations is subject to a number of variables, Woodside shall engage suitably qualified HSE professionals with relevant petroleum industry experience to facilitate and assist in approval development, revision and submission on 24 hour/ 7 days a week basis following MODU engagement until all required approvals are in-force.

Potential Environmental Impacts and Risks – Relief Well

There are no additional environmental impacts and risks associated with a vessel-based response in offshore waters to those already described within **Section 7** and **Section 8**.

10.4.1.3 Summary of Activity – Capping Stack

The basis of assessment for capping stack source control relates to the potential subsea release of crude oil from a loss of containment from the Stybarrow well.

The capping stack response strategy may be implemented for LOWC spills only, and where conditions allow. The deployment of a capping stack system is considered a primary response strategy for responding a LOWC and will only be applied given favourable environmental conditions including the open-hole flow rate from the well, the safe work zone surrounding the well site and prevailing weather conditions during the LOWC event.

Pending suitable conditions, a capping stack may be installed vertically.

Source Control – Capping Stack activities include:

- Establishment of the Source Control FST: Well Capping Group embedded within the Woodside IMT
- Implementation of the Activity Source Control Emergency Response Plan (SCERP) inclusive of a Capping Stack Mobilisation Plan
- Activation of the contract with Wild Well Control Inc. (WWCI) to prepare and transport the capping stack system from Singapore directly to the Stybarrow field
- Mobilisation of resources (including Woodside and third-party responder personnel) to oversee capping stack installation

Source Control: Capping Stack	
Initiation Criteria	Release of Stybarrow Crude via LOWC
Activation Time	Within 2 hours of Woodside IC notifying Source Control Operations Coordinator
Resources	Contract with Capping Stack provider for equipment and key personnel Engineering and operational support services Vessel service providers
Termination Criteria	Well kill achieved and barriers reinstated

Response Arrangements – Capping Stack Procedure

Activity Source Control Emergency Response Plan (SCERP)

Personnel

Woodside have contracts with Wild Well Control Inc. (WWCI) to support the Woodside IMT.

Specialist capping stack deployment personnel travel directly to site from Singapore with the capping stack and are engaged via WWCI Service Agreement.

Equipment

Capping Stack System

The subscription to WWCI WellCONTAINED™ Service provides Woodside with access to WWCI Capping Stacks.

Vessel Sourcing

Woodside maintains a contract for provision of a monthly report on the availability and status of suitable emergency vessels and equipment for source control operations and those that are closest to the incident location. The report identifies suitable vessels including those that have an approved Safety Case for working in Australia.

Vessel Transport Configuration / Minimum Vessel Specification

Minimum specifications for the deployment vessel are:

- Active heave compensated crane rated to minimum 150T in shallower waters and 250T in deeper waters
- At least 90 m in length
- Deck has water/electricity supply
- Deck capacity to hold at least 110T capping stack

Response Timing – Capping Stack

Woodside estimates the response timeframe to be 16 days for the mobilisation and deployment of the capping stack.

Legislative and Other Considerations – Capping Stack

The Heavy Lift Vessel (HLV) vessel engaged to deploy the capping stack will require an Australian Safety Case and safety case revision accepted by NOPSEMA.

Via vessel tracking reporting, Woodside shall prioritise the engagement of a HLV with existing Safety Case provided deployment times are not significantly impacted.

In the event the capping stack is mobilised via HLV without a current Australian Safety Case, Woodside shall engage suitably qualified HSE professionals with relevant petroleum industry experience to facilitate and assist in approval development, revision, and submission on a 24 hour / 7 days a week basis following HLV engagement until all required approvals are in-force.

Potential Environmental Impacts and Risks – Capping Stack

There are no additional environmental impacts and risks associated with a vessel-based response in offshore waters to those already described within Sections 1 and 8.

10.4.1.4 Summary of Activity – Subsea First Response Toolkit (SFRT)

The basis of assessment for subsea first response toolkit (SFRT) source control relates to the potential subsea release of crude oil from a loss of containment from the Stybarrow well.

The Source Control - SFRT response strategy will be implemented for LOWC spills. The SFRT is a subsea dispersant and debris clearance toolkit allowing debris to be cleared around the area of the wellhead to enable intervention and prepare relief well drilling and safe installation of the well capping or containment device.

Subsea chemical dispersants, injected via an ROV with a dispersant wand, may be applied to assist with the installation of the Capping Stack by reducing volatile organic compounds at surface. Pending the successfully installed and operation of a capping stack system, the use of subsea chemical dispersants will no longer be required.

The Source Control – SFRT response strategy will require support from OSVs for the duration of the response activities.

Source Control – SFRT activities will include:

- Establishment of the Source Control FST
- Implementation of the Activity Source Control Emergency Response Plan
- Notification of incident to AMOSC, to request mobilisation of SFRT with dispersant stockpile from Fremantle
- Notification of incident to OSRL, to request mobilisation of global dispersant stockpile (GDS)
- Activation of agreements to mobilise OSVs
- Mobilisation of resources (including Woodside Drilling personnel) to oversee subsea operations

In conjunction with concurrent source control activities, if initial source control actions have not been successful in halting subsea release and if Operational NEBA demonstrates a net environmental benefit, activate Subsea Dispersant Response Strategy for application of subsea dispersants (refer to **Section 10.4.3**).

Source Control: Subsea First Response Toolkit	
Initiation Criteria	Release of Stybarrow Crude via LOWC
Activation Time	Within 2 hours of CIMT Leader notifying Source Control Operations Coordinator

Source Control: Subsea First Response Toolkit	
Resources	SFRT Contract with AMOSC Global Dispersant Service (GDS) contract with OSRL Frame agreements in place with ROV providers Contract with logistics provider for road transport Contracts with vessel service providers Coiled tubing (located at Woodside's Fremantle and King Bay Supply Facility (KBSF) stockpiles)
Termination Criteria	Well kill achieved and barriers reinstated

Response Arrangements – SFRT AMOSC Equipment (SFRT)

As a member company, Woodside has access to the Subsea First Response Toolkit (SFRT) including debris clearance and SSDI equipment and dispersant stockpiles located in Fremantle, Western Australia and maintained by Oceaneering. Oceaneering maintain support staff to facilitate the mobilisation, deployment, and operation of the SFRT.

Minimum Vessel Specification

Minimum specifications for the SFRT deployment vessel are:

- DP2 capability
- Work Class ROV with capability to reach mud line at incident well centre and survey 50 m radius around well centre with carrying capacity:100 kg
- Active heave compensated crane with minimum 36t mud line capacity

Response Timing – SFRT

Woodside have determined the SFRT can be mobilised to the Stybarrow Field within 12 days.

Legislative and Other Considerations – SFRT / SIRT

The application of subsea chemical dispersants is considered in **Section 10.4.3**.

10.4.1.5 Source Control Environmental Performance

Table 10-3 provides the environmental performance outcomes, performance standards and measurement criteria for the Source Control response strategy.

In the event of a spill, Operational NEBAs (refer to Section 4 of the OPEP) will be completed daily, to take into account spill trajectories, prevailing weather and planned actions for the day.

Table 10-3: Environmental Performance – Source Control

Source Control			
Environmental Performance Outcomes	To stop the flow of hydrocarbons into the marine environment.		
Response Strategy	Performance Standard		Measurement Criteria (Section 10.4.10)
Well intervention	1.1	Frame agreements with ROV providers in place to be mobilised upon notification. ROV equipment deployed within 7 days.	1, 3B, 3C
	1.2	Heavy lift vessel (HLV) will have the following minimum specifications:	1, 3B, 3C

Source Control			
		<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. 	
	1.3	Identify HLV availability within 24 hours and begin contracting process. Vessel mobilised to site for deployment within 16 days for conventional capping.	1, 3B, 3C
	1.4	ROV available on MODU / vessel ready for deployment within 48 hours to attempt initial BOP well intervention.	1, 3B, 3C
	1.5	Hot Stab and/or well intervention attempt made using ROV and SFRT within 11 days.	1, 3B, 3C
	1.6	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
	1.7	Wild Well Control Inc (WWCI) staff available all year round to assist with the mobilisation, deployment, and operation of the capping stack and well intervention equipment.	1, 3B, 3C
	1.8	MODU mobilised to site for relief well drilling within 21 days.	1, 3C
	1.9	First well kill attempt completed within 73 days	1, 3B, 3C
	1.10	Open communication line(s) to be maintained between IMT and infield operations to ensure awareness of progress against plan(s).	1, 3A, 3B
	1.11	Monthly monitoring of the availability of MODUs through existing market intelligence including current Safety Case history, to meet specifications for relief well drilling. Titleholders of suitable MODUs notified.	3C
Source Control – SFRT	2.1	Oceaneering support staff available all year round, via contract, to assist with the mobilisation, deployment, and operation of the SFRT equipment.	1, 3B, 3C
	2.2	Intervention vessel with minimum requirement of a working class ROV and operator.	1, 3C
	2.3	Mobilised to site for deployment within 11 days.	1, 3B, 3C
	2.4	Open communication line to be maintained between IMT and infield operations to ensure awareness of progress against plan(s).	1, 3A, 3B
Support vessels	3.1	Monthly monitoring of availability of larger vessels through existing Frame Agreements and market intelligence to meet specifications for source control.	3C
	3.2	Frame agreements for Infield Support Vessels (ISVs) require vessels maintain in-force safety case approvals covering ROV operations and provide support in the event of an emergency.	1, 3B, 3C

Source Control			
	3.3	MODU and vessel contracts include clause outlining requirement for support in the event if an emergency	1, 3C
Safety Case	4.1	Woodside will prioritise MODU or vessel(s) for intervention work(s) that have an existing safety case.	1, 3C
	4.2	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
	4.3	Woodside will maintain minimum safe operating standards that can be provided to MODU and vessel operators for safety case guidance.	1, 3C

10.4.2 Spill Response: Monitor and Evaluate (including operational monitoring)

10.4.2.1 Summary of Activity

The Monitor and Evaluate response strategy will be implemented for all spills. Constant monitoring and evaluation by surveillance is a mandatory strategy required for making real-time decisions during a spill. This strategy includes fate and trajectory modelling, spill tracking, weather updates and field observations. The spill will be monitored constantly and evaluated by surveillance techniques.

Table 10-4 lists the operational monitoring plans that support the successful execution of this response technique.

Table 10-4: Description of supporting operational monitoring plans

ID	Title
OM01	Predictive modelling of hydrocarbons to assess resources at risk
OM02	Surveillance and reconnaissance to detect hydrocarbons and resources at risk
OM03	Monitoring of hydrocarbon presence, properties, behaviour and weathering in water
OM04	Pre-emptive assessment of sensitive receptors at risk
OM05	Shoreline assessment

Woodside maintains an *Operational Monitoring Operational Plan*. If shoreline contact is predicted, Response Protection Areas (RPAs) will be identified and assessed before contact. If shorelines are contacted, a shoreline assessment survey will be completed to guide effective shoreline clean-up operations. This plan includes the process for the IMT to mobilise resources depending on the nature and scale of the spill.

The proximity of Karratha/Dampier to the spill event location means that multiple logistical options are available to monitor the spill in relatively short timeframes.

The purpose of this section is to describe Woodside's approach relating to the Monitor and Evaluate response strategy to:

- track and monitor the trajectory of the spill so real-time decisions can be made to prevent impacts to extreme and highly sensitive environmental receptors
- manage to ALARP and acceptable levels the risks and impacts of the Monitor and Evaluate response strategy on sensitive environmental receptors.

The strategy includes a description of the impacts and risks associated with Monitor and Evaluate operations during spills, which includes consideration of the benefits associated with the Monitor and Evaluate response strategy. It then demonstrates these impacts and risks can be reduced to ALARP and acceptable levels, enabling Monitor and Evaluate to be a key response strategy in the event of hydrocarbon spills.

Specifically, this section includes:

- assessment of the potential impacts and risks of the Monitor and Evaluate response strategy and the benefits of each response activity
- controls in place to mitigate the impacts and risks of the Monitor and Evaluate response strategy on sensitive environmental receptors
- demonstration that the proposed Monitor and Evaluate response strategy is ALARP and acceptable
- environmental performance outcomes, performance standards and measurement criteria for the Monitor and Evaluate response strategy.

Monitoring and evaluation will require access to aircraft, vessels and personnel. In the event of a spill, the monitoring and evaluation methods that will typically be implemented, depending on the volume of the spill, are:

- aerial surveillance
- vessel surveillance
- oil spill tracking buoys (OSTBs)
- spill trajectory modelling
- satellite imagery
- operational water sampling
- shoreline assessment.

OM01 – Predictive modelling of hydrocarbons to assess resources at risk – Objective, Scope, Rationale and Methods

Oil spill trajectory modelling will be conducted to predict the extent of impacts to offshore habitat for any physical disturbance that may impact shoreline, nearshore areas, or areas protected for the purpose of conservation. The CIMT will engage RPS via a call-off contract maintained by AMOSC to start modelling the spill and correlate it with real data received from aerial and vessel surveillance, and OSTBs. From these sources, RPS will develop an initial oil spill trajectory model for the next five days, which will allow the IMT to direct resources for the next phase of the response. Alternative oil spill modelling agencies may be selected based on operational requirements.

OM01 – Predictive modelling of hydrocarbons to assess resources at risk	
Initiation Criteria	OM01 will be triggered immediately following all hydrocarbon spill levels.
Activation Time	Within four hours of notification, oil spill modelling agency to provide oil spill trajectory modelling report.
Resources	Oil spill tracking modellers and software available via contract with RPS Response.
Termination Criteria	The hydrocarbon discharge has ceased, and no further surface oil is visible Response activities have ceased Hydrocarbon spill modelling (as verified by OM02 surveillance observations) predicts no additional natural resources will be impacted

OM02 – Surveillance and reconnaissance to detect hydrocarbons and resources at risk – Objective, Scope, Rationale and Methods

OM02 Surveillance and reconnaissance to detect hydrocarbons and resources at risk includes the following monitoring components:

- Aerial surveillance
- Oil spill tracking buoys (OSTBs)
- Satellite imagery

OM02 will be commissioned by the Incident Controller or by a designated officer of the nominated Control Agency.

Aerial surveillance

Woodside has access to helicopters under a crew transfer contract with a contracted helicopter provider. Woodside has access to trained aerial surveillance observers in AMOSC and industry mutual aid through its AMOSC Contract. In addition to the aircrew, trained aerial surveillance observers will be included on the flights to confirm the size of the spill and its location. This information will be sent back to the IMT for further processing. A schedule of flights will be developed, to ensure sufficient timely information is available for fate modelling. Aerial observations will only be performed during daylight hours. The aerial surveillance will include

digital imagery of the spill, the global positioning system co-ordinates of the spill extremities, an estimate of the spill thickness and the time of the observations.

Oil spill tracking buoys

Oil Spill Tracking Buoys (OSTBs) will monitor the movement of hydrocarbons via satellite.

Satellite imagery

Satellite imagery will be a supplementary source of information that can improve awareness of the extent, trajectory and even thickness of a slick. Suitable imagery is available via KSAT satellite imagery contract. The most appropriate images for purchase will be based on the extent and location of the oil spill. Synthetic aperture radar and visible imagery may both be of value.

For further detail on OM02 Surveillance and reconnaissance to detect hydrocarbons and resources at risk, refer to Woodside's *Operational Monitoring Operational Plan*.

OM02 Surveillance and reconnaissance to detect hydrocarbons and resources at risk	
Initiation Criteria	OM02 will be triggered immediately for all incident levels following a hydrocarbon spill.
Activation Time	Aerial surveillance: Trained observers deployed within 24 hours. Oil Spill tracking buoys: Within two hours, as per First Strike Plan Satellite imagery: Within two hours of forming the IMT.
Resources	Aerial surveillance Rotary wing aircraft and flight crew: Contracted helicopter provider. Aerial surveillance AMOSC staff (nine), AMOSC Core Group (seven) and industry Mutual Aid. Unmanned aerial vehicle and pilots. AMOSC, Mutual Aid, OSRL, local WA hire companies. OSTB: Deployed from facility within 2 hours Additional OSTBs available from KBSF stockpile. <u>Satellite imagery:</u> Contract with KSAT Satellite Services
Termination Criteria	72 hours has elapsed since the last confirmed observation of surface hydrocarbons. Latest hydrocarbon spill modelling results (OM01) do not predict surface exposures at visible levels.

OM03 – Monitoring of hydrocarbon presence, properties, behaviour and weathering in water – Objective, Scope, Rationale and Methods

OM03 Monitoring of hydrocarbon presence, properties, behaviour and weathering in water will be commissioned by the Incident Controller or by a designated officer of the nominated Control Agency. Water quality monitoring is a process that includes the monitoring of entrained hydrocarbon within the water column either from subsea releases, natural dispersion or chemical dispersant applications. Water quality monitoring can determine the effectiveness of dispersant application and will include taking water samples (both surface and subsea) that can be sent to laboratories for further analysis.

Woodside has a contract in place with a monitoring service provider to rapidly stand up a water quality monitoring service.

For further detail on OM03 Monitoring of hydrocarbon presence, properties, behaviour and weathering in water, refer to Woodside's *Operational Monitoring Operational Plan*.

OM03 Monitoring of hydrocarbon presence, properties, behaviour and weathering in water	
Initiation Criteria	OM03 will be triggered immediately following a level 2/3 hydrocarbon spill.
Activation Time	Within 3 days of forming the IMT
Resources	Contract for access to specialist personnel and equipment. Access to vessel with a dedicated winch, A-frame or Hiab and ancillaries to deploy the equipment
Termination Criteria	Response technique has been successful Response technique is no longer effective Response technique is having a greater deleterious effect than the hydrocarbon Benefit of the technique is insufficient to justify the cost

OM04 – Pre-emptive assessment of sensitive receptors at risk – Objective, Scope, Rationale and Methods

OM04 Pre-emptive assessment of sensitive receptors at risk will be commissioned by the Incident Controller or by a designated officer of the nominated Control Agency. Pre-emptive assessment of sensitive receptors aims to undertake a rapid assessment of the presence, extent and current status of sensitive receptors prior to contact from the hydrocarbon spill, by providing categorical or semi-quantitative information on the characteristics of resources at risk. Indirectly, qualitative/semi-quantitative pre-contact information collected on the status of the 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 Scientific Monitoring Programs.

Woodside has a pool of internal trained personnel and environmental contractors in place to conduct pre-emptive surveys.

For further detail on OM04 Pre-emptive assessment of sensitive receptors at risk, refer to Woodside's *Operational Monitoring Operational Plan*.

OM04 Pre-emptive assessment of sensitive receptors at risk	
Initiation Criteria	Contact of a sensitive habitat or shoreline is predicted by OM01, OM02 and/or OM03. The pre-emptive assessment methods can be implemented before contact from hydrocarbons (once a receptor has been contacted by hydrocarbons it will be assessed under OM05).
Activation Time	Within 2 days of forming the IMT
Resources	Internal trained personnel Contracts with environmental service providers
Termination Criteria	Locations predicted to be contacted by hydrocarbons have been contacted. The location has not been contacted by hydrocarbons and is no longer predicted to be contacted by hydrocarbons (resources should be reallocated as appropriate).

OM05 – Shoreline assessment – Objective, Scope, Rationale and Methods

OM05 Shoreline assessment will be commissioned by the Incident Controller or by a designated officer of the nominated Control Agency. Shoreline assessment provides rapid accurate geo-referenced documentation and data of shoreline contamination conditions. Teams will be mobilised to systematically survey shorelines both precontact and upon contamination to advise on clean-up strategies. The information collected can be used to develop real-time decisions and to expedite shoreline clean-up planning and response operations.

Shoreline Clean up Assessment Technique (SCAT) is a well-established tool that can be used to document the status of impact shorelines and their subsequent treatment recommendations in a methodical and scientific

manner. Its objective is to collect and document real-time data on stranded hydrocarbons and shoreline conditions in a rapid, accurate, systematic and consistent way in order to provide operational support and aid in the development of an effective response.

Woodside has a pool of internal trained personnel to conduct shoreline assessment surveys. In addition, Woodside has access to AMOSC Core Group members who are trained in shoreline assessment techniques, and a surge capacity can be met via contracts with OSRL.

For further detail on OM05 Shoreline assessment, refer to Woodside's *Operational Monitoring Operational Plan*.

OM05 Shoreline assessment	
Initiation Criteria	OM05 will be triggered when a sensitive habitat or shoreline is predicted to be contacted by hydrocarbons by OM01, OM02 and/or OM03.
Activation Time	Within 2 days of forming the IMT
Resources	Internal trained personnel AMOSC Master Services Agreement OSRL Service Level Agreement
Termination Criteria	No additional response or clean-up of wildlife or habitats is predicted. Spill response and clean-up activities have ceased. OM05 survey sites established at sensitive habitat and shoreline locations will continue to be monitored during SM02. The formal transition from OM05 to SM02 will begin on cessation of spill response and clean-up activities.

10.4.2.2 Oil Spill Preparedness

Oil spill preparedness for the elements of the Monitor and Evaluate response strategy comprise contractual arrangements with Oil Spill Response Agencies (OSRAs), such as AMOSC/OSRL, and/or service agreements with third party vendors for providing services such as water quality monitoring, OSTBs and satellite imagery.

10.4.2.3 Potential Environmental Impacts and Risks

The risks and impacts associated with the vessels involved in the Monitor and Evaluate response strategy from their physical presence, noise and atmospheric emissions, interference with marine fauna, planned and unplanned discharges, and accidental spills have been discussed in the next sections.

The impacts and risks associated with aircraft involved in the Monitor and Evaluate response strategy relate to acoustic disturbance. During the response activities, aircraft and vessels will generate noise both offshore and in coastal areas near sensitive receptors such as shorebirds, marine mammals, fish and shark species.

10.4.2.4 Monitor and Evaluate Environmental Performance

Table 10-5 provides the environmental performance outcomes, performance standards and measurement criteria for the Monitor and Evaluate response strategy.

The initiation criteria, course of action, resources, supporting documentation and termination criteria associated with each response strategy are detailed above.

Table 10-5: Environmental Performance – Monitor and Evaluate

Monitor and Evaluate		
Environmental Performance Outcome	To gather information from multiple sources to establish an accurate common operating picture as soon as practicable 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

Monitor and Evaluate			
			(Section 10.4.10)
Oil spill trajectory modelling (OM01)	5.1	Initial modelling available within 6 hours using the Rapid Assessment Tool.	1, 3B, 3C, 4
	5.2	Detailed modelling available within 4 hours of APASA receiving information from Woodside.	
	5.3	Detailed modelling service available for the duration of the incident upon contract activation.	
Tracking buoy (OM02)	6.1	Tracking buoy located on facility/vessel and ready for deployment 24/7.	1, 3A, 3C, 4
	6.2	Deploy tracking buoy from facility within 2 hours as per the First Strike Plan.	1, 3A, 3B, 4
	6.3	Contract in place with service provider to allow data from tracking buoy to be received 24/7 and processed.	1, 3A, 3C, 4
	6.4	Data received to be uploaded into Woodside COP daily to improve the accuracy of other monitor and evaluate strategies.	1, 3B, 4
Satellite imagery (OM02)	7.1	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
	7.2	3 rd party provider will confirm availability of an initial acquisition within 2 hours.	1, 3B, 3C, 4
	7.3	First image received with 24 hours of Woodside confirming to 3rd party provider its acceptance of the proposed acquisition plan.	1
	7.4	3rd 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
	7.5	Data received to be uploaded into Woodside COP daily to improve accuracy of other monitor and evaluate strategies.	1, 3B, 4
	7.6	Satellite imagery services available and employed during response.	1, 3C, 4
Aerial surveillance (OM02)	8.1	2 trained aerial observers available to be deployed by day 1 from resource pool.	1, 2, 3B, 3C, 4
	8.2	1 aircraft available for 2 sorties per day, available for the duration of the response from day 1.	1, 3C, 4
	8.3	Observer to compile report during flight as per First Strike plan. Observers report available to the IMT within 2 hours of landing after each sortie.	1, 2, 3B, 4
	8.4	Unmanned Aerial Vehicles/Systems (UAV/UASs) to support Shoreline Clean-up Assessment Technique (SCAT), containment and recovery and surface dispersal and pre-emptive assessments as contingency if required.	1, 2
Hydrocarbon	9.1	Activate 3rd party service provider as per First Strike plan.	1, 2, 3C, 3D, 4

Monitor and Evaluate			
detection in water (OM03)		Deploy resources within 3 days: 3 specialists in water quality monitoring 2 monitoring systems and ancillaries 1 vessel for deploying the monitoring systems with a dedicated winch, A-frame or Hiab and ancillaries to deploy the equipment.	
	9.2	Water monitoring services available and employed during response.	1, 3C, 4
	9.3	Preliminary results of water sample as per contractor's implementation plan within 7 days of receipt of samples at the accredited lab.	
	9.4	Daily fluorometry reports as per service provider's implementation plan will be provided to IMT to validate modelling and monitor presence/absence of entrained hydrocarbons.	
	9.5	Use of Autonomous Underwater Vehicles (AUVs) for hydrocarbon presence and detection may be used as a contingency if the operational NEBA confirms conventional methods are unsafe or not possible.	1, 2, 3C, 4
Pre-emptive assessment of sensitive receptors (OM04)	10.1	Within 2 days of impacts predicted by OM01/02/03, 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
	10.2	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
Shoreline assessment (OM05)	11.1	Within 2 days of impacts predicted by OM01/02/03, and in agreement with WA DoT (for Level 2/3 incidents), deployment of 1 specialist in SCAT for each RPA with predicted impacts greater than 100 g/m ² .	1, 2, 3B, 3C, 4
	11.2	SCAT reports provided to IMT daily detailing the assessed areas to maximise effective utilisation of resources.	1, 3B, 4
	11.3	Shoreline access routes with the least environmental impact identified will be selected by a specialist in SCAT operations.	1

10.4.3 Spill Response: Subsea Dispersant Injection

10.4.3.1 Summary of Activity

The basis of assessment for subsea dispersant injection relates to the potential subsea release of crude oil from a worst-case loss of containment from the Stybarrow well. Subsea dispersant injection will be implemented via the SFRT. A summary of the SFRT activity is provided in **Section 10.4.1.4**.

Subsea Dispersant Injection	
Initiation Criteria	Release of Stybarrow Crude via LOWC and operational monitoring predicts shorelines with identified sensitive receptors will potentially be contacted by the spill.
Activation Time	Within two hours of forming the IMT.
Resources	SFRT Contract with AMOSC

Subsea Dispersant Injection	
	Frame agreements with ROV providers Contract with OSRL for Global Dispersant Service (GDS) Contract with logistics provider for road transport Contracts with vessel service providers Coiled tubing (located at Woodside's Fremantle and KBSF stockpiles)
Termination Criteria	Chemical dispersant not effective (as determined via efficacy testing results) or at the direction of Control Agency.

10.4.3.2 Oil Spill Preparedness

Response Arrangements – Subsea Dispersant Injection Procedure

- Activity Source Control Emergency Response Plan (SCERP)
- Subsea Dispersant Injection Operational Plan

Response Need

A subsea LOWC from Stybarrow P&A activities has a low flow rate. For the purposes of this capability assessment, it has been highly conservatively assumed that the entire daily flow rate of ~140 m³ would be available for treatment via subsea dispersant injection.

The volumes of dispersant required will depend on the Dispersant to Oil ratio (DOR) used at the injection point. It has been assumed that the release would require a DOR of 1:100. To achieve a DOR of 1:100 for a flow rate of 140 m³/day for the subsea LOWC scenario, a dispersant pump rate of ~1.4 m³/day is required.

The AMOSC SFRT Package can deliver up to 110 L/min (158 m³/day), and along with the dispersant stocks specified in the GDS (Document Reference: 9193533), is therefore capable of meeting the demand for SSDI for this activity, if it is determined to be a viable strategy.

Personnel

Woodside have contracts with specialist subsea dispersant injection personnel via Oceaneering to support the Woodside CIMT.

Equipment

Woodside has access to the SFRT equipment and required vessels as outlined in **Section 10.4.1.4**.

Response Timing

SFRT timings are outlined in **Section 10.4.1.4**.

Dispersant stockpiles

Dispersant stockpiles are made available via AMOSC membership or AMSA agreement with most supplies within Australia being available within 48 to 55 hours. Woodside is also a member of the OSRL Global Dispersant Service (GDS) guaranteeing access to 5,000 m³ dispersant. The overall total dispersant available for subsea response is circa 6,491 m³. Woodside can supply all required road logistics to meet these timeframes through its contracted logistics provider. Woodside can also provide air logistics for all other stockpiles throughout Australia and internationally.

Dispersant stockpiles and locations are maintained in Woodside's dispersant database: [Link](#)

Legislative and Other Considerations

The dispersants used will be approved under the Australian Government National Plan arrangements as listed on the Oil Spill Control Agents (OSCA) register or the transitional list, or otherwise approved through the dispersant selection process detailed below.

Consistent with selection of hazardous materials at facilities, where a product may be discharged to the environment, an assessment must be completed before the product is approved for mobilisation and subsequently approved for application.

The following dispersants will be automatically approved for mobilisation:

- Dispersants listed on the National Plan OSCA List:
<https://www.amsa.gov.au/marineenvironment/pollution-response/register-oil-spill-control-agents>
- Dispersants listed on the National Plan transitional list

Water Column Monitoring Equipment & Personnel

Woodside has access to water column monitoring through their operational monitoring and scientific monitoring service provider contract. Even if SSDI is not required as a response option, the WCM Equipment provides useful instrumentation and tools to enable sampling and monitoring in deep-water settings for Operational and Scientific Monitoring Plans.

Potential Environmental Impact and Risks – Subsea dispersant injection

There are no additional environmental impacts and risks associated with a vessel-based response in offshore waters to those already described within **Section 1** and **Section 8**.

10.4.3.3 Subsea Dispersant Injection Environmental Performance

Table 10-6 provides the environmental performance outcomes, performance standards and measurement criteria for the subsea dispersant injection response strategy.

In the event of a spill, Operational NEBAs (refer to Section 4 of the OPEP) will be completed daily, to take into account spill trajectories, prevailing weather and planned actions for the day.

Table 10-6: Environmental Performance – Subsea Dispersant Injection

Subsea Dispersant Injection			
Environmental Performance Outcome	Timely application of dispersant to effectively disperse hydrocarbons to reduce overall shoreline accumulation; and/or chemical dispersant application enables the safe deployment of response equipment and personnel.		
Control Measure	Performance Standard		Measurement Criteria (Section 10.4.10)
Subsea spraying	12.1	Contract in place to provide subsea dispersant equipment resources (via SFRT)	1, 3B, 3C, 4
	12.2	Oceaneering support staff available all year round, via contract, to assist with the mobilisation, deployment and operation of the SFRT equipment	
	12.3	Subsea dispersant vessel will have the following minimum specifications: Compensated crane up to 36 mt Mobilised to site within 12 days	1, 3B, 3C, 4
	12.4	Per day dispersant log completed to record quantity of dispersants applied	1, 3A, 3B
	12.5	Contract in place with Wild Well Control Inc to provide SSDI and debris clearance equipment and trained personnel.	1, 3B, 3C, 4
Support vessels	13.1	Quarterly monitoring of the availability of installation support vessels (ISVs) through existing frame agreements and market intelligence to meet specifications for subsea dispersant injection	3C, 4
	13.2	Frame agreements for ISVs require vessels to maintain in-force safety case approvals covering ROV operations and provide support in the event of	1, 3B, 3C

Subsea Dispersant Injection			
		an emergency	
	13.3	Monitoring of NOPSEMA's list of registered operators and cross reference against their locations and minimum specifications for SSDI vessels	1, 3A, 4
Dispersant	14.1	Year-round access to 5,000 m ³ of dispersant located globally which is ready to be mobilised within 48 hours under activation of GDS membership	1, 3A, 3B, 3C, 3D, 4
	14.2	Year-round access to additional dispersant stockpiles via memberships with OSRL and AMOSC	
	14.3	OSCA approved dispersants prioritised for surface and subsea use	1, 3A, 3B, 3C, 4

10.4.4 Spill Response: Shoreline Protection

10.4.4.1 Summary of Activity

The Shoreline Protection response strategy involves deploying protection and deflection booms which assist in minimising the amount of oil contacting shorelines. In a hydrocarbon spill event and if the modelling suggests sensitive shorelines and receptors are at risk of contact, protective and deflective booms will be deployed to deflect a slick away from a known sensitivity towards an area where collection can be more effective without impacting high value receptors.

This response strategy will involve deploying vessels, equipment and personnel and its success depends on weather and sea state conditions.

Sensitive shorelines that require protection and deflection by a potential oil spill will be identified and prioritised through the IAP and Operational NEBA process. Shoreline protection will be carried out as directed by the Western Australian Department of Transport (WA DoT), as the Controlling Agency in State waters.

It should be noted that shoreline protection and shoreline clean-up measures for Barrow Island (noted as a priority protection area in Section 2.2.3 of the OPEP) are established and maintained by Chevron. Chevron's Oil Pollution Emergency Plan arrangements would be enacted following joint consultation with Chevron and the WA DoT. The need for activation would be identified during the implementation of Operational Monitoring. Should data indicate potential shoreline contact with Barrow Island or any nearby receptors, Chevron would be notified and mobilised via existing arrangements by the WA DoT as the Controlling Agency.

Potential shoreline exposure is cumulative rather than instantaneous; therefore, shoreline protection measures should be designed to manage potential peak loadings.

Shoreline Protection	
Initiation Criteria	Notification of Level 2/3 Oil Spill where shorelines with identified sensitive receptors will potentially be contacted by the spill.
Activation Time	Within two hours of forming the IMT.
Resources	Shoreline protection equipment and trained personnel available via Woodside response personnel, AMOSC, Mutual Aid and OSRL. Logistics contractor (located in Exmouth) available to Woodside via existing contracts. Vessels available to Woodside via existing marine contracts. Vessels of opportunity available on local charter market in Exmouth or Onslow.

Shoreline Protection	
Termination Criteria	Operational NEBA has determined this strategy is unlikely to result in an overall benefit to the affected shoreline/s, or as directed by the Woodside Incident Controller or relevant Control Agency. Agreement is reached with the Jurisdictional Authority relevant to the spill to terminate shoreline protection.

10.4.4.2 Oil Spill Preparedness

Woodside can protect priority areas where functional shoreline protection can be implemented before the predicted arrival time of first oil. During the response, SCAT teams and specialists will continue to monitor opportunities to deploy additional shoreline protection strategies above and beyond what has already been identified as suitable for protection. Woodside would replenish the shoreline protection stockpile, as required, if the Operational NEBA showed a net benefit. Pre-mobilisation of additional equipment or resources or improving access along the coastline for shoreline protection is not justified for the environmental benefit gained.

The need is to install shoreline protection equipment before the accumulation of hydrocarbon at locations where deployment can be safely and practicably achieved. The earliest shoreline oiling at response thresholds (>100 g/m²) is predicted on Day 3 (Exmouth) and Day 4 (Muiron Islands)). The capacity for the shoreline protection will be maintained until the termination criteria for Shoreline Protection has been achieved.

Response Planning Assumptions

A number of assumptions are required to estimate the response need for Shoreline Protection and Deflection. These assumptions have been described in

Table 10-7.

Table 10-7: Response Planning Assumptions – Shoreline Protection and Deflection

Response Planning Assumptions	
Safety considerations	Shoreline protection and deflection operations cannot be implemented if the safety of response personnel cannot be guaranteed. This requires an initial and ongoing risk assessment of health and safety hazards and risks at the site. Personnel safety issues may include <ul style="list-style-type: none"> • hydrocarbon gas and/or liquid exposure • safe for deployment and conditions within range of vessels • high ambient temperatures.
Shoreline protection and deflection	1 x Shoreline Protection and Deflection operation may include; <ul style="list-style-type: none"> • Quantity of shoreline sealing boom (as outlined in TRP) • Quantity of fence or curtain boom (as outlined in TRP) • 1-2 x trained supervisors • 8-10 x personnel / labour hire Specific details of each operation would be tailored to the TRP implemented (where available).

Response Need

Shoreline protection and deflection equipment would be mobilised to selected locations, where the following conditions were met:

- Sea-states and hydrocarbon characteristics permit safe deployment of protection and deflection measures.
- Oil trajectory has been identified as heading towards identified RPAs.

The following statements identify the key parameters upon which the response need can be based:

- Deterministic spill modelling predicts for the LOWC scenario, there would be a minimum arrival time of five days for shoreline accumulation volumes at feasible response thresholds (>100 g/m²) at Exmouth, with arrival at other receptors, exceeding this threshold, predicted after 35 days (Table 2-2 of the

OPEP).

- Pre-emptive assessment and shoreline assessments (OM04 and OM05 respectively) will be mobilised within 2 days of operational monitoring predicted shoreline impacts.
- The duration of the LOWC spill may be up to 73 days with response operations extending up to month 4-5 based on the predicted time to complete shoreline clean-up operations.
- Spill modelling did not predict any shoreline accumulation $>100 \text{ g/m}^2$ for the MDO spill.
- Predictive modelling (OM01), direct observation/surveillance (OM02) and, where appropriate, hydrocarbon detection in water (OM03), will be employed from the outset of a spill to track the oil, assess where and when appropriate response techniques can be deployed and to identify when the spill enters State Waters. When RPAs at threat of impact can be accurately deduced, this will trigger the undertaking of pre-emptive assessments of sensitive receptors at risk (OM04), to direct any protection and deflection operations. OM04 would be undertaken in liaison with WA DoT (if a Level 2/3 incident and within State Waters).
- Following pre-emptive assessments of sensitive receptors at risk, and in agreement of prioritisation with WA DoT (if a Level 2/3 incident and within State Waters), protection and deflection operations would commence until agreed termination criteria are reached.
- Arrangements for support organisations who provide specialist services (trained personnel, protection and deflection equipment) and/or resources should be tested regularly; and
- TRPs for RPAs along with other relevant plans, procedures and support documents need to be in place for Operational and Support functions. These should be reviewed and updated regularly.

Response Arrangements – Equipment

Woodside maintains a stockpile of shoreline response equipment at King Bay Supply Facility (KBSF) and additionally has access to the Exmouth AMOSC stockpile. First strike response resources can be mobilised within 24-48 hours and be in place within 72 hours. Arrangements are in place with an Exmouth logistics contractor to collect and transport equipment to site.

Additional shoreline protection equipment is available via AMOSC, OSRL and AMSA as well as other industry resources available through the AMOSPlan mutual aid arrangements. It is anticipated additional shoreline protection equipment from Fremantle, Karratha and Broome stockpiles will be transported via Woodside's logistics contractor and be available in Exmouth within 72 hours. Vessels are available through Woodside's integrated fleet arrangements and other contracted vessels.

Response Arrangements – Personnel

Woodside is planning a shoreline protection response matched to the consequence of a worst-case volume ashore. Arrangements are flexible and scalable in time to mobilise. Modelling has indicated the minimum time to contact of oil above the moderate exposure value of $>100 \text{ g/m}^2$ is around five days at Exmouth. Woodside can mobilise internal response personnel and AMOSC Core Group personnel within 24-48 hours to protect the key environmental sensitivities that may be impacted in this timeframe. Should additional skilled personnel be required to fill team lead/supervisor roles may be sought via Woodside's OSRL contract and the National Response Team (NRT).

As described in Section 6.4 of the OPEP, if required, Woodside could initiate the deployment of labour-hire personnel to fill unskilled team member roles that may be required for shoreline protection crews. Skilled personnel would be sourced from the internal response personnel, AMOSC Core Group, mutual aid, OSRL and NRT to supervise response crews. All unskilled personnel would receive relevant on-the-job training prior to undertaking shoreline protection operations.

Shoreline protection operations will continue until the termination criteria for Shoreline Protection has been achieved.

Legislative and Other Considerations – Shoreline Protection

Shoreline protection operations are administered by WA DoT as the Controlling Agency within State jurisdiction.

Several Conservation Management Plans identify marine debris as a key threatening process to recovery. Also, the relevant action from the *Threat Abatement Plan for the Impacts of Marine Debris on the Vertebrate Wildlife of Australia's Coasts and Oceans* (Commonwealth of Australia, 2018) is to "contribute to the long-term

prevention of the incidence of harmful marine debris". The prevention of garbage entering the marine environment and the appropriate management of sewage and food wastes reduces the risk of impacts to the marine environment and demonstrates alignment with the various species recovery and threat abatement plans.

For nearshore vessel operations: Marine Order 91 (Pollution Prevention – Oil), Marine Order 94 (Pollution Prevention – Packaged Harmful Substances), Marine Order 95 (Pollution Prevention – Garbage) and Marine Order 96 (Pollution Prevention – Sewage) and EPBC Regulations 2000 – Part 8 Division 8.1 Interacting with Cetaceans (modified to include whale sharks and turtles).

The Threat Abatement Plan to Reduce the Impacts of Exotic Rodents on Biodiversity on Australian Offshore Islands of less than 100,000 Hectares (Department of the Environment, Water, Heritage and the Arts, 2009), describes the threat of invasion or reinvasion of rodents on bird populations. The relevant action from the threat abatement plan is to prevent invasion or reinvasion via prevention / risk reduction for rodents gaining access to key vessels at key ports. Woodside's controls align with the intent of preventing invasion/establishment of pests.

The *Recovery Plan for Marine Turtles in Australia* (Commonwealth of Australia, 2017) identifies that light pollution and vehicle damage (and therefore possibly excessive foot traffic) are possible threats to turtle nesting, which could result from shoreline response activities during an oil spill response. Controls which align with the intent of the Recovery Plan have been adopted, including consideration of the National Light Pollution Guidelines (Commonwealth of Australia, 2020b).

Logistical Constraints

The following operational constraints limit the contribution to shoreline protection:

Multiple use of logistics contractor to support other operations: The initiation of multiple response strategies in Exmouth has the potential to cause conflicts on the available logistics contractor's movement of equipment required for the first strike shoreline protection. The equipment required to deploy shoreline protection can be delivered to the location by either the logistics contractors or the first strike teams themselves, using utility vehicles and trailers if trucks were deployed for other strategies. It has been assessed that this would not be a conflict to the required deployment timeframe.

Access to areas requiring shoreline protection: There is access to coastline around Exmouth using paved roads, with 4WD access tracks to most beaches. Vehicles for managing the logistics in these areas would be required, such as 4WD buses and trucks. Transit times would be longer. Access to the nearshore islands would be via barge or small vessel.

Locations amenable to shoreline protection: Tactical Response Plans are available for shoreline protection and clean-up for the key sensitivities at risk from a large hydrocarbon spill. During the response, SCAT teams and specialists will continue to monitor opportunities to deploy additional shoreline protection strategies above and beyond what is described in the Tactical Response Plans. Woodside would continuously replenish the Exmouth shoreline protection stockpile to maximise the potential to use this method.

In summary, Woodside has access to shoreline protection equipment, trained personnel and supporting staff that are sufficient and appropriate for shoreline protection operations. Trained personnel requirements will be filled from the AMOSC Core Group, mutual aid, OSRL and the NRT. These resources are expected to provide sufficient capability to implement this response strategy. Woodside has pre-identified protection priorities, equipment and resource requirements, access and constraints within Tactical Response Plans that will enable efficient measures to be implemented.

10.4.4.3 Potential Environmental Impacts and Risks

This response strategy will involve deploying vessels, equipment and personnel. The installation of booms and associated equipment could result in damage to sensitive habitats and disturbance of fauna (such as trampling of mangroves, emergent reefs, turtle nesting beaches; and damage to emergent reefs by vessels used to deploy nearshore booms and anchoring impacts), entanglement of marine fauna within booms, accidental corralling of fauna into surface oil, accidental deflection of surface oil to sensitive shorelines and environmental receptors, and damage to aboriginal registered sites of cultural significance from shoreline accumulation and deployment of protection and deflection booms.

The environmental sensitivity of shorelines that may be impacted by a potential Level 2/3 oil spill is a key consideration in determining priorities for shoreline response. The sensitivity of shorelines may vary depending

on the time of year, as some shorelines in the region are used as turtle and bird nesting areas. Table 2-2 of the OPEP provides information regarding the seasonality of receptors at priority areas.

Sensitive receptor protection (intertidal booms and skimming) may generate a significant quantity of hydrocarbon contaminated solid and liquid waste. Contaminated solids would include PPE, oil-coated booms, skimmers etc. and the oily contaminated liquids and organic matter collected during the nearshore booming/skimming activities. Inappropriate management of oil contaminated waste could result in localised secondary contamination of the nearshore marine environment shoreline sediments and harm to individuals of protected species.

10.4.4.4 Shoreline Protection Environmental Performance

Table 10-8 provides the environmental performance outcomes, performance standards and measurement criteria for the Shoreline Protection response strategy.

The initiation criteria, course of action, resources, supporting documentation and termination criteria associated with each response strategy are detailed above.

Table 10-8: Environmental Performance – Shoreline Protection

Shoreline Protection			
Environmental Performance Outcomes	To stop hydrocarbons encountering particularly sensitive areas		
Control Measure	Performance Standard		Measurement Criteria (Section 10.4.10)
Response teams	15.1	In liaison with WA DoT (for Level 2/3 incidents), relevant Tactical Response Plans (TRPs) will be identified in the First Strike plan for activation within 24 hours of predicted impact.	1, 3A, 3C, 4
	15.2	In liaison with WA DoT (for Level 2/3 incidents), mobilise teams to RPAs within 2 days of predicted impact. Teams to contaminated RPAs comprised of: 1-2 trained specialists per operation 8-10 personnel/labour hire Personnel sourced through resource pool.	1, 2, 3B, 3C, 4
	15.3	In liaison with WA DoT (for Level 2/3 incidents), 1 operation mobilised within 2 days of predicted impact for each identified RPA. Expected to be 1 RPA within 5 days (operation as detailed above) for CS-01.	1, 3A, 3B, 4
	15.4	12 trained personnel available (2 supervisors plus 10 additional personnel) within 2 days of predicted impact for each identified RPA. Sourced through resource pool.	1, 2, 3A, 3B, 3C, 4
	15.5	Open communication line to be maintained between IMT and infield operations to ensure awareness of progress against plan(s).	1, 3A, 3B
	15.6	The safety of shoreline response operations will be considered and appropriately managed. During shoreline operations: All personnel in a response will receive an operational/safety briefing before commencing operations Gas monitoring and site entry protocols will be used to assess safety of an Operational Area before allowing access to response personnel.	1, 3B, 4

Shoreline Protection			
Response equipment	16.1	Equipment mobilised from closest stockpile within 2 days of predicted impact.	1, 3A, 3C, 4
	16.2	Supplementary equipment mobilised from State, AMOSC, AMSA stockpiles within 2 days of predicted impact.	1, 3C, 3D, 4
	16.3	Supplementary equipment mobilised from OSRL within 5 days of predicted impact.	
	16.4	Woodside maintains integrated fleet of vessels. Additional vessels can be sourced through existing contracts/frame agreements	1, 3A, 3C, 4
Management of Environmental Impact of the response risks	17.1	If vessels are required for access, anchoring locations will be selected to minimise disturbance to benthic primary producer habitats. Where existing fixed anchoring points are not available, locations will be selected to minimise impact to nearshore benthic environments with a preference for areas of sandy seabed where they can be identified.	1
	17.2	Shallow draft vessels will be used to access remote shorelines to minimise the impacts associated with seabed disturbance on approach to the shorelines.	

10.4.5 Spill Response: Shoreline Clean-Up

10.4.5.1 Summary of Activity

The shoreline clean-up response strategy will be implemented for Level 2 and Level 3 spills. Where shoreline protection and deflection activities are not possible or unsuccessful, shoreline clean-up will be implemented. The shoreline clean-up response strategy is typically logistic- and labour-intensive, requiring multiple vessels, equipment, clean-up crews and waste management.

Shoreline clean-up involves physically removing stranded oil from shorelines via techniques that include:

- natural recovery
- sediment relocation
- mechanical clean-up using heavy machinery
- debris removal via manual bagging
- absorbents
- pumps and vacuums
- low-pressure flushing
- high-pressure flushing.

Woodside will use the information gained from implementing the Monitor and Evaluate response strategy (**Section 10.4.2**) to predict shorelines that will be impacted and will require priority shoreline clean-up activities. Through information gathered and assessed by the IMT and DoT, the trajectory of the spill towards the specific shoreline will be confirmed and the shoreline clean-up strategy will be implemented. After identifying environmentally-sensitive receptors, it will be of the highest priority that Woodside will establish a nearshore and onshore response to manage the impacts that may occur to those sensitive shoreline receptors.

The shoreline clean-up response strategy will consider:

- shoreline characteristics (substratum type, beach type, shoreline exposure, biological, social, heritage and economic values; characteristics of the oil (e.g., degree of weathering); amount of oil present, distribution on the shoreline; shoreline sediment type)

- logistics considerations (availability of access; waste removal; availability of equipment and labour; availability of waste storage areas)
- operational risk assessment of potential shoreline clean-up methods, leading to the development of Operational NEBAs
- damage to Aboriginal registered sites of cultural significance from shoreline clean-up activities.

DoT is the Control Agency for shoreline response in WA. Woodside will develop daily IAPs as a first priority; an Operational NEBA will also be performed for shoreline protection and clean-up in consultation with DoT. The specific clean-up techniques will be risk-assessed and refined when developing the IAP to suit the circumstances of the incident response. The sensitivity of shorelines may vary depending on the time of year, such as shorelines and beaches used by birds and turtles for nesting. This will be considered during the Operational NEBA.

Based on the IAP, Woodside will establish and deploy SCAT teams for assessing the shoreline and developing recommended clean-up strategies for the IMT planning and operations group. SCAT team members will include personnel trained in oil spill response measures and environmental and coastal sensitivities of the region. Ideally, each SCAT team will include a representative from the appropriate State Agency (DoT/DBCA).

The SCAT teams will systematically survey the shoreline that will be segmented into sections. The SCAT teams will then provide sketches and reports that will include recommendations for the most appropriate clean-up strategy for the shoreline segment. This information will feed back to the IMT, who will then prioritise areas for clean-up and allocate resources.

The SCAT teams will use techniques to determine appropriate termination end points for response in consultation with the appropriate State Agency (DoT/DBCA). The endpoints can be determined through:

- qualitative field observations – to describe the presence or absence of stranded oil and/or the character of such oil
- quantitative field measurement methods – based on visual measurements and observations of the quantity of oil
- analytical measurement methods – typically require collection of representative field samples and subsequent laboratory analysis, or
- interpretive impact assessment methods – based on an evaluation of system impacts (e.g., Operational NEBA).

Through the designated Control Agency, Woodside will resource the necessary personnel and logistics associated with maintaining those crews at the impact location, which includes support arrangements to ensure the health, safety and welfare of the shoreline crews. This includes availability of personal protective equipment, sun shelter, first aid supplies, catering, drinking water, ablutions, decontamination facilities, accommodation, transport and communications to support the number of personnel expected to be required at the impact location.

Potential shoreline exposure is cumulative rather than instantaneous; therefore, shoreline clean-up measures should be designed to manage potential peak loadings. Shoreline clean-up activities will also need to factor in the ecological sensitivities of the priority protection areas, in particular the offshore islands where access is limited and staging area sites could result in secondary impacts to beaches and dunes. Given the access constraints and ecological sensitivities of these shorelines, an Operational NEBA should evaluate the benefit of conducting shoreline clean-up operations with smaller teams for a longer period of time.

It should be noted that shoreline clean-up measures for Barrow Island (noted as a priority protection area in Section 2.2.3 of the OPEP) are established and maintained by Chevron. Chevron’s Oil Pollution Emergency Plan arrangements would be enacted following joint consultation with Chevron and the WA DoT. The need for activation would be identified during the implementation of Monitor and Evaluate. Should data indicate potential shoreline contact with Barrow Island or any nearby receptors, Chevron would be notified and mobilised via existing arrangements by the WA DoT as the Controlling Agency.

Shoreline Clean-up	
Initiation Criteria	Notification of Level 2/3 Oil Spill where shorelines with identified sensitive receptors will potentially be contacted by the spill.

Shoreline Clean-up	
Activation Time	Within two hours of forming the IMT.
Resources	Shoreline clean-up equipment and trained personnel available via Woodside's Burrup Response Team, AMOSC, Mutual Aid and OSRL. Logistics contractor (located in Exmouth) available to Woodside via existing contracts. Vessels available to Woodside via existing marine contracts. Vessels of opportunity available on local charter market in Exmouth or Onslow.
Termination Criteria	Operational NEBA has determined this strategy is unlikely to result in an overall benefit to the affected shoreline/s, or as directed by the Woodside Incident Controller or relevant Control Agency. Agreement is reached with the Jurisdictional Authority relevant to the spill to terminate shoreline clean-up.

Net Environmental Benefit Analysis of Shoreline Clean-Up

Environmentally-sensitive shorelines, cultural heritage sites and shoreline receptors that may be impacted by a potential oil spill are a key consideration in determining priorities for shoreline response and clean-up activities. This section outlines the overarching approach to identifying shore-based oil spill response and clean-up priorities in the event of spill incidents. Table 10-9 outlines the sensitivity of coastal features and appropriate protection and clean-up procedures. Table 10-10 identifies proposed protection and clean-up approaches for these sensitive coastal features. The associated environmental risk assessment of the identified protective measures and preferred clean-up methods is provided in Table 10-11. The outcomes from Table 10-9 and Table 10-10, along with the Operational NEBA, inform the IAP.

Table 10-9: Coastal Features Classification – Sensitivity, Protection and Clean-Up Methods

Coastal Feature	Sensitivity *	Comments	Protective Measure	Clean-up Method (Table 10-10)		
				Preferred	Possible	Avoid
Sites of Cultural Significance	S1	Potential damage to Aboriginal registered sites of cultural significance from shoreline clean-up activities and shoreline response operations.	2, 3	1, 7	6, 14	5, 8, 9, 10, 11, 12, 13
Mangroves & Tidal Flats	S1	Extremely low energy areas. Oils may penetrate muddy substrate rapidly and deeply and can persist for years. Associated tidal flats are very important for wading birds. These areas should receive top protection and clean-up priority.	2, 3	1, 7	3, 6, 14	5, 8, 9, 10, 11, 12, 13
Intertidal Limestone Reef & Corals	S2	Unless tide is low, most corals will not be directly exposed to floating oil. However, turbulent mixing from waves can result in contact and adhesion of oil to reef areas.	1, 2, 3, 4	1, 3, 7	8	5, 6, 9, 10, 14
Sandy Beaches	S3 S1*	Sand beaches are relatively low in ecological diversity, except during times of turtle and bird nesting. Higher clean-up priority should be given to turtle nesting and amenity beaches. High potential for oil penetration.	1, 3	1, 3, 6, 7, 8, 13	9, 14	5, 10, 11
Sheltered	S3	Landed oil will weather quickly and may	1, 3	7	3, 8, 9	5,10,11

Coastal Feature	Sensitivity *	Comments	Protective Measure	Clean-up Method (Table 10-10)		
				Preferred	Possible	Avoid
Rock Shores		accumulate in pools and cracks.				
Shingle, Rock and Sand Mixed Beaches	S4	High potential for oil penetration and persistence.	1, 3	7, 9	8, 14	5, 10, 11, 12
Exposed Rock, Shores and Cliffs	S4	Wave reflection may keep oil offshore. Moderate diversity and recolonised quickly. Oil will accumulate in tidal pools and cracks.	1, 3	7	1, 3, 9, 12	5, 10, 11
Marina, Jetties, Piers	S4	Very low likelihood of marina or pier areas being affected. To be cleaned as circumstances dictate.	1, 3	1, 3, 6, 9, 10	11, 12	5

Sensitivity Codes:

S1: Extreme Sensitivity: High Protection and clean-up priority.

S2: High Sensitivity: Protection and clean-up priority as resource use and circumstances dictate.

S3: Moderate Sensitivity: Protection and clean-up priority as resource use and circumstances dictate.

S4: Low Sensitivity Low protection and clean-up priority.

*Sandy beaches have an extreme sensitivity during turtle and bird nesting, which occurs at multiple sandy beaches in the region.

Table 10-10: Protection and Clean-Up Options

Clean Up Options	
1 Containment and recovery using booms	8 Manual clean-up of oil, or movement of substratum
2 Divert to less sensitive shore	9 Low pressure seawater flushing
3 Human-made sorbent methods	10 High pressure flushing
4 Earth barriers	11 Hot water steam cleaning
5 Chemical dispersant	12 Low pressure warm seawater wash
6 Skimmers, vacuums	13 Mechanical clean-up of oil, removal or movement of substrate
7 Natural recovery, allow to weather naturally	14 Bioremediation

Table 10-11: Environmental Risks of Shoreline Protective and Preferred Clean-Up Method

Protection/Clean-Up Options Method		Environmental Risks	Likelihood Factor	Severity Factor	Residual Risk	Acceptability
1	Containment and recovery booms	<ul style="list-style-type: none"> Wildlife entrapment, disturbance, injury and entanglement while deploying and using equipment and personnel. Contamination of ground or surface water resulting from managing waste. 	0.1	10	1	Tolerable
2	Diversion to a less sensitive shoreline	<ul style="list-style-type: none"> Contamination and accumulation of oil on the less-sensitive shore. Wildlife entrapment, disturbance, injury and entanglement while deploying and using equipment. 	1	30	30	Tolerable
3	Human-made sorbents	<ul style="list-style-type: none"> Contamination of ground or surface water resulting from management of waste. 	0.1	30	3	Tolerable
6	Skimmers and vacuums	<ul style="list-style-type: none"> Wildlife entrapment, disturbance, injury and entanglement while deploying and using equipment and personnel. 				
4	Earth barriers	<ul style="list-style-type: none"> Ground and vegetation disturbance to and compaction of sensitive coastal landforms through using machinery and moving earth, resulting in erosion and potential sedimentation of surface water. Drive oil deeper into substratum. Impacts to invertebrates from disturbance to sediment. Wildlife entrapment, disturbance, injury and entanglement while deploying and using equipment and personnel. Contamination of ground or surface water resulting from managing waste. 	1	10	10	Tolerable
8	Manual clean-up and movement of substratum					
7	Natural recovery, allow to weather naturally	<ul style="list-style-type: none"> Prolonged and ongoing contamination and visible oil on both the shore and in the marine sediments and water column. 	1	10	10	Tolerable
9	Low-pressure flushing	<ul style="list-style-type: none"> Contamination of surface water with oily water. Drive oil deeper into substratum. Erosion of substratum. Impacts to invertebrates from disturbance to sediment. Damage or death to sensitive shoreline flora and fauna via action 	1	10	10	Tolerable
10	High-pressure flushing					

Protection/Clean-Up Options Method	Environmental Risks	Likelihood Factor	Severity Factor	Residual Risk	Acceptability
	of water and deployment of equipment and personnel.				
13 Mechanical clean-up of oil, removal or movement of substrata	<ul style="list-style-type: none"> • Vegetation clearing and damage, soil compaction. • Hydrocarbon leaks from equipment. • Drive oil deeper into substratum. • Impacts to invertebrates from disturbance to sediment. • Erosion of substratum. • Damage or death of sensitive shoreline flora and fauna via action of water and deployment of equipment and personnel. 	1	10	10	Tolerable

10.4.5.2 Oil Spill Preparedness

If the Operational NEBA indicates shoreline clean-up would result in an overall benefit to the shorelines contacted by hydrocarbons, clean-up operations will aim to remove hydrocarbons from shorelines, to reduce the duration of exposure of sensitive shoreline biota and habitats to accumulated oil.

The priority coastal types for shoreline clean-up include sandy beaches, tidal mudflats and mangroves, and sites of cultural significance. Priority will be given to resourcing the shoreline clean-up response at known environmental sensitivities if a spill occurs during windows of increased ecological sensitivity (Table 2-2 of the OPEP), such as peak migratory periods for shorebirds and turtle nesting season.

The needs for a shoreline clean-up operation require capacity to respond to stranded oil in different phases: pre-cleaning areas of predicted oiling, removal of bulk oil, and polishing for final treatment, as described below:

- Pre-cleaning of beaches aims to minimise oiled waste by clearing debris from shorelines to well above the high tide mark, wherever safe and practicable to do so.
- Removal of bulk oil aims to recover as much of the hydrocarbon as expeditiously as possible to prevent remobilisation and secondary impacts to unaffected areas or those cleaned previously. It also has the environmental benefit of reducing the potential for hydrocarbon contact with wildlife.
- Polishing and final treatment aims at removing residual oil and stains.
- The need for polishing and final treatment would continue until the Shoreline Clean-Up termination criteria have been met, supported by relevant termination criteria from operational and scientific monitoring (e.g., IAP – sediment quality).

Response Arrangements – Equipment

Woodside maintains an *Oil Spill Equipment Directory* showing available and appropriate response equipment to perform shoreline clean-up techniques. The database includes internal, OSRO and AMSA equipment stockpiles, their respective locations, and is reviewed and updated on a quarterly basis. Shoreline clean-up operations will be preceded by shoreline assessments performed by SCAT teams. The SCAT teams will provide recommendations (and priorities) for the clean-up methods to be implemented. SCAT teams will consist of trained oil spill responders, who will have access to reference guides that can assist in their decision-making e.g., *Shoreline Operations Field Guide* (OSRL, 2015) and the *Oiled Shoreline Clean-Up Manual* (Cedre, 2013).

This information will be provided to the Woodside CIMT (Planning FST). The Planning FST will liaise with the Logistics and Operations FSTs on providing the various equipment and personnel to perform the clean-up operation. As shown in Table 10-12, mobilisation timeframes are compatible with the timeframes for expected hydrocarbons to contact shorelines (**Section 8.2.3**). The shoreline clean-up teams will remain onsite until the relevant termination criteria from the scientific monitoring response strategies (e.g., IAP – sediment quality) are achieved.

In addition to Woodside's resources, AMOSC has shoreline clean-up and decontamination kits that can be used in the first strike capability. The gap in the amount of equipment available to be used to establish additional staging areas and to perform clean-up operations can be closed by supplying through OSRL and existing supplier and logistical arrangements. Consumable equipment (e.g., rakes, shovels, PPE, waste bags) can be readily obtained from hardware/industrial suppliers and delivered to Exmouth to meet the arrival time of additional responders.

Mechanical equipment to support shoreline response includes bobcats, front end loaders, bulldozers, and other general civil and earthmoving equipment. This would primarily be used for transporting collected oil from the manual teams and transporting back to the staging/waste recovery area. This equipment can also be used for mechanical recovery and clean-up (where suitable). This will be sourced through arrangements with local and regional earthworks contractors initially, supplemented by larger earthmoving companies.

Response Arrangements – Personnel

Woodside has assessed personnel needs to meet the worst-case volume ashore for the OPEP. The assessment assumed a manual clean-up volume of 1 m³ of oiled sediment per person per day (AMOSC), based on the industry standard to determine various effectiveness of removing the bulk oil. Actual shoreline clean-up rates will depend on factors such as the shoreline type, distribution of the hydrocarbon on the beach, debris, method used for clean-up, environmental conditions (weather) and logistical arrangements.

Woodside is planning a shoreline clean-up response matched to the consequence of a worst-case volume ashore. Arrangements are flexible and scalable in time to mobilise. Deterministic modelling has indicated the minimum time to contact of oil above the moderate exposure value of >100 g/m² is around five days at Exmouth. Woodside can mobilise its Burrup Response Team and AMOSC Core Group personnel within 24-48 hours to commence pre-impact clean-up activities (e.g., removal of beach debris to minimise oiled waste) at the key environmental sensitivities that may be impacted in this short timeframe. Should additional skilled personnel be required to fill team lead/supervisor roles may be sought via Woodside's OSRL contract and the National Response Team (NRT).

As described in Section 6.4 of the OPEP, if required, Woodside could initiate the deployment of labour-hire personnel to fill unskilled team member roles that may be required for shoreline clean-up and SCAT teams. Skilled personnel would be sourced from Woodside's Burrup Response Team, AMOSC Core Group, mutual aid, OSRL and NRT to supervise and lead clean-up and SCAT teams. All unskilled personnel would receive relevant on-the-job training prior to undertaking shoreline clean-up operations.

Shoreline protection operations will continue until the termination criteria for shoreline clean-up has been achieved.

Logistical Constraints

The following operational constraints limit the effectiveness of shoreline clean-up:

Accommodation: Availability of accommodation may be a constraint for the response. As detailed in Section 11.9.6, Woodside has analysed the accommodation availability and options to increase availability for responders. While Exmouth (and Onslow) has the potential to house a large influx of people, there are limitations on the amount of accommodation that would be deemed immediately suitable for a shoreline workforce being required to perform manual clean-up and other physical work. Woodside would work with the Local Government Authorities/providers to increase the availability of current accommodation in these locations and the alternative options referred to in **Section 11.9.6**.

Movement of personnel: Movement of personnel from their accommodation or transit point to the clean-up location can impact the effectiveness of the response. If the clean-up location requires a long commute, the amount of effectiveness from the shoreline crews diminishes as the amount of time spent in the actual operation is reduced.

Weather: Storms may impede actual operations on the day or access to certain locations due to flooding. Shoreline crews will need to work around tidal movements on the beaches. Clean-up activities will be arranged around tidal cycles.

Access to areas requiring shoreline clean-up: There is access to coastline around Exmouth using paved roads with 4WD access tracks to most beaches. Access to the nearshore islands would be via barge or small vessel.

10.4.5.3 Potential Environmental Impacts and Risks

The physical clean-up activities associated with shoreline response strategy could result in trampling of shoreline habitats by response clean-up crew, heavy machinery and vessel anchoring, damaging shoreline habitats and emergent reef features and Aboriginal registered sites of cultural significance, flushing and pressure washing procedures, damaging habitats and altering beach profiles by removing or relocating sediment. The use of equipment, machinery and clean-up personnel in some coastal environments, such as mangroves and turtle and bird nesting beaches, could potentially cause more damage than the stranded hydrocarbons themselves, thereby reducing the recovery and net environmental benefit of the clean-up strategy. The presence of staging areas and camps for clean-up personnel, although relatively short-term, may disrupt normal behaviour of coastal species such as shorebirds and turtles, and could potentially interfere with nesting and feeding behaviours. Shoreline clean-up activities also present a risk of cross-contamination between oiled and non-oiled areas or further spreading of hydrocarbons.

10.4.5.4 Shoreline Clean-Up Environmental Performance

Table 10-12 provides the environmental performance outcomes, performance standards and measurement criteria for the Shoreline Clean-Up response strategy. The initiation criteria, course of action, resources, supporting documentation and termination criteria associated with each response strategy are detailed above.

Table 10-12: Environmental Performance – Shoreline Clean-Up

Shoreline Clean-up			
Environmental Performance Outcomes	To remove bulk and stranded hydrocarbons from shorelines and facilitate shoreline amenity habitat recovery.		
Response Strategy	Performance Standard		Measurement Criteria (Section 10.4.10)
Response teams	18.1	In liaison with WA DoT (for Level 2/3 incidents), deployment of 1 shoreline clean-up team to each contaminated RPA comprised of: <ul style="list-style-type: none"> • 1-2 trained specialists per operation • 8-10 personnel/labour hire • Personnel sourced through resource pool within 24 hours of predicted impact upon request from the IMT. 	1, 2, 3A, 3B, 3C, 4
	18.2	Relevant TRPs will be identified in the first strike plan for activation within 24 hours of operational monitoring predicting impacts.	1, 3A, 3C, 4
	18.3	Clean-up operations for shorelines in line with results and recommendations from SCAT outputs.	1, 3A, 3B
	18.4	All shorelines zoned and marked before clean-up operations commence to prevent secondary contamination and minimise the mixing of clean and oiled sediment and shoreline substrates.	1, 2, 3A, 3C, 4
	18.5	In liaison with WA DoT (for Level 2/3 incidents), mobilise and deploy 1 shoreline clean-up operation to each site where operational monitoring predicts an accumulation within 2 days of predicted impact.	
	18.6	The safety of shoreline response operations will be considered and appropriately managed. During shoreline clean-up operations: <ul style="list-style-type: none"> • All personnel in a response will receive an operational/safety briefing before commencing operations • Gas monitoring and site entry protocols will be used to assess safety of an Operational Area before allowing access to response personnel 	1, 3B, 4
	18.7	Open communication line to be maintained between IMT and infield operations to ensure awareness of progress against plan(s).	1, 3A, 3B
Response equipment	19.1	Contract in place with 3rd party providers to access equipment.	1, 3A, 3C, 4
	19.2	Equipment mobilised from closest stockpile 2 days prior to predicted impact.	
	19.3	Supplementary equipment mobilised from State, AMOSC, AMSA stockpiles 2 days prior to predicted impact.	1, 3C, 3D, 4
	19.4	Supplementary equipment mobilised from OSRL 5 days prior to predicted impact.	

Shoreline Clean-up			
Management of Environmental Impact of the response risks	20.1	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
	20.2	Shallow draft vessels will be used to access remote shorelines to minimise the impacts associated with seabed disturbance on approach to the shorelines.	
	20.3	Vehicular access will be restricted on dunes, turtle nesting beaches and in mangroves.	
	20.4	Shoreline access route (foot, car, vessel and helicopter) with the least environmental impact identified will be selected by a specialist in SCAT operations.	
	20.5	Removal of vegetation will be limited to moderately or heavily oiled vegetation.	
	20.6	Oversight by trained personnel who are aware of the risks.	
	20.7	Trained unit leaders brief personnel prior to operations of the environmental risks of presence of personnel on the shoreline.	

10.4.6 Spill Response: Natural Recovery

10.4.6.1 Summary of Activity

Natural recovery, as the title suggests, uses the natural degradation and weathering processes to break down and remove surface oil and stranded hydrocarbons. Effectively, this response strategy means no direct action is taken other than to monitor and evaluate the oil spill trajectory, the rate of dispersion of the hydrocarbon, and the rate of habitat/community recovery. As such, no additional risks or impacts will occur, other than those described previously.

10.4.7 Spill Response: Scientific Monitoring

A scientific monitoring program (SMP) would be activated following a Level 2 or 3 unplanned hydrocarbon release, or any release event with the potential to contact sensitive environmental receptors. This would consider receptors at risk (ecological and socio-economic) for the entire predicted Environment that Maybe Affected (EMBA) and in particular, any identified Pre-emptive Baseline Areas (PBAs) for the credible spill scenarios or other identified unplanned hydrocarbon releases associated with the operational activities (refer to Table 10-1).

The outputs of the stochastic hydrocarbon spill modelling are used to assess the environmental risk, in terms of delineating which areas of the marine environment are predicted to be exposed to hydrocarbons exceeding environmental threshold concentrations (refer to **Table 8-9**). The summary of all the locations where hydrocarbon thresholds could be exceeded by any of the simulations modelled is defined as the EMBA. The Petroleum Activities Program (PAP) worst-case credible spill scenarios (subsea LOWC and MDO spill from vessel collision) defines the EMBA and is the basis of the SMP approach presented in this section.

It should be noted that the resulting SMP receptor locations may differ from the Priority Protection Areas discussed in Appendix D of this document (Stybarrow Plug and Abandonment Oil Pollution Emergency Plan) due to the applicability of different hydrocarbon threshold levels. The SMP would be informed by the data collected via the operational monitoring program (OMP) studies, however, it differs from the OMP in being a long-term program independent of, and not directing, the operational oil spill response or monitoring of impacts from response activities (refer to **Section 10.4.2 – Monitor and Evaluate**, and **Appendix H – Environmental Monitoring Response Strategies**) for the operational monitoring overview.

Key objectives of the Woodside oil spill scientific monitoring program are:

- Assess the extent, severity and persistence of the environmental impacts from the spill event; and
- Monitor subsequent recovery of impacted key species, habitats and ecosystems.

The SMP comprises ten targeted environmental monitoring programs to assess the condition of a range of physico-chemical (water and sediment) and biological (species and habitats) receptors including EPBC Act listed species, environmental values associated with protected areas and socio-economic values, such as fisheries. The ten SMPs are as follows:

- SM01 - Assessment of the presence, quantity and character of hydrocarbons in marine waters (linked to OM01 to OM03)
- SM02 - Assessment of the presence, quantity and character of hydrocarbons in marine sediments (linked to OM01 and OM05)
- SM03 – Assessment of impacts and recovery of subtidal and intertidal benthos
- SM04 - Assessment of impacts and recovery of mangroves/saltmarsh habitat
- SM05 - Assessment of impacts and recovery of seabird and shorebird populations
- SM06 - Assessment of impacts and recovery of nesting marine turtle populations
- SM07 - Assessment of impacts to pinniped colonies including haul-out site populations
- SM08 - Desktop assessment of impacts to other non-avian marine megafauna
- SM09 - Assessment of impacts and recovery of marine fish (linked to SM03)
- SM10 - Assessment of physiological impacts to important fish and shellfish species (fish health and seafood quality/safety) and recovery.

These SMPs have been designed to cover all key tropical and temperate habitats and species within Australian waters and broader, if required. A planning area for scientific monitoring is also identified to acknowledge potential hydrocarbon contact below the environmental threshold concentrations and beyond the EMBA. This planning area has been set with reference to the entrained low exposure value of 10 ppb detailed in the NOPSEMA Bulletin #1 Oil Spill Modelling (2019), and for this activity is shown in Figure 10-1. **Figure 10-1: The planning area for scientific monitoring based on the area potentially contacted by the low (below ecological impact) entrained hydrocarbon threshold of 10 ppb in the event of the worst-case credible spill scenario.**

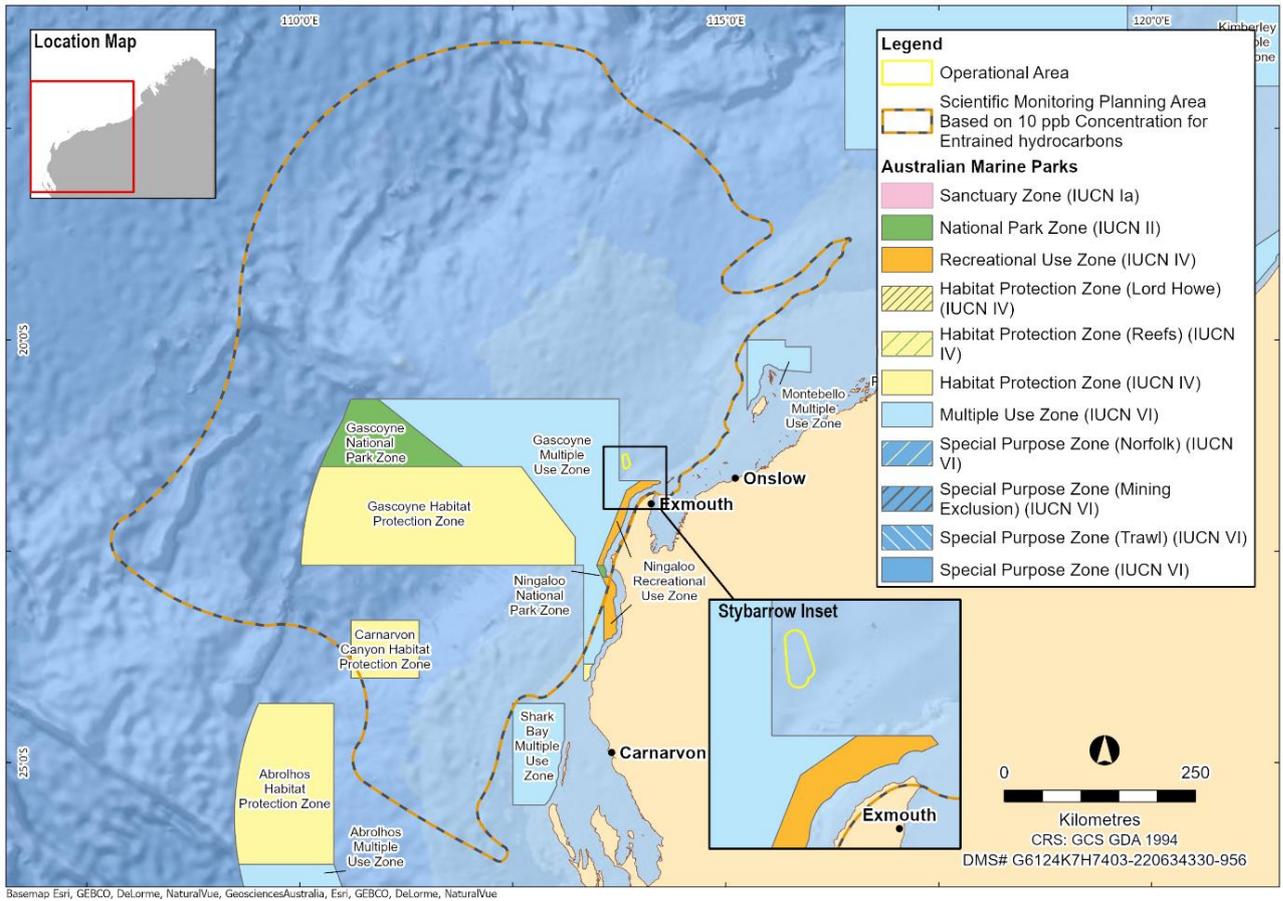


Figure 10-1: The planning area for scientific monitoring based on the area potentially contacted by the low (below ecological impact) entrained hydrocarbon threshold of 10 ppb in the event of the worst-case credible spill scenario.

Please note that **Figure 10-1** represents the overall combined extent of the oil spill model outputs based on a total of 100 replicate simulations per season (winter, summer and transition) and therefore represents the largest spatial boundaries of the hydrocarbon spill combinations, not the spatial extent of a single hydrocarbon spill trajectory.

10.4.7.1 Scientific Monitoring Deployment Considerations

Table 10-13: Scientific monitoring deployment considerations

Scientific Monitoring Deployment Considerations	
Existing baseline studies for sensitive receptor locations predicted to be affected by a spill	<p>Pre-emptive Baseline Areas (PBAs) of the following two categories:</p> <ul style="list-style-type: none"> PBAs within the predicted <10-day hydrocarbon contact time prediction <p>As part of this assessment, a desktop review was conducted of available and appropriate baseline data for key receptors for locations (if any) that are potentially impacted within 10 days of a spill (based on the EMBA). Furthermore, the need to conduct baseline data collection to address data gaps and demonstrate spill response preparedness is assessed (refer to Appendix H, Section 3). In the scenario that baseline data needs are identified, planning for baseline data acquisition is typically commenced pre-PAP and the execution of studies undertaken considers receptor type, seasonality and temporal assessment requirements and location conditions.</p> PBAs predicted >10 days to hydrocarbon contact <p>As part of this assessment, a desktop review is conducted of available and appropriate baseline data for key receptors for locations (if any) that are potentially impacted >10 days' time of a hydrocarbon spill event and documented (refer to Section 10.4.7.4). In the event of a spill, the SMP activation (as per the Stybarrow Plug and Abandonment Oil Pollution First Strike Plan, Appendix D, Annex A) directs the SMP team to follow the steps outlined in the SMP Operational Plan. The steps include: the review of availability and type of existing baseline data, with reference to any Pre-emptive Baseline Areas (PBAs) identified as >10 days to hydrocarbon contact as predicted by forecast modelling trajectories. Such information is used to identify response phase PBAs and plan for the activation of SMPs for pre-emptive (i.e. pre-hydrocarbon contact) baseline assessment.</p>
Pre-emptive Baseline in the event of a spill	Activation of SMPs in order to collect baseline data at sensitive receptor locations with predicted hydrocarbon contact time >10 days (refer to Section 10.4.7.4) and the process as documented in Appendix H, Section 2).
Survey platform suitability and availability	In the event of the SMP activation, suitable survey platforms are available and can support the range of equipment and data collection methodologies to be implemented in nearshore and offshore marine environments.
Trained personnel to implement SMPs suitable and available.	Access to trained personnel and the sampling equipment contracted for scientific monitoring via a dedicated scientific monitoring program standby contract.
Met-ocean conditions	<p>The following met-ocean conditions are the identified limits for implementing SMPs:</p> <ul style="list-style-type: none"> Waves <1 m for nearshore systems Waves <1.5 m for offshore systems Winds <20 knots Daylight operations only <p>SMP implementation will be planned and managed according to HSE risk reviews and the met-ocean conditions on a day to day basis by SMP operations.</p>

10.4.7.2 Response Planning Assumptions

Table 10-14: Scientific monitoring response planning assumptions

Response Planning Assumptions	
Pre-emptive Baseline Areas (PBAs)	<p>Pre-emptive Baseline Areas (PBAs) identified through the application of defined hydrocarbon impact thresholds during the Quantitative Spill Risk Assessment process and a consideration of the minimum time to contact at receptor locations fall into two categories:</p> <ul style="list-style-type: none"> PBAs for which baseline data exist or are planned for and data collection may commence

Response Planning Assumptions	
	<p>pre-PAP (for locations identified as ≤ 10 days minimum time to contact).</p> <ul style="list-style-type: none"> • PBAs (for locations > 10 days minimum time to contact) for which baseline data may be collected in the event of an unplanned hydrocarbon release. In the event of a spill, response phase PBAs are prioritized based on vulnerability (i.e. time to contact and environmental sensitivity) to potential impacts from hydrocarbon contact and an identified need to acquire baseline data. <p>Time to hydrocarbon contact of >10 days has been identified as a minimum timeframe within which it is feasible to plan and mobilise applicable SMPs and commence collection of baseline (pre-hydrocarbon contact) data, in the event of an unplanned hydrocarbon release from the activity.</p> <p>The PBAs for Stybarrow Plug and Abandonment are identified and listed in Appendix H, Table H-4. The listed PBAs, together with the situational awareness (provided by the operational monitoring) are the basis for the response phase SMP planning and implementation.</p>
Pre-Spill	<p>Activity: Stybarrow Plug and Abandonment</p> <p>The worst case credible scenarios of hydrocarbon release for the activity have identified the following¹⁸:</p> <ul style="list-style-type: none"> • Commonwealth marine environment • Ningaloo Coast¹⁹ • Muiron Islands²⁰ • Barrow, Montebello and Lowendal Island groups (including State Marine Parks and Management Areas) • Southern Pilbara Island group • Rankin Bank. <p>Refer to Appendix H, Table H-5 – baseline data available.</p> <p>Australian Marine Parks (AMPs) potentially affected includes:</p> <ul style="list-style-type: none"> • Gascoyne AMP • Ningaloo AMP • Carnarvon AMP <p>All the Australian Marine Parks (AMPs) are located in offshore waters where hydrocarbon exposure is possible from floating hydrocarbons (on surface waters) and in the upper water column (0-20 m depth range, approximately).</p>
In the Event of a Spill	<p>Receptor locations with >10 days to hydrocarbon contact, as well as the wider area, will be investigated and identified by the SMP team (in the Environment Unit of the ICC) as the spill event unfolds and as the situational awareness provided by the OMPs permits delineation of the spill affected area (for example, updates to the spill trajectory tracking).</p> <p>To address the initial focus in a response phase SMP planning situation, receptor locations predicted to be contacted between >10 days have been identified as follows:</p> <ul style="list-style-type: none"> • Shark Bay (AMP, WHA and State Marine Park) including the barrier islands of Bernier and Dorre. <p>The unfolding spill affected area predictions and confirmation of appropriate baseline data will determine the selection of receptor locations and SMPs to be activated in order to gather pre-emptive (pre-hydrocarbon contact) data. Refer to Appendix H, Section 2 for further details on the process for scientific monitoring plan implementation and delivery. The timing of SMP activation and mobilisation of the individual SMPs to undertake data collection will be decided and documented by the Woodside SMP team following the process outlined in the SMP Operational Plan.</p> <p>In the event key receptors within geographic locations potentially impacted after 10 days (following a spill event or commencement of the spill), a response phase SMP effort to</p>

¹⁸ In the absence of minimum time to contact modelling results for entrained hydrocarbons a precautionary approach to the Pre-spill and in the event of a spill description of sensitive receptor location contacted by hydrocarbons is presented.

¹⁹ Ningaloo Coast includes the WHA, State Marine Park

²⁰ Muiron Islands includes the WHA and State Marine Management Area

Response Planning Assumptions	
	<p>collect baseline data would be addressed. SMP planning would assess where adequate and appropriate baseline data are not available and a response phase effort to collect baseline data for the following purposes:</p> <ul style="list-style-type: none"> • Priority will be given to the collection of baseline data for receptors predicted to be within the spill affected area prior to hydrocarbon contact. The process is initiated with the investigation of available baseline and time to hydrocarbon contact (>10 days which is sufficient time to mobilise SMP teams and acquire data before hydrocarbon contact). With reference to Stybarrow Plug and Abandonment, priority would be focused on the Ningaloo Coast, south of the predicted minimum time to contact locations. • Highly sensitive and/or valued habitats and communities in coastal waters will be prioritised for pre-emptive baseline surveys over open water areas of AMPs. <p>Collection of baseline data for receptors predicted to be outside the spill affected area so reference datasets for comparative analysis with impacted receptor types can be assessed post-spill.</p>
Baseline Data	<ul style="list-style-type: none"> • A summary of the spill affected area and receptor locations as defined by the EMBA for the worse case credible spill scenarios is presented in Stybarrow Plug and Abandonment EP. • The key receptors at risk by location and corresponding SMPs based on the EMBA for the PAP are presented in ANNEX D, Table D-1, as per the worse case credible spill event scenarios. This matrix maps the receptors at risk with their location and the applicable SMPs that may be triggered in the event of a Level two or three hydrocarbon release, or any release event with the potential to contact sensitive environmental receptors. Receptor locations and applicable SMPs are colour coded to highlight possible time to contact based on receptor types and locations. <p>The status of baseline studies relevant to the PAP are tracked by Woodside through the maintenance of a SMP Environmental Baseline Database, as well as accessing external databases such as the Department of Water and Environmental Regulation (WA) Index of Marine Surveys for Assessment (IMSA)[1] (refer to ANNEX C).</p>

10.4.7.3 Summary – Scientific Monitoring

The resulting scientific monitoring capability has been assessed against the PAP worst case credible spill scenarios. The SMP assessment provides for a range of strategies and an ongoing approach to monitoring the response and operations to assess and evaluate the scale and extent of impacts. All known reasonably practicable control measures have been adopted with the cost and organisational complexity of these options determined to be moderate and the overall delivery effectiveness determined to be medium. The SMP's main objectives can be met, with no additional, alternative or improved control measures providing further benefit.

10.4.7.4 Response Planning: Need, Capability and Gap – Scientific Monitoring

The receptor locations identified in **Appendix H, Table H-4** provide the basis of the SMPs likely to be selected and activated. Once the Woodside SMP Delivery team and Standby SMP contractor have been stood up and the exact nature and scale of the spill becomes known, the SMPs to be activated will be confirmed as per the process set out in the SMP Operational Plan.

Scope of SMP Operations in the event of a hydrocarbon spill

Receptor locations of interest for the SMP during the response phase are:

- Ningaloo Coast
- Muiron Islands
- Ningaloo AMP
- Gascoyne AMP
- Carnarvon AMP

^[1] <https://biocollect.ala.org.au/imsa#max%3D20%26sort%3DdateCreatedSort>

- Shark Bay AMP

Documented baseline studies are available for certain sensitive receptor locations including the Ningaloo Coast and Muiron Islands (**Appendix H, Table H-5**). The SMP approach in the response phase would still deploy SMP teams to maximise the opportunity to collect pre-emptive baseline data at sensitive receptor locations, i.e., the sections of the Ningaloo Coast not immediately contacted to hydrocarbons. As the exact locations where hydrocarbon contact occurs may be unpredictable, SM01 would be mobilised as a priority to be able to detect hydrocarbons and track the leading edge of the spill to verify where hydrocarbon contact occurs which will assist with where SMP resources are a priority need to obtain pre-emptive baseline data.

The option analysis in **Appendix 7** considers ways to reduce the gap by considering alternate, additional, and/or improved control measures on each selected response strategy.

Cultural Heritage

Monitoring of the potential impacts to cultural heritage sites due to Level 2/3 hydrocarbon spills or spill response activities shall be coordinated by the Woodside First Nations Relations team. This team will work with indigenous groups and relevant authorities (WA DoT, WA Department of Planning, Lands and Heritage) to identify, protect and monitor cultural heritage sites to meet the requirements of the WA *Aboriginal Heritage Act (1972)*. The Woodside Heritage team will form a sub-team within the Woodside CIMT Planning FST. Information from this team will be provided to the Environment Coordinator to be integrated into the daily IAP and NEBA assessments.

Woodside has procedures for managing cultural heritage sites that cover:

- the process for engaging with indigenous groups
- access to recorded heritage sites
- barriers to protect heritage sites
- the process for discovering new heritage sites
- management of information associated with cultural heritage sites which include protocols that restrict access to this information
- the approvals process for land disturbance in relation to cultural heritage sites
- reporting on incidents of unapproved access or disturbance of cultural heritage sites.

Woodside seeks to consult with the relevant indigenous groups and will apply for approval from the relevant authority if sites are vulnerable to disturbances from spill response activities. These approvals manage and enforce conditions associated with oil spill response activities and ensure compliance to cultural heritage commitments and regulatory requirements. These procedures provide the mechanism for Woodside heritage specialists to provide technical and professional advice regarding cultural heritage management of sites, including monitoring and protection requirements, to ensure compliance with legislation and relevant heritage protocols and agreements.

Scientific Monitoring	
Initiation Criteria	Refer to individual monitoring programs outlined in Appendix H, Table H-3 .
Activation Time	Within two hours of forming the IMT.
Resources	Pre-approved vendors for environmental monitoring services. Logistics contractor (located in Exmouth) available to Woodside via existing contracts. Vessels available to Woodside via existing marine contracts. Vessels of opportunity available on local charter market in Exmouth or Onslow
Termination Criteria	Refer to individual monitoring programs outlined in Appendix H, Table H-3 .

10.4.7.5 Oil Spill Preparedness

The resource capacity and ongoing scalability in the preparedness for environmental monitoring is outlined in Appendix G. Woodside maintains a list of pre-approved vendors who can be called upon at short notice to provide environmental monitoring services in the event of an oil spill.

Woodside's scientific monitoring contractor provides monthly assurance on the availability of suitably qualified personnel via the SMP resourcing register. The status of the relevant contracts is also verified quarterly as part of the Hydrocarbon Spill Preparedness 'Internal Control Environment' (ICE) assurance process. SMP arrangements are tested annually.

Potential Environmental Impacts and Risks

Environmental monitoring will be labour intensive and involve deploying vessels, equipment and personnel. Environmental monitoring activities may also result in impacts to cultural heritage sites and shoreline habitats and fauna, such as damage to intertidal, shoreline and emergent features from trampling by monitoring personnel and grounding/anchoring of monitoring vessels, and disturbance to fauna causing distress and/or changes in behaviour.

10.4.7.6 Scientific Monitoring Environmental Performance

Table 10-15 provides the environmental performance outcomes, performance standards and measurement criteria for the Scientific Monitoring response strategy. The initiation criteria, course of action, resources, supporting documentation and termination criteria associated with each response strategy are detailed above.

Table 10-15: Environmental Performance – Scientific Monitoring

Scientific Monitoring		
Environmental Performance Outcome	Woodside can demonstrate preparedness to stand up the SMP to quantitatively assess and report on the extent, severity, persistence and recovery of sensitive receptors impacted from the spill event.	
Control measure	Performance Standard	Measurement Criteria
Woodside has an established and dedicated SMP team comprising the Environmental Science Team and additional Environment Advisers within the HSE Function.	21.1 SMP team comprises a pool of competent Environment Advisers (stand up personnel) who receive training regarding the SMP, SMP activation and implementation of the SMP on an annual basis	<ul style="list-style-type: none"> • Training materials • Training attendance registers • Process that maps minimum qualification and experience with key SMP role competency and a tracker to manage availability of competent people for the SMP team including redundancy and rostering
<ul style="list-style-type: none"> • Woodside has a contracted SMP service provider to supply scientific personnel and equipment to implement the SMPs. The service will resource a base capability of one team per SMP (SM01-SM10), see Appendix H, Table H-2 and as detailed in Woodside's SMP standby contractor Implementation Plan. The availability of relevant personnel is reported to Woodside on a monthly basis via a simple report on the base-loading availability of suitable people for each of the SMPs comprising field work for data collection (SMP resourcing report register). • In the event of a spill and the SMP is activated, the base-loading availability of scientific personnel will be provided by the SMP standby contractor for the individual SMPs and where gaps in resources are identified, the SMP standby contractor and Woodside will seek additional personnel (if needed) from other sources including Woodside's Environmental Services Panel. 	22.1 Woodside maintains the capability to mobilise personnel required to conduct scientific monitoring programs SM01 – SM10 (except desktop based SM08): <ul style="list-style-type: none"> • Personnel are sourced through the existing standby contract with SMP standby contractor, as detailed within the SMP Implementation Plan. • Scientific Monitoring Program Implementation Plan describes the process for standing up and implementing the scientific monitoring programs. • SMP team stand up personnel receive training regarding the stand up, activation and implementation of the SMP on an annual basis 	<ul style="list-style-type: none"> • Hydrocarbon Spill Preparedness (HSP) Internal Control Environment tracks the quarterly review of the Oil Spill Contracts • SMP resource report of personnel availability provided by SMP contractor on monthly basis (SMP resourcing report register). • Training materials • Training attendance registers • Competency criteria for SMP roles • SMP annual arrangement testing and reporting
<ul style="list-style-type: none"> • Roles and responsibilities for SMP implementation are captured in Appendix H, Table H-2 and the SMP team (as per the organisational structure of the ICC) is outlined in SMP Operational Plan. Woodside 	23.1 Woodside has established an SMP organisational structure and processes to stand up and deliver the SMP.	<ul style="list-style-type: none"> • SMP Oil Spill Scientific Monitoring Operational Plan • SMP Implementation Plan

Control measure	Performance Standard	Measurement Criteria
<p>has a defined Crisis and Incident Management structure including Source Control, Operations, Planning and Logistics functions to manage a loss of well control response.</p> <ul style="list-style-type: none"> • SMP Team structure, interface with SMP standby contractor (standby SMP contractor) and linkage to the ICC is presented in Appendix H, Figure H-1 • Woodside has a defined Command, Control and Coordination structure for Incident and Emergency Management that is based on the AIIMS framework utilised in Australia. • Woodside utilises an online Incident Management Information System (IMIS) to coordinate and track key incident management functions. This includes specialist modelling programs, geographic information systems (GIS), as well as communication flows within the Command, Control and Coordination structure. • SMP activated via the First Strike Plan (FSP) • Step by step process to activation of individual SMPs provided in the SMP Operational Plan • All decisions made regarding SMP logged in the online IMIS (SMP team members trained in using Woodside’s online Incident Management System) • SMP component input to the ICC Incident Action Plan (IAP) as per the identified ICC timed sessions and the SMP IAP logged on the online IMIS • Woodside provide awareness training on the activation and stand-up of the Scientific Monitoring Programme (SMP) for the Environment Advisers in Woodside who are listed on the SMP team on an annual basis. • Woodside provide awareness training on the activation and stand-up of the Scientific Monitoring Programme (SMP) for the SMP standby contractor. • Woodside co-ordinates an annual SMP arrangement testing exercise which the SMP standby contractor. 		<ul style="list-style-type: none"> • SMP annual arrangement testing and reporting

Control measure	Performance Standard	Measurement Criteria
<ul style="list-style-type: none"> • Chartered and mutual aid vessels. • Suitable vessels would be secured from the Woodside support vessels, regional fleet of vessels operated by Woodside and other operators and the regional charter market. • Vessel suitability will be guided by the need to be equipped to operate grab samplers, drop camera systems and water sampling equipment (the individual vessel requirements are outlined in the relevant SMP methodologies (refer to Appendix H, Table H-3). • Nearshore mainland waters could use the same approach as for open water. Smaller vessels may be used where available and appropriate. Suitable vehicles and machinery for onshore access to nearshore SMP locations would be provided by Woodside’s transport services contract and sourced from the wider market. • Dedicated survey equipment requirements for scientific monitoring range from remote towed video and drop camera systems to capture seabed images of benthic communities to intertidal/onshore surveying tools such as quadrats, theodolites and spades/trowels, cameras and binoculars (specific survey equipment requirements are outlined in the relevant SMP methodologies (refer to Appendix H, Table H-3). Equipment would be sourced through the existing SMP standby contract and if additional surge capacity is required this would be available through the other Woodside Environmental Services Panel Contractors and specialist contractors. SMP standby contractor can also address equipment redundancy through either individual or multiple suppliers. MoUs are in place with one marine sampling equipment company and one analytical laboratory (SMP resourcing report register). • Availability of SMP equipment for offshore/onshore scientific monitoring team mobilisation is within one week to ten days of the commencement of a hydrocarbon release. This meets the SMP mobilisation lead time that will support meeting the response objective of ‘to acquire, where practicable, the environmental baseline data prior to 	<p>24.1 Woodside maintains standby SMP capability to mobilise equipment required to conduct scientific monitoring programs SM01 – SM10 (except desktop based SM08):</p> <ul style="list-style-type: none"> • Equipment is sourced through the existing standby contract with SMP standby contractor as detailed within the SMP Implementation Plan. 	<ul style="list-style-type: none"> • Hydrocarbon Spill Preparedness (HSP) Internal Control Environment tracks the quarterly review of the Oil Spill Contracts • SMP standby monthly resource reports of equipment availability provided by SMP contractor (SMP resourcing report register). • SMP annual arrangement testing and reporting

Control measure	Performance Standard	Measurement Criteria
<p>hydrocarbon contact required to support the post-response SMP'.</p> <p>Woodside's SMP approach addresses the pre-PAP acquisition of baseline data for Pre-emptive Baseline Areas (PBAs) with ≤10 days if required following a baseline gap analysis process.</p> <p>Woodside maintains knowledge of Environmental Baseline data through:</p> <ul style="list-style-type: none"> • Documentation annual reviews of the Woodside SMP Baseline Environmental Studies Database, and specific activity baseline gap analyses. • Accessing external databases such as the Department of Water and Environmental Regulation (WA) Index of Marine Surveys for Assessment (IMSA) (Appendix H, Section 2). 	<p>25.1</p> <ul style="list-style-type: none"> • Annual reviews of environmental baseline data • PAP specific Pre-emptive Baseline Area baseline gap analysis 	<ul style="list-style-type: none"> • Annual review/update of Woodside Baseline Environmental Studies Database • Desktop review to assess the environmental baseline study gaps completed prior to EP submission

Scientific Monitoring		
Environmental Performance Outcome	SMP plan to acquire response phase monitoring targeting pre-emptive data achieved.	
Control measure	Performance Standard	Measurement Criteria
Woodside’s SMP approach addresses: <ul style="list-style-type: none"> Scientific data acquisition for PBAs >10 days to hydrocarbon contact and activated in the response phase and Transition into post-response SMP monitoring. 	26.1 Pre-emptive Baseline Area (PBA) baseline data acquisition in the response phase If baseline data gaps are identified for PBAs predicted to have hydrocarbon contact in >10 days, there will be a response phase effort to collect baseline data. Priority in implementing SMPs will be given to receptors where pre-emptive baseline data can be acquired or improved. SMP team (within the Environment Unit of the ICC) contribute SMP component of the ICC Planning Function in development of the IAP.	<ul style="list-style-type: none"> Response SMP plan Woodside’s online Incident Management System records SMP component of the Incident Action Plan.
	26.2 Post Spill contact For the receptors contacted by the spill in where baseline data are available, SMPs programs to assess and monitor receptor condition will be implemented post spill (i.e. after the response phase).	<ul style="list-style-type: none"> SMP planning document SMP Decision Log Incident Action Plans (IAPs)

Scientific Monitoring		
Environmental Performance Outcome	Implementation of the SMP (response and post-response phases)	
Control measure	Performance Standard	Measurement Criteria
<ul style="list-style-type: none"> Scientific monitoring will address quantitative assessment of environmental impacts of a level 2 or 3 spill or any release event with the potential to contact sensitive environmental receptors. The SMP comprises ten targeted environmental monitoring programs. SMP supporting documentation: (1) Oil Spill Scientific Monitoring Operational Plan; (2) SMP Implementation Plan and (3) SMP Process and Methodologies Guideline. The Oil Spill Scientific Monitoring Operational Plan details the process of SMP selection, input to the IAP to trigger operational logistic support services. Methodology documents for each of the ten SMPs are accessible detailing equipment, data collection techniques and the specifications required for the survey platform support. The SMP standby contractor holds a Woodside SMP implementation plan which details activation processes, linkage with the Woodside SMP team and the general principles for the planning and mobilisation of SMPs to deliver the individual SMPs activated. Monthly resourcing report are issued by the SMP standby contractor (SMP resourcing report register). All SMP documents and their status are tracked via SMP document register. 	<p>27.1 Implementation of SM01 SM01 will be implemented to assess the presence, quantity and character of hydrocarbons in marine waters during the spill event in nearshore areas</p>	<p>Evidence SM01 has been triggered:</p> <ul style="list-style-type: none"> Documentation as per requirements of the SMP Operational Plan Woodside’s online Incident Management System Records. SMP component of the IAP SMP data records from field
	<p>27.2 Implementation of SM02-SM10 SM02-SM10 will be implemented in accordance with the objectives and activation triggers as per Appendix H, Table H-3.</p>	<p>Evidence SMPs have been triggered:</p> <ul style="list-style-type: none"> Documentation as per requirements of the SMP Operational Plan Woodside’s online Incident Management System Records. SMP component of the IAP SMP Data records from field
	<p>27.3 Termination of SMP plans The Scientific Monitoring Program will be terminated in accordance with termination triggers for the SMPs detailed in Appendix H, Table H-3, and the Termination Criteria Decision-tree for Oil Spill Environmental Monitoring (Appendix H, Figure H-3):</p>	<p>Evidence of Termination Criteria triggered:</p> <ul style="list-style-type: none"> Documentation and approval by relevant stakeholders to end SMPs for specific receptor types.

10.4.8 Spill Response: Oiled Wildlife Response

Note: the WA DoT is the Control Agency and DBCA is the Jurisdictional Authority and lead organisation (under DoT) for oiled wildlife response (OWR) within WA State waters. Woodside and AMSA are the Control Agencies for oiled wildlife response within Commonwealth waters from facility and vessel spills respectively.

10.4.8.1 Summary of Activity

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 is required to take the role of 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).

Oiled Wildlife Response	
Initiation Criteria	Operational monitoring shows wildlife are contacted or are predicted to be contacted by a spill.
Activation Time	Within two hours of forming the IMT.
Resources	Oiled wildlife response equipment and trained personnel available via AMOSC, Mutual Aid and OSRL. Logistics contractor (located in Exmouth) available to Woodside via existing contracts. Vessels available to Woodside via existing marine contracts. Vessels of opportunity available on local charter market in Exmouth or Onslow.
Termination Criteria	Oiling of wildlife has not been observed over a 48-hour period. Oiled wildlife has been successfully rehabilitated. Agreement is reached with Jurisdictional Authorities and stakeholders to terminate the incident response.

10.4.8.2 Potential Environmental Impacts and Risks

OWR will require support vessels, aircraft, trained personnel and a suitable oiled wildlife facility for cleaning and aftercare treatment of oiled wildlife.

Potential risks and impacts from implementing the OWR include:

- Non-oiled fauna may be accidentally driven into surface oil slicks or impacted shorelines during hazing and pre-emptive capture activities, resulting in increased numbers of oiled wildlife.
- During hazing and pre-emptive capture activities, oiled fauna may be accidentally driven into surface oil slicks or impacted shorelines rather than away from oil.
- Inappropriate equipment and capture techniques may result in distress, fatigue, injury, death, or the separation of faunal groups (adult/juvenile pairs).
- Inadequate or inappropriate cleaning and husbandry techniques and conditions may result in distress, disease, injury, or death.
- Captured wildlife may be released to inappropriate relocation areas.
- Responding safely and efficiently to oiled wildlife.
- Protecting the health and welfare of wildlife threatened or impacted by oil.

- Coordinating field reconnaissance of at risk or impacted wildlife.
- Preventing or minimising exposure of wildlife to oil where possible.
- Recovering oiled wildlife safely and effectively.
- Prioritising the treatment of species of conservation value when resources are limited.
- Establishing an effective system for the treatment and rehabilitation of oiled wildlife.
- Releasing wildlife back into the wild as healthy, contributing members of a population.
- Identifying and removing dead oiled wildlife from the coastal environment.

10.4.8.3 Oil Spill Preparedness

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, and for level 2/3 spills, 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 is required to take the role of Control Agency, including for wildlife response. It is, however, also an expectation 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.

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 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 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 10-16 outlines the wildlife response priority areas for this activity. At the time of a spill, identification and allocation of wildlife response priority areas should also take into consideration any key biological activities. Additional detail regarding species and their key biological activities within the vicinity of the activity are described in Section 4 of the 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 10-16: Wildlife priority protection areas

Protection Priority	Wildlife
Barrow Island, Boodie Island, Middle Island	<ul style="list-style-type: none"> • Turtles • Regionally and nationally significant green (western side) and flatback turtle (eastern side) • Foraging and nesting areas around Barrow Island for green, flatback and hawksbill; mating flatback turtles. • Green turtle nesting: All year round (peak Dec-Jan) • Hawksbill turtle nesting: Oct-Jan • Flatback turtles: Dec-Jan • Loggerhead nesting: Dec-Jan • John Wayne Beach, logger heads + hawksbill (low density) • Turtle Bay is an important turtle aggregation and feeding area • Birds • Migratory birds (important habitat): Sept - Feb • Double Island has important bird nesting sites (shearwaters and sea eagles)
Exmouth	<ul style="list-style-type: none"> • Turtle nesting • Loggerhead (Endangered) site • Significant Green turtle (Vulnerable) nesting site • Low density Hawksbill nesting (Vulnerable) • Nesting and breeding Nov to Mar with peak in late Dec/early Jan • Birds • Seabird nesting: Sep-Feb • Marine mammals • Pygmy blue whale (Vulnerable) • Migration: Apr-Aug • Dugongs (Marine/ migratory) (breeding and foraging)
Muiron Islands	<ul style="list-style-type: none"> • Turtles • Turtle nesting: <ul style="list-style-type: none"> • Major loggerhead (Endangered) site • Significant Green turtle (Vulnerable) • Low density Hawksbill nesting (Vulnerable) • Turtle nesting and breeding Nov to Mar with peak in late Dec/early Jan • Occasional Flatback (Vulnerable) presence • Birds • Seabird nesting: Sep-Feb • Marine mammals • Humpback whale migration: peak between June –Aug
Montebello Islands	<ul style="list-style-type: none"> • Turtles • Loggerhead (Endangered) • Green (Vulnerable) (significant rookeries) • Hawksbill (Vulnerable) • Flatback (Vulnerable) turtles

Protection Priority	Wildlife
	<ul style="list-style-type: none"> • Turtle nesting and breeding Nov - Mar with peak in late Dec/early Jan • Birds • Significant migratory shorebirds foraging and resting • Seabirds significant nesting: Sep - Feb • Marine mammals • Pygmy blue whale migration (Vulnerable): Apr to Aug • Humpback whale migration area: peak June - Aug
Thevenard Island	<ul style="list-style-type: none"> • Turtles • Green turtles (significant rookeries) • Hawksbill • Flatback turtles • Turtle nesting and breeding Nov to Mar with peak in late Dec/ early Jan (Hawksbill turtles – all year nesting) • Birds • Migratory seabirds • Significant nesting: Sept – Feb • Foraging and resting areas • Marine mammals • Humpback whales migration: June – Oct • Southern right whale • Indo-Pacific humpback dolphin • Dugongs
Flat Island Fly Island	<ul style="list-style-type: none"> • Turtles • Green turtles • Turtle nesting and breeding Nov Mar • Birds • Seabird nesting: Sep – Feb • Marine mammals • Dugong • Indo-Pacific humpback dolphin

Further preparatory measures for OWR include determining the potential magnitude of wildlife impacted for the worst-case spill scenario. Spills that result in no shoreline contact are likely to result in limited opportunities to rescue wildlife given the behaviour and distribution of wildlife in the marine environment. Under these circumstances the focus of the OWR would be on continued wildlife reconnaissance. Conversely, spills that result in shoreline accumulation are likely to result in greater impacts to wildlife and more opportunities for rescue. Using the WAOWRP guide for rating the wildlife impact of an oil spill (DBCA and DoT, 2022a), and stochastic modelling for the worst-case spill scenarios, it is predicted that high wildlife impacts may occur.

Table 10-17: WAOWRP guide for rating wildlife impact of an oil spill (DBCA and DoT, 2022a)

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 to 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

Response Arrangements

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. In comparison to the shoreline, there are likely to be less wildlife impacted by an oil spill and limited opportunities to rescue wildlife, given the distribution and behaviour of animals in the open marine environment. At sea, continued wildlife reconnaissance, carcass recovery, sampling of carcasses that cannot be retrieved, and integration with scientific monitoring are more likely to be the focus of the OWR.

In State waters, Woodside will conduct the initial first-strike response actions for wildlife and continue to manage those operations until DBCA is activated as the lead agency for wildlife response and formal handover occurs. Following formal handover, Woodside will function as a support organisation for the OWR and will be expected to continue to provide planning and resources as required.

If a protracted response is likely, requiring preventative actions and/or wildlife rescue, and formal hand over to the Control Agency (in State waters) has not yet occurred, the Wildlife Division will be responsible for the development of the Wildlife Division portion of the IAP. Preventative actions, such as hazing, 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 oiled wildlife response technique targets key wildlife populations at risk within Commonwealth open waters and the nearshore waters.

10.4.8.4 Oiled Wildlife Response Environmental Performance

Table 10-18 provides the environmental performance outcomes, performance standards and measurement criteria for the Oiled Wildlife Response strategy.

The initiation criteria, course of action, resources, supporting documentation and termination criteria associated with the response strategy are detailed above.

Table 10-18: Environmental Performance – Oiled Wildlife Response

Oiled Wildlife Response		
Environmental Performance Outcomes	Oiled Wildlife Response is conducted in accordance with the Western Australian Oiled Wildlife Response Plan (WAOWRP, 2022) to ensure it is conducted in accordance with legislative requirements to house, release or euthanise wildlife under the <i>Biodiversity Conservation Act 2016</i> .	
Response Strategy	Performance Standard	Measurement Criteria (Section 10.4.10)

Oiled Wildlife Response			
Wildlife response arrangements	28.1	Oiled Wildlife Operational Plan in place and utilised during a response to plan, coordinate, implement and terminate operations	1, 3A, 4
	28.2	Initiate a wildlife first strike response within 24 hours of confirmed or imminent wildlife contact as directed by relevant Operational Monitoring techniques (OM01-05) and in liaison with DBCA	1
Wildlife response equipment	29.1	Maintain contract with AMOSC for immediate access to oiled wildlife response equipment.	1, 3C, 3D, 4
	29.2	Maintain contract with OSRL to access additional oiled wildlife response equipment.	1, 3C, 3D, 4
Wildlife responders	30.1	Two Woodside Oiled Wildlife Team Members to supervise the oiled wildlife operations who have completed an Oiled Wildlife Response Management course.	1, 2, 3B
	30.2	Maintain contract with AMOSC for immediate access to trained oiled wildlife response specialists	1, 3B, 3C
	30.3	Maintain contract with OSRL to access additional trained oiled wildlife response specialists	1, 3B, 3C
	30.4	Open communication line to be maintained between IMT and infield operations to ensure awareness of progress against plan(s).	1, 3A, 3B
Management of environmental impacts of response risks	31.1	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

10.4.9 Spill Response - Waste Management

10.4.9.1 Summary of Activity

During an oil spill clean-up, the disposal of waste material must not pose any threat to the health and safety of people or the environment and must be carried out in accordance with relevant State legislation. The type and amount of waste generated will depend on the spill itself and its location. It is important to note that the volumes of oily waste recovered from shorelines may be significantly greater than the volume of oil spilled. Typical waste volumes generated will be influenced by a bulking factor of 1:10 through shoreline clean-up activities as there will be an increase of waste volume generation due to collection of sand and detritus from the high-water mark and surrounding environment.

Woodside have a waste management contractor who can collect, transport, treat and dispose of oil wastes generated by a hydrocarbon release and implemented response strategies.

Waste Management	
Initiation Criteria	Response activities that will be generating waste have been initiated.
Activation Time	Within two hours of forming the IMT.
Resources	Waste Service Provider and Logistics contractor available to Woodside via existing contracts.

Waste Management	
Termination Criteria	All waste generated from the oil spill response has been stored, transported and disposed as per the regulatory requirements. Agreement is reached with Jurisdictional Authority to terminate the response.

10.4.9.2 Potential Environmental Impacts and Risks

During an oil spill clean-up, the disposal of waste material must not pose any threat to the health and safety of people or the environment and must be performed in accordance with relevant State legislation. The type and amount of waste generated will depend on the spill itself and its location.

Table 10-19 identifies the types of waste likely to be generated from shoreline or oiled wildlife response (OWR) operations.

Table 10-19: Response strategies and their effect on waste generation

Response Strategy	Effect on Waste Stream	Type of Waste Generated
Shoreline clean-up	The type of spilled oil will often have a profound effect on the amount of oily waste generated. Waste segregation and minimisation techniques are critical to ensure an efficient operation. These should be established at the initial recovery site and maintained right through to the final disposal site otherwise waste volumes will spiral out of control. Waste sites should be managed in such a way as to prevent secondary pollution.	<ul style="list-style-type: none"> Oiled equipment Oiled PPE Recovered oil Oiled vegetation Oily water Oiled sorbent materials Oiled beach material, sand Oiled flotsam and jetsam
OWR		<ul style="list-style-type: none"> Oiled water Oiled personal protective equipment and consumables Animal carcasses Medical supplies

For any spill likely to produce significant amounts of waste, a Waste Management Plan will be developed to ensure:

- oily waste is properly handled and stored
- oil and oily debris are adequately segregated, treated and stored at the point of collection
- oil and oily debris are rapidly collected and taken to designated sites for storage, treatment or disposal
- treatment or disposal practices ensure the waste poses no future threat to the environment.

In addition, the Waste Management Plan will identify how waste volumes will be minimised (**Table 10-20**)

Table 10-20: Waste Management Hierarchy

Hierarchy	Description
Reduction	Efficient response strategies selected for oil spill clean-up to ensure the minimum material is used and/or contaminated during the process.
Reuse	This is the reuse of an item for its original purpose; e.g., clean-up equipment should be cleaned and reused in place of disposable items. An example might be cleaning personal protective equipment so it can be reused.
Recovery	This is the production of marketable product for waste, such as taking waste oil to a refinery for conversion into other useable products. This will be directly affected by the quality of the recovered product; e.g., highly contaminated material is less likely to be suitable for

Hierarchy	Description
	recycling.
Refuse	Refuse is the final and least desirable option. If none of the above methods can be performed for whatever reasons, the waste must be disposed of effectively through some means. This may be the case for highly mixed wastes of oils, plastics, organic debris, water, sediments and others that cannot be separated.

The basis for such a Waste Management Plan will include a demonstration of:

- **Temporary on-site waste storage** – Care will be taken in selecting a location for a temporary waste handling base to allow for waste separation. Local authorities and waste management contractors will be consulted regarding the selection of suitable disposal routes, local regulations and may provide local facilities.
- **Segregation of waste** – Wherever possible, wastes will be segregated in accordance with the preferred segregation. It may be required to separate oil from associated water, sediment and debris, in order to minimise volumes. It is preferable this is not attempted on the spill site.
- **Onsite handling** – Attention will be given to preventing leaching or spillage of oil from vehicles or containers. Onsite handling equipment will be arranged by Woodside.
- **Offsite transport and storage** – Only State-licenced waste contractors will be used. Care will be taken that all vessels, vehicles or containers used for transporting oily wastes are effectively sealed and leak proof.
- **Waste treatment and disposal options** – The disposal method most appropriate in an incident will depend on several factors, including the nature and consistency of the waste, the availability of suitable sites and facilities, the costs involved and regulatory restrictions.
- **Waste separation** – Waste separation is usually performed offsite at a designated waste processing area.
- **Disposal** – Waste must be disposed of in accordance with State regulations.
- **Establishment of a field decontamination facility** – The size and complexity of field decontamination facilities required will depend on the character of the oil and the scale and nature of the clean-up being implemented.

Monitoring and Reporting of Waste

The Logistics Coordinator will be responsible for maintaining a Waste Management Register for all waste generated. The designated Waste Contractor will monitor, measure and record all waste streams that are disposed of onshore.

Measurement required by Waste Contractor Conditions include without limitation:

- types of waste collected (such as liquid oily waste)
- quantities of types of wastes collected (such as tonnes, litre)
- destination of waste collated (named authorised disposal facility)
- method of waste disposal (such as landfill, recycling)
- quantity of recyclable waste by type.

The Logistics FST will ensure adequate waste disposal records are being maintained by the Waste Contractor, and that the Waste Reference Number for all waste is communicated to the Logistics Coordinator for updating the Waste Management Register once waste is disposed.

Waste management reporting will comply with relevant local and national waste reporting requirements e.g. Environmental Protection (Controlled Waste) Regulations 2004

In addition to reporting all waste generated from a spill event, it will also be tracked upon mobilising the Waste Contractor using the Controlled Waste Tracking System (CWTS). This is an online user system provided by DBCA to enable electronic tracking of controlled waste loads across the state. Upon request, DBCA generates

user profiles that enable access to components of the CWTS specific to waste generators, carriers and/or waste disposal sites (treatment plants) and enable them to complete their statutory obligations online.

10.4.9.3 Oil Spill Preparedness

Woodside's waste management contractor provides and maintains Woodside's Oil Spill Response Waste Management Operational Plan. This plan outlines the contractor's capabilities and capacity to deal with an oil spill scenario from Woodside activities. Woodside has arrangements in place with its waste management contractor for providing waste management services during a spill incident.

Woodside's waste management contractor has and continues to perform various emergency response tasks involving a wide range of hazardous materials. Hydrocarbon spills comprise most of the emergency response tasks, and the contractor has a wealth of experience in this area. In addition to a range of waste bin collection vehicles and trailer and tanker transport, it operates a fleet of vacuum-loading heavy vehicles, with capacities ranging from 3,000 to 25,000 L.

10.4.9.4 Waste Management Environmental Performance

Table 10-21 provides the environmental performance outcomes, performance standards and measurement criteria for the Waste Management response strategy. The initiation criteria, course of action, resources, supporting documentation and termination criteria associated with each response strategy are detailed above.

Table 10-21: Environmental Performance – Waste Management

Waste Management			
Environmental Performance Outcomes	To minimise further impacts, waste will be managed, tracked and disposed of in accordance with laws and regulations.		
Response Strategy	Performance Standard		Measurement Criteria (Section 10.4.10)
Waste management	32.1	Contract with waste management services for transport, removal, treatment and disposal of waste.	1, 3A, 3B, 3C, 4
	32.2	Access to at least 200 m ³ of solid and liquid waste storage available within 5 days upon activation of 3 rd party contract, if required.	
	32.3	Access to 1000 m ³ waste storage capacity by day 7 (CS-01).	
	32.4	Recovered hydrocarbons and wastes will be transferred to licensed treatment facility for reprocessing or disposal.	
	32.5	Teams will segregate liquid and solid wastes at the earliest opportunity.	
	32.6	Waste management provider support staff available year-round to assist in the event of an incident with waste management as detailed in contract.	
	32.7	Open communication line to be maintained between IMT and waste management services to ensure the reliable flow of accurate information between parties.	1, 3A, 3B
	32.8	Waste management to be conducted in accordance with Australian laws and regulations.	1, 3A, 3B, 3C, 4
	32.9	Waste management services available and employed during response.	

10.4.10 Incident Management System

The Incident Management System is both a control measure and a measurement criterion. 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 criterion, the IMS records the evidence of the timeliness of all response actions included in the environmental performance standards and the plans used of the activity.

As the IMS does not directly remove hydrocarbons spilt into the marine environment there is no direct relationship to the response planning need.

10.4.10.1 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 persons/ organisations and government agencies as required. Depending on the type and scale of the incident either the CIMT Duty Manager (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 ensure techniques to control the incident are appropriate to the situation at the time.

10.4.10.2 Operational NEBA process

In the event of a response Woodside will confirm the response techniques adopted at the time of EP/OPEP acceptance remain appropriate to reduce the consequences of the spill. This process verifies 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 OPEA. In effect the operational NEBA will determine whether there is net environmental benefit to continue response operations.

10.4.10.3 Consultation engagement process

Woodside will ensure 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 persons/ organisations in the region (identified in the FSP). This includes notification to mariners to communicate navigational hazards introduced through response equipment and personnel.
- Identify and engage with relevant persons/ organisations and continually assess and review.

10.4.10.4 Environmental performance based on need

Table 10-22: Environmental Performance – Incident Management System

Incident Management System			
Environmental Performance Outcomes	To support the effectiveness of all other control measures and monitor/record the performance levels achieved.		
Response Strategy	Performance Standard		Measurement Criteria (Section 10.4.10)
Operational SIMA	33.1	Confirm that the response strategies adopted at the time of acceptance remain appropriate to reduce the consequences of the spill within 24 hours.	1, 3A
	33.2	Record the evidence and justification for any deviation from the planned response activities.	
	33.3	Record the information and data from operational and scientific monitoring activities used to inform the SIMA.	
Stakeholder engagement	34.1	Prompt and record all notifications (including government notifications) for persons/ organisations in the region are made.	
	34.2	In the event of a response, identification of relevant persons/ organisations will be re-assessed throughout the response period.	
	34.3	Undertake communications in accordance with: <ul style="list-style-type: none"> • Woodside Crisis Management Functional Support Team Guideline – Reputation • External Communication and Continuous Disclosure Procedure External Stakeholder Engagement Procedure	
Personnel required to support any response	35.1	Action planning is an ongoing process that involves continual review to ensure strategies to control the incident are appropriate to the situation at the time.	1, 2, 3B, 3C, 4
	35.2	A duty roster of trained and competent people will be maintained to ensure that minimum manning requirements are met all year round.	
	35.3	Immediately activate the IMT with personnel filling one or more of the following roles: <ul style="list-style-type: none"> • Operations Duty Manager • Operations Coordinator • Deputy Operations Coordinator • Planning Coordinator • Logistics (materials, aviation, marine and support positions) • Management Support • Health and Safety Advisor • Environment Duty Manage 	

Incident Management System			
		<ul style="list-style-type: none"> • People Coordinator • Public Information Coordinator • Intelligence Coordinator Finance Coordinator.	
	35.4	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.	
	35.5	S&EM advisors will be integrated into CIMT to monitor performance of all functional roles.	
	35.6	Continually communicate the status of the spill and support Woodside to determine the most appropriate response by delivering on the responsibilities of their role.	
	35.7	Follow the OPEA, Operational Plans, FSPs, support plans and the IAPs developed.	1, 2, 3A, 4
	35.8	Contribute to Woodside's response in accordance with the aims and objectives set by the Duty Manager.	1, 2, 3B, 3C, 4

10.4.11 Spill Response: Measurement Criteria for all response techniques

Woodside ensures compliance with environmental performance outcomes and standards through four primary mechanisms. The performance tables aforementioned 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 & 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 & 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 Security & Emergency Management Competency Dashboard

The Security and Emergency Management (S&EM) competency dashboard records the number of trained and competent responders that are available across Woodside, and some external providers, to participate in

a response.

This number varies depending 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 10-2 shows the minimum manning numbers for the different hydrocarbon spill response roles and the number of qualified persons against those roles.

Woodside’s pool of trained responders is composed of but not limited to personnel from the following organisations:

- Woodside internal
- AMOSC core group
- AMOSC
- OSRL
- Marine Spill Response Corporation (MSRC)
- AMSA
- Woodside contracted workforce

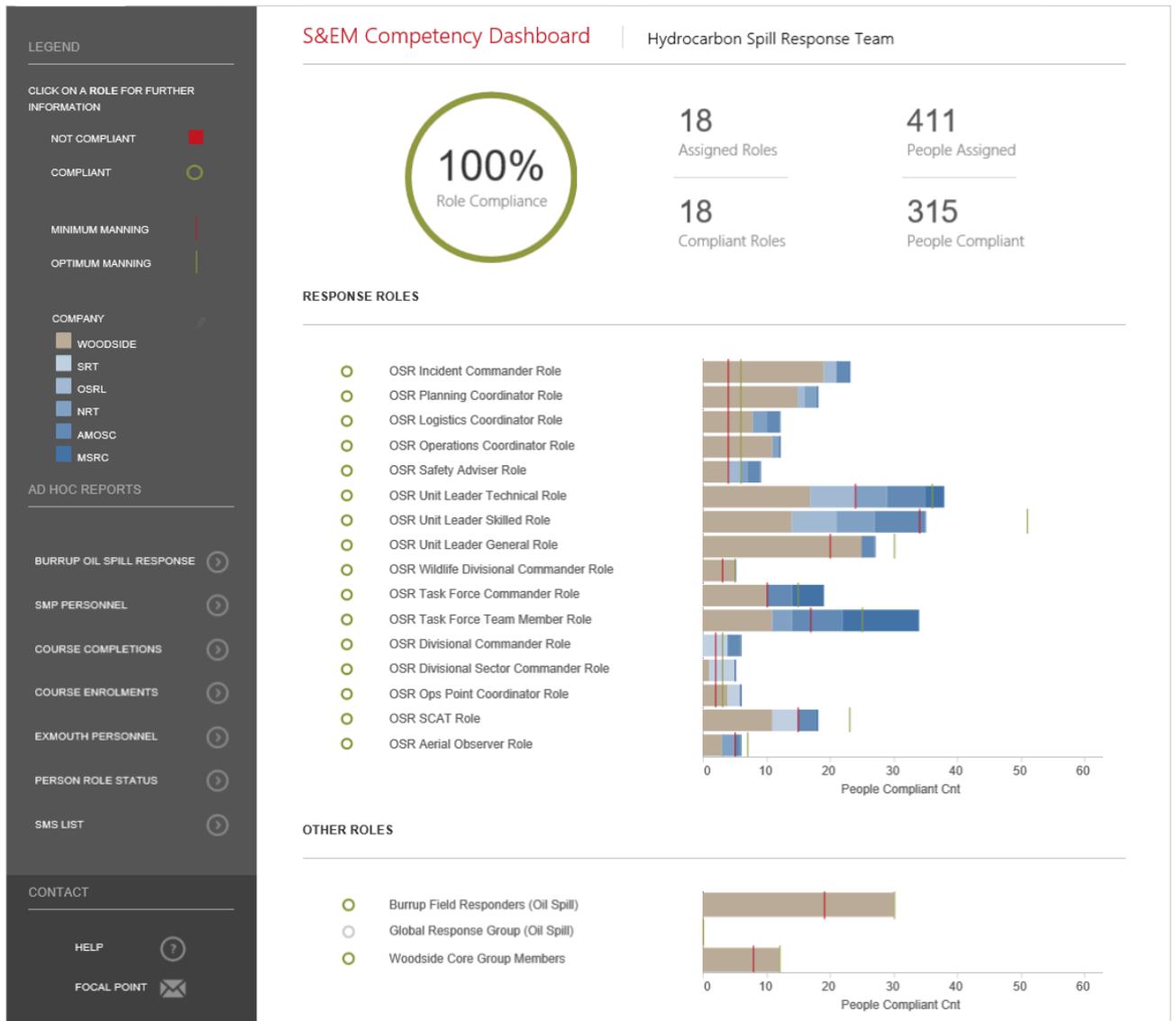


Figure 10-2: Example screen shot of the Hydrocarbon Spill Preparedness competency dashboard

The Dashboard is one of Woodside’s key means of monitoring its readiness to respond. It also shows Woodside can meet the requirements of the environmental performance standard that relate to filling certain response roles.

Figure 10-3 shows a deeper dive into the Operations Point Coordinator role and the training modules required to show competence.

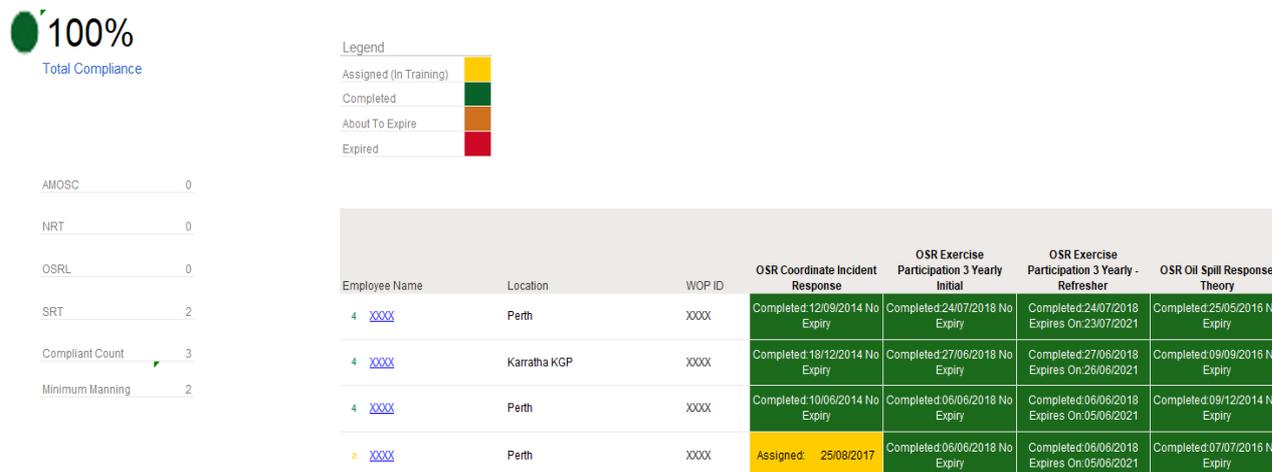


Figure 10-3: Example screen shot for the Operations Point Coordinator role

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 hydrocarbon spill. The process tracks compliance over four key control areas:

- A. **Plans** – Ensures all plans (including: OPEA, FSPs, operational plans, support plans and TRPs) are current and in line with regulatory and internal requirements.
- B. **Competency** – Ensures the competency dashboard is up to date and there are the minimum competency numbers across ICC, 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.
- C. **Capability** – Tracks and monitors capability that could be required in a hydrocarbon incident, including but not limited to: integrated fleet²¹ vessel schedule, dispersant availability, rig/vessels monitoring, equipment stockpiles, tracking buoy locations and the CIMT duty roster.
- D. **Compliance & Assurance** – Ensures all regulator inspection outcomes are actioned and closed out, the global legislation register is up to date and 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 to ensure 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 & 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).

²¹ 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

This procedure details the:

- Requirement for an 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; and
- Maintaining access to identified equipment and personnel.
- Planning for hydrocarbon spill response preparedness
- Accountabilities for hydrocarbon spill response preparedness
- Spill training requirements
- Requirements for spill exercising / testing of spill response arrangements
- Spill equipment and services requirements.

The procedure also details the roles and responsibilities of the dedicated Woodside Hydrocarbon Spill Preparedness team. This team is responsible for:

- Assuring that Woodside hydrocarbon spill responders meet competency requirements.
- Establishing the competency requirements, annual training schedule and a training register of trained personnel.
- 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.

10.5 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.

10.5.1 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 **Section 10.4** for details regarding how these risks are being managed. They are not discussed further in this section.

- 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.

Additional impacts and risks associated with the control measures not included within Section 1 include:

- drill cuttings and drilling fluids environmental impact assessment for relief well drilling
- vessel operations and anchoring
- presence of personnel on the shoreline
- toxicity of dispersant
- vegetation cutting
- additional stress or injury caused to wildlife
- waste generation.

10.5.2 Analysis of impacts and risks from implementing response techniques

Table 10-23 compares the adopted control measures for this activity against the environmental values that can be affected when they are implemented.

Table 10-23: Analysis of risks and impacts

	Environmental Value						
	Soil & groundwater	Marine sediment quality	Water quality	Air quality	Ecosystems/habitat	Species	Socio-economic
Monitor and evaluate		✓	✓		✓	✓	
Source control		✓	✓	✓	✓	✓	✓
Subsea dispersant injection		✓	✓		✓	✓	✓
Shoreline protection and deflection	✓	✓	✓		✓	✓	✓
Shoreline clean-up	✓	✓	✓		✓	✓	✓
Oiled wildlife response					✓	✓	
Scientific monitoring	✓	✓	✓	✓	✓	✓	✓
Waste management	✓			✓	✓	✓	✓

10.5.3 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
- potential contamination and toxicity effects to benthic and in-water biota from drilling fluids.

Potential impacts from the discharge of cuttings range from the complete burial of benthic biota in the immediate vicinity of the well site due to sediment deposition, smothering effects from raised sedimentation concentrations as a result of elevated TSS, changes to the physico-chemical properties of the seabed sediments (particle size distribution and potential for reduction in oxygen levels within the surface sediments due to organic matter degradation by aerobic bacteria) and subsequent changes to the composition of infauna communities to minor sediment loading above background and no associated ecological effects. Predicted impacts are generally confined to within a few hundred metres of the discharge point (International Association of Oil and Gas Producers 2016) (i.e. within the EMBA for a hydrocarbon spill event).

The discharge of drill cuttings and unrecoverable fluids from relief well drilling is expected to increase turbidity and TSS levels in the water column, leading to an increased sedimentation rate above ambient levels associated with the settlement of suspended sediment particles in close proximity 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 (NWBM), there being no bulk discharges of NWBM and the highly localised nature and scale of predicted physical impacts to seabed biota, indicate that any localised impact would likely be of a slight magnitude (especially when considering the broader consequence of the loss of well containment event that a relief well drilling activity would be responding too).

Vessel operations and anchoring

During the implementation of response techniques, where water depths allow, it is possible that response vessels will be required to anchor (e.g. during shoreline surveys). The use of vessel anchoring will be minimal and likely to occur when the impacted shoreline is inaccessible via road. Anchoring in the nearshore environment of sensitive receptor locations will have the potential to impact coral reef, seagrass beds and other benthic communities in these areas. Recovery of benthic communities from anchor damage depends on the size of anchor and frequency of anchoring. Impacts would be highly localised (restricted to the footprint of the vessel anchor and chain) and temporary, with full recovery expected.

Presence of personnel on the shoreline

Presence of personnel on the shoreline during shoreline operations could potentially result in disturbance to wildlife and habitats. During the implementation of response techniques, it is possible that personnel may have minimal, localised impacts on habitats, wildlife and coastlines. The impacts associated with human presence on shorelines during shoreline surveys and response operations may include:

- damage to vegetation/habitat, especially in sensitive locations such as mangroves and turtle nesting beaches, to gain access to areas of shoreline oiling
- damage or disturbance to wildlife during shoreline surveys
- removal of surface layers of intertidal sediments (potential habitat depletion)
- excessive removal of substrate causing erosion and instability of localised areas of the shoreline
- compaction of sediments.

Any impacts are expected to be localised with full recovery expected.

Toxicity of dispersants

The evaluation of the potential impacts to the receiving environment needs to consider not only the redistribution of hydrocarbons into the water column, but also the potential toxic nature of the dispersant applied and the toxicity effects of dispersed hydrocarbons.

The potential toxicity to the marine environment can be from the chemical/dispersant itself but also chemical dispersion of hydrocarbon can increase the concentration of toxic hydrocarbon compounds in the water column (Anderson et al 2014). Subtidal habitats and communities such as coral reefs, seagrass meadows, plankton, fish, known spawning grounds and periods of increased reproductive outputs (early life stages of fish and invertebrates i.e. meroplankton) are susceptible to toxic effects of chemically dispersed hydrocarbons.

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.

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 shoreline clean-up operations and oiled wildlife response
- semi-solids/solids (oily solids), collected during shoreline clean-up operations and oiled wildlife response
- debris (e.g. seaweed, sand, woods, plastics), collected during shoreline clean-up operations and oiled wildlife response and oiled wildlife response.

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.

Cutting back vegetation prior to impact could minimise the amount of contaminated organic material and thus reduce the amount of oiled/hazardous waste to be handled. However, removal of vegetation also allows more extensive penetration of oil into the substrate and may lead to habitat loss. Any impacts are expected to be localised with full recovery expected.

10.5.4 Treatment of impacts and risks from implementing response techniques

In respect of the impacts and risks assessed the following treatment measures have been adopted as reflected in **Section 10.4**. 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, TRPs, and/or the FSP.

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 (Spill Response Performance Standard **(PS) 17.1, PS 20.1**).
- Shallow draft vessels will be used to access remote shorelines to minimise the impacts associated with seabed disturbance on approach to the shorelines (**PS 17.2, PS 20.2**).

Presence of personnel on the shoreline

- Vehicular access will be restricted on dunes, turtle nesting beaches and in mangroves (**PS 20.3**).
- Shoreline access route (foot, car, vessel and helicopter) with the least environmental impact identified will be selected by a specialist in SCAT operations (**PS 20.4**).
- Oversight by trained personnel who are aware of the risks (**PS 20.6**).
- Trained unit leaders brief personnel prior to operations of the environmental risks of presence of personnel on the shoreline (**PS 20.7**).

Toxicity of dispersants

- OSCA approved dispersants prioritised for surface and subsea use (**PS 14.3**).

Additional stress or injury caused to wildlife

- Vessels used in hazing/pre-emptive capture will approach wildlife at slow speeds to ensure animals are not directed towards the hydrocarbons (**PS 31.1**).
- 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 (**PS 32.2**).

Waste generation

- All shorelines zoned and marked before clean-up operations commence to prevent secondary contamination and minimise the mixing of clean and oiled sediment and shoreline substrates (PS 18.4).
- Removal of vegetation will be limited to moderately or heavily oiled vegetation (PS 20.5)

10.6 Hydrocarbon Spill Response ALARP Assessment

10.6.1 Demonstration of ALARP

An analysis of alternative, additional and improved control measures has been undertaken to determine their reasonableness and practicability and is included in Appendix A. The tables document the considerations made in this evaluation. Where the costs of an alternative, additional, or improved control measure has 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 scenarios from this activity
- the likelihood of the WCCS spill has been ignored in evaluating what was reasonably practicable

10.6.2 Demonstration of Acceptability

Following the ALARP evaluation process, Woodside considers the hydrocarbon spill risks and impacts to 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 (external stakeholders) and are aligned with the uniqueness of, and/or the level of protection assigned to the environment, its sensitivity to pressures introduced by the activity, and the proximity of activities to sensitive receptors, and have been aligned with Part 3 of the EPBC Act.
- Selected control measures meet requirements of legislation and conventions to which Australia is a signatory (e.g. International Convention for the Prevention of Pollution from Ships (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).

11 Implementation Strategy

In accordance with Regulation 14 of the Environment Regulations, the EP must contain an implementation strategy for the activity and monitoring, recording and reporting arrangements. The implementation strategy presented in this section provides specific practices and procedures to ensure:

- all the environmental impacts and risks of the Petroleum Activity will be continually identified and reduced to a level that is ALARP
- control measures identified in the EP are effective in reducing the environmental impacts and risks of the activity to ALARP and acceptable levels
- environmental performance outcomes and environmental performance standards are met
- arrangements are in place to respond to and monitor impacts of oil pollution emergencies
- arrangements for ongoing consultation with relevant authorities, persons and organisations are in place and maintained through the activities.

11.1 Systems, Practices and Procedures

11.1.1 Woodside PetDW HSE Management System

The Woodside PetDW HSE Management System defines the boundaries within which all activities are conducted. It provides a structured framework to set common requirements, boundaries, expectations, governance and assurance for all activities. It also supports accountabilities and responsibilities as defined in the organisational structure. The overarching objective of the Woodside PetDW HSE Management System is to aspire to zero harm to people, communities and the environment, and achieve leading industry practice. The structure of the Woodside HSE Management System is hierarchical (**Figure 11-1**).

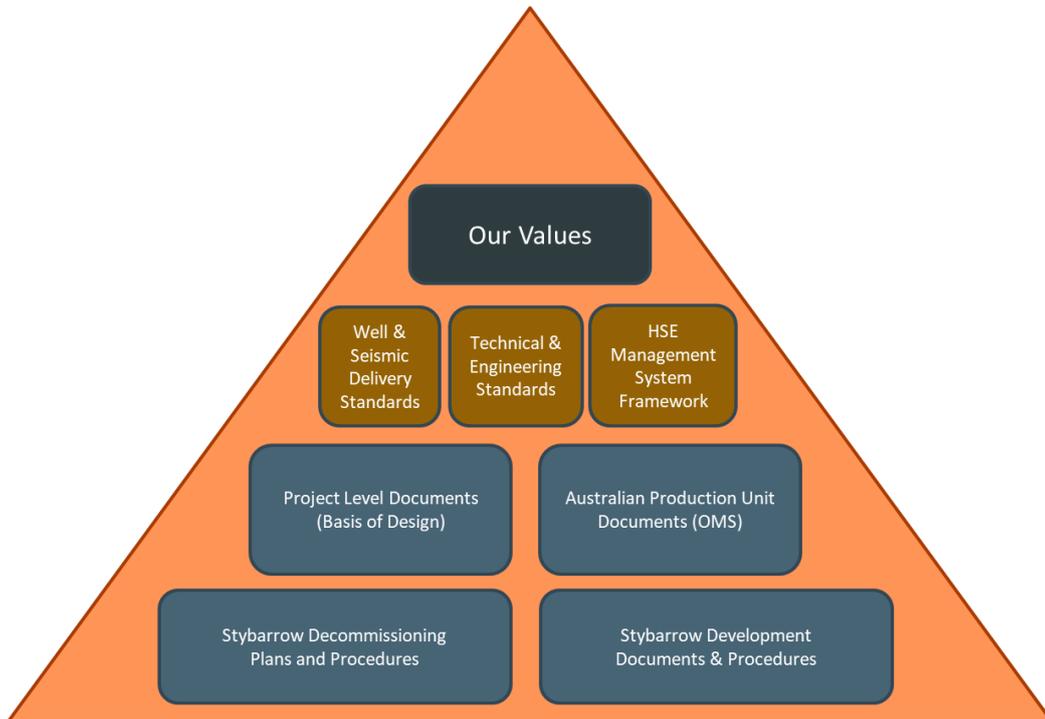


Figure 11-1: Woodside HSE Management System

The documents referred to in **Figure 11-1** address specific areas (for example, corporate performance reporting, risk management, incident investigation) where it is important activities are conducted consistently across the organisation.

The top level of the triangle shown in **Figure 11-1** is the Our Values; a copy of Our Values is provided in Appendix A. Our Values details Woodside’s values and directs the approach to all activities in Woodside. It includes value statements on each of sustainability, integrity, respect, performance, simplicity and accountability. It also provides a means of aligning Woodside’s values with strategic direction and measures of success.

The Woodside Our Requirements detail and define business planning, risk management, and assurance expectations of key process areas. They also serve as audit protocol against which all groups in Woodside are assessed. Categories of Our Requirements include (for example): HSE, Human Resources, Legal, Corporate Affairs, Supply, and Information Management.

Direction for environmental performance in Woodside is established by the Environment and Climate Change – Our Requirements. The Stybarrow P&A drilling activities will be undertaken in accordance with the objectives of Our Values, which includes compliance or exceedance with regulatory requirements, setting of objectives and targets and continual improvement.

This EP has been designed to meet the environmental aspects of the Woodside PetDW HSE Management System framework and establishes the foundation for continual improvement through the application, monitoring and auditing of consistent requirements across all aspects of the Petroleum Activity including;

- Identification of statutory obligations and commitments to ensure maintenance of license to operate
- Implementation of petroleum risk management processes, including this EP
- Scheduled monitoring and auditing of control implementation
- Completion of reviews, and reporting outcomes of these reviews

11.2 Environment Plan Organisation, Roles and Responsibilities

A defined chain of command with the roles and responsibilities for key Woodside and contractor personnel in relation to EP implementation, management and review are described in **Table 11-1**. It is the responsibility of all Woodside employees and contractors to ensure the Woodside Our Values (Appendix A) are applied in their areas of responsibility.

Table 11-1: Key personnel and environmental responsibilities

Title	Environmental Responsibilities
Office-based Roles	
Woodside Project Manager	<ul style="list-style-type: none"> • Monitor and manage the activity so it is undertaken as per the relevant standards and commitments in this EP. • Notify the Woodside Environment Adviser of any scope changes in a timely manner. • Liaise with regulatory authorities as required. • Review this EP as necessary and manage change requests. • Ensure all project and support vessel crew members complete an HSE induction. • Verify that contractors meet environmental related contractual obligations. • Confirm environmental incident reporting meets regulatory requirements (as outlined in this EP) and Woodside's Health, Safety and Environment Reporting and Investigation Procedure. • Monitor and close out corrective actions identified during environmental monitoring or audits.
Woodside Head of Projects/Region (Global Wells and Seismic)	<ul style="list-style-type: none"> • Ensure P&A operations are undertaken as per this EP and approval conditions. • Provide sufficient resources to implement the P&A-related management measures (i.e. controls, EPOs, PSs and MC) in this EP. • Ensures the MODU start-up meets the requirements of the Drilling and Managing Rig Operations Process.
Woodside Superintendent	<ul style="list-style-type: none"> • Ensure the P&A program meets the requirements detailed in this EP. • Ensure changes to the P&A program are communicated to the Woodside Environmental Adviser. • Ensure the Woodside's Well Site Manager is provided with the resources required to ensure the management measures (i.e. controls, EPOs, EPs and MC) in this EP are undertaken. • Confirm environmental incident reporting meets regulatory requirements (as outlined in this EP) and Woodside's Health, Safety and Environment Reporting and Investigation

Title	Environmental Responsibilities
	<p>Procedure.</p> <ul style="list-style-type: none"> • Monitor and close out corrective actions identified during environmental monitoring or audits. • Ensure MODU and project vessel personnel are given an Environmental Induction as per Section 7.4.2 of this EP at the start of the drilling programs. • Confirms controls and performance standards in this EP are actioned, as required, before P&A commences.
Woodside Drilling, Completions and Subsea Engineers	<ul style="list-style-type: none"> • Ensure changes to the P&A program are communicated to the Woodside Environmental Adviser. • Ensure all P&A fluid chemical components and other fluids that may be used downhole have been reviewed by the Woodside Environmental Adviser.
Woodside Environmental Adviser	<ul style="list-style-type: none"> • Verify relevant Environmental Approvals for the activities exist prior to commencing activity. • Track compliance with performance outcomes and performance standards as per the requirements of this EP. • Prepare environmental component of relevant Induction Package. • Assist with the review, investigation and reporting of environmental incidents. • Ensure environmental monitoring and inspections/audits are undertaken as per the requirements of this EP. • Liaise with relevant regulatory authorities as required. • Assist in preparation of external regulatory reports required, in line with environmental approval requirements and Woodside incident reporting procedures. • Monitor and close out corrective actions (Campaign Action Register (CAR)) identified during environmental monitoring or audits. • 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.
Woodside Corporate Affairs Adviser	<ul style="list-style-type: none"> • Prepare and implement the Consultation Plan for the petroleum activity • Report on consultation. • Ongoing liaison and notification as required as per Section 11.5.
Woodside Marine Assurance Superintendent	<ul style="list-style-type: none"> • Conducts 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 CMIT Duty Manager	<ul style="list-style-type: none"> • On receiving notification of an incident, the Woodside CMIT Duty Manager shall: • 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 impact, risk and progress to the Crisis Management Team and stakeholders • 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 Manager	<ul style="list-style-type: none"> • Prepare, maintain, and implement Contractor HSE Management Plans and Procedures

Title	Environmental Responsibilities
	<ul style="list-style-type: none"> • Ensure compliance with this EP, regulatory and HSE responsibilities relevant to their scope of work • Maintain clear lines of communication with the Woodside Operations Manager
Field-based Roles (MODU)	
Well Site Manager	<ul style="list-style-type: none"> • Responsible for the management and supervision of well engineering activities at the well sites • Ensures operations are conducted according to the approved program • Management of change during drilling operations
Offshore HSE Advisor	<ul style="list-style-type: none"> • Monitor and audit the activity to verify compliance with this EP • Ensures environmental incidents or breaches of EPOs are reported in line with Woodside's incident reporting requirements. • Disseminate project-specific environmental compliance requirements to field personnel as required.
Offshore Installation Manager – MODU	<ul style="list-style-type: none"> • Maintains operational control of the MODU • Managed the implementation of the MODU management system and procedural controls • Ensures MODU personnel are appropriately trained and competent to undertake role-specific tasks • Ensures MODU emergency response procedures are tested and implemented • Liaison with Drilling Supervisor on all aspects of drilling activities • Report environmental incidents or breaches of EPOs in line with incident reporting requirements.
Drilling Logistics Coordinator	<ul style="list-style-type: none"> • Waste is managed on the MODU and sent to shore as per the Drilling and Completions Waste Management Plan.
All crew	<ul style="list-style-type: none"> • Work in accordance with accepted HSE obligations and practices • Comply with this EP, and all regulatory and project obligations applicable to their assigned role • Report any hazardous condition, near miss, unsafe act, accident or environmental incident immediately to their supervisor • Report sightings of marine fauna and marine pollution • Attend HSE meetings and training and drills when required • Understand their obligation to 'stop-the-job' due to HSE concerns • Comply with this EP, and all regulatory and project obligations applicable to their assigned role
Field-based Roles (Project Vessel)	
Vessel Contractor Representative	<ul style="list-style-type: none"> • Be responsible for managing and supervising decommissioning engineering activities in the field site • Ensure field activities are conducted according to the approved programme requirements • Monitor and audit the field activities to ensure compliance with this EP and the regulatory and HSE responsibilities • Manage change during field activities • Disseminate project-specific environmental compliance requirements as required • Ensure environmental incidents or breaches of EPOs, EPSs or MCs are reported and recorded in line with Woodside's incident reporting requirements • Comply with this EP, and all regulatory and project obligations applicable to their assigned

Title	Environmental Responsibilities
	role
Vessel Master	<ul style="list-style-type: none"> • Manage activities and safety on-board vessel for the duration at sea, and operate under Woodside Marine Controls, relevant Commonwealth Acts and Regulations • Ensure vessel operations are undertaken as per this EP and any approval conditions • Conduct SOPEP drills as per vessel's schedule • Report environmental incidents or breaches of EPOs, EPSs or MCs on vessel, in line with Woodside's incident reporting requirements • Report recordable incidents • Comply with this EP, and all regulatory and project obligations applicable to their assigned role
Vessel Logistics Coordinators	<ul style="list-style-type: none"> • Ensure waste is managed on the relevant project vessel and sent to shore as per the relevant Waste Management Plan.
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.
All crew	<ul style="list-style-type: none"> • Work in accordance with accepted HSE obligations and practices • Comply with this EP, and all regulatory and project obligations applicable to their assigned role • Report any hazardous condition, near miss, unsafe act, accident or environmental incident immediately to their supervisor • Report sightings of marine fauna and marine pollution • Attend HSE meetings and training and drills when required • Understand their obligation to 'stop-the-job' due to HSE concerns • Comply with this EP, and all regulatory and project obligations applicable to their assigned role

11.3 Woodside IMS Risk Assessment Process

11.3.1 Objective and scope

To minimise the potential 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 might pose 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 the following:

- Vessels or immersible equipment that do not plan to enter the IMS Management Area (IMSMA)²² or operational areas defined in environmental approvals
- 'New build' vessels launched less than 14 days prior to mobilisation
- Vessels or immersible equipment which have been inspected by a suitably qualified IMS inspector who has classified the vessels or immersible equipment as acceptably low risk no more than 14 days prior to

²² IMSMA is based on current legal framework and includes all nearshore waters around Australia, extending from the lowest astronomical tide mark to 12 nm from land (including Australian territorial islands). The IMSMA also includes all waters within 12 nm from the 50 metre depth contour outside of the 12 nm boundary (i.e. Submerged reefs and atolls).

mobilisation

- Locally sourced vessels or immersible equipment from within the Pilbara locally sourced zone²³. 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 (AFC²⁴).

11.3.2 Risk Assessment Process

Woodside's IMS risk assessment process was developed with regard to the national biofouling management guidelines for the petroleum production and exploration industry and guidelines for the control and management of a ships' biofouling to minimise the transfer of invasive aquatic species (IMO Guidelines, 2011).

In order to effectively evaluate the potential for vessels and immersible equipment to introduce IMS, a risk assessment process has been developed to score and evaluate the risk posed by each Project vessel, or immersible equipment planning to undertake activities within the Operational Areas. The risk assessment process considers a range of factors, as listed in **Table 11-2** and **Table 11-13**.

It is intended 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 s within the risk assessment process.

Table 11-2: Key factors considered as a part of the risk assessment process for vessels

Factors	Details
Vessel type	The risk of IMS infection varies depending on the type of vessel undertaking the activity. A higher risk rating is applied for more complex, slow-moving vessels (e.g., dredges) in comparison to simple vessels (e.g., crew transfer vessel).
Recent IMS inspection and cleaning history, including for internal niches	In the case of biofouling on external hull niches, different risk ratings are applied dependant on whether out-of-water or in-water IMS inspections by qualified IMS inspectors and cleaning (if required) have been undertaken prior to contract commencement. If an IMS inspection (and clean if required) has not been undertaken in the past six months (from the time of contract commencement), the highest risk factor is applied. The risk factor then lessens for vessels as the time between inspection and mobilisation reduces.
Out-of-water period before mobilisation	A risk reduction factor can be applied for vessels that are hauled out and then mobilised as deck cargo or by road during mobilisation, therefore becoming air dried over an extended period. Risk reduction factor increases with exposure time out of water.
Age and suitability of AFC at mobilisation date	AFC manufacturers provide a range of coatings, each designed to avoid premature coating failure if it is correctly applied and matched to the vessel's normal speeds and activity profile (i.e., proportion of time spent stationary or below three knots), and its main operational region (i.e., tropical, sub-tropical temperate). If the AFC type is deemed to be unknown, unsuited or absent, the highest risk value is applied. If the AFC type is suitable the risk factor applied reduces with age since application.
Internal treatment systems	A risk reduction factor applied if the vessel has an internal biological fouling control system in place at the time of assessment, or evidence of manual dosing.
Vessel origin and proposed area of operation	Differing risk ratings are assigned in relation to the climatic relationship between the vessel's origin and the proposed climatic region of the proposed area of operation. Highest risk rating is applied to similar climatic regions.
Number of stationary/slow speed periods >7 days	A risk factor is calculated based on the number of 7 day periods that the vessel has operated at stationary or at low speed (less than three knots) in port or coastal waters which is any waters less than 50 metres deep outside 12 nautical miles from land or any waters within 12 nautical miles of land. The greater the number of periods the higher the risk factor applied.

²³ The Pilbara Zone includes Port, nearshore and offshore movements between Exmouth and Port Headland (excluding high environmental value areas, World Heritage Areas, Commonwealth Marine Reserve Sanctuary Zones and State Marine Management Areas and Marine Parks).

²⁴ Vessels and immersible equipment can still be classified as locally sourced even if the AFC application occurred in a different port provided the amount of time between AFC application and departure to the locally sourced area (i.e. period of time in waters <12nm/50m water depth) did not exceed consecutive 7 days or the period of time the vessel or immersible equipment has spent within the locally sourced zone exceeds 1 year (i.e. the risk of introducing a species from a different location has already passed).

Factors	Details
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 11-3: Key factors considered as a part of the risk assessment process for immersible equipment

Factors	Details
Region of deployment since last thorough clean, particularly coastal locations	Climatic region of use since last overhaul, thorough cleaning or prolonged period out of water (> 28 day). Highest risk rating is applied to similar climatic regions. Activities occurring in nearshore areas (less than 50 meters deep and/or within 12 nautical miles from land) are given the highest risk rating.
Duration of deployments	Maximum duration of deployment (maximum time in water) since last overhaul or thorough cleaning. The longer the period of immersion the higher the risk rating applied.
Duration of time out of water since last deployment	A further risk reduction factor can be applied for immersible equipment that has been out of the water for an extended period.
Transport conditions during mobilisation	If the equipment is stored in damp conditions then a high risk factor is applied, while if equipment is stored in dry and well ventilated (low humidity) conditions then a low risk factor is applied.
Post-retrieval maintenance regime.	A risk reduction factor is applied if the equipment/item of interest is routinely washed, cleaned, checked and/or disassembled between project sites. While a higher risk rating is applied where no routine cleaning occurs.

Following implementation of the risk assessment process, vessels and/or immersible equipment are classified as one of three risk categories, 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 Areas.

Following the allocation of a ‘low’ risk rating for a vessel or immersible equipment, the information provided by the vessel operator for the purposes of risk assessment must be confirmed prior to mobilisation. For vessels or equipment classified as posing an ‘uncertain’ or ‘high’ theoretical risk, a range of management options are presented to reduce this theoretical risk to acceptable levels and achieve a low-risk status. These management options have been developed with the intention of reducing IMS risk to levels that are as low as reasonably practicable (i.e., ALARP). It is a flexible approach that allows for a range of management actions to be tailored for a specific vessel movement. These will be assessed on a case-by-case basis and may include, but not limited to, the following:

- Inspection (desktop, in-water or dry dock) by a suitably qualified and experienced IMS inspector to verify risk status. Where practicable, the inspection shall occur within seven days (but not more than 14 days) prior to final departure to the Operational Areas.
- In-water or dry dock cleaning of the hull and other niche areas. This is typically applied where the risk assessment outcome is High risk driven by the age of the AFC on the vessel and its time spent in similar climatic region ports.
- Treatment of vessels internal seawater systems. This is typically applied in isolation for vessels with AFC applied to their hull within the last twelve months and where subsequent assessment through the process

achieves a low-risk rating.

- Limiting the duration that the vessel spends within the IMSMA to a maximum of 48 hours (cumulative entries)²⁵. This is applicable for Uncertain risk vessels only.
- Reject the vessel.

Project vessels and immersible equipment are required to be a low risk of introducing IMS prior to entering the Operational Areas or commencing activities defined under this EP.

11.4 Training and Competency

11.4.1 Competence, Environmental Awareness and Training

Woodside's (PetDW) HSE Management System establishes the foundation for continual improvement through applying consistent requirements across all aspects of Petroleum Activity, including establishing and maintaining the competencies for personnel, and providing training to promote expected behaviours.

For Woodside contractors, environmental risks in contracts are managed in accordance with the requirements outlined in the Woodside (PetDW) HSE Management Standard. As part of the contractor management process, the project vessel contractor's Environmental Management System is assessed to ensure it is aligned with the Woodside Our Values and the PetDW HSE Management Standard, and meets all commitments made in this EP. If, and wherever, the Contractor's Management System is found to be deficient, it will need to be modified before mobilisation to site.

All personnel on the project vessels are required to be competent and suitably trained to perform their assigned positions. This may be in the form of 'On the Job' or external training. Contractors are responsible for identifying training needs and keeping records of training. Environmental awareness inductions (**Section 11.4.3**) are required for all offshore personnel as part of their induction to performing Petroleum Activity. Information on the roles and responsibilities of all personnel will be provided during the environmental awareness inductions and toolbox meetings where relevant. A copy of the EP will be made available to all personnel upon request.

11.4.2 Operational Control

The Petroleum Activity is identified, planned and carried out in accordance with relevant legislation, EP commitments and internal environment standards and procedures. Verification processes are in place to ensure these controls and requirements are being implemented to reduce significant risks to acceptable levels. Some of the key operational controls include:

- task specific toolbox talks, Job Safety Analysis (or equivalent), and associated procedures / checklists
- contractors' vessel-specific procedures
- scheduled Preventative Maintenance Systems, tracked through dedicated software packages
- environmental inspections by the HSE Specialist.

11.4.3 Specific Environmental Awareness

Inductions are provided to all relevant personnel, including contractor personnel such as vessel crew, before mobilising to or on arriving at the activity location. This induction covers the HSE requirements and environmental information specific to the location of the Petroleum Activity. The induction will include environmental information about:

- Description of the activity.
- Ecological and socio-economic values of the activity location.
- Regulations relevant to the activity.
- Woodside's Environment and Biodiversity Policy.
- EP importance/structure/implementation/roles and responsibilities.
- Main environmental aspects/hazards and potential environmental impacts and related performance

²⁵48 hours is considered an appropriate and ALARP management control, as it significantly reduces the potential for any IMS associated with a vessel to successfully establish suitable habitat within the IMSMA. This reduction of risk is primarily achieved via a direct reduction of the propagule pressure associated with a particular vessel movement.

outcomes.

- waste management requirements and process (segregation of landfill, recycle and hazardous wastes) and location of bins
- Oil spill preparedness and response.
- Monitoring and reporting on performance outcomes and standards using MC.
- Incident reporting.

All personnel who undertake the induction are required to sign an attendance sheet, which is retained by the project vessel contractors.

The MODU and project vessels will hold regular HSE meetings which cover all crews. During these meetings, environmental incidents will be reviewed and awareness material presented. All personnel are required to attend the HSE meetings and attendance sheets are retained by the project vessel contractor. Daily meetings held onboard the MODU and project vessels also serve to reinforce environmental awareness during the Petroleum Activity.

A copy of this EP is provided to the MODU and project vessel contractor before performing the Petroleum Activity.

11.4.4 Contractor Management

For Woodside contractors, HSE risks in contracts are managed in accordance with the requirements outlined in the Woodside (PetDW) HSE Management Standard. As part of the contractor management process, Woodside implements pre- and post-contract award processes and activities aimed at ensuring contracts consistently and effectively cover the management of HSE in line with Woodside's HSE-related Our Requirements, the Woodside Our Values, and the Woodside (PetDW) HSE Standard.

While Woodside (PetDW) HSE Management System applies to the way Woodside execute its responsibilities under this EP, operational control of the MODU and project vessels remains the responsibility of the vessel contractor and shall be managed in accordance with Woodside Contractor Management Systems.

11.4.5 Marine Operations and Assurance

Woodside's marine assurance is managed by the Marine Assurance Team of the Logistics Function 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 following marine assurance activities:

- Safety Management System Assessment
- Dynamic Positioning (DP) System Verification
- Vessel Inspections
- Project support for tender review, evaluation and pre/post contract award.

Vessel inspections are used to verify actual levels of compliance with the company's Safety Management System, the overall condition of the vessel and the status of the planned maintenance system onboard. Woodside Marine Assurance Specialist will conduct a risk assessment on the vessel to determine the level of assurance applied and the type of vessel inspection required.

Methods of vessel inspection may include, and are not limited to:

- Woodside Marine Vessel Inspection
- OCIMF OVID Inspection
- IMCA CMID Inspection
- Marine Warranty Survey

Upon completion of the marine assurance process, to confirm that identified concerns are addressed appropriately and conditions imposed are managed, the Woodside Marine Assurance Team will issue the vessel a statement of approval. Should a 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.

11.4.6 Risk Assessment

Woodside conducts a risk assessment of vessels where either an OVMSA Verification Review and/or vessel inspection cannot be completed. This is not a regular occurrence and is typically used when the requirements of the assurance process are unable to be met or the processes detailed are not applicable to a proposed vessel(s). The Marine Vessel Risk Assessment will be conducted by the Marine Assurance Specialist, where the vessel meets the short-term hire prerequisites.

The risk assessment is a semi-quantitative method of determining what further assurance process activity, if any, is required to assure a vessel for a particular task or role. The process compares the level of management control a vessel is subject to against the risk factors associated with the activity or role.

Several factors are assessed as part of a vessel risk assessment, including:

- Management control factors:
 - 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.

11.5 Monitoring, Auditing and Management of Non-conformance and Review

11.5.1 Monitoring Environmental Performance

Environmental performance must be consistent with the Woodside PetDW HSE Standard and commitments made in this EP.

Woodside and its contractors will perform a program of periodic monitoring during the petroleum activities – starting at mobilisation of each activity and continuing through the duration of each activity to activity completion. This

information will be collected using the tools and systems outlined below, developed based on the EPOs, controls, standards and MC in this EP. The tools and systems will collect, as a minimum, the data (evidence) referred to in the MC in **Section 7**, **Section 8** and **Section 10.4.11**.

11.5.1.1 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 or Woodside Site Representative (other compliance evidence is collected onshore)
- environmental discharge reports that record volumes of planned and unplanned discharges, to ocean and atmosphere
- monitoring of progress against the Projects function scorecard for KPIs
- internal auditing and assurance program as described in **Section 11.5.3**.

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 11.5.3**.

11.5.2 Record Keeping

Record keeping will be in accordance with Regulation 14(7). The collection of compliance records (against the MC) will form part of the permanent record of compliance maintained by Woodside and will form the basis for demonstrating that the EPOs and standards are met, which will be summarised in a series of routine reporting documents.

11.5.3 Auditing, Assurance, Management of Non-conformance and Continuous Improvement

The environmental performance of Woodside activities will be reviewed in a number of ways to:

- ensure all significant environmental aspects of the activity are covered in the EP
- ensure management measures to achieve environmental performance outcomes are being implemented, reviewed and amended where necessary
- ensure all environmental commitments have been met
- ensure impacts and risks will be continuously identified and reduced to ALARP
- identify potential non-conformances and opportunities for continuous improvement.

Woodside reviews and audits its contractors at various stages, including before contract award, before the activities and during activities, in accordance with Woodside PetDW HSE Management System performance. The environmental performance of contractors to Woodside involved in activities will be reviewed through activities including:

- inspections of Contractor Management systems and procedures
- pre-activity audits
- review of reporting documentation
- monitoring of progress
- auditing and assurance program
- regular review of incident, audit, inspection, observation, safety meeting and daily operations reports
- action item tracking and closeout
- end of campaign reviews.

The environmental performance of Woodside activities will be reviewed through the following:

- The EP will be distributed to the MODU and project vessel contractor before performing the Petroleum Activity and compliance against EPOs, EPSs and MCs monitored regularly by Woodside.
- All environmental management commitments from the EP will be documented and a description of compliance with each commitment will be maintained.

Environment compliance monitoring allows continuous improvement initiatives to be developed and inform the development of future EPs.

11.6 EP Review Process

11.6.1 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). Relevant knowledge is defined as:

- environmental science supporting the description of the existing environment
- socio-economic environment and consultation information
- environmental legislation.

The frequency and record of reviews, communication of relevant new knowledge and consideration of management of change are documented in the Woodside Environment Plan Guideline.

Under the Oil Spill Scientific Monitoring Program preparedness, an annual review and update to the environmental baseline studies database is completed and documented. Periodic location-focused environmental studies and baseline data gap analyses are completed and documented. Any subsequent studies scoped and executed as a result of such gap analysis are managed by the Environment Science Team and tracked via the Corporate Environment Baseline Database.

11.6.2 Learning and Knowledge Sharing

Learning and knowledge sharing occurs via a number of different methods including:

- event investigations
- event bulletins
- after campaign review conducted, including review of environmental incidents as relevant
- ongoing communication with vessel operators
- formal and informal industry benchmarking
- cross asset learnings
- engineering and technical authorities discipline communications and sharing.

11.6.3 Review of Impacts, Risks and Controls across the life of the EP

In the unlikely case 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 11.6.5**).

11.6.4 EP Management of Change

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 3**) 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**); and potential new advice from external relevant persons (**Section 5**), will be managed in accordance with Regulation 17 of the Environment Regulations.

Risk will be assessed in accordance with the environmental risk management methodology (**Section 6**) 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 17 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 17 of the Environment Regulations, will be considered a 'minor revision'. Minor administrative changes to this EP, where an assessment of the environmental risks and impacts is not required (e.g. document references, phone numbers, etc.), will also be considered a 'minor revision'. Minor revisions as defined above will be made to this EP using Woodside's document control process. Minor revisions will be tracked in an MOC Register to ensure visibility of cumulative risk changes, as well as enable internal EP updates/reissuing as required. This document will be made available to NOPSEMA during regulator environment inspections.

11.6.5 OPEP 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 17 to determine if EP, including OPEP, resubmission is required. 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 the five-yearly revision.

11.7 Reporting

To meet the environmental performance outcomes and standards outlined in the EP, Woodside reports at a number of levels as described in the next subsections.

11.7.1 Routine Reporting (Internal)

11.7.1.1 Daily Progress Reports and Meetings

Daily reports for activities are prepared and issued to key support personnel and stakeholders, by relevant managers responsible for the field-based activities. The report provides performance information about operational activities, health, safety and environment, and current and planned work activities.

Meetings between key personnel are used to transfer information, discuss incidents, agree plans for future activities and develop plans and accountabilities for resolving issues.

11.7.1.2 Regular HSE Meetings

The project vessels will hold regular HSE meetings which cover all crews. During these meetings, environmental incidents will be reviewed, and awareness material presented. All personnel are required to attend the HSE meetings and attendance sheets are retained by the project vessel contractor. Daily meetings held onboard the project vessels also serve to reinforce environmental awareness during the Petroleum Activity.

Dedicated HSE Meetings will also be held with the offshore and Perth based management to address targeted HSE incidents and initiatives.

11.7.2 Routine Reporting (External)

11.7.2.1 Ongoing Consultation

In accordance with Regulation 14 (9) 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 **Section 5**. Relevant new information identified during ongoing consultation will be assessed, as appropriate using the EP Management of Knowledge (refer to **Section 11.6.1**) and Management of Change Process (refer to **Section 11.6.4**).

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, additional persons and those who are merely interested in the activities, can otherwise remain up to date on this activity through subscribing to the Woodside website.

Should consultation feedback be received following EP acceptance that identifies 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 11.6.1**) and Management of Change process (refer to **Section 11.6.4**), as appropriate.

11.7.2.2 External Reporting Requirements

Routine regulatory reporting requirements for the Petroleum Activity are summarised in **Table 11-4**. The requirements include that Woodside develop and submit an annual Environmental Performance Report to NOPSEMA, with the first report submitted within 12 months of the commencement of activities covered by this EP (as per the requirements of Regulation 14(2) (b) of the Environment Regulations).

Table 11-4: Routine external reporting requirements

Report / Notification	Recipient	Frequency	Communication	Comment
Before the Activity				
DoD Start of Activity Notification	DoD	Minimum of five weeks notification prior to the commencement of activities.	Written	As requested by DoD during consultation.
AHO Start of Activity Notification	AHO	No less than four weeks notification before the commencement of activities, where practicable.	Written	As requested by AMSA and AHO during consultation.
NOPSEMA Start of Activity Notification	NOPSEMA	At least ten days before the activity commences	Written	Complete NOPSEMA's Regulation 29 Start or End of Activity Notification form prior to Petroleum Activity
DMIRS Start of Activity Notification	DMIRS	Prior to activity commencement	Written	Notify DMIRS of the start date recovery executions, (petroleum.environment@dmirs.wa.gov.au). As requested by DMIRS during consultation
AFMA, DAFF-Fisheries, CFA, DPIRD, WAFIC and relevant Fishery Licence Holders that have the potential to be directly impacted by planned activities in the Operational Area (Western Deepwater Trawl Fishery).	WAFIC	Prior to activity commencement	Written	Date of activity start and end.
AMSA JRCC Notification	AMSA	24 to 48 hrs prior to activity commencement	Written	As requested by AMSA during consultation.
Notification (email)	All relevant persons for the proposed activity	Notification of significant change	As appropriate	Notification of significant change Any relevant new information will be assessed using the EP Knowledge Management System and Management of Change Process

Report / Notification	Recipient	Frequency	Communication	Comment
During the Activity				
Recordable incident as required by Regulation 26B NOPSEMA must be notified of a breach of an EPO or EPS, in the environment plan that applies to the activity that is not a reportable incident.	NOPSEMA	Complete NOPSEMA's Recordable Environmental Incident Monthly Report form.	Written	Written report - The report must be submitted as soon as practicable after the end of the calendar month, and in any case, not later than 15 days after the end of the calendar month.
Reportable Incident, as required by) Regulation 16(c), 26 & 26A NOPSEMA must be notified of any reportable incidents. For the purposes of Regulation 16(c), a reportable incident is defined as:	NOPSEMA	As soon as practicable, and in any case not later than two hours after the first occurrence of a reportable incident, or if the incident was not detected at the time of the first occurrence, at the time of becoming aware of the reportable incident.	Oral	The oral notification must contain: <ul style="list-style-type: none"> all material facts and circumstances concerning the reportable incident known or by reasonable search or enquiry could be found out any action taken to avoid or mitigate any adverse environmental impacts of the reportable incident the corrective action that has been taken, or is proposed to be taken, to stop, control or remedy the reportable incident.
An incident relating to the activity that has caused, or has the potential to cause, moderate to significant environmental damage.	NOPSEMA NOPTA	As soon as practicable after the oral notification.	Written	A written record of the oral notification must be submitted. The written record is not required to include anything that was not included in the oral notification.
For the purposes of this EP, Severity level 3 is equivalent to moderate environmental damage. Severity levels 4 and 5 are equivalent to more	NOPSEMA NOPTA	Must be submitted as soon as practicable, and in any case not later than three days after the first occurrence of the reportable incident unless NOPSEMA specifies otherwise. Same report to be submitted to within seven days after giving the written report to NOPSEMA.	Written	A written report must contain: <ul style="list-style-type: none"> all material facts and circumstances concerning the reportable incident known or by reasonable search or enquiry could be found out any action taken to avoid or mitigate any adverse environmental impacts of the reportable incident the corrective action that has been taken, or is proposed to be taken, to stop, control or remedy the reportable incident the action that has been taken, or is proposed to be taken, to prevent a similar incident occurring in the future. Consider reporting using NOPSEMA's Report of an Accident,

Report / Notification	Recipient	Frequency	Communication	Comment
significant environmental damage.				Dangerous Occurrence or Environmental Incident form.
Environmental Performance as required by Regulation 26C NOPSEMA must be notified of the environmental performance at the intervals provided for in the EP.	NOPSEMA	A detailed environmental performance report will be submitted within three months of submission of Regulation 29(2).	Written	Written report must contain sufficient information to determine whether or not environmental performance outcomes and standards in the EP have been met.
AMSA notification of activity change	AMSA	As soon as practicable.	Written	Any changes to the intended operations.
AMSA notification of any oil pollution incidents in Commonwealth waters	AMSA	Within two hours.	Oral and Written	In accordance with the Navigation Act 2012, any oil pollution incidents in Commonwealth waters will be reported by the Vessel Master to AMSA within 2 hours via the national emergency notification contacts and a written report within 24 hours of the request by AMSA. The national 24-hour emergency notification contact details are: <ul style="list-style-type: none"> • Free call: 1800 641 792 • Fax: (02) 6230 6868 • Email: mdo@amsa.gov.au
DoT Reporting	Oil Spill Response Coordination	Within two hours.	Oral	Notification of actual or impending spillage, release or escape of oil or an oily mixture that is capable of causing loss of life, injury to a person or damage to the health of a person, property or the environment
All actual or impending MOP incidents that are in, or may impact, State waters resulting from an offshore Petroleum Activity.	OSRC Unit within the DoT	POLREP following verbal notification. SITREP within 24 hours of request	Written	All oil pollution incidents in WA State waters will be reported by the Vessel Master to the Oil Spill Response Coordination (OSRC) Unit within the DoT as soon as practicable (within 2 hours of spill occurring) via the 24-hour reporting number (08) 9480 9924. The Duty Officer will then advise whether the following forms are required to be submitted:

Report / Notification	Recipient	Frequency	Communication	Comment
				<ul style="list-style-type: none"> Marine Pollution Form (POLREP) http://www.transport.wa.gov.au/mediaFiles/marine/MAC-F-PollutionReport.pdf and/ or <ul style="list-style-type: none"> Marine Pollution Situation Report (SITREP) http://www.transport.wa.gov.au/mediaFiles/marine/MAC-F-SituationReport.pdf
DNP Reporting Notification of the event of oil pollution within a marine park or where an oil spill response action must be taken within a marine park; or if any changes to intended operations (requested through consultation	DNP	So far as reasonably practicable prior to response action being written.	Oral and written	The DNP should be made aware of oil/gas pollution incidences which occur within a marine park or are likely to impact on a marine park as soon as possible. Notification should be provided to the 24-hour Marine Compliance Duty Officer on 0419 293 465. 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 OPEP (such as dispersant, containment) confirmation of providing access to relevant monitoring and evaluation reports when available contact details for the response coordinator. Note that the DNP may request daily or weekly Situation Reports, depending on the scale and severity of the pollution incident.
DPIRD Reporting If marine pests or disease are suspected this must be reported to DPIRD.	DPIRD	Within 24 hours.	Oral	Notification of any suspected marine pests or diseases including any organism listed in the Western Australian Prevention List for Introduced Marine Pests and any other non-endemic organism that demonstrates invasive characteristics.
DCCEEW Reporting Any harm or mortality to EPBC Act-listed threatened marine fauna	DCCEEW	Within seven days to EPBC.permits@environment.gov.au	Written	Notification of any harm or mortality to an EPBC listed species of marine fauna whether attributable to the activity or not.
DCCEEW Reporting	DCCEEW	As soon as practicable, in any case no later	Written	Marine fauna sighting data recorded in the marine fauna sighting

Report / Notification	Recipient	Frequency	Communication	Comment
Marine Fauna Sighting Data		than three months of the end of the activity.		database.
Reporting any ship strike incident with cetaceans will also be reported to the National Ship Strike database.	Australian Marine Mammal Centre	As soon as practicable.	Written	Ship strike report provided to the Australian Marine Mammal Centre: https://data.marinemammals.gov.au/report/shipstrike
On Completion of Activity				
NOPSEMA Annual Environment Plan Performance Report	NOPSEMA	Should an activity be continuous for 12 months, then a summary environmental performance report will be submitted before the end of this period.	Written	As required by Regulation 14 (2) and 26C the report will assess compliance with the EPOs and EPSs outlined in this EP. The reporting period is 1 January to 31 December each year.
DMIRS Notification	DMIRS	End date of Petroleum Activity	Written	Notify DMIRS of the end date of the subsea equipment recovery, (petroleum.environment@dmirs.wa.gov.au).
NOPSEMA Environmental Performance Report	NOPSEMA	Annual, with the first report submitted within 12 months of the commencement of the Petroleum Activity covered by this EP	Written	In accordance with the Regulation 26C, confirmation of compliance with the Performance Outcomes, Performance Standards and Measurement Criteria of this EP. Reporting period 1 July to 30 June. Report must include sufficient information to enable NOPSEMA to determine whether or not the environmental performance outcomes and performance standards in the EP have been met.
NOPSEMA End-of-activity EP Performance Report	NOPSEMA	Within three months of EP Completion	Written	The EP will end when Woodside notify NOPSEMA that Petroleum Activity has ended, and all of the obligations under the EP have been completed, and NOPSEMA has accepted the notification, in accordance with Regulation 25A of the Environment Regulations.

11.7.2.3 General Direction 833 Reporting

To meet Direction 6 in Schedule 1 of General Direction 833, Woodside will undertake the following reporting defined in **Table 11-5**.

To meet Direction 4 and 5, Woodside will undertake final environmental surveys described in the Stybarrow Decommissioning and Field Management EP. Data will be collated from as left surveys, ROV images and sediment sampling to inform what, if anything, needs to be done to provide for the conservation and protection of natural resources in the licence area, and make good any damage to the seabed or subsoil in the licence area caused by any person engaged or concerned with the operations.

Woodside is intending to provide a report to NOPSEMA within 12 months following completion of final decommissioning activities with their demonstration for how Woodside has provided for the conservation and protection of the natural resources and made good any damage to the seabed or subsoil in the licence areas relevant to the Stybarrow field development. These reporting requirements will be provided in Section 11 of the Stybarrow Decommissioning and Field Management EP, which is intended to be the final decommissioning EP for permit area WA-32-L.

Table 11-5: General Direction 833 Reporting Requirements

Report / Notification	Recipient	Frequency	Communication	Comment
NOPSEMA Decommissioning Annual Progress Report in accordance with NOPSEMA General Direction (833)	NOPSEMA	Annual, no later than 31 December each year	Written	Submit to NOPSEMA on an annual basis, until all direction have been met, a progress report detailing planning towards and process with undertaking the actions required by directions 1, 2, 3, 4 and 5. The report submitted under Direction 6(a) must be to the satisfaction of NOPSEMA and submitted to NOPSEMA no later than 31 December each year. Publish the report on the registered titleholders' website within 14 days of obtaining NOPSEMA satisfaction under Direction 6(b).

11.7.2.4 End of the Environment Plan

The EP will end when Woodside notify NOPSEMA that petroleum activity has ended, and all of the obligations under the EP have been completed, and NOPSEMA has accepted the notification, in accordance with Regulation 25A of the Environment Regulations.

Notification will be through completion and submission of NOPSEMA's Regulation 25A – End of Operation of Environment Plan Form.

11.7.3 Incident Reporting (Internal)

Woodside classifies non-conformances with EPOs and standards in this EP as environmental incidents. Woodside employees and contractors are required to report all environmental incidents, and these are managed as per Woodside's internal event recording, investigation and learning requirements.

An internal computerised database called First Priority is used to record and report these incidents. Details of the event, immediate action taken to control the situation, investigation outcomes and corrective actions to prevent reoccurrence are all recorded. Corrective actions are monitored using First Priority and closed out in a timely manner.

Woodside uses a severity rating for classification of environmental incidents, with the significant categories having a severity level (consequence) of 3, 4 or 5 (as detailed in **Section 6**). Detailed investigations are completed for all incidents classified as a 3, 4 or 5 severity (consequence) level and high potential environmental incidents.

11.7.4 Incident Reporting (External) – Reportable and Recordable

11.7.4.1 Reportable Incidents

A reportable environmental incident is defined in Regulation 4 of the Environment Regulations as:

“...reportable incident, for an activity, means 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 is:

- An uncontrolled release of hydrocarbons or environmentally hazardous chemicals of more than 80 L to the marine environment
- An incident that has caused environmental damage with a severity (consequence) level of ≥ 3 , as defined in the Woodside (PetDW) HSE Risk Matrix (refer to previous **Table 6-2**), or
- An incident that has the potential to cause environmental damage with a severity (consequence) level of ≥ 3 , as defined in the Woodside (PetDW) HSE Risk Matrix (refer to previous **Table 6-2**)

In accordance with Regulations 26, 26A and 26AA, Woodside will report all reportable incidents orally to NOPSEMA, as soon as practicable, and in any case not later than two hours after the first occurrence of the reportable incident; or if the reportable incident was not detected at the time of the first occurrence, the time of becoming aware of the reportable incident.

Oral notifications of a reportable incident to NOPSEMA will be via telephone: 1300 674 472.

The oral notification must contain:

- all material facts and circumstances concerning the reportable incident known or could be obtained by reasonable search or enquiry
- any action taken to avoid or mitigate any adverse environment impacts of the reportable incident
- the corrective action that has been taken, or is proposed to be taken, to stop, control or remedy the reportable incident.

A written record of the reportable incident will be provided to NOPSEMA, as soon as practicable after making the oral notification, but within three days after the first occurrence of the reportable incident unless NOPSEMA specifies otherwise. The written report should use a format consistent with NOPSEMA's Report of an Accident, Dangerous Occurrence or Environmental Incident (Form FM0929).

Within seven days of giving a written report of a reportable incident to NOPSEMA, a copy of the same written report must be provided to the National Petroleum Titles Administrator (NOPTA), and DMIRS.

Written notification must be provided of any environmental incident that could potentially impact on any land or water in State jurisdiction via: petroleum.environment@dmirs.wa.gov.au.

11.7.4.2 Recordable Incident

A recordable environmental incident is defined in Regulation 4 of the Environment Regulations as:

“...recordable incident, for an activity, means a breach of an environmental performance outcome or environmental performance standard, in the environment plan that applies to the activity, that is not a reportable incident”.

In terms of the activities within the scope of this EP, a recordable incident is a breach of the environmental performance outcome or environmental performance standards listed in this EP.

In the event of a recordable in recordable incident, Woodside will report the occurrence to NOPSEMA as soon as is practicable after the end of the calendar month in which it occurs; and in any case, not later than 15 days after the end of the calendar month. If no recordable incidents have occurred, a 'nil incident' report will be submitted to NOPSEMA. Written reporting to NOPSEMA of recordable incidents and 'nil incidents' can be via completion of NOPSEMA's Form FM0928– Recordable Environmental Incident Monthly Report. The report will contain:

- a record of all the recordable incidents that occurred during the calendar month
- all material facts and circumstances concerning the recordable incidents that are known or can, by reasonable search or enquiry, be found out
- any action taken to avoid or mitigate any adverse environmental impacts of the recordable incidents
- the corrective action that has been taken, or is proposed to be taken, to stop, control or remedy the recordable incident
- the action that has been taken, or is proposed to be taken, to prevent a similar incident occurring in the future

11.9 Emergency Preparedness and Response

11.9.1 Overview

Under Regulation 14(8), the implementation strategy must contain an oil pollution emergency plan (OPEP) and provide for the updating of the OPEP. In accordance with Regulation 14, the sections below detail the implementation strategy for hydrocarbon spill emergency conditions during decommissioning activities. The section outlines the response framework in the event of a hydrocarbon spill and the emergency response arrangements for a Level 1 and 2 oil spill events based on the strategic NEBA assessment. Specific Woodside practices and procedures are presented to ensure that the environmental impacts and risks of spill response activities will be continuously identified and reduced to ALARP, along with environmental performance outcomes, performance standards and management criteria for spill response activities.

As part of the implementation strategy, Woodside has developed an activity specific OPEP (Appendix A). The implementation strategy includes Woodside processes and procedures for how training, competencies and on-going environmental awareness will be maintained for the duration of the activity, for all personnel and contractors involved in spill response activities (resourced by Woodside).

11.9.2 Oil Spill Response Arrangements

11.9.2.1 Incident Jurisdictions

In the event of an oil spill, Control Agencies are assigned to respond to the various levels of spills is outlined in **Table 11-6**. The 'Statutory Agency' and 'Control Agency' are defined as follows:

- **Jurisdictional Authority:** The relevant State or Commonwealth Agency assigned by legislation, administrative arrangements or within the relevant contingency plan, to control response activities to a maritime environmental emergency in their area of jurisdiction.
- **Control Agency:** is the agency with operational responsibility in accordance with the relevant contingency plan to take action to respond to an oil and/or chemical spill in the marine environment.

Table 11-6: Statutory and lead control agencies for oil spill pollution incidents

Area	Spill Source	Jurisdictional Authority	Lead Control Agency	
			Level 1	Level 2
Commonwealth waters	Offshore Petroleum Activity	NOPSEMA	Woodside	Woodside
	Vessels	AMSA	AMSA	AMSA
State waters	Offshore Petroleum Activity	DoT	Woodside	DoT
	Vessels	DoT	DoT	DoT
Port waters	Vessels	Port authority	Port authority / DoT	Port authority / DoT

11.9.2.2 Commonwealth Waters

Woodside holds the Control Agency role for its facility-related spills within Commonwealth waters. As defined by Schedule 3, Part 1, Clause 4 of the OPGGS Act, 'facility' spills include those from fixed platforms, Floating Production Storage and Offloading (FPSO)/Floating Storage and Offloading (FSO) systems, Mobile Offshore Drilling Units (MODU) and subsea infrastructure. It also includes vessels undertaking decommissioning activities in Woodside's Operational Area.

For instances where Woodside, as the Control Agency, requests assistance of AMSA, Woodside will request an AMSA liaison officer be mobilised to the IMT as soon as possible. In the interim period until AMSA have assembled their IMT, Woodside (Incident Commander) will liaise closely with the AMSA liaison officer and or the AMSA Incident Controller to inform them of first strike/initial actions being taken.

11.9.2.3 Western Australia

For WA State waters, the Department of Transport (DoT) Marine Safety General Manager (or delegate) is prescribed as the Hazard Management Agency (HMA) for marine oil pollution as per the Western Australian *Emergency Management Act 2005* and *Emergency Management Regulations 2006*. The DoT as the HMA has developed the State Hazard Plan: Maritime Environmental Emergencies (DoT, 2021).

If a Level 2 spill has potential to enter WA waters, Woodside would contact the DoT Maritime Environmental Emergency Response (MEER) unit, as per the reporting requirements in Appendix A - First Strike Plan of the OPEP (Appendix G). Upon notification, the DoT would assume the role of Control Agency and would activate its Maritime Environmental Emergency Coordination Centre (MEECC), DoT Incident Management Team (IMT) and appoint the State Maritime Environmental Coordinator (SMEEC).

Woodside will be required to work in coordination with DoT during such instances, as outlined within the DoT's Offshore Petroleum Industry Guidance Note – Marine Oil Pollution: Response and Consultation Arrangements (July 2020) (available online <https://www.transport.wa.gov.au/imirine/oil-spill-contingency-plans.asp>).

For Level 2 spills that cross from Commonwealth waters to WA waters, both DoT and Woodside will be Control Agencies and would work in partnership to coordinate the response effort. For a cross-jurisdictional response, there will be a Lead IMT (DoT or Woodside) for each spill response activity, with DoT's control resting primarily on WA State waters activities.

Appendix 2 of the Offshore Petroleum Industry Guidance Note – Marine Oil Pollution: Response and Consultation Arrangements (DoT, 2020) provides guidance on the allocation of a Lead IMT to response activities for a cross jurisdictional spill.

To facilitate effective coordination between the two Controlling Agencies and their respective IMT's during a cross-jurisdictional response, a Joint Strategic Coordination Committee (JSCC) will be established (**Figure 11-2**). The JSCC will be jointly chaired by the State Marine Pollution Coordinator (SMEEC) and Woodside's nominated senior representative and will comprise of individuals deemed necessary by the chairs to ensure an effective coordinated response across both jurisdictions. Additional details on the JSCC's key functions are outlined in the Offshore Petroleum Industry Guidance Note – Marine Oil Pollution: Response and Consultation Arrangements (DoT, 2020).

At the request of the SMEEC, Woodside will be required to provide all necessary resources, including personnel and equipment, to assist the DoT's IMT in performing duties as the Control Agency for WA State waters response. This includes providing an initial 11 personnel to work within the DoT Incident Control Centre in Fremantle, no later than 8 am following the day of the request. It also includes providing personnel to serve in DoT's Forward Operating Base (FOB) no later than 24 hours following formal request by the SMEEC. DoT will in turn, provide Woodside with Liaison Officer/s from DoT's command structure to sit within Woodside's IMT. **Figure 11-3** shows the organisational structure of DoT personnel embedded in the Woodside IMT and the structure of Woodside personnel in the DoT (State) IMT. Provision of personnel to support the WA DoT IMT and FOB may be through a combination of Woodside, AMOSC and/or AMOSC Core Group personnel. As a minimum, the Deputy Planning Officer and Deputy Logistics Officer supporting the WA DoT IMT will be filled by Woodside IMT personnel with familiarity with relevant Woodside systems and processes. Woodside will locate its IMT in the existing IMT Control Room in Perth.

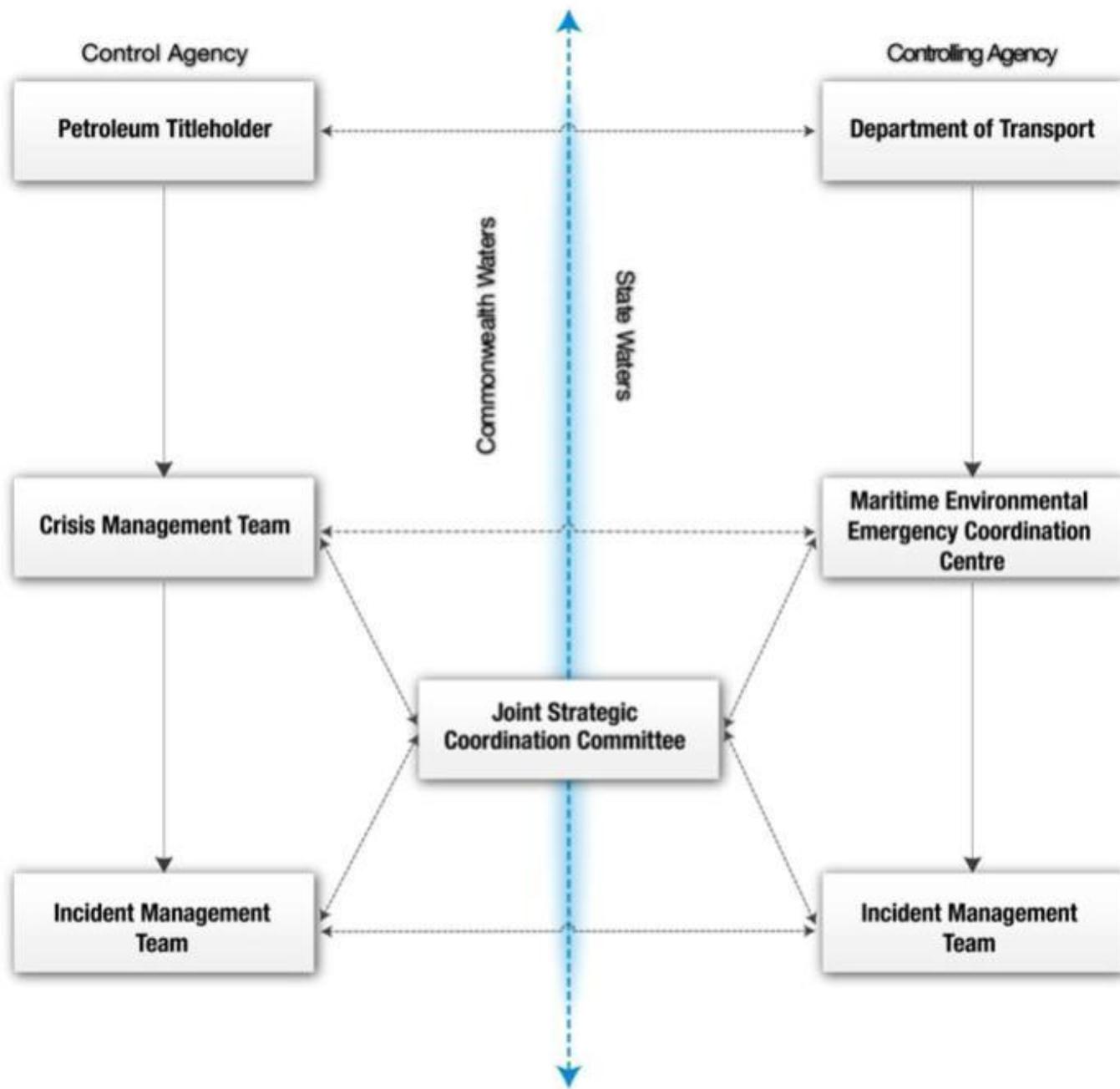


Figure 11-2: Controlling Agency coordination arrangements – Cross jurisdictional (WA DoT, 2020)

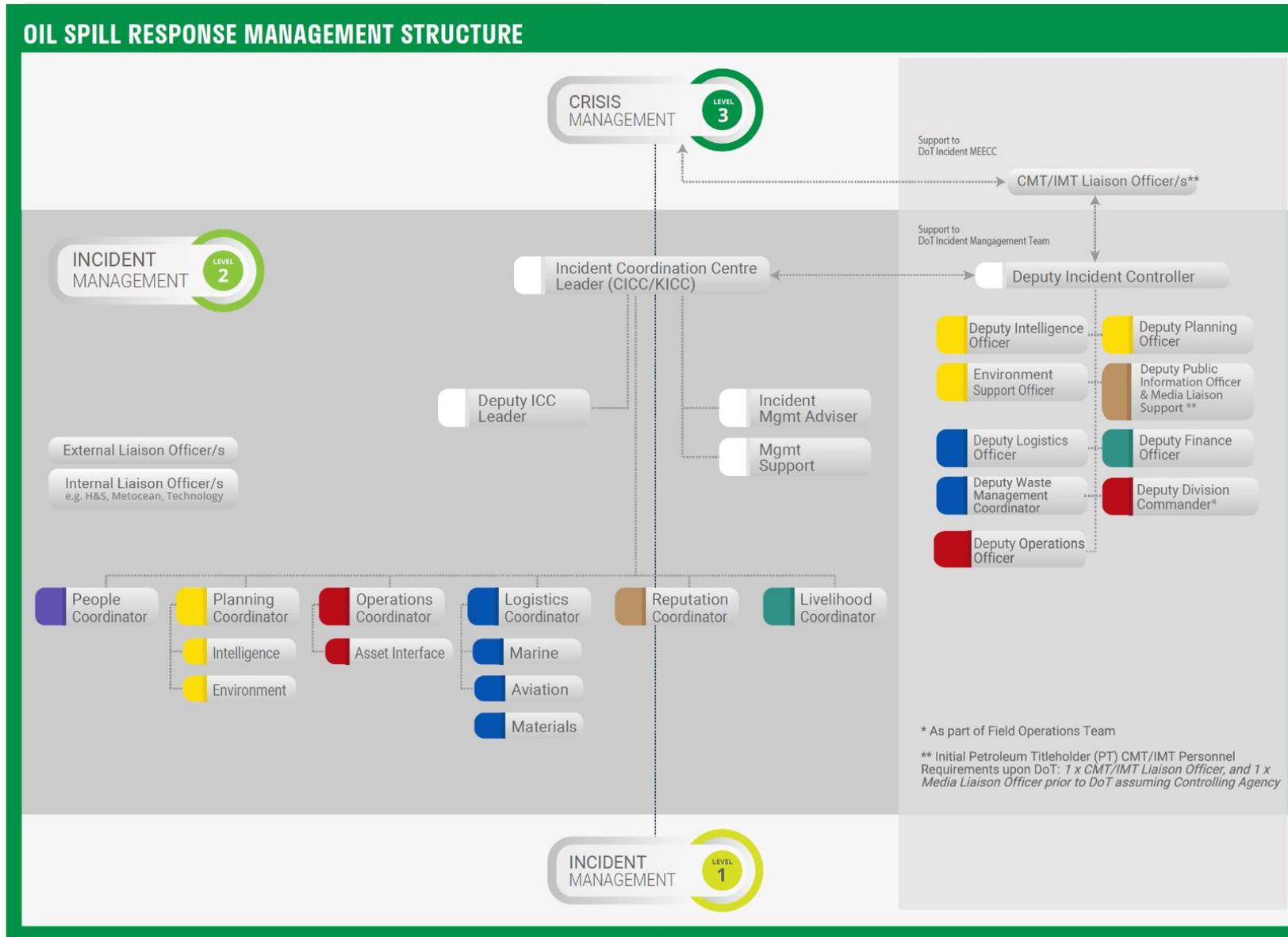


Figure 11-3: Crisis and emergency management structure and support to WA State waters Control Agency – as per WA DoT IGN requirements

11.9.3 External Plans

The OPEP (Appendix A) has been developed to meet all relevant requirements of the Environment Regulations. The following external plans listed in **Table 11-7** have been used or referred to in the development of the OPEP and the implementation strategy for hydrocarbon spill emergency conditions that may occur during decommissioning activities. The OPEP interfaces with National, State and Woodside oil spill arrangements and plans.

Table 11-7 Relevant external Oil Spill Arrangements and Plans for Commonwealth and State Waters

Relevant External Plans and Guidance Documents	Description
National Plan for Maritime Environmental Emergencies (NatPlan)	Sets out the national arrangements, policies and principles for the management of marine oil pollution. It defines obligations the States and various industry sectors in respect of marine oil pollution prevention, preparation, response and recovery.
Australian Industry Cooperative Spill Response Arrangements (AMOSPlan)	Managed by AMOSC, it details the cooperative arrangements for response to oil spills by Australian oil and associated industries.
Western Australia State Hazard Plan for Maritime Environmental Emergencies (SHP-MEE) (DoT, 2021) (HazPlan)	Formally endorsed by the State Emergency Management Committee on 4 October 2019, the MEE details the management arrangements for preparation and response to marine oil pollution incidents in State waters.
DoT Oil Spill Contingency Plan	Details the procedures and arrangements for the management of marine oil pollution emergencies that are the responsibility of the DoT. DoT Offshore Petroleum Industry Guidance Note (IGN) – Marine Oil Pollution (MOP) Response and Consultation Arrangements (available online: https://www.transport.wa.gov.au/imagine/oil-spill-contingency-plans.asp).
Industry Joint Venture Plans	Various plans developing general and assisted Oil Spill Response Capabilities
Western Australian Oiled Wildlife Response Plan (WAOWRP)	Provides guidance and sets out the management arrangements for implementing oiled wildlife response in State waters. Each region has an Oiled Wildlife Response Plan that gives further details on sensitivities and available resources. The Pilbara Region Oiled Wildlife Response Plan is the relevant regional plan for oiled wildlife associated with Stybarrow decommissioning activities.
AMSA Australian Government Coordination Arrangements for Maritime Environmental Emergencies	Provides a framework for the coordination of Australian Governmental departments and agencies in response to a maritime environmental emergency

11.9.3.1 Woodside and Contractor Plans

Internal Woodside requirements include the need to develop Emergency Response plans that are scaled according to the Petroleum Activity, associated hazards, material risks and applicable regulatory requirements.

To support this requirement, the following documents have been developed and implemented:

- Incident & Crisis Management Procedure
- Environmental Sensitivities Exmouth Region.
- North West Cape Sensitivity Mapping.

- The Stybarrow Plug and Abandonment OPEP (Appendix A).
- SOPEPs and bridging documents; and
- Tactical Response Plans (TRPs) for identified receptors.

11.9.4 Woodside Incident Response

11.9.4.1 Woodside Response Organisation Structure

The Woodside Crisis and Emergency Management (CEM) philosophy is based on three levels of response teams (refer to **Table 11-8**) which allow for a flexible response with the appropriate level of leadership and support, according to the nature of the specific incident.

Table 11-8: Woodside Response Structure – teams are progressively activated depending on the severity of an incident

Team	Role
Emergency Response Team	The ERT is responsible for physically controlling incidents in the field, where possible, and communicating known facts to the relevant IMT. The ERT will depend on the facility or vessel involved in the incident.
Corporate Incident Management Team (CIMT)	The CIMT's role is to provide technical and logistical support to the ERT. It is based in Perth, Australia.
Crisis Management Team (CMT)	The role of the CMT is to provide strategic leadership and support. It is based in Australia or USA.

The following sections describe the teams listed in **Table 11-5** based on the worst-case spill scenarios for the Stybarrow P&A Petroleum Activity.

Field Response Team

The FRT will depend on the vessel involved in the incident. The Vessel Master will be in command and will relay immediate emergency response information in the field to Woodside IMT.

The role of the FRT is to provide local and on-scene response by implementing priority objectives and attempts to control or contain the source and make appropriate emergency notifications. The FRT reports to the IMT.

Roles and responsibilities of the Woodside mobilised ERT are illustrated in **Table 11-9**.

Table 11-9: FRT roles and responsibilities

Team	Role
Emergency Commander / On-Scene Commander	The Emergency Commander / On-Scene Commander has overall responsibility for management of an incident and is responsible for determining the status of the emergency. This will be the Vessel Master.
Emergency Communications Coordinator	The role of the Emergency Communications Coordinator is to provide a link between all operating responders and to assist them in controlling the incident.
Emergency Coordinator	The Emergency Coordinator provides technical support during the emergency response and communicates with the Emergency Commander / On-Scene Commander.

Corporate Incident Management Team (CIMT)

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 an appropriately skilled team available on call

24-hours a day. The purpose of the team is to coordinate rescues, minimise damage to the environment and facilities, and to liaise with external agencies.

Woodside will have an Emergency Response Plan (ERP) in place relevant to the Petroleum Activities Program. The ERP provides procedural guidance specific to the asset and location of operations to control, coordinate and respond to an emergency or incident. The ERP will contain instructions for vessel emergency, medical emergency, search and rescue, reportable incidents, incident notification, contact information and activation of the contractor's emergency centre and Woodside Communication Centre (WCC).

The CIMT is responsible for the spill response for Level 2 spills. Those responsible for an oil spill response are shown in **Figure 11-3** with allocated responsibilities detailed in **Table 11-10**.

Table 11-10: CIMT roles and responsibilities

Role	Responsibilities
Leadership Function	CIMT leadership is provided by a CIMT Leader and Deputy Leader. Accountable and responsible for the performance of the CIMT upon activation, including controlling tempo and workflow to ensure CIMT process collect and process information to support good decision making.
People Function	Responsible for end-to-end welfare of personnel involved in the incident, whilst managing communication and information flow to and from staff, families, and related stakeholders.
Planning Function	Develops current and future plans. Provides longer term options for the normalisation and recovery of incident.
Operations Function	Manages operational activities that are undertaken directly to resolve the incident, including the management of all resources (people and equipment) assigned under the operations function.
Logistics Function	Ensures the resources, facilities, services, and materials required to support the incident.
Public Information Function	Develops strategies to manage or mitigate reputational impacts of the incident. Additional responsibilities include the deployment of communication strategies and coordinating stakeholder engagements both internally and externally.
Livelihood Function	Assesses and manages the broader business impacts resulting from incidents (both short and long term). The livelihood function considers aspects such as commercial, marketing, insurance, legal, and financial implications.
Leadership Function	CIMT leadership is provided by a CIMT Leader and Deputy Leader. Accountable and responsible for the performance of the CIMT upon activation, including controlling tempo and workflow to ensure CIMT process collect and process information to support good decision making.
People Function	Responsible for end-to-end welfare of personnel involved in the incident, whilst managing communication and information flow to and from staff, families, and related stakeholders.

The CIMT is made up of personnel designated on a roster basis, with each individual available for one week on a 24-hour basis throughout the year, based in Perth. There is a weekly handover and briefing of the operations each week. The CIMT consists of a number of defined roles, which enables Woodside to respond to a variety of incidents. The CIMT is located in the Woodside Perth offices and is fully equipped to manage incidents.

To supplement training, each CIMT member participates in desktop exercises and additional minor and major exercises. The training "desktop" exercises are also arranged during the weekly handover sessions, to test a range of CIMT responses including oil spill response.

The CIMT consists of key personnel with a broad range of disciplines (e.g., drilling, operations, engineering, maintenance, HSE, supply, external affairs, human resources, finance), together with other support service personnel as necessary.

The CIMT has key corporate and external communications responsibilities for:

- Providing tactical and strategic direction, technical expertise and support during an emergency
- Informing and liaising with relevant emergency services and regulatory authorities as appropriate
- Managing external communications with media, relatives, contractors, customers, etc.

- Managing Human Resources and Personnel Response (formerly Relative Response) activities
- Documenting all aspects of the emergency response activities and communications.

In the event that response to an oil spill incident requires a prolonged spill response, the CIMT Leader may activate Australian Marine Oil Spill Centre (AMOSC) (including its core group members) and Oil Spill Response Limited (OSRL) to augment the CIMT's capacity, and request that a Deputy/technical advisor be assigned.

AMOSC or OSRL deputies assigned to the CIMT will be responsible for providing Woodside guidance on the Incident Command Structure (ICS) process and oil spill response strategies. Guidance and support will be available via phone/video conference.

OSRL are an OSRA based in Singapore and Southampton. Woodside has contracted OSRL to provide support during an oil spill response.

Regulation 14(5) requires that the implementation strategy includes measures to ensure employees and contractors have the appropriate competencies and training (**Table 11-11**). Woodside has conducted a risk-based training needs analysis on positions required for effective oil spill response. Following the mapping of training to Woodside identified competencies, training was then mapped to positions based on their required competencies.

Table 11-11: Minimum levels of competency for key Incident Management Team positions

Position	Minimum Competency
CIMT Leader	<ul style="list-style-type: none"> • Incident and Crisis Leadership Development Program (ICLDP). • IMOII or equivalent spill response Specialist level with an oil spill response organisation. • Participation in Level 2 oil spill exercise (initial). • Participation in Level 2 oil spill exercise (refresher).
Security & Emergency Manager Duty Manager	<ul style="list-style-type: none"> • ICLDP. • IMOII or equivalent spill response Specialist level with an oil spill response organisation. • Participation in Level 2 oil spill exercise (initial). • Participation in Level 2 oil spill exercise (refresher).
Operations, Planning, Logistics and Safety	<ul style="list-style-type: none"> • OSREC. • ICC Fundamentals Course (internal course). • Participation in Level 2 oil spill exercise (initial). • Participation in Level 2 oil spill exercise (refresher).
Environment Coordinator	<ul style="list-style-type: none"> • ICC Fundamentals. • IMOII or equivalent spill response Specialist level with an oil spill response organisation. • Participation in Level 2 oil spill exercise (initial). • Participation in Level 2 oil spill exercise (refresher).
Note on competency/equivalency	
<p>In 2018, Woodside reviewed incident and crisis systems, processes and tools to assess whether these were fit-for-purpose and has rolled out a change to the Incident and Crisis Management training and the Oil Spill Response training requirements for both CIMT and field-based roles.</p> <p>The revised CIMT Fundamentals Training Program and ICLDP align with the performance requirements of the <i>PMAOMIR320 – Manage Incident Response Information</i> and <i>PMAOM0R418 – Coordinate Incident Response</i>.</p> <p>Regarding training-specific equivalency:</p> <ul style="list-style-type: none"> • ICLDP is mapped to <i>PMAOM0R418</i> (which is equivalent to IMOIII when combined with Woodside's OSREC course) and ensures broader incident management principles aligned with Australasian Inter-service Incident Management System. • The revised CIMT Fundamentals Course is mapped to <i>PMAOMIR320</i> (which is equivalent to IMOII). The blended learning program offers modules aligned to IMOIII, IMOII, IMO I and Australian Marine Oil Spill Centre Core Group Training Oil Spill Response Organisation Specialist level training. • OSREC involves the completion of two online AMSA Modules (Introduction to National Plan and incident management, and Introduction to oil spills) as well as elements of IMO I and IMOII content tailored to Woodside-specific oil spill response capabilities. • Woodside Learning Services is responsible for collating and maintaining personnel training records. The Hydrocarbon Spill Preparedness (HSP) Dashboard reflects the competencies required for each oil spill role (Incident 	

Position	Minimum Competency
Management/operational).	

Potential Resource Needs

Potential resource requirements for all Levels of response (per 12-hour operational period) are detailed in the Hydrocarbon Spill Preparedness (HSP) Dashboard. Woodside's response arrangements can be scaled up or down dependent on the nature and 'level' of the incident.

Potential resource requirements for all Levels of response (per 12-hour operational period) are detailed in **Table 11-12**.

Table 11-12: Potential resource needs

Function / Position	Level 1	Level 2
Incident Commander	1 per incident; Incident Commander may have Deputies as needed.	
Command Staff (Safety Officer, Public information Officer, Liaison Officer)	1 per incident: Command Staff may have assistants as needed.	
Operations		
Operations Section Chief	1 per operational period	
Deputy Operations Section Chief	N/A	2
Recovery & Protection Branch Director [dependent on EMBA and suitable response strategies]	N/A	3-4
Air Operations Branch Director	N/A	2
Wildlife Branch Director [dependent on EMBA]	N/A	1
Staging Area Director	N/A	1 per Staging Area
Planning		
Planning Section Chief	N/A	1 per operational period
Deputy Planning Section Chief	N/A	2
Resource Unit Leader	N/A	1
Situation Unit Leader	N/A	1
Technical Specialist	N/A	As needed
Environmental Unit Leader	N/A	1
Documentation Unit Leader	N/A	1
Logistics		
Logistics Section Chief	N/A	1 per operational period
Deputy Logistics Section Chief	N/A	1
Service Branch Director	N/A	As needed

Function / Position	Level 1	Level 2
Support Branch Director	N/A	As needed
Finance/Admin		
Finance/Admin Section Chief	1 per operational period	
Deputy Finance/Admin Section Chief	N/A	1
Time Unit Leader	N/A	1
Procurement Unit Leader	N/A	1
<i>Please note: In a large-scale response each function listed above may require a number of people or teams.</i>		

11.9.4.2 Immediate Response Support

Woodside has the capability to implement a response with appropriately trained and competent staff, as follows:

- Incident Commander
- Operations Section Chief
- Planning Section Chief
- Logistics Section Chief
- Deputy Operations Section Chief (Aviation and Marine)
- Safety Officer
- IT Support
- Public Information Officer

Each rostered position is to be within 1 hour of the office and fit for work at all times.

11.9.5 Oil Spill Response Organisations

In line with Woodside Crisis and Emergency Management arrangements, Woodside has established formalised third-party contracts and agreements with defined performance standards/criteria for the provision of resources, services or equipment in support of emergency response activities. These resources will be activated, dispatched and deactivated prior to and during an emergency.

Woodside maintains contracts with a number of Oil Spill Response Organisations (OSROs). The main relationships are detailed in the sub-sections.

11.9.5.1 AMOSC

AMOSC is an industry funded oil spill response facility based in Geelong, Victoria. AMOSC resources include:

- AMOSC spill response equipment stored at AMOSC and at other locations
- Oil company equipment based at various locations
- Trained industry response (“Core Group”) personnel

AMOSC form part of Woodside’s First Strike and primary response strategy to a spill and will be deployed within 12 hours of notification. Only nominated Woodside personnel can request the assistance of and this is usually conducted via the Perth IMT. AMOSC can be placed on the levels of advice listed in **Table 11-14**. Information regarding activation and mobilisation is outlined in the OPEP (Appendix A).

Table 11-14: AMOSC advice levels

AMOSC Advice Level	Status	AMOSC Requirements
Level 1	Forward notice	<ul style="list-style-type: none"> Advise a potential problem. Provide or update data on oil spill. Update information on spill and advise 4 hourly.
Level 2	Standby	<ul style="list-style-type: none"> AMOSC resources may be required. Assessment of resources and destination to be made. Update information on spill and advise 2 hourly.
Level 3	Callout	<ul style="list-style-type: none"> AMOSC resources are required. Detail required resources and destination.

AMOSC maintains a core group of trained personnel from oil industry member companies around the country who are trained and regularly exercised in oil spill response operations. Access to the Core Group is via AMOSC.

The cooperative arrangements for response to oil spills by Australian oil and associated industries are brought together under the AMOSPlan. The AMOSPlan will be activated by Woodside when the response to an oil spill incident is regarded by Woodside as requiring resources beyond those of the company itself.

In the event that the oil spill response requires the call out of AMOSC's own resources, the call out request is made directly to AMOSC by the Perth IMT. Should the response require mutual aid from equipment owned and personnel employed by another company, the request for assistance is made directly company to company via each company's nominated Mutual Aid Contact.

In addition, Woodside will also be required to contact AMOSC to activate the Standing Agreement and the Service Contract (for the borrowing company), in the event that Woodside require equipment from another company.

11.9.5.2 Oil Spill Response Limited

Woodside is a member of the global OSRL group.

Updates on the availability of OSRL's equipment availability is provided via a weekly Equipment Stockpile Status Report from OSRL's website at <http://www.oilspillresponse.com/activate-us/equipment-stockpile-status-report>.

The Equipment Stockpile Status Report provides a quick and timely overview of the availability of OSRL's equipment stockpile globally and is especially useful in assuring OSRL's readiness. It also provides a vital overview of the resources that Woodside would be able to access in the event of a spill. Under OSRL's Service Level Agreement, the first member who initiates mobilisation of OSRL will be entitled to a maximum 50% of the stockpile, while the second member is entitled to a maximum 50% of the remaining stockpile (and so on).

In addition to the Equipment Stockpile Status Report, OSRL provides a response equipment list that provides an overview of the size, type and ancillaries required for the equipment that is available at their bases. To ensure efficient and timely response capability, OSRL also have also pre-packaged some of the equipment into loads ready for dispatch, that are suitable for general spill situations and operating environments.

The equipment list can also be found at http://www.oilspillresponse.com/files/OSRL_Equipment_List.pdf

In addition to providing response equipment, OSRL also supply a selection of specialist staff who have the practical skill and experience to assist and support Woodside in a spill response and are trained in using the Incident Command System (ICS) structure. Response teams will comprise:

- Team Manager
- Operations Manager
- Senior technicians/ technicians

OSRL can be called upon to provide immediate technical advice and begin to mobilise personnel if required. OSRL would be called on to lead small specialist teams and/or provide supplementary labour and equipment if ongoing response is required. Any OSRL resources being mobilised from Singapore would be expected to be on the scene

in Perth following notification by the CIMT in a similar timeframe to resources being mobilised from eastern Australia. Only nominated Woodside personnel may request the assistance of OSRL via the CIMT Leader.

11.9.5.3 Technical Support (Operational and Scientific Monitoring)

Woodside maintains a list of pre-approved vendors who can be called upon at short notice to provide environmental monitoring services in the event of an oil spill.

11.9.5.4 General Support

Woodside has arrangements in place and access to providers to supply personnel as required to populate the response teams. Woodside has tested these arrangements and considers that personnel for shoreline clean-up operations can be sourced to match and maintain the consequence of a worst-case spill. Woodside will aim to mobilise shoreline crews prior to the predicted arrival of hydrocarbons. These crews will focus on pre-cleaning beach areas (e.g., removing debris such as seaweed to areas above the hightide mark) and establishing staging areas to enable a more efficient response when hydrocarbons are arriving ashore.

During the first strike response phase, Woodside will rely on the skilled personnel (i.e., Woodside's Burrup Response Team, AMOSC Core Group, and OSRL) to supervise and lead any unskilled workforce. In addition, personnel from the National Response Team (NRT), Aerial Operation staff from Aerotech 1st response will be mobilised. OSRL may also supply a selection of specialist staff who have the practical skills and experience to assist and support Woodside during a spill response and are trained in incident command. Woodside also has an arrangement in place with the US-based, industry-owned cooperative, Marine Spill Response Corporation (MSRC), for the provision of an additional 16 trained response specialists.

Gaps in the trained personnel numbers during the sustained response phase would be filled by providing pre-mob training to responders to skill up the workforce and reduce the dependency on the current trained personnel.

11.9.6 Spill Response Logistics

Coordination of logistical arrangements for the response will be the responsibility of Logistics. Woodside has a number of existing arrangements for the storage and transport of equipment in the Exmouth area, which will be initially used in a response. These arrangements include agreements with logistics providers for air, marine and land.

The current stockpile in Exmouth can be supplemented by regional resources within appropriate timeframes for the response. Woodside maintains a stockpile at King Bay Supply Facility, which is immediately available to support response operations. These resources involve the movement of personnel, freight and equipment over large distances.

Woodside has internal resources and utilises third-party logistics providers for movements of freight from overseas locations by air or sea. The Supply team, along with the specialist contractors, are highly experienced in procurement and supply chain management for large scale projects and ongoing offshore operational activities. These skills are directly transferable to a Level 2 response.

Freight logistics by road will utilise existing local contracts (i.e., Exmouth Freight and Logistics) and other local operators supplemented by larger regional providers (i.e., Centurion and Toll). Woodside has existing arrangements in place for large scale freight movements by road in the North West.

Accommodation is likely to be a restraint in the response as the lack of suitable accommodation may restrict the numbers of responder personnel that could be brought into the region. There is a variety of accommodation options in Exmouth ranging from hotel/motel, backpacker, holiday home rental and caravan and camping sites. The modelling indicates that islands may be affected by hydrocarbons in a Level 2 spill. Woodside has undertaken an assessment of the requirements that would be needed to support clean-up operations on these islands. A Tactical Response Plan has been developed for the Muiron Islands. Other islands in the worst-case spill EMBA have similar coastal characteristics and can expect similar scale of response in terms of personnel and equipment. Small commercial vessels/utility vessels can be used to access these islands; however, the preferred method would be the use of landing craft for transport of equipment and waste. Woodside has assessed that there are a number of suitable vessels that would be able to be contracted in a response that are operating regionally.

11.9.7 State and National Resources

In accordance with the State Hazard Plan – Maritime Environmental Emergency (SHP-MEE), and following consultation with the DoT, additional personnel to assist with labour intensive aspects of a response (if required) will be sourced through the State Response Team. Depending on the level of response required, sources of labour may

include the local shire and DBCA.

Under the National Plan, a National Response Team (NRT), comprising experienced personnel from operator to senior spill response manager level from Commonwealth/State/NT agencies, industry and other organisations, has been developed.

The services of the NRT will be obtained through AMSA, which has made arrangements with the respective government and industry agencies, for the release of designated personnel for oil spill response activities. These services will be activated when it is assessed that an oil spill incident exceeds the resource availability at the state level.

During a National Plan incident, the Woodside CIMT or the Marine Pollution Controller appointed by a Control Agency may submit a request to AMSA for personnel from other States/NT to become part of the Incident Management Team or the incident response team. Initial contact with the Environment Protection Duty Officer will be per the Stybarrow Plug and Abandonment First Strike Plan.

11.9.8 Industry Resources

Woodside is a Full Member of AMOSC and as such has access to Industry Mutual Aid Arrangement equipment and National Plan equipment held as part of the contingency plans of the Australian Oil Industry and the Australian Government. AMOSC require confirmation from mobilisation authorities to access equipment listed under the National Plan.

All National Plan, AMOSC and those industry equipment resources that are registered with AMOSC, which are potentially available for response to an incident, are listed in the Marine Oil Spill Equipment System (MOSES) database. The MOSES database is a computer database that lists the type, quantity, location, status and availability of pollution control equipment. It is also used to manage audits, maintenance and repair of AMSA-owned equipment.

Normal requests for assistance are directed to AMOSC in Geelong to coordinate, but equipment may also be accessed through the MOSES database, or AMSA – Marine Environmental Protection Services (MEPS).

11.9.9 Government Agency Notification

Woodside response teams are hierarchical in nature, and response teams and resources are progressively activated depending on the severity of an incident. Government Agencies and Industry Organisations may also be mobilised. The Stybarrow decommissioning activities Relevant Persons Database will be used to maintain contact with identified relevant persons.

11.9.10 Industry Joint Venture Programmes

Woodside undertake Joint Venture Programmes with other operators and organisations including, but not limited to, Santos, Vermillion, DoT and AMOSC. These programmes aim to develop operational guidelines, operational tests, training processes and plans to inform and prepare oil spill response strategies. The programmes also provide guidance and training around First Strike incident plans, key operational considerations, understanding of shoreline sensitivities and lists of resources required to implement response.

11.9.11 Review and Testing of the OPEP

11.9.11.1 Control and Distribution of the OPEP

The Stybarrow Plug and Abandonment OPEP (Appendix A) shall be issued as per the distribution list. The Document Controller is responsible for the control and distribution of the OPEP.

11.9.11.2 Review of the OPEP

The Australian Operations Environment Manager is responsible for assessing any changes and deciding if the changes require a resubmission of the OPEP under Section 17 of the Environment Regulations.

11.9.12 Response Drills, Exercises and Testing of Arrangements

Woodside categorises incidents and emergencies in relation to response requirements as defined in Table X

Incident Category	Description
Level 1	Level 1 incidents are those that can be resolved using existing resources, equipment and personnel. A Level 1 incident is contained, controlled and resolved by site/regionally based teams using existing resources and functional support services.
Level 2	Level 2 incidents are characterised by a response that requires external operational support to manage the incident. It is triggered if the capabilities of the tactical level response are exceeded. This support is provided to the activity by activating all or part of the responsible CIMT
Level 3	A Level 3 incident or crisis is identified as a critical event that seriously threatens the organisation's people, the environment, company assets, reputation, livelihood or essential services. At Woodside, the Crisis Management Team manages the strategic impacts 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 response to the Level 3 incident.

11.9.13 Emergency and Spill Response Drills and Exercises

Woodside's capability to respond to incidents will be tested periodically, in accordance with the Emergency and Crisis Management Procedure. The scope, frequency and objective of these tests is described in **Table 11-13**. Emergency response testing is aligned to existing or developing risks associated with Woodside's operations and activities. Corporate hazards/risks outlined in the corporate risk register, respective Safety Cases or project Risk Registers, are reference points developing and scheduling emergency and crisis management exercises. External participants may be invited to attend exercises (e.g., government agencies, specialist service providers, oil spill response organisations, or industry members with which Woodside has mutual aid arrangements).

The overall objective of exercises is to test procedures, skills and the teamwork of the Emergency Response and Command Teams in their ability to respond to major accident / major environment events. After each exercise, the team holds a debriefing session, during which the exercise is reviewed. Any lessons learned or areas for improvement are identified and incorporated into revised procedures, where appropriate.

Table 11-13: Testing of response capability

Response Category	Scope	Response Testing Frequency	Response Testing Objective
Level 1 Response	Exercises are project-/ activity-specific	At least one Level 1 OPEP drill must be conducted during an activity. For campaigns with an operational duration of greater than one month this will occur within the first two weeks of commencing the activity and then at least every 6 month hire period thereafter.	Comprehensive exercises test elements of the Oil Pollution First Strike Plan. Emergency drills are scheduled to test other aspects of the Emergency Response Plan.
Level 2 Response	Exercises are MODU specific	Level 2 Emergency Management exercises are relevant to activities with an operational duration of one month or greater. At least one Emergency Management exercise per vessel per campaign must be conducted within 3 months prior to commencing the activity and then at every 6 month hire period thereafter, where applicable based on duration.	Testing both the facility IMT response and/or that of the CIMT following handover of incident control.

Response Category	Scope	Response Testing Frequency	Response Testing Objective
Level 3 Response	Exercises are relevant to all Woodside assets	The number of CMT exercises conducted each year is determined by the Chief Executive Officer, in consultation with the Vice President of Security and Emergency Management.	Test Woodside's ability to respond to and manage a crisis level incident.

11.9.14 Hydrocarbon Spill Testing of Arrangements

There are a number of arrangements which, in the event of a spill, will underpin Woodside's ability to implement a response across its petroleum activities. In order to ensure these arrangements are adequately tested, the Capability Development Team within Security and Emergency Management ensures 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 ensure that Woodside maintains an ability to respond to a hydrocarbon spill, specifically to:

- Ensure relevant responders, contractors and key personnel understand and practise their assigned roles and responsibilities.
- Test response arrangements and actions to validate response plans.
- Ensure lessons learned are incorporated into Woodside's processes and procedures and improvements are made 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 11-13**, up to eight formal exercises are planned annually, across Woodside, to specifically test arrangements for responding to a hydrocarbon spill to the marine environment.

11.9.14.1 Testing of Arrangements Schedule

Woodside's Testing of Arrangements Schedule (**Figure 11-4**) aligns with international good practice for spill preparedness and response management; the testing is compatible with the Ipieca Good Practice Guide and the Australian Institute for Disaster Resilience (AIDR) Australian Emergency Management Arrangements Handbook. If a spill occurs, enacting these arrangements will underpin Woodside's ability to implement a response across its petroleum activities.

- Effectiveness
- Equipment suitability
- Health and safety issues, as appropriate
- Integration of plan and procedures with other response organisations, consultants, and or agencies

11.9.16 Incident Reporting Requirements

Woodside employees and contractors are required to report all environmental incidents and non-conformance with commitments made in the EP. A computerised database is used for the recording and reporting of these incidents. Detailed investigations are completed for all actual and high potential environmental incidents. The classification, reporting, investigation and actioning of environmental incidents are undertaken in accordance with Woodside (PetDW) HSE Management System. Incident corrective actions are monitored and closed out in a timely manner. In addition to the internal notification and reporting requirements outlined above, the reporting requirements for environmental incidents are outlined in previous **Section 11.7**.

11.9.17 OPEP Consultation

The Woodside Hydrocarbon Spill Preparedness team shall arrange for copies of the First Strike Plan requirements to be forwarded to the following key Response Agencies:

- Australian Maritime Oil Spill Centre (AMOSOC); and
- WA DoT Maritime Environmental Emergency Response (MEER) Unit.

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Appendix A. Woodside “Our Values”

OUR VALUES

One team

We are inspired by our common purpose.

We challenge, respect, and back each other.

We are inclusive, value diversity, and can be ourselves.

We care

We keep each other safe.

We listen and respond with humility.

We respect the environment, operate responsibly, and care for communities.

We adapt to the world's expectations of us.

Innovate every day

We explore ideas, find creative solutions, and try new ways of doing things to provide the energy the world needs today and low-cost, lower-carbon energy for tomorrow.

Results matter

We go after opportunities and show courage by taking the right risks and learning from our mistakes.

We spend and invest as if it's our money.

We are proud of our achievements.

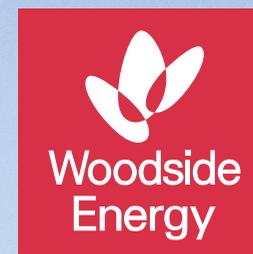
Build and maintain trust

Trust takes time and effort and will not be taken for granted.

We nurture relationships and act with integrity – doing what we say and doing it well.



PART OF
A BETTER
FUTURE



OBJECTIVE

Woodside recognises the intrinsic value of nature and the importance of conserving biodiversity and ecosystem services to support the sustainable development of our society. We are committed to doing our part. We understand and embrace our responsibility to undertake activities in an environmentally sustainable way.

PRINCIPLES

Woodside commits to:

- Implementing a systematic approach to the management of the impacts and risks of our operating activities on an ongoing basis, including emissions and air quality, discharge and waste management, water management, biodiversity and protected areas.
- Applying the mitigation hierarchy principle (avoid, minimise, restore) and a continuous improvement approach to ensure we maintain compliance, improve resource use efficiency and reduce our environmental impacts.
- Embedding environmental and biodiversity management, and opportunities, in our business planning and decision making processes.
- Complying with relevant laws and regulations and applying responsible standards where laws do not exist.
- Not undertaking new exploration or development of hydrocarbons within the boundaries of natural sites on the UNESCO World Heritage List (as specified at 1 December 2022). Existing activity may continue if compatible with maintenance of the listed outstanding universal values.
- Not undertaking new exploration or development of hydrocarbons within IUCN Protected Areas (as specified at 1 December 2022) unless compatible with management plans in place for the area. Existing activity may continue if compatible with management plans in place for the area.
- Achieving net zero deforestation¹ associated with new projects that take a Final Investment Decision (FID) after 1 December 2022.
- Developing Biodiversity Action Plans for all new major projects (CAPEX >USD\$2 billion) that take a FID after 1 December 2022.
- Supporting positive biodiversity outcomes in regions and areas in which we operate.
- Setting targets and publicly reporting on our environmental and biodiversity performance.

APPLICABILITY

Responsibility for the application of this Policy rests with all Woodside employees, contractors and joint venturers engaged in activities under Woodside operational control. Woodside managers are also responsible for promotion of this Policy in non-operated joint ventures.

This Policy will be reviewed regularly and updated as required.

Approved by the Woodside Energy Group Ltd Board in December 2022.

¹ Definition of Forest: 'trees higher than 5 meters and a canopy cover of more than 10 percent on the land to be cleared'

Appendix B. Relevant Legislation, Regulations and Other Requirements

Legislation or Regulation	Description	Relevant
<i>Australian Maritime Safety Authority Act 1990</i>	AMSA is a Commonwealth agency responsible for regulation of maritime safety, search and rescue, and ship sourced pollution prevention functions under the Navigation Act 1912 (Cth), protection of the sea legislation, including the Protection of the Sea (Prevention of Pollution from Ships) Act 1983 (Cth) and subordinate legislation made pursuant to these Acts.	AMSA is the agency that regulates maritime safety in Commonwealth waters.
Australian Ballast Water Management Requirements (Commonwealth of Australia, 2020), Version 8	The Australian Ballast Water Management Requirements (Version 8) set out the obligations on vessel operators with regards to the management of ballast water and ballast tank sediment when operating within Australian seas.	Applies to all internationally sources vessels operating in Australian Waters which could have the potential for the introduction of IMS and potential ballast water exchange.
<i>Biosecurity Act 2015</i>	This Act is about managing diseases and pests that may cause harm to human, animal or plant health or the environment. The proposed amendments also strengthen Australia's ability to manage ballast water in ships. They will provide additional protection for coastal environments from the risk of marine pest incursions by fostering new ballast water treatment technologies and phasing out ballast water exchange.	Applies to all internationally sources vessels operating in Australian Waters which could have the potential for the introduction of IMS and potential ballast water exchange.
<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.
EPBC 2004/1469 Condition	Consolidated approval conditions for the Stybarrow Petroleum Field (EPBC 2004/1469) assessment under the EPBC Act, available here: http://epbcnotices.environment.gov.au/_entity/annotation/119d0aa0-3768-	Parts of conditions 1, 2, 3 and 7 are relevant to the petroleum activities considered in the

Legislation or Regulation	Description	Relevant
	e511-9099-005056ba00a8/a71d58ad-4cba-48b6-8dab-f3091fc31cd5?t=1660185044156	<p>Stybarrow Well Plug and Abandonment EP (BHPB-00SC-N000-0005):</p> <ul style="list-style-type: none"> • Condition 1 requires the EP provide details on drilling fluids • Condition 2 requires the EP provide details in the OPEP on spill response arrangements, including training, equipment, response capacity, sensitive areas and reporting arrangements. • Condition 3 requires a decommissioning EP • Condition 7 establishes EP revision triggers with the Environment Regulations
<i>Industrial Chemicals (Notification and Assessment) Act 1989</i>	<p>The Act establishes the National Industrial Chemicals Notification and Assessment Scheme (NICNAS) to regulate the supply of chemicals into Australia, and importers or manufacturers of chemicals or chemical products must comply. The Act involves assessing and registering industrial chemicals in a national scheme and applies to solvents, adhesives, plastics, laboratory chemicals and paints, as well as chemicals used in cleaning products. Chemicals are defined by exclusion: a substance is an industrial chemical if it is not an agricultural or veterinary product, medicine or medicinal product, food additive, contaminant or natural toxicant.</p>	<p>Chemicals are assessed to ensure they are ALARP and acceptable.</p>
<p>National Environment Protection (National Pollutant Inventory) Measure 1998</p>	<p>The National Pollutant Inventory (NPI) is a database established to provide information on substances being emitted to the air, land and water, and transported in waste. The inventory tracks the magnitude of emissions and the amounts transported in waste of 93 substances. While the NPI National Environmental Protection Measures (NEPM is a federal initiative, each state has legislation giving effect to the program.</p>	<p>The act enables implementation of NEPMs, which are a set of national objectives designed to assist in protecting or managing aspects of the environment.</p>
<i>National Greenhouse and Energy Reporting Act 2007</i>	<p>This Act provides for the reporting and dissemination of information related to greenhouse gas emissions, greenhouse gas projects, energy production and energy consumption, and for other purposes.</p>	<p>This Act applies to the atmospheric emissions through combustion engine use to operate the project vessels and associated with the activity.</p>
<i>Navigation Act 2012</i>	<p>This Act establishes framework for controls on navigation, marine safety and shipping for ships in Australian waters or territories primarily proceeding on international or interstate voyages.</p>	<p>Vessel movements will be governed by marine safety regulations and Marine Orders under the Act</p>
<p>Navigation (Orders) Regulations 1980</p>	<p>Details the penalty where Marine Orders are prescribed as 'Penal Provisions'.</p>	<p>Vessel movements will be governed by marine safety regulations and Marine Orders under the Act</p>

Legislation or Regulation	Description	Relevant
Marine Orders	Marine Orders are subordinate rules made pursuant to the Navigation Act 1912 and Protection of the Sea (Prevention of Pollution from Ships) Act 1983 affecting the maritime industry. They are a means of implementing Australia's international maritime obligations by giving effect to international conventions in Australian law.	Vessel movements, safety, discharges and emissions will be governed by the Marine Orders
Marine Order 32 – Cargo Handling Equipment	Marine Order 32 relates to loading and unloading of cargo, and the safe transfer of persons, from ships, off-shore industry vessels and off-shore industry mobile units.	Unloading of cargo, and the safe transfer of persons, from ships, offshore industry vessels will be governed by Marine Order 32.
Marine Order 41 Carriage of Dangerous Goods	MO41 gives effect to Part A Chapter VII of SOLAS, in particular the International Maritime Dangerous Goods Code (IMGDC) which deals with the carriage of dangerous goods in packaged form, together with prescribing other matters related to carriage of dangerous goods in ships, notice of intention to ship dangerous goods, and provisions related to the loading, stowing, carriage or unloading in ships of cargo.	Carriage of dangerous goods on vessels will be governed by Marine Order 41.
Marine Order 58 – International Safety Management Code	MO58 specifies the requirements of the International Safety Management (ISM) Code and gives effect to Chapter IX of SOLAS. The purpose of the ISM Code is to provide an international standard for the safe management and operation of ships and for pollution prevention.	Applies to management and operation of vessels.
Marine Order 59 – Offshore Industry Supply Vessels	MO59 specifies a number of performance-based requirements for safe navigation and a safe system of operations for off-shore industry vessel operations, including arrangements for safe operations during emergencies. The Order specifies guidelines considered to satisfy these performance-based requirements. The Order also allows alternative practices to be considered and approved as equivalent to those practices in the specified guidelines (NWEA Guidelines). MO59 applies to vessels not registered in Australia, if vessel is engaged in operations associated with or incidental to petroleum exploration or production activity.	Applies to safe navigation and a safe system of operations of vessels.
Marine Order 91 – Marine Pollution Prevention – Oil	MO91 gives effect to Annex I of the International Convention for the Prevention of Pollution from Ships 1973, as amended by the Protocol of 1978 (MARPOL 73/78).	Applies to pollution prevention on vessels.
Marine Order 93 – Marine Pollution Prevention – Noxious Liquid Substances	MO93 gives effect to Annex II of the International Convention for the Prevention of Pollution from Ships 1973, as amended by the Protocol of 1978 (MARPOL 73/78). Details the discharge criteria and measures for the control of pollution by noxious liquid substances carried in bulk. It subdivides substances into and contains detailed operational standards and procedures. Some 250 substances are appended to the London Convention. The	Applies to operational discharges from vessels.

Legislation or Regulation	Description	Relevant
	discharge of their residues is allowed only to reception facilities until certain concentrations and conditions (which vary with the category of substances) are compiled with. In any case, no discharge of residues containing noxious substances is permitted within 12 miles of the nearest land.	
Marine Order 94 – Marine Pollution Prevention – Package Harmful Substances	MO94 gives effect to Annex III of the International Convention for the Prevention of Pollution from Ships 1973, as amended by the Protocol of 1978 (MARPOL 73/78) in relation to packaged harmful substances.	Applies to waste management and pollution prevention on vessels.
Marine Order 95 - Marine Pollution Prevention - Garbage	MO95 gives effect to Regulation 8 of Annex V (dealing with port State control on operational requirements) and prescribes matters in relation to Regulation 9 of Annex V (dealing with placards, garbage management plans and garbage record-keeping) to the International Convention for the Prevention of Pollution from Ships (MARPOL 73/78).	Applies to operational discharges and waste management on vessels.
Marine Order 96 Marine Pollution Prevention – Sewage	MO96 sets out MARPOL requirements in relation to survey and certification requirements; how sewage should be treated or held aboard ship; and the circumstances in which discharge into the sea may be allowed.	Applies to operational discharges from vessels.
Marine Order 97 – Marine Pollution Prevention – Air Pollution	MO97 sets out MARPOL requirements in relation to air pollution.	Applies to air pollution from vessels.
<i>Offshore Petroleum and Greenhouse Gas Storage Act 2006</i>	<p>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:</p> <ul style="list-style-type: none"> • 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.
Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2009 (the Environment Regulations)	<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> <ul style="list-style-type: none"> • assessment of EPs, including associated OPEPs (previously oil spill contingency plans) • investigation of accidents, occurrences and circumstances with regard to deficiencies in environmental management. 	Applies to environmental management of petroleum activities.

Legislation or Regulation	Description	Relevant
<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.
<i>Protection of the Sea (Powers of Intervention) Act 1981</i>	Act authorises AMSA to take measures for the purpose of protecting the sea from pollution by oil and other noxious substances discharged from ships and implements the International Convention Relating to Intervention on the High Seas in Cases of Oil Pollution Casualties and the Protocol relating to Intervention on the High Seas in Cases of Pollution by Substances other than Oil. Act enables AMSA to take measures on the high seas to prevent, mitigate or eliminate the danger apparent upon a maritime casualty where there is grave and imminent danger to the coastline of Australia, or to the related interests of Australia from pollution or threat of pollution of the sea by oil which may reasonably be expected to result in major harmful consequences. Similar powers apply in relation to a ship which is in internal waters, is in the Australian coastal sea, or any Australian ship on the high seas where oil or a noxious substance is escaping, and gives AMSA power to take such measures as it considers necessary to achieve a number of objectives detailed in the Act.	This Act applies to vessel discharges and movements associated with the activity.
<i>Protection of the Sea (Prevention of Pollution from Ships) Act 1983</i>	Act administered by AMSA, deals with the protection of the marine environment from ship-sourced pollution. The Act implements the International Convention for the Prevention of Pollution from Ships 1973 and the subsequent 1978 Protocol to the Convention (collectively MARPOL 73/78) and setting operational and construction standards for ships to prevent pollution and regulating normal operational discharges from ships. MARPOL 73/78 annexes regulate the discharge of oil (Annex I), noxious liquid substances (Annex II), the disposal from ships of sewage (Annex IV) and garbage (Annex V) and prohibit the disposal of harmful substances carried by sea in packaged forms (Annex III).	This Act applies to vessel discharges and movements associated with the activity.
Protection of the Sea (Prevention of Pollution from Ships) (Orders) Regulations 1994	Sets penalty levels for non-compliance.	Relates to vessel non-compliance to Marine Orders.
<i>Underwater Cultural Heritage Act 2018</i>	The Act replaces the Historic Shipwrecks Act 1976 with a modernised framework for protecting and managing Australia underwater culture heritage. The Act protects shipwrecks, sunken aircraft that are at least 75 years old, whether their location is known or unknown, and associated relics. It also enables the Minister to protect shipwrecks that have been sunk for less than	Anyone who finds the remains of a vessel or aircraft, or an article associated with a vessel or aircraft, needs to notify the relevant authorities, as soon as possible but ideally no later than after

Legislation or Regulation	Description	Relevant
	<p>75 years if they are of historic significance, such as ships wrecked during World War II. All relics associated with historic shipwrecks are protected both while associated with the shipwreck and after their removal, provided that they went down with the ship. The Act also enables the Minister to declare protected zones around historic shipwrecks. A permit is required to carry out prescribed activities, such as trawling, diving or mooring or using ships in a protected zone. The Act prohibits conduct that may interfere with protected shipwrecks and their associated relics.</p>	<p>one week, and to give them information about what has been found and its location.</p>

Legislation or Regulation	Description
<i>Aboriginal Heritage Act 1972</i>	Enacted to ensure all Aboriginal cultural heritage within Western Australia could be properly protected and preserved. The Act provides recognition, protection and preservation of Aboriginal sites in Western Australia. It is an offence under s.17 of the Act to excavate, destroy, damage, conceal, or in any way alter an Aboriginal site.
<i>Conservation and Land Management Act 1984</i>	DBCA is responsible for the day-to-day management of marine parks vested with Marine Parks and Reserves Authority (MPRA) and provide administrative support to the MPRA. MPRA is responsible for the preparation of management plans for all lands and waters which are vested in it. Marine nature reserves, marine parks and marine management areas are the three reserve categories vested in the MPRA. Offshore operations must comply with specific marine park conditions when navigating or conducting activities in or near areas designated as marine sanctuaries for conservation, recreational, ecological, historical, research, educational, or aesthetic qualities, such as Ningaloo Marine Park (state waters) (Class A reserve) and Muiron Islands Marine Management Area.
<i>Conservation and Land Management Regulations 2002</i>	Details further requirements for protection of flora and fauna including restrictions on approaches to fauna, fishing restrictions and operation of vessels in marine protected areas. Also includes prohibition of pollution in marine protected areas.
<i>Emergency Management Act 2005</i>	WestPlan-MTE details the emergency management arrangements relating to the prevention of, preparation for, response to and recovery from Marine Transport Emergencies that occur in WA waters.
<i>Emergency Management Regulations 2006</i>	DoT Marine Safety is the prescribed Hazard Management Agency for response under the Emergency Management Regulations 2006 for all emergencies in which there is an actual or impending event involving a ship that is capable of causing loss of life, injury to a person or damage to the health of a person, property or the environment.
<i>Fish Resources Management Act 1994</i> <i>Fish Resources Management Regulations 1995</i>	Act establishes framework for management of fishery resources. Commercial fishing is licensed or under a Fisheries Management Plan. Fisheries in WA waters are subject to the Act and include a wide range of aquatic organisms, other than protected species. Threatened aquatic species may be protected under State and Commonwealth biodiversity conservation laws. Department of Fisheries manages commercial and recreational fishing in Western Australia within four regions: the West Coast, Gascoyne, South Coast and North Coast. The Act also has power to declare Fish Habitat Protection Areas.

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. Existing Environment and Protected Matters Search Tool Reports



Description of the Existing Environment

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1. INTRODUCTION

1.1 Purpose

This document applies, where indicated in the relevant Environment Plan, 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 Commonwealth Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2009 in order 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 included in the Description of the Existing Environment of individual EPs.

This document is informed by a variety of resources that includes: a search of the Department of Agriculture, Water and the Environment (DAWE) Protected Matters Search Tool (PMST) for the marine bioregions (NWMR, SWMR and NMR) and the three PMST reports provided in **Appendix A**; State (WA)/Commonwealth Marine Park Management Plans, the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) Species Profile and Threats Database (SPRAT), 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, where relevant, on at least an annual basis to address any relevant changes, which includes but is not limited to the status of EPBC Act listed species, Part 13 Instruments, policies and guidelines 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—NWMR, SWMR and NMR (**Table 1-1**). The NWMR is the focal marine bioregion for the 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	The NWMR includes all Commonwealth waters (from 3 nautical mile [nm] from the Territorial Sea Baseline [TSB] to the 200 nm Exclusive Economic Zone [EEZ] boundary) extending from the WA/Northern Territory (NT) border to Kalbarri, south of Shark Bay in WA, covering an area of approximately 1.07 million square kilometres 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	The SWMR comprises Commonwealth waters from the eastern end of Kangaroo Island in SA to Shark Bay in WA. The region spans approximately 1.3 million square kilometres of temperate and subtropical waters and abuts the coastal waters of SA and WA.
North	The NMR comprises Commonwealth waters from west Cape York Peninsula to the NT/WA border). The region covers approximately 625,689 square kilometres of tropical waters in the Gulf of Carpentaria and Arafura and Timor seas, and abuts the coastal waters of Queensland and the NT.

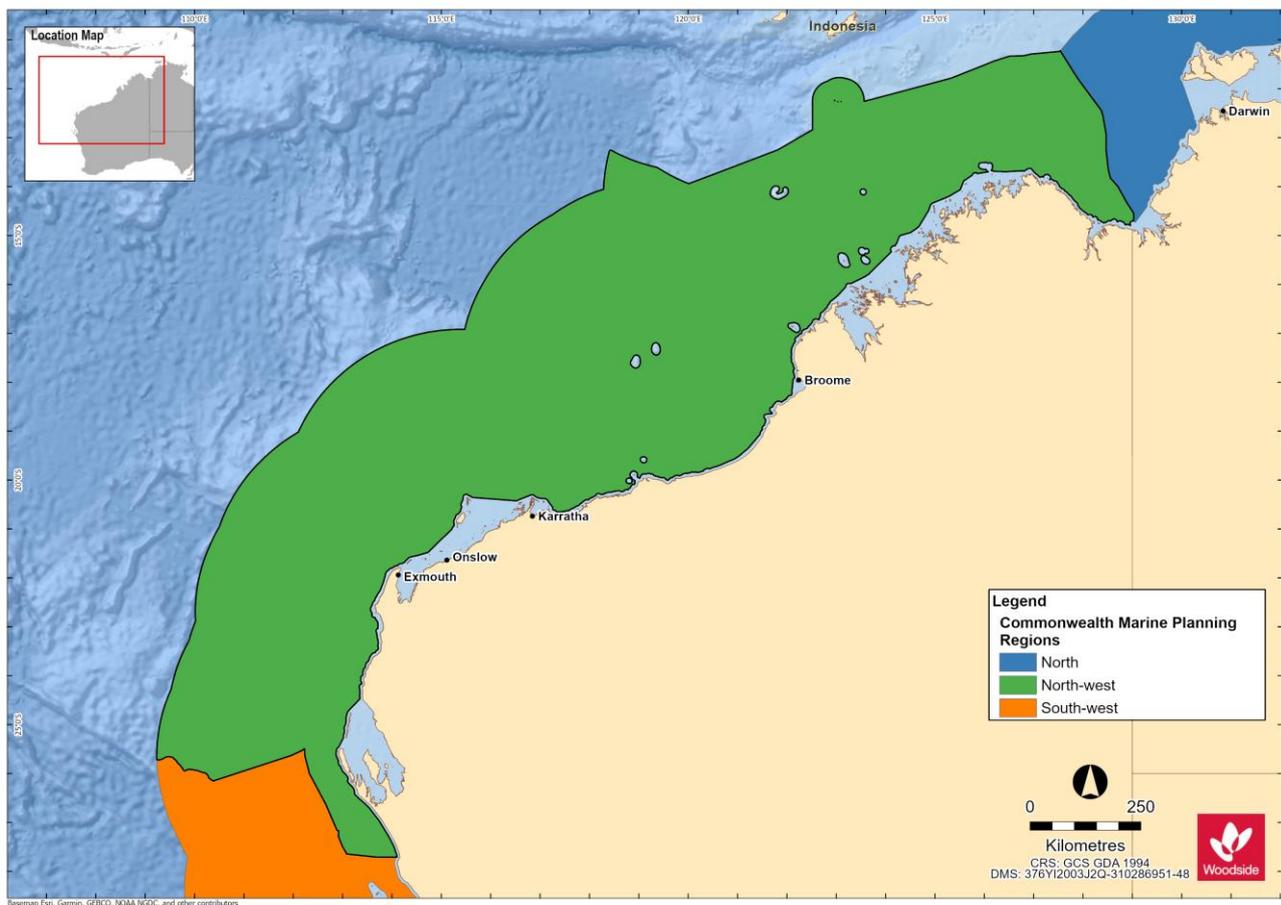


Figure 1-1. Marine Bioregions: North-west (NWMR), South-west (SWMR) and North (NMR)

2. PHYSICAL ENVIRONMENT

2.1 Regional Context

The key physical characteristics of the NWMR, SWMR and NMR are presented in **Table 2-1**.

Table 2-1 Key physical characteristics of the NWMR, SWMR and NMR

Bioregion	Key Characteristics
North-west Marine Region	The NWMR experiences a tropical monsoonal climate towards the northern extent of the region, transitioning to tropical arid and subtropical arid within the central and southern areas of the region (DSEWPAC, 2012a).
	The NWMR is part of the Indo-Australian Basin, the ocean region between the north-west coast of Australia and the Indonesian islands of Java and Sumatra. Dominant currents in the Region include: the South Equatorial Current, the Indonesian Throughflow; the Eastern Gyral Current, and the Leeuwin Current (DEWHA, 2007a).
	The seafloor of the NWMR consists of four general feature types: continental shelf; continental slope; continental rise; and abyssal plain and is distinguished by a range of topographic features including canyons, plateaus, terraces, ridges, reefs, and banks and shoals.
South-west Marine Region	The SWMR contains both subtropical and temperate climates, with overall light climatic cycles.
	The SWMR experiences complex and unusual oceanographic patterns, driven largely by the Leeuwin Current and its associated currents that have a significant influence on biodiversity distribution and abundance.
	The major seafloor features of the SWMR include a narrow continental shelf on the west coast to the waters off south-west WA, and a wide continental shelf dominated by sandy carbonate sediments of marine origin in the Great Australian Bight, the region also contains a steep, muddy continental slope, many canyons and large tracts of abyssal plains (DSEWPAC, 2012b).
North Marine Region	The NMR experiences a tropical monsoonal climate with complex weather cycles, including high temperatures and heavy seasonal yet variable rainfall and cyclones, which can be both destructive (loss of seagrass and mangroves) and constructive (mobilisation of sediment into coastal habitats).
	The NMR comprises Commonwealth waters from west Cape York Peninsula to the NT–WA border, covering tropical waters in the Gulf of Carpentaria and Arafura and Timor seas. Currents in the NMR are driven largely by strong winds and tides, with only minor influences from oceanographic currents such as the Indonesian Throughflow and the South Equatorial Current (DSEWPAC, 2012c).
	The seafloor of the NMR consists mainly of a wide continental shelf, as well as other geomorphological features such as shoals, banks, terraces, valleys, shallow canyons and limestone pinnacles.

2.2 Marine Systems of the North-west Marine Region.

The NWMR can be 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 below in **Table 2-2**.

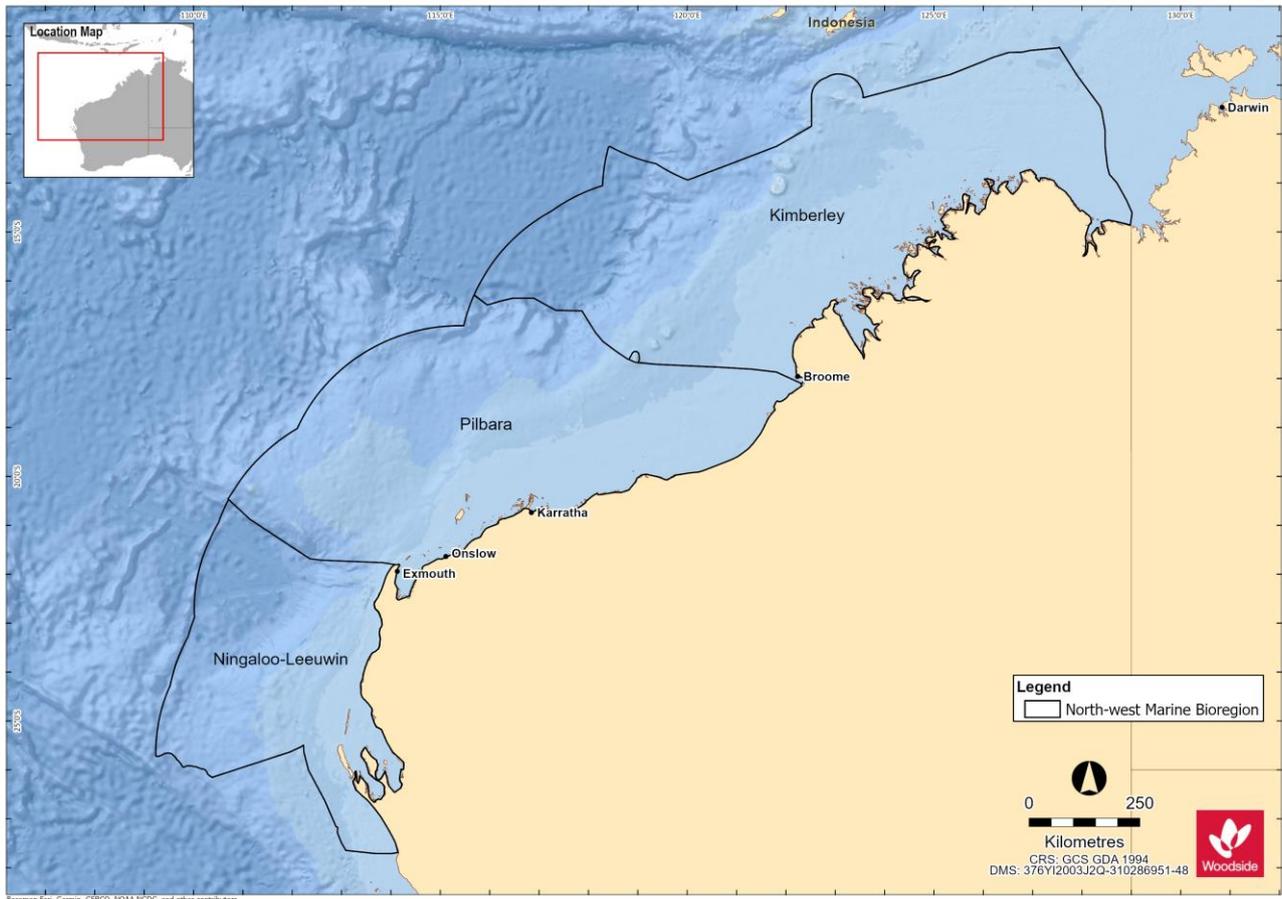


Figure 2-1. The marine systems of the North-west Marine Region (NWMR)

Table 2-2. Key characteristics of the Marine Systems of the NWMR

Note: Woodside areas align with the marine systems as described in DEWHA (2007a)

Marine System	Woodside Activity Area	Key Characteristics
Kimberley	Browse	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. 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).

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 31°C to 33°C. During winter (May to July), mean daily temperatures range from 18°C to 31°C (BOM ¹), refer to Figure 2-2a and b . Rainfall in the region typically occurs during the summer, with highest falls observed late in the season. This is often associated with the passage of tropical low-pressure systems and cyclones.
Wind	Wind patterns in north-west WA are dictated by the seasonal movement of atmospheric pressure systems. During summer, high-pressure cells produce prevailing winds from the north-west and south-west, which vary between 10 and 13 ms ⁻¹ . During winter, high-pressure cells over central Australia produce north-easterly to south-easterly winds with average speeds of between 6 and 8 ms ⁻¹ . Refer to Figure 2-3a and b .
Tropical cyclones	The NWS and Pilbara coast (within the NWMR) experiences more cyclonic activity than any other region of the Australian mainland coast (BOM, 2021a). Tropical cyclone activity typically occurs between November and April and is most frequent in the region during December to March (i.e. considered the peak period), with an average of about one cyclone per month (BOM, 2021a). Refer to Figure 2-4 .
Oceanography	
Ocean temperature	Waters in NWMR are tropical year-round, with sea surface temperature in open shelf waters reaching ~26°C in summer and dropping to ~22°C in winter. Nearshore temperatures (as recorded for the NWS area) fluctuate more widely on an annual basis from ~17°C in winter to ~31°C in summer (Chevron Australia, 2010). Refer to Figure 2-5a and b .
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 <i>et al.</i> , 2018). Local physical oceanography is strongly influenced by the large-scale water movements of the Indonesian Throughflow (Liu <i>et al.</i> 2015; Sutton <i>et al.</i> 2019). Typically, a warm and well-mixed oligotrophic surface layer and a cooler and more nutrient rich, deeper water layer (Menezes <i>et al.</i> 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 <i>et al.</i> , 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).
Tides	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. Tides of 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.

¹ http://www.bom.gov.au/jsp/ncc/climate_averages/temperature/index.jsp, accessed 21 January 2021.

Receptor	Description
	The tide range—represented by the Mean Spring Range (MSR)—increases northwards along the coast from 1.4 m at North-west Cape (Point Murat) to 7.7 m at Broome, before decreasing again (apart from local amplification in King Sound and Collier Bay) to about 5 m off Cape Londonderry. The MSR then increases again through Joseph Bonaparte Gulf and on up 5.5 m at Darwin (RPS, 2016).

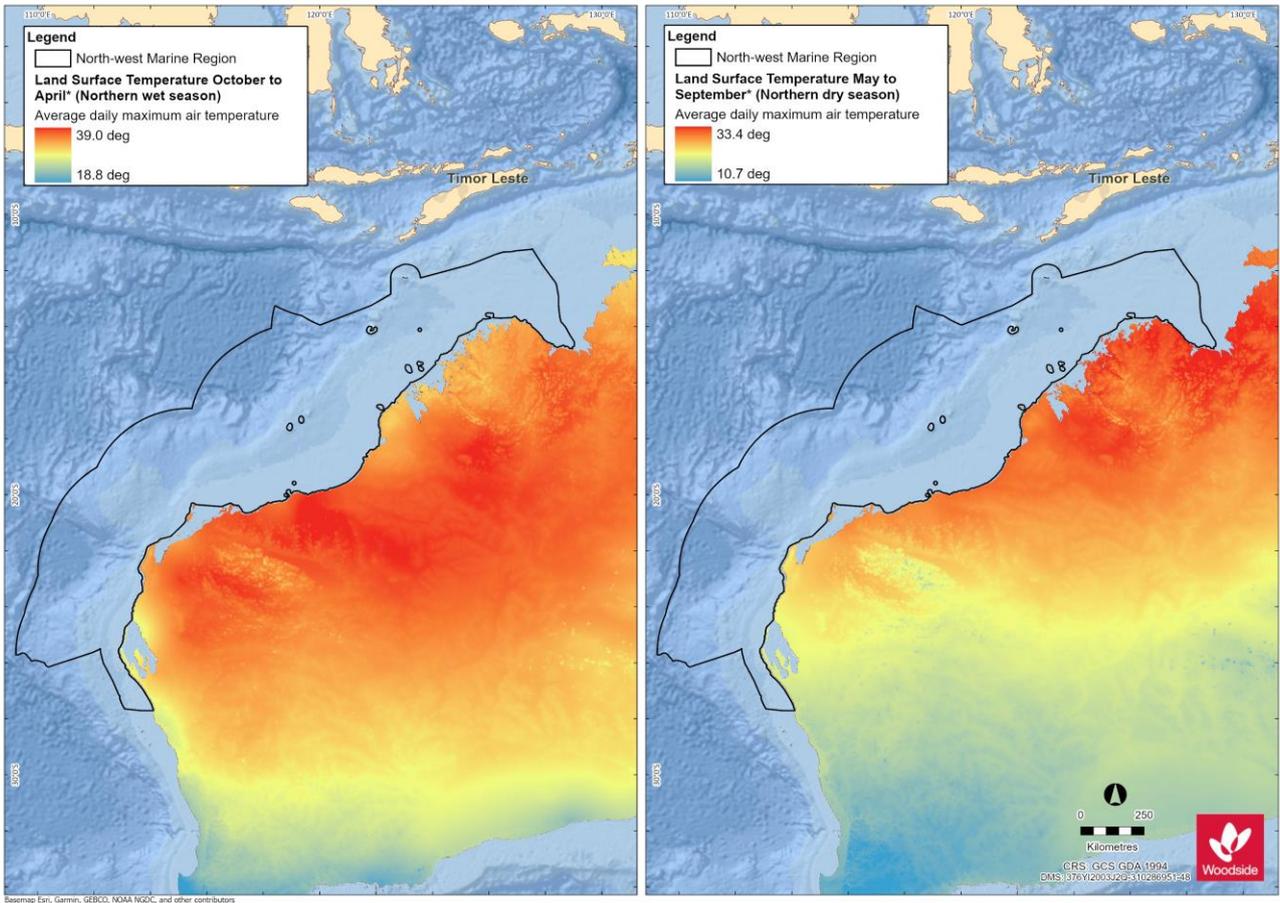


Figure 2-2. Average daily maximum air temperature for land surface adjacent to NWMR: (a) summer (northern wet season) and (b) winter (northern dry season)

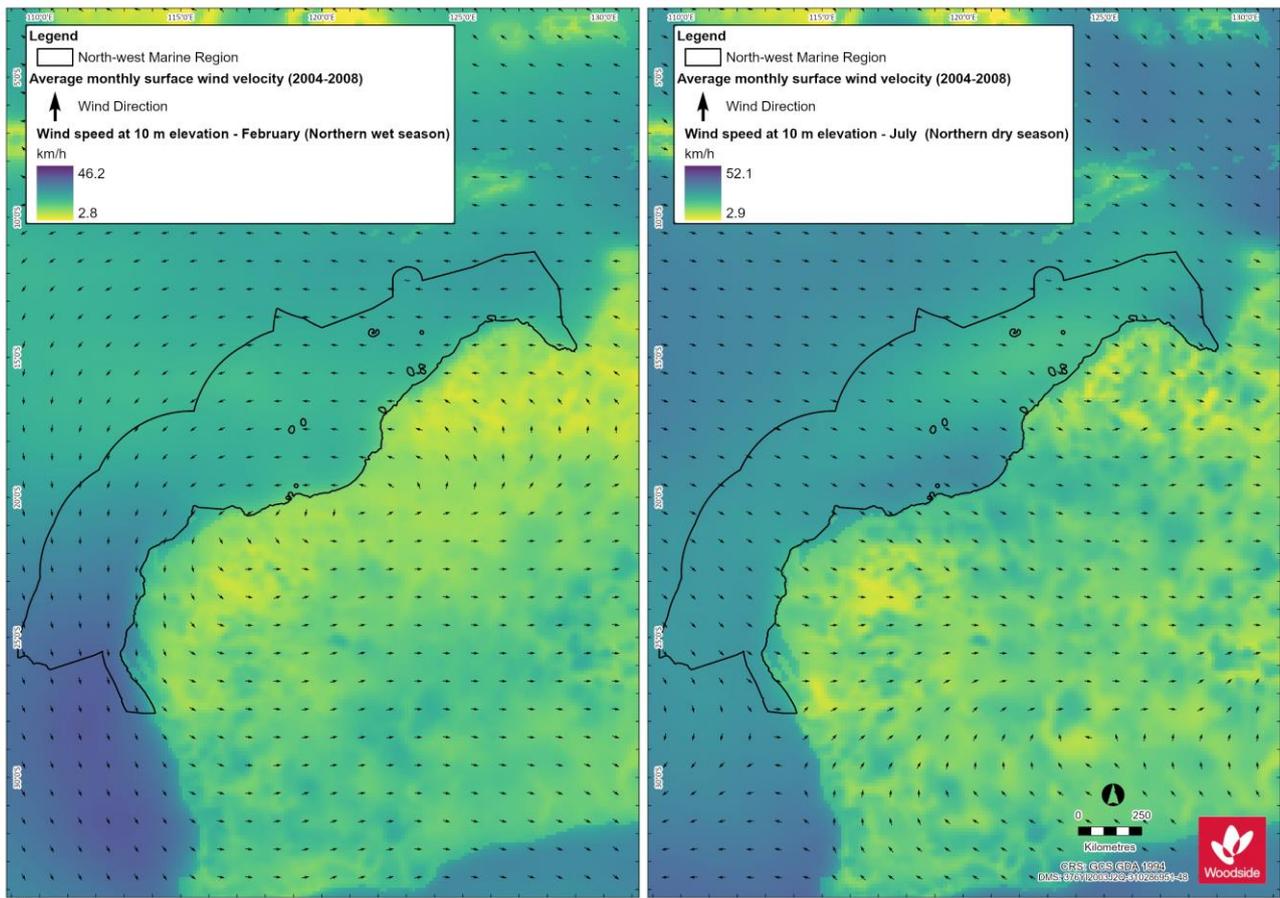


Figure 2-3. Average monthly surface wind direction and velocity for NWMR: (a) summer (February, northern wet season) and (b) winter (July, northern dry season)

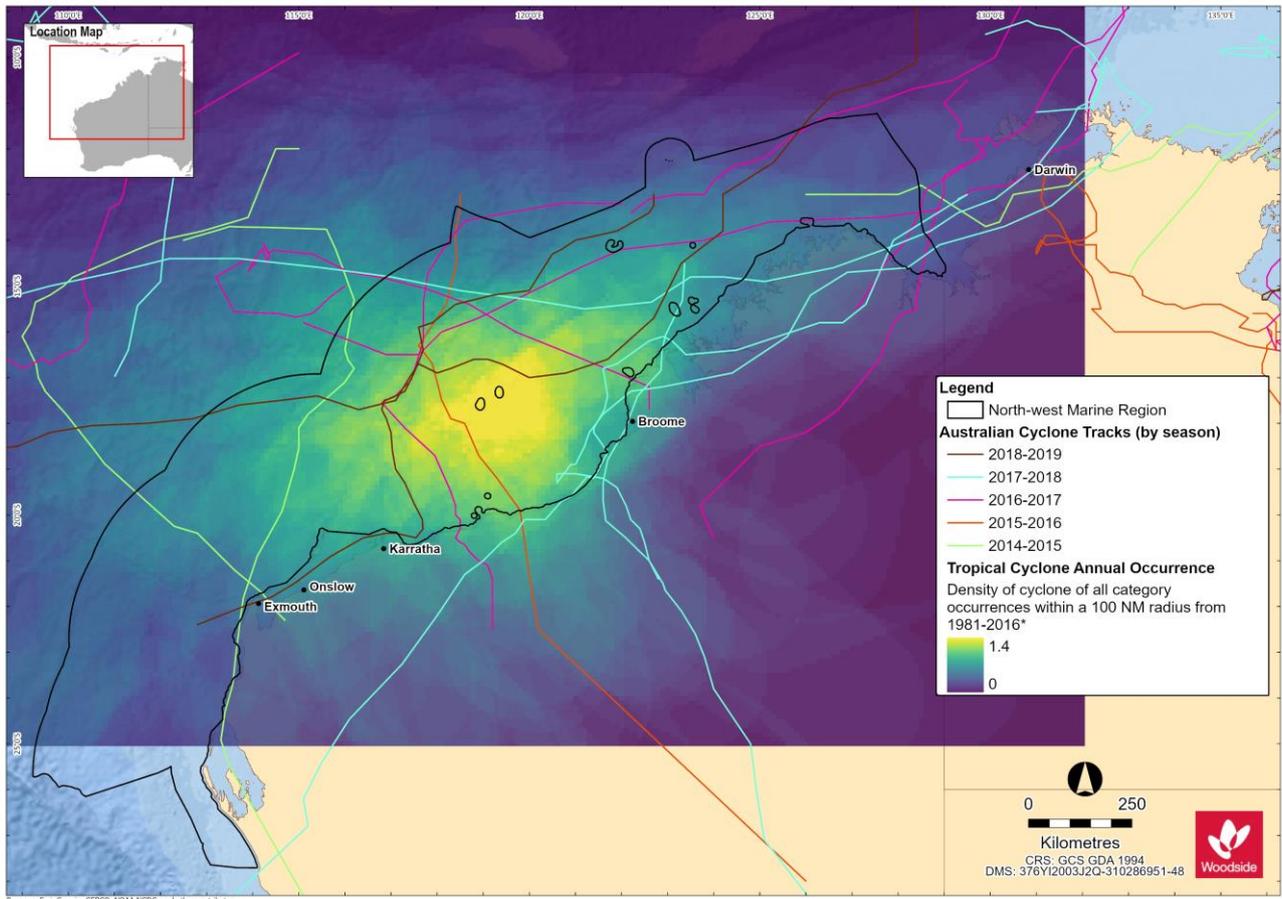


Figure 2-4. Tropical cyclone annual occurrence and cyclone tracks for NWMR

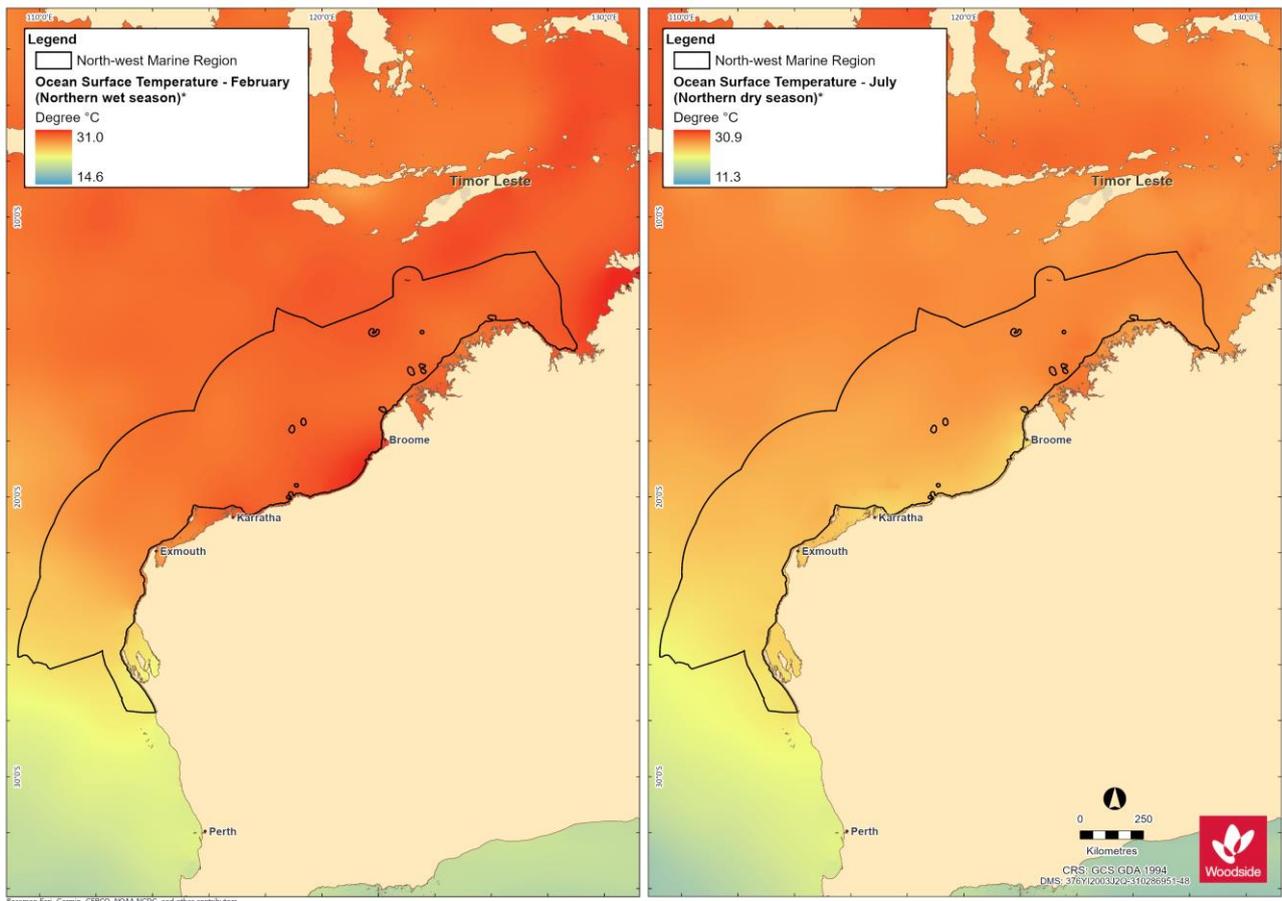


Figure 2-5. Ocean surface temperature for NWMR: (a) summer (February, northern wet season) and (b) winter (July, northern dry season)

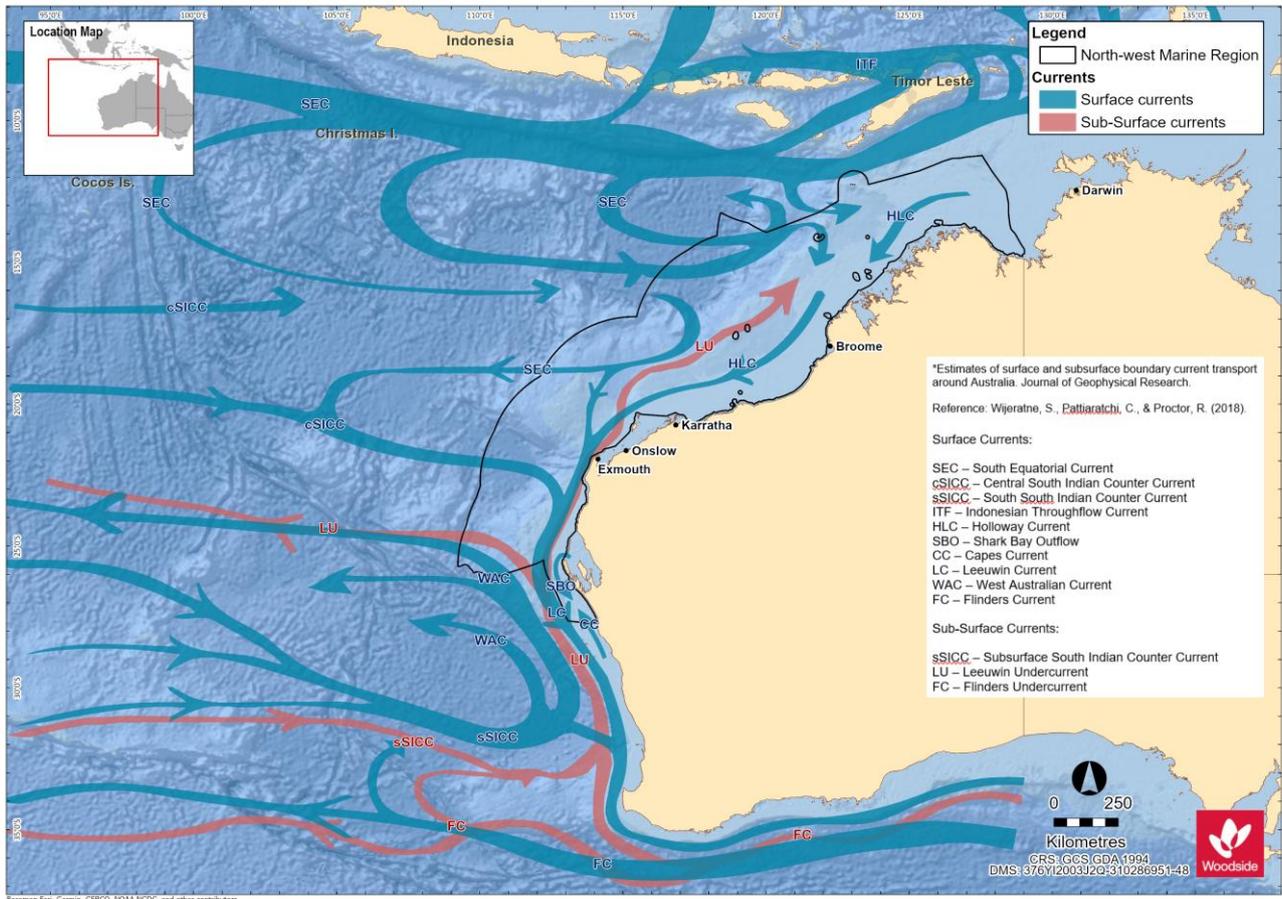


Figure 2-6. Ocean surface and sub-surface currents of the NWMR and wider region

2.3.1 Browse

Table 2-4 Summary meteorology and oceanography for Browse (refer to Appendix B for supporting metocean figures)

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 30.1°C in 2011 to 32.6°C in 2016 and highest mean monthly air temperatures were recorded for the months of November and December (BOM, 2021b).
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, 2021c).
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/hr and maximum wind gusts of 65 km/hr. In contrast the wet season brings predominately westerly winds with average wind speeds approximately 17 km/hr and maximum gusts exceeding 100 km/hr (generally associated with tropical cyclones (MetOcean Engineers, 2005).
Oceanography	
Currents	Surface currents exhibit seasonal directionality, with flow to the south-west during March to June and more variable outside this period (Woodside, 2019). This is consistent with the stronger Leeuwin Current flow during winter months, with more variable currents driven by local wind stress during periods of weaker Leeuwin Current flow.

2.3.2 North West Shelf / Scarborough

Table 2-5 Summary meteorology and oceanography for the North West Shelf and Scarborough (refer to Appendix B for supporting metocean figures)

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 NWS ranged from a maximum average of 39.5°C in summer to a minimum average temperature of 15.6°C in winter (Woodside, 2012).
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 <i>et al.</i> 2003).
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 <i>et al.</i> 2003).
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 ITF 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 <i>et al.</i> 2004 and Condie <i>et al.</i> 2006).

2.3.3 North-west Cape

Table 2-6 Summary meteorology and oceanography for the North-west Cape (refer to Appendix B 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 37.5°C) and mild winter temperatures (minimum average of 12.2°C).
Rainfall	Rainfall typically occurs during the summer, with highest rainfall during later summer and autumn, often associated with the passage of tropical low-pressure systems and cyclones. Rainfall is typically low in winter.
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, 2016). 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 more than five kilometres. 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.

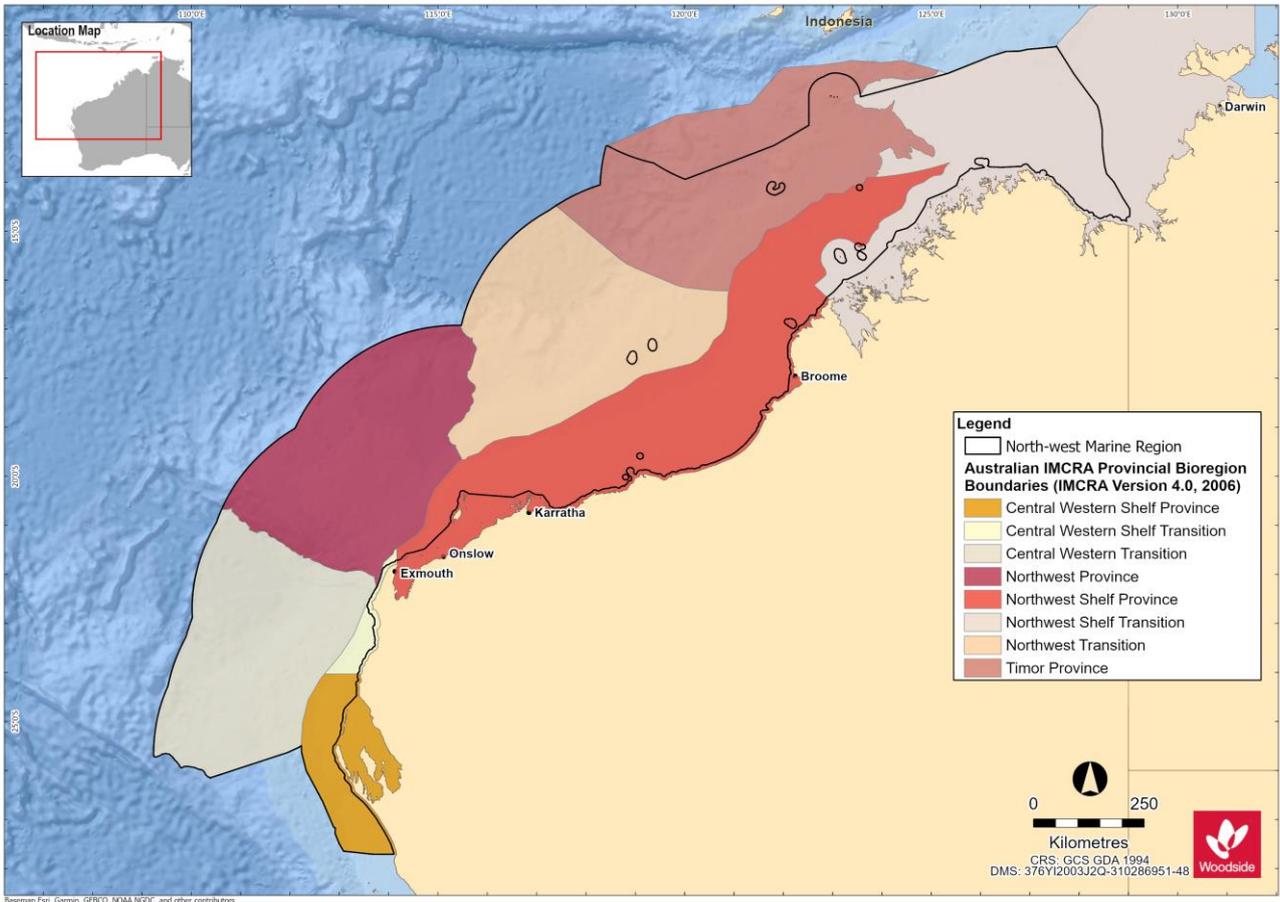


Figure 2-7. The eight provincial bioregions of the NWMR (Commonwealth of Australia, 2006)

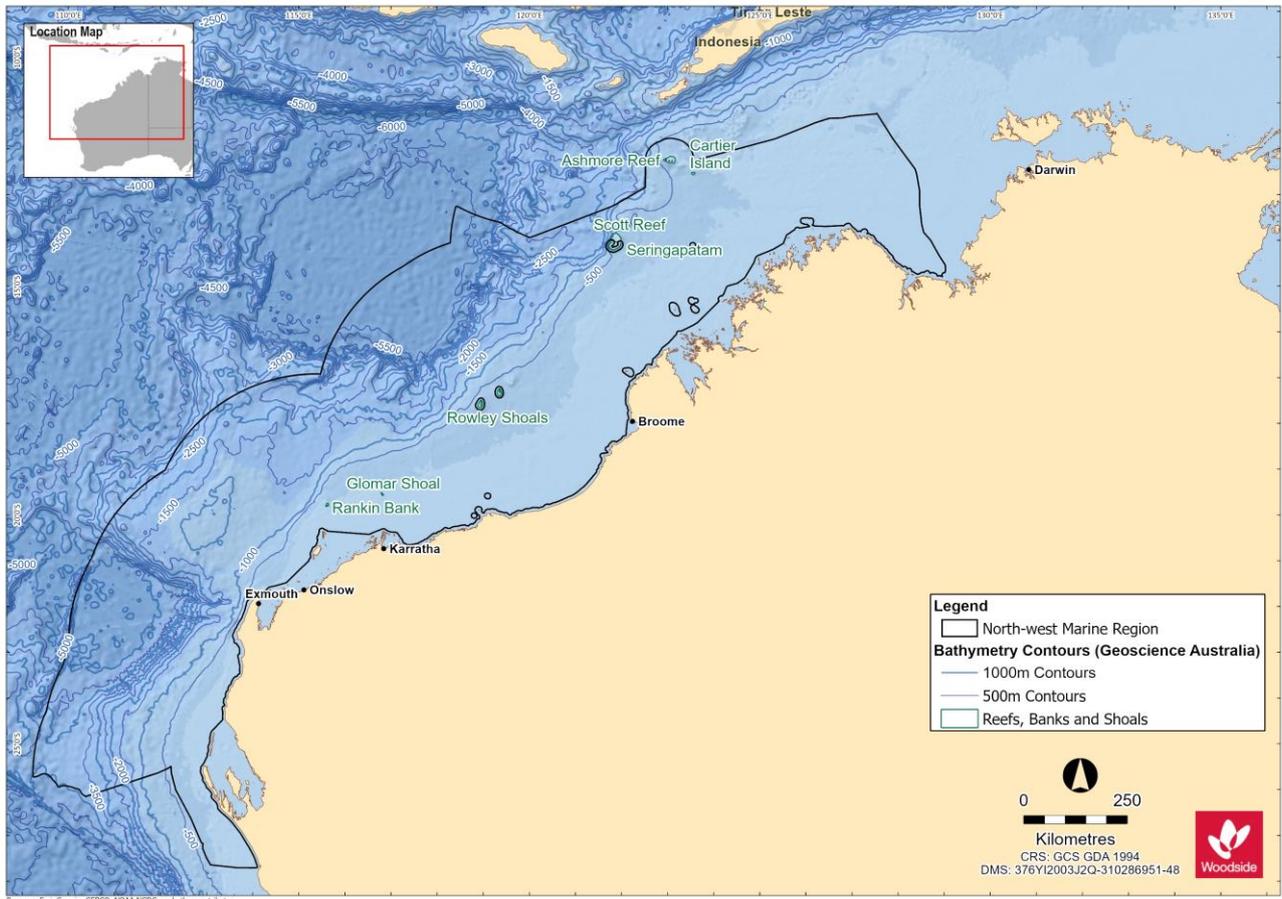


Figure 2-8. Bathymetry of the NWMR

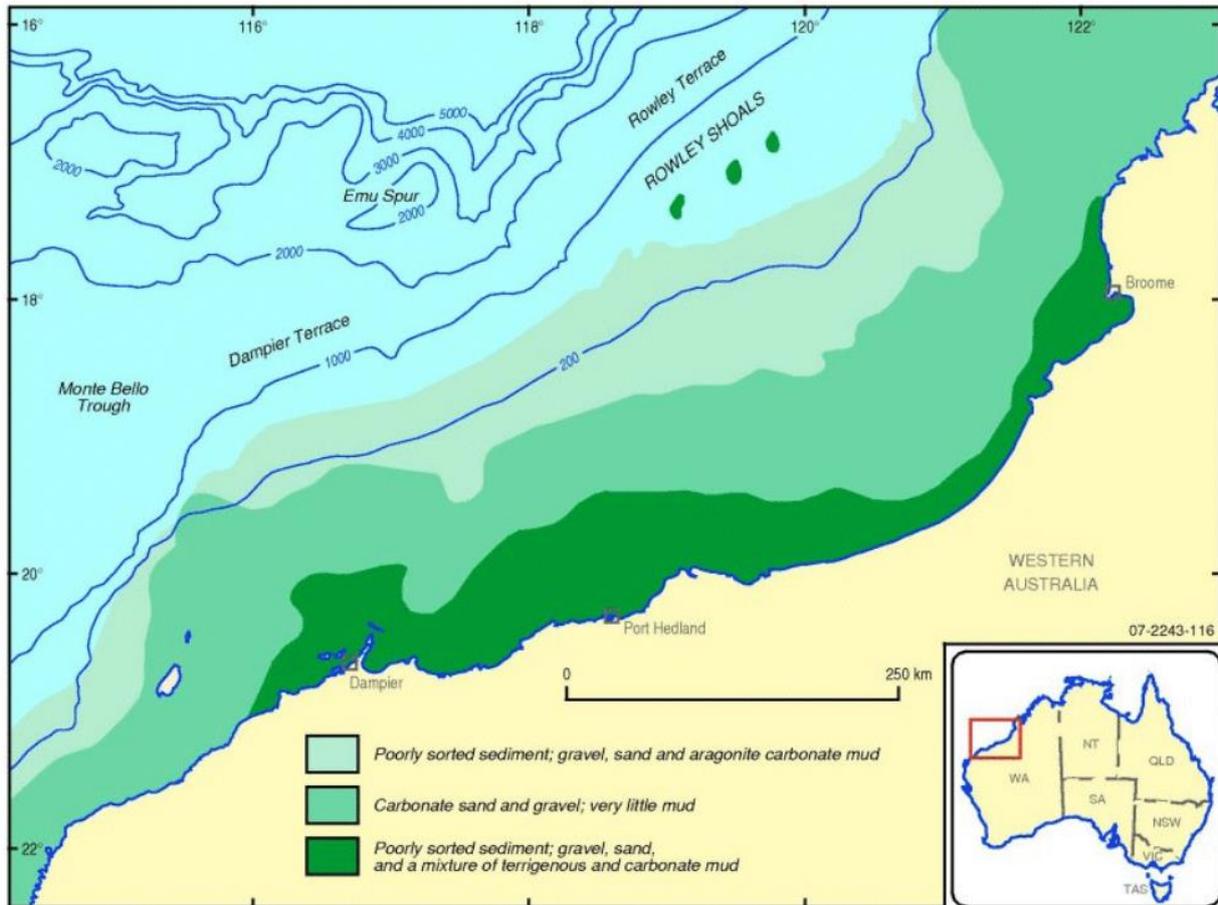


Figure 2-9. Overview of the seabed sediments of the NWMR (Baker *et al.*, 2008)

3. MATTERS OF NATIONAL ENVIRONMENTAL SIGNIFICANCE (EPBC ACT)

3.1 Summary of Matters of National Environmental Significance (MNES)

This section summarises the matters of national environmental significance (MNES) reported for the three bioregions; NWMR (**Table 3-1**), SWMR (**Table 3-2**) and NMR (**Table 3-3**), based on the Protected Matters search reports (**Appendix A**).

Additional information on these MNES are provided in subsequent sections (referenced below).

Table 3-1 Summary of MNES identified by the EPBC Act Protected Matters Search Tool (PMST) as potentially occurring within the NWMR

MNES	Number	Description	Section of this Document
World Heritage Properties	2	Shark Bay The Ningaloo Coast	Section 10
National Heritage Places	5	Shark Bay The Ningaloo Coast The West Kimberley The Dampier Archipelago (including Burrup Peninsula) Dirk Hartog Landing Site 1616	Section 10
Wetlands of International Importance (Ramsar)	3	Ashmore Reef National Nature Reserve Eighty Mile Beach Roebuck Bay ¹	Section 10
Commonwealth Marine Area	2	EEZ and Territorial Sea Key Ecological Features (KEFs) Australian Marine Parks (AMPs) Australian Whale Sanctuary Extended Continental Shelf	Section 9 Section 10
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	70	Refer NWMR PMST report (Appendix A)	Section 5 – Section 8
Listed Migratory Species	84	Refer NWMR PMST report (Appendix A)	Section 5 – Section 8

¹ Roebuck Bay is a designated Wetland of International Importance (Ramsar site), which was not included in the PMST Report (**Appendix A**).

Table 3-2 Summary of MNES identified by the EPBC Act Protected Matters Search Tool (PMST) as potentially occurring within the SWMR

MNES	Number	Description	Section of this Document
World Heritage Properties	0	N/A	N/A
National Heritage Places	3	Cheetup Rock Shelter Batavia Shipwreck Site and Survivor Camps Area 1629 – Houtman Abrolhos HMAS Sydney II and HSK Kormoran Shipwreck Sites	Section 10
Wetlands of International Importance (Ramsar)	4	Becher Point Wetlands Forrestdale and Thomsons Lakes Peel-Yalgorup System Vasse-Wonnerup System	Section 10
Commonwealth Marine Area	2	EEZ and Territorial Sea KEFs AMPs Australian Whale Sanctuary Extended Continental Shelf	Section 9 Section 10
Listed Threatened Ecological Communities	3	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	Terrestrial communities and not considered further
Listed Threatened Species	65	Refer SWMR PMST report (Appendix A)	N/A
Listed Migratory Species	67	Refer SWMR PMST report (Appendix A)	N/A

Table 3-3 Summary of MNES identified by the EPBC Act Protected Matters Search Tool (PMST) as 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 Area	2	EEZ and Territorial Sea KEFs AMPs Australian Whale Sanctuary Extended Continental Shelf	Section 9 Section 10
Listed Threatened Ecological Communities	0	N/A	N/A
Listed Threatened Species	33	Refer NMR PMST report (Appendix A)	N/A
Listed Migratory Species	70	Refer NMR PMST report (Appendix A)	N/A

3.2 Part 13 Statutory Instruments for EPBC Act Listed Threatened and Migratory Species in the NWMR, SWMR and NMR

A screening process was conducted to identify which EPBC Act listed threatened and migratory species, and associated Part 13 statutory instruments, are relevant in the context of the assessment of impacts and risks associated with petroleum activities in each of the Woodside activity areas, using the following criteria:

- overlap between the Woodside activity areas with habitat critical for the survival of marine turtles, and with BIAs (overlapping the marine environment) for any listed threatened 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 behaviours (e.g. breeding, nesting, calving, resting, foraging, migration); and
- environmental aspects associated with petroleum activities have been identified as a key threat to a species in a Part 13 statutory instrument (e.g. anthropogenic noise, light emissions, marine debris).

Relevant EPBC Act threatened and migratory species and their Part 13 statutory instruments are listed in **Table 3-4**. For the full list of EPBC Act listed species for each marine bioregion refer to the PMST reports (**Appendix A**).

Table 3-4 Summary of MNES identified by the EPBC Act Protected Matters Search Tool (PMST) 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	Conservation Management Plan for the Southern Right Whale: A Recovery Plan under the <i>Environment Protection and Biodiversity Conservation Act 1999</i> 2011–2021 (DSEWPAC, 2012d)
Sei whale	Conservation Advice <i>Balaenoptera borealis</i> sei whale (Threatened Species Scientific Committee, 2015a)
Humpback whale	Conservation Advice <i>Megaptera novaeangliae</i> humpback whale (Threatened Species Scientific Committee, 2015b)
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) (due to expire in October 2023) 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)
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)

Species	EPBC Act Part 13 Statutory Instrument
Seabirds	
Migratory seabird species	Draft Wildlife Conservation Plan for Migratory Seabirds (Commonwealth of Australia, 2019)
Southern giant petrel	National recovery plan for threatened albatrosses and giant petrels 2011–2016 (DSEWPAC, 2011c)
Indian yellow-nosed albatross	National recovery plan for threatened albatrosses and giant petrels 2011–2016 (DSEWPAC, 2011c)
Abbott's booby	Conservation Advice for the Abbott's booby - <i>Papasula abbotti</i> (Threatened Species Scientific Committee, 2020b)
Australian fairy tern	Approved Conservation Advice for <i>Sterna nereis nereis</i> (Fairy Tern) (DSEWPAC, 2011d)
Australian lesser noddy	Conservation Advice <i>Anous tenuirostris melanops</i> Australian lesser noddy (Threatened Species Scientific Committee, 2015e)
Soft-plumaged petrel	Conservation Advice <i>Pterodroma mollis</i> soft-plumaged petrel (Threatened Species Scientific Committee, 2015f)
Shorebirds	
Migratory shorebird species	Wildlife Conservation Plan for Migratory Shorebirds (Commonwealth of Australia, 2015c)
Eastern curlew, far eastern curlew	Conservation Advice <i>Numenius madagascariensis</i> eastern curlew (DOE, 2015a)
Curlew sandpiper	Conservation Advice <i>Calidris ferruginea</i> curlew sandpiper (DOE, 2015b)
Great knot	Conservation Advice <i>Calidris tenuirostris</i> Great knot (Threatened Species Scientific Committee, 2016a)
Red knot, knot	Conservation Advice <i>Calidris canutus</i> Red knot (Threatened Species Scientific Committee, 2016b)
Bar-tailed godwit (<i>menzbieri</i>)	Conservation Advice <i>Limosa lapponica menzbieri</i> Bar-tailed godwit (northern Siberia) (Threatened Species Scientific Committee, 2016c)
Greater sand plover	Conservation Advice <i>Charadrius leschenaultii</i> Greater sand plover (Threatened Species Scientific Committee, 2016d)
Lesser sand plover	Conservation Advice <i>Charadrius mongolus</i> Lesser sand plover (Threatened Species Scientific Committee, 2016e)

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 and 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) play a role in making nutrients available in the photic zone. 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. Within the Pilbara system of the NWMR (approximately equates to the NWS / Scarborough activity area). 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 kilometres) 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 coral reefs and limestone pavement.

The key habitats and biological communities 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**.

4.4.2 Shoreline habitats and biological communities

The NWMR encompasses offshore and coastal waters, islands and mainland shoreline habitats typified by mangroves, tidal flats, saltmarshes, sandy beaches, and smaller areas of rocky shores. Each of these shoreline types has the potential to support different flora and fauna assemblages due to the different physical factors (e.g. waves, tides, light, etc.) influencing the habitat.

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
Offshore habitats and biological communities				
Soft sediment with infauna	The offshore environment of the NWMR comprises predominately of seabed habitats dominated by soft sediments (sandy and muddy substrata with occasional patches of coarser sediments) and sparse benthic biota. The benthic communities inhabiting the predominantly soft, fine sediments of the offshore habitats are characterised by infauna such as polychaetes, and sessile and mobile epifauna such as crustacea (shrimp, crabs and squat lobsters) and echinoderms (starfish, cucumbers). The density of benthic fauna is typically lower in deep-sea sediment habitats (greater than 200 m) than in shallower coastal sediment habitats, but the diversity of communities may be similar.			
Soft sediment with hard substrate outcropping	A unique seafloor feature combining both soft sediment and hard substrates, including outcrops, terraces, continental slope, and escarpments. This habitat is found in offshore areas of the NWMR, often associated with key ecological features such as the Ancient coastline at 125 m depth contour KEF.			Section 9
	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 9
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 10
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. <i>et al.</i> , 2003; Wilson <i>et al.</i> , 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 10
Filter Feeders/ heterotrophic	Filter feeder epifauna such as sponges, ascidians, soft corals and gorgonians are animals that feed by actively filtering suspended matter and food particles from water, by passing the water over specialised filtration structures (DEWHA, 2008). Filter feeders generally live in areas that have strong currents and hard substratum, often associated with deeper environments of the shoals and banks in the offshore NWMR.			
	Lower outer reef slopes of the oceanic reef	Glomar Shoal Rankin Bank	Cape Range canyon system	Section 10

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Habitat/Community	Browse	NWS / Scarborough	North-west Cape	Reference
	systems such as Scott Reef	Ancient coastline at 125 m depth contour KEF		
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 10
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 10
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. <i>et al.</i> , 2003; Wilson <i>et al.</i> , 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 10
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 are mainly associated with soft unconsolidated sediment and infauna communities are considered widespread and well represented along the continental shelf and upper slopes of the NWMR. In nearshore areas of the NWMR, these species are generally found around reef systems.			
	-	Deeper habitats of Rankin Bank and Glomar Shoal	Deeper habitats of Ningaloo Reef and the protected sponge zone in the south	

Habitat/Community	Browse	NWS / Scarborough	North-west Cape	Reference
Mangroves	Mangroves grow in intertidal mud and sand, with specially adapted aerial roots (pneumatophores) that provide for gas exchange during low tide (McClatchie <i>et al.</i> , 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 <i>et al.</i> , 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	
Saltmarshes	Saltmarshes 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	
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	

Table 4-2 Habitats within the SWMR

Habitat/Community	Location
Offshore	
Soft sediment with infauna	Most of the SWMR seafloor is composed of soft unconsolidated sediments, but due to large variations in bathymetry there are marked differences in sedimentary composition and benthic assemblage structure across the region. Despite the prevalence of these habitats in the SWMR, very little is known about the composition or distribution of the region's sedimentary infauna (DEWHA, 2008b)
Soft sediment with hard substrate outcropping	A unique seafloor feature combining both soft sediment and hard substrates, including outcrops, terraces, continental slope, and escarpments. Perth Canyon Marine Park Ancient coastline at 90-120 m depth contour KEF Diamantina Fracture Zone Naturaliste Plateau
Coral Reef	To date, studies and understanding of the corals within the SWMR have concentrated on the shallow water areas in State Waters. Within the deeper Commonwealth waters of the SWMR little is known of the distribution of corals.
Filter Feeders/ heterotrophic	Filter feeder epifauna such as sponges, ascidians, soft corals and gorgonians are animals that feed by actively filtering suspended matter and food particles from water, by passing the water over specialised filtration structures (DEWR, 2007). Filter feeders generally inhabit deeper habitat (below the photic zone) that have strong currents and hard substratum Ancient coastline at 90-120 m depth Diamantina Fracture Zone Naturaliste Plateau Perth Canyon Marine Park South-west Corner Marine Park
Nearshore	
Coral Reef	The northern extent of the SWMR coincides loosely with the disappearance of abundant and diverse coral from coastal habitats. To the south of Shark Bay, abundant corals occur predominantly around offshore islands, with corals at inshore sites occurring in very isolated patches of non-reef coral communities, usually of reduced species richness. Houtman Abrolhos Islands Rottneest Island
Seagrass and Macroalgae communities	Within the SWMR, macroalgae and seagrass communities are noted for their extent, species richness and endemism. The clear waters of the region allow light to reach greater depths, with some species found at much greater depths than usual (down to 120 m) (DEWR, 2007). Of the known species there are more than 1000 species of macro-algae and 22 species of seagrass consisting of tropical and temperate species. Seagrass and macro-algae occur in areas with sheltered bays and in the inter-reef lagoons along exposed sections of the coast. Houtman Abrolhos Islands Jurien Marine Park Shoalwater Islands Marine Park Geographe Marine Park Cockburn Sound Rottneest Island

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Habitat/Community	Location
	Commonwealth marine environment within and adjacent to the west-coast inshore lagoons KEF Commonwealth marine environment within and adjacent to Geographe Bay KEF Commonwealth marine environment surrounding the Recherche Archipelago KEF
Filter Feeders/ heterotrophic	Filter feeder epifauna such as sponges, ascidians, soft corals and gorgonians are animals that feed by actively filtering suspended matter and food particles from water, by passing the water over specialised filtration structures (DEWR, 2007). Filter feeders generally live in areas that have strong currents and hard substratum. Houtman Abrolhos Islands Recherche Archipelago
Mangroves	Mangroves grow in intertidal mud and sand, with specially adapted aerial roots (pneumatophores) that provide for gas exchange during low tide (McClatchie <i>et al.</i> , 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 <i>et al.</i> , 2006). Mangroves are confined to shoreline habitats, in nearshore areas of the SWMR. Houtman Abrolhos Islands
Sandy Beaches	Sandy beaches within the SWMR are important for both resident and migratory seabirds and shorebirds and can also host breeding populations of the Australian sea lion. They are found along many coastlines of the nearshore environments of the SWMR. In addition to this, beaches in the SWMR provide a variety of socio-economic values including tourism, commercial and recreational fishing, and support other recreational activities. Houtman Abrolhos Islands Marmion Marine Park Ngari Capes Marine Park Walpole and Nornalup Inlets Marine Park

Table 4-3 Habitats and Biological Communities within the NMR

Habitat/Community	Location		
Offshore habitats and biological communities			
Soft sediment with infauna	Most of the offshore environment of the NMR is characterised by relatively flat expanses of soft sediment seabed. The soft sediments of the region are characterised by moderately abundant and diverse communities of infauna and mobile epifauna dominated by polychaetes, crustaceans, molluscs, and echinoderms.		
Soft sediment with hard substrate outcropping	A unique seafloor feature combining both soft sediment and hard substrates, including outcrops, terraces, continental slope, and escarpments. The variability in substrate composition may contribute to the presence of unique ecosystems. Species present include sponges, soft corals and other sessile filter feeders associated with hard substrate sediments.		
	Carbonate bank and terrace system of the Van Diemen Rise KEF Pinnacles of the Bonaparte Basin KEF		
Coral Reef	Offshore coral reefs within the NMR is 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 <i>et al.</i> , 1997)		
	Pinnacles of the Bonaparte Basin KEF Evans Shoal Tassie Shoal Blackwood Shoal		
Filter Feeders/ heterotrophic	Filter feeder epifauna such as sponges, ascidians, soft corals and gorgonians are animals that feed by actively filtering suspended matter and food particles from water, by passing the water over specialised filtration structures (DEWHA, 2007b). Filter feeders generally live in areas that have strong currents and hard substratum and typically associated with the deeper habitats of the submerged shoals and banks, and canyon features.		
	Carbonate bank and terrace system of the Van Diemen Rise KEF Pinnacles of the Bonaparte Basin KEF Tributary Canyons of the Arafura Depression KEF Evans Shoal Tassie Shoal Goodrich Bank		
Nearshore			
Coral Reef	Within the NMR corals occur both as reefs and in non-reef coral communities. Nearshore reefs include patch reefs and fringing reefs sparsely distributed within the region. Coral reefs within the NMR provides breeding and aggregation areas for many fish species including mackerel and snapper and offer refuges for sea snakes and apex predators such as sharks.		
	Submerged coral reefs of the Gulf of Carpentaria KEF Darwin Harbour		
Seagrass and Macroalgae communities	Seagrasses provide key habitats in the NMR. They stabilise coastal sediments and trap and recycle nutrients. They provide nursery grounds for commercially harvested fish and prawns and provide feeding grounds for dugongs and green turtles. Seagrass distribution in the region is largely associated with sheltered small bays and inlets including shallow waters surrounding inshore islands.		
	Field Island The mainland coastline adjacent to Kakadu National Park		
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Habitat/Community	Location
Filter Feeders/ heterotrophic	<p>Filter feeder epifauna such as sponges, ascidians, soft corals, and gorgonians are animals that feed by actively filtering suspended matter and food particles from water, by passing the water over specialised filtration structures (DEWHA, 2007b). Filter feeders generally live in areas that have strong currents and hard substratum.</p> <p>Cape Helveticus</p>
Mangroves	<p>Mangroves grow in intertidal mud and sand, with specially adapted aerial roots (pneumatophores) that provide for gas exchange during low tide (McClatchie <i>et al.</i>, 2006). Mangroves provide habitat for waterbirds and support many commercially and recreationally important fish and crustacean species for parts of their life cycles. They buffer the coast from large tidal movements, storm surges and flooding.</p> <p>Tiwi Islands Darwin Harbour The mainland coastline adjacent to the Daly River</p>
Sandy Beaches	<p>Sandy beaches vary in length, width and gradient, and in sediment type, composition, and grain size throughout the NMR and are important for both resident and migratory seabirds and shorebirds. Sandy beaches can also provide an important habitat for turtle nesting. They are located along many coastlines of the nearshore environments of the islands and mainland shores of the NMR.</p> <p>Tiwi Islands Cobourg Peninsula Joseph Bonaparte Gulf</p>

5. FISHES, SHARKS AND RAYS

5.1 Regional Context

Western Australian waters provide important habitat for listed fishes, sharks, and rays including areas that support key life stages such as breeding, foraging, and migration routes for fish species. Pelagic and demersal fishes occupy a range of habitats throughout each of the regions, from coral reefs to open offshore waters, and are an extremely important component of ecosystems, providing a link between primary production and higher predators, with many species being of conservation value and important for commercial and recreational fishing.

The fish fauna in the NWMR is diverse. 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 11**.

Table 5-1 outlines the threatened and migratory fish species that may occur within the NWMR, with their conservation status and relevant recovery plans and/or conservation advice. **Table 5-2** provides information for species of fish that are listed as conservation dependent that may occur within the NWMR, NMR and SWMR. Note that currently there are no approved Conservation Advices in place for any of these five species.

Table 5-1 Fish species (including sharks and rays) identified by the EPBC Act PMST for the NWMR

Species Name	Common Name	Environment Protection and Biodiversity Conservation Act 1999			WA Biodiversity Conservation Act 2016	EPBC Act Part 13 Statutory Instrument
		Threatened Status	Migratory Status	Listed	Conservation Status	
<i>Rhincodon typus</i>	Whale shark	Vulnerable	Migratory	Marine	Other specially protected fauna	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	Recovery Plan for the Grey Nurse Shark (<i>Carcharias taurus</i>) (DOE, 2014a)
<i>Carcharodon carcharias</i>	White shark	Vulnerable	Migratory	Marine	Vulnerable	Recovery Plan for the White Shark (<i>Carcharodon carcharias</i>) (DSEWPAC, 2013b)
<i>Isurus oxyrinchus</i>	Shortfin mako	N/A	Migratory	Marine	N/A	N/A
<i>Isurus paucus</i>	Longfin mako	N/A	Migratory	Marine	N/A	N/A
<i>Lamna nasus</i>	Porbeagle shark Mackerel shark	N/A	Migratory	Marine	N/A	N/A
<i>Carcharhinus longimanus</i>	Oceanic whitetip shark	N/A	Migratory	Marine	N/A	N/A
<i>Anoxypristis cuspidata</i>	Narrow sawfish	N/A	Migratory	Marine	N/A	N/A
<i>Pristis clavata</i>	Dwarf sawfish	Vulnerable	Migratory	Marine	Priority	Sawfish and River Sharks Multispecies Recovery Plan (Commonwealth of Australia, 2015b)
<i>Pristis pristis</i>	Largetooth (Freshwater) sawfish	Vulnerable	Migratory	Marine	Priority	
<i>Pristis zijsron</i>	Green sawfish	Vulnerable	Migratory	Marine	Vulnerable	
<i>Glyphis garricki</i>	Northern river shark	Endangered	N/A	Marine	Priority	
<i>Manta alfredi</i>	Reef manta ray	N/A	Migratory	Marine	N/A	N/A
<i>Manta birostris</i>	Giant manta ray	N/A	Migratory	Marine	N/A	N/A

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Table 5-2 EPBC Act listed Conservation Dependent species of fishes and sharks that may occur in the NWMR, NMR and SWMR

Species Name	Common Name	Likely Occurrence / Distribution	Listing Advice
<i>Hoplostethus atlanticus</i>	Orange roughy, Deep-sea perch, Red roughy	SWMR	No conservation listing advice for this species. Refer to the Marine bioregional plan for the SWMR (DSEWPAC, 2012b) for further information
<i>Thunnus maccoyii</i>	Southern bluefin tuna	NWMR and SWMR	Threatened Species Scientific Committee (2010)
<i>Sphyrna lewini</i>	Scalloped hammerhead	NWMR, NMR and SWMR	Threatened Species Scientific Committee (2018)
<i>Centrophorus zeehaani</i>	Southern dogfish, Endeavour dogfish, Little gulper shark	SWMR	Threatened Species Scientific Committee (2013)
<i>Galeorhinus galeus</i>	School shark, Eastern school shark, Snapper shark, Tope, Soupfin shark	SWMR	Threatened Species Scientific Committee (2009)

5.2 Protected Sharks, Sawfishes and Rays in the NWMR

The EPBC Act Protected Matters search (**Appendix A**) identified seven species of shark and five species of river shark or sawfish listed as threatened and/or migratory within the NWMR. In addition, two species of ray (the reef manta ray and giant manta ray) are listed as migratory within the region (refer **Table 5-2**).

5.2.1 Sharks and Sawfishes

The shark species known to occur within the NWMR include: the whale shark, grey nurse shark, white shark, shortfin mako, and longfin mako (**Table 5-2**).

Five species of river shark or sawfish known to occur in the NWMR and include: the narrow sawfish, northern river shark, freshwater sawfish, green sawfish and dwarf sawfish (**Table 5-2**).

There are identified BIAs within the NWMR for the whale shark, freshwater sawfish, green sawfish, and dwarf sawfish (refer **Section 5.3.2**).

Table 5-2 Information on the threatened shark and sawfish species 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, both oceanic and coastal (Last and Stevens, 2009). The species is widely distributed in Australian waters. Diet: Whale sharks are planktivorous sharks and feed on a variety of planktonic organisms 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). Refer Table 5-3 for the BIA summary for the whale shark.
Grey nurse shark (west coast population)	Preferred habitat: Most commonly 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). Diet: A variety of teleost and elasmobranch fishes and some cephalopods (Gelsleichter <i>et al.</i> , 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 <i>et al.</i> , 2006). The NWMR represents the northern limit of the west coast population.

Species	Preferred Habitat and Diet	Habitat Location
White shark	<p>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 <i>et al.</i>, 2006; Bruce, 2008).</p> <p>Diet: Smaller white sharks (less than 3 m in length) feed primarily on teleost and elasmobranch fishes, broadening their diet as larger sharks to include marine mammals (Last and Stevens, 2009).</p>	<p>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).</p> <p>Given the migratory nature of the species, most likely has a broad distribution within the NWMR. No BIAs identified for NWMR.</p>
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 <i>et al.</i>, 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 <i>et al.</i>, 2011; Stevens <i>et al.</i>, 2010).</p> <p>Diet: Feeds on a variety of prey, such as teleost fishes, other sharks, marine mammals, and marine turtles (Campana <i>et al.</i>, 2005).</p>	<p>Given the migratory nature of the species, 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 oceanic distribution in tropical and temperate seas (Mollet <i>et al.</i>, 2000).</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 <i>et al.</i>, 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 <i>et al.</i>, 2002). The porbeagle shark is known to dive to depths exceeding 1300 m (Campana <i>et al.</i>, 2010; Saunders <i>et al.</i>, 2011).</p> <p>Diet: Primarily teleost fish, elasmobranchs, and cephalopods (primarily squid) (Joyce <i>et al.</i>, 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 on the NWS in the 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 <i>et al.</i>, 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 <i>et al.</i>, 2013; D'Alberto <i>et al.</i>, 2017). The species is highly migratory, travelling large distances between shallow reef habitats in coastal waters and oceanic waters (Howey-Jordan <i>et al.</i>, 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. Target 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, 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 <i>et al.</i> , 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 <i>et al.</i> , 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 <i>et al.</i> , 2009). Diet: Variety of fish and crustaceans (Stevens <i>et al.</i> , 2005)	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 <i>et al.</i> , 2005; Thorburn, 2006; Field <i>et al.</i> , 2008; Pillans <i>et al.</i> , 2008, Whitty <i>et al.</i> , 2008; Wynen <i>et al.</i> , 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).	Refer Table 5-3 for the BIA summary for the 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 <i>et al.</i> , 2005; Thorburn <i>et al.</i> , 2003). Diet: Schools of baitfish and prawns (Pogonoski <i>et al.</i> , 2002), molluscs and small crustaceans (Cliff and Wilson, 1994).	Refer Table 5-3 for the BIA summary for the green sawfish.
Dwarf sawfish	Preferred habitat ¹ : Shallow (2 to 3 m) silty coastal waters and estuarine habitats, occupying relatively restricted areas and moving only small distances (Stevens <i>et al.</i> , 2008) Diet: Shoaling fish such as mullet, molluscs, and small crustaceans (Cliff and Wilson, 1994).	Refer Table 5-3 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 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 5-3 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 <i>et al.</i> , 2009). 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	The Ningaloo Coast is an important area for giant manta rays from March to August (Preen <i>et al.</i> , 1997).

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Species	Preferred Habitat and Diet	Habitat Location
	to be seasonal visitors to coastal or offshore sites including offshore island groups, offshore pinnacles and seamounts (Marshall <i>et al.</i> , 2011). Diet: Feed on planktonic organisms including krill and crab larvae.	No BIAs identified for NWMR.

5.3 Fish, Shark and Sawfish Biological Important Areas in the NWMR

A review of the National Conservation Values Atlas identified Biologically Important Areas (BIAs) for four species of shark and sawfish (whale shark, freshwater sawfish, green sawfish and dwarf sawfish) within the NWMR. The BIAs for the whale shark and the sawfish species include foraging, nursing and pupping areas. These are described in **Table 5-4**.

Table 5-4 Fish, whale shark and sawfish BIAs within the NWMR

Species	Woodside Activity Area			BIAs		
	Browse	NWS/S	NWC	Pupping	Nursing	Foraging
Whale shark	✓	✓	✓	No pupping BIA identified within the NWMR	No nursing BIA identified within the NWMR	Foraging (high density) in Ningaloo Marine Park and adjacent Commonwealth waters (March–July) Foraging northward from Ningaloo along the 200 m isobath (July – Nov).
Green sawfish	✓	✓	-	Pupping in Cape Keraudren (pupping occurs in summer in a narrow area adjacent to shoreline) Pupping in Willie Creek Pupping in Roebuck Bay Pupping in Cape Leveque Pupping in waters adjacent to Eighty Mile Beach Pupping (likely) in Camden Sound.	Nursing in Cape Keraudren Nursing in waters adjacent to Eighty Mile Beach	Foraging in Cape Keraudren Foraging in Roebuck Bay Foraging in Cape Leveque Foraging in Camden Sound
Largetooth (freshwater) sawfish	✓	✓	-	Pupping in the mouth of the Fitzroy River (January to May) Roebuck Bay (Jan – May) Pupping likely in waters adjacent to Eighty Mile Beach	Nursing (likely) in King Sound Roebuck Bay (Jan – May)	Foraging in the mouth of the Fitzroy River (January to May) Foraging in King Sound Roebuck Bay (Jan – May) Foraging in waters adjacent to Eighty Mile Beach
Dwarf sawfish	✓	✓	-	Pupping in King Sound Pupping in waters adjacent to Eighty Mile Beach	Nursing in King Sound Nursing waters adjacent to Eighty Mile Beach	Foraging in King Sound Foraging in Camden Sound Foraging in waters adjacent to Eighty Mile Beach

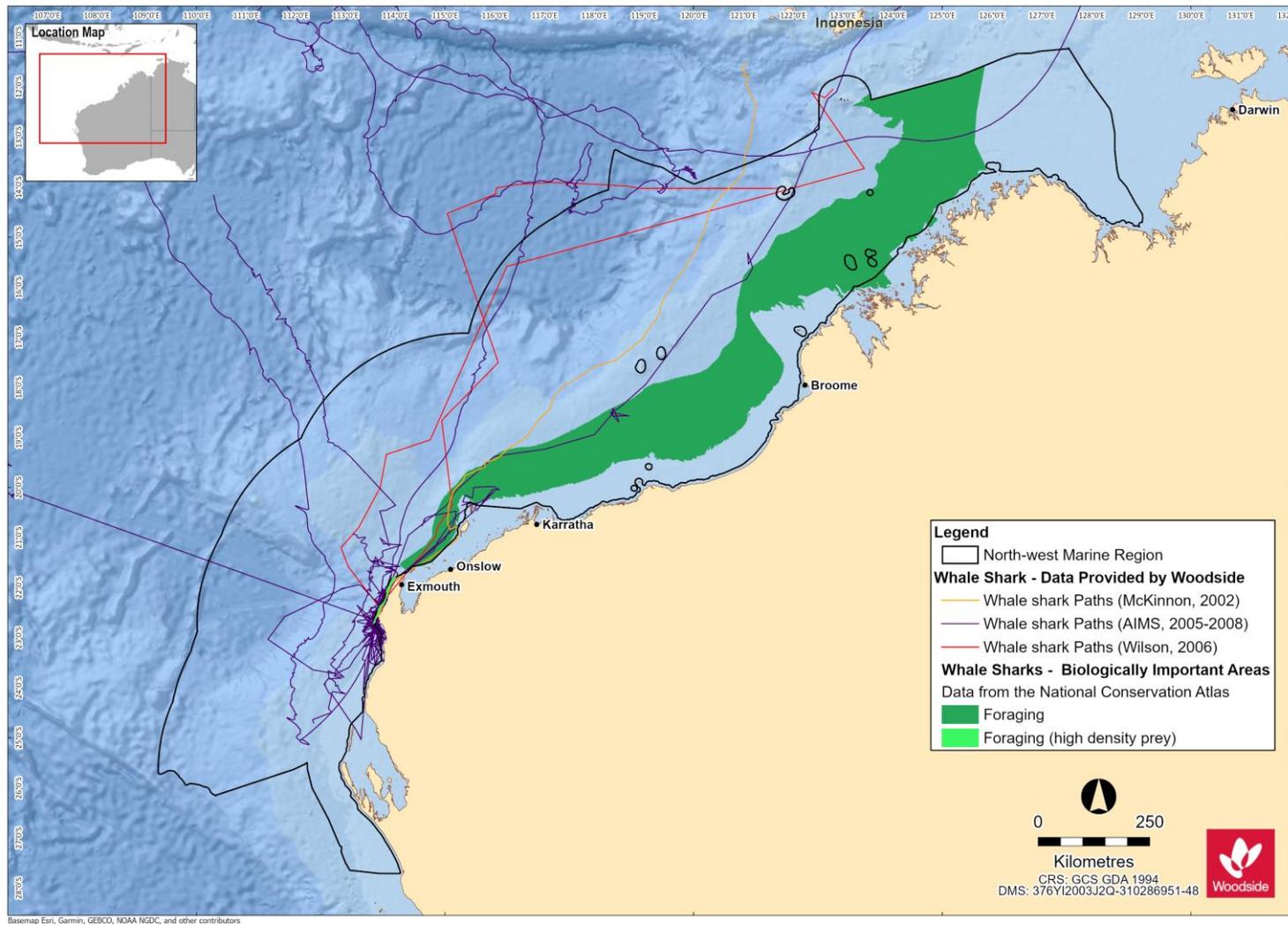


Figure 5-1 Whale shark BIAs for the NWMR and tagged whale shark tracks

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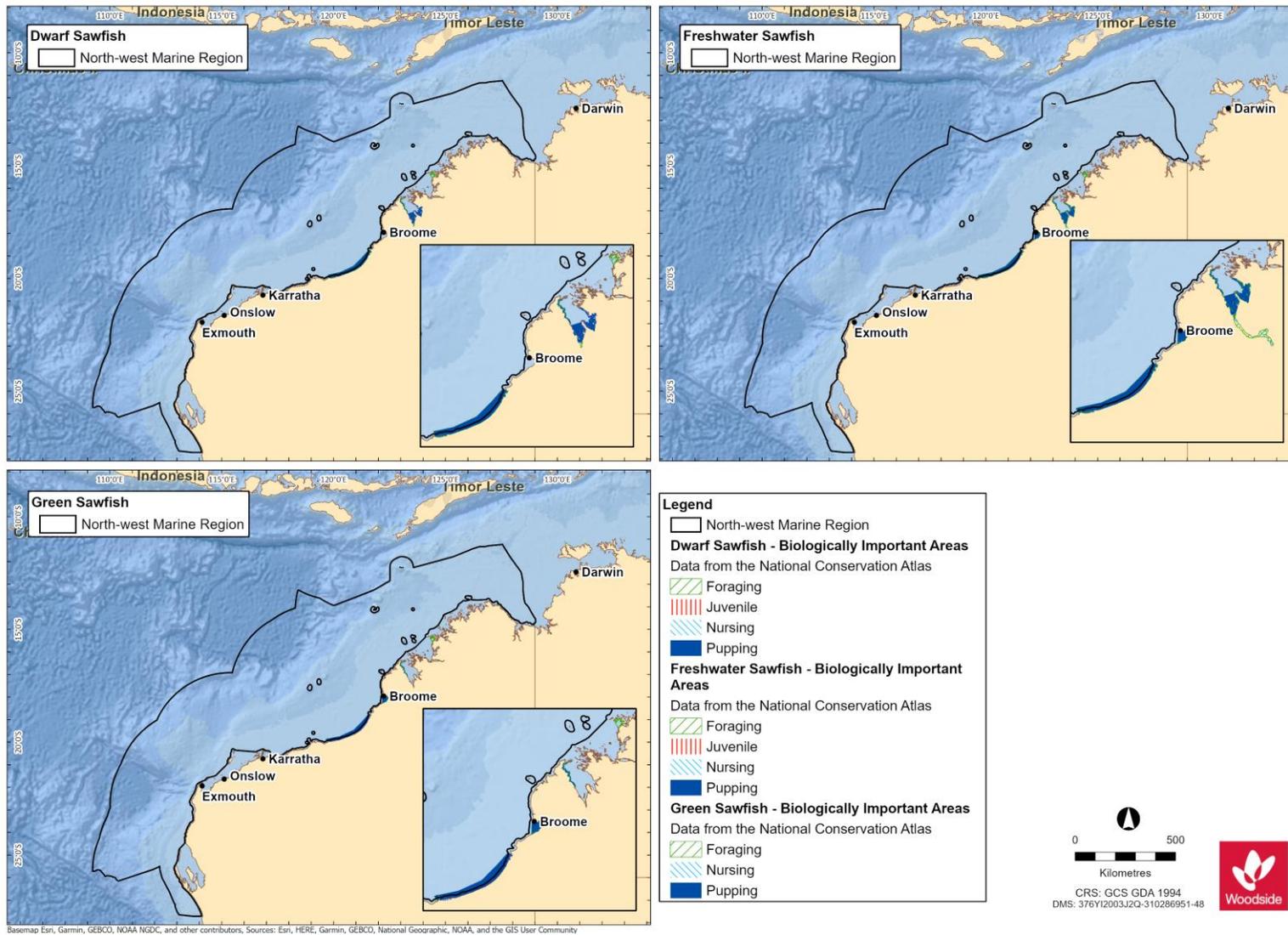


Figure 5-2 Sawfish BIAs for the NWMR

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5.4 Fish Assemblages of the NWMR

5.4.1 Regional Context for Fish Assemblages of NWMR

The NWMR contains a diverse range of fishes of tropical Indo-west Pacific affinity (Allen *et al.*, 1988). The region is characterised by the highest level of endemism and species diversity compared with other areas of the Australian continental slope. Last *et al.* (2005) recorded 1431 species from the three bioregions encompassing the continental slope, whilst also acknowledging some information gaps.

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, 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 9**.

The NWMR also features a diversity of pelagic fishes (those living in the pelagic zone) and benthopelagic fishes, including tuna, billfish, bramids, lutjanids, serranids and some sharks (DEWHA, 2007a). These species feed on salps and jellyfish, and more often on secondary consumers such as squid and bait fish. Water depth provides an indication of the level of interaction between pelagic and benthic communities within the NWMR; in waters deeper than 1000 m, for instance, the trophic system is pelagically-driven and benthic communities rely on particulates that fall to the seafloor (DEWHA, 2007a).

Pelagic fishes play an important ecological role within the NWMR; small pelagic fishes, such as lantern fish, inhabit a range of marine environments, including inshore and continental shelf waters and form a vital link in and between many of the region's trophic systems, feeding on pelagic phytoplankton and zooplankton and providing a food source for a wide variety of predators including large pelagic fishes, sharks, seabirds and marine mammals (Bulman, 2006; Mackie *et al.*, 2007). Large pelagic fishes, such as tuna, mackerel, swordfish, sailfish and marlin, are found mainly in oceanic waters and occasionally on the continental shelf (Brewer *et al.*, 2007). Both juvenile and adult phases of the large pelagic species are highly mobile and have a wide geographic distribution, although the juveniles more frequently inhabit warmer or coastal waters (DEWHA, 2008).

5.4.2 Listed Fish Species in the NWMR

The family Syngnathidae is a group of bony fishes that includes seahorses, pipefishes, pipehorses and seadragons. Along with syngnathids, members of the related Solenostomidae family (ghost pipefishes) are also found in the NWMR (DSEWPAC, 2012a).

There are 44 solenostomid and syngnathid species that are listed marine species that may occur within the NWMR, although no species is currently listed as threatened or migratory, according to the PMST report (**Appendix A**).

Syngnathids live in nearshore and inner shelf habitats, usually in shallow coastal waters, among seagrasses, mangroves, coral reefs, macroalgae dominated reefs, and sand or rubble habitats (Dawson, 1985; Lourie *et al.*, 1999, Lourie *et al.*, 2004; Vincent, 1996). Two species, the winged seahorse (*Hippocampus alatus*) and western pipehorse (*Solegnathus sp. 2*) have been identified in deeper waters of the NWMR (up to 200 m) (DSEWPAC, 2012a), however, these species were not identified by the Protected Matters search of the NWMR.

Knowledge about the distribution, abundance and ecology of both syngnathids and solenostomids in the NWMR is limited. No BIAs for syngnathids and solenostomids have been identified in the NWMR.

5.4.3 Browse

The proposed Browse activity area includes biologically important habitat for the whale shark and three sawfish species:

- whale shark (foraging northward from Ningaloo along the 200 m isobath (July – Nov),
- freshwater sawfish (pupping, nursing and foraging areas),
- green sawfish (pupping, nursing and foraging areas); and
- dwarf sawfish (pupping, nursing and foraging areas).

BIAs for the shark and sawfish species are outlined in **Table 5-4** and **Figure 5-1**.

The proposed Browse activity area has partial overlap with the Continental slope demersal fish communities KEF.

5.4.4 NWS / Scarborough

The NWS / Scarborough activity area includes biologically important habitat for the whale shark and three sawfish species:

- whale shark (foraging northward from Ningaloo along the 200 m isobath (July – Nov),
- freshwater sawfish (pupping, nursing and foraging areas),
- green sawfish (pupping, nursing and foraging areas); and
- dwarf sawfish (pupping, nursing and foraging areas).

BIAs for the whale shark and sawfish species are outlined in **Table 5-4** 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).

5.4.5 North-west Cape

The North-west Cape activity area includes biologically important foraging habitat for the whale shark:

- whale shark, including:
 - Foraging (high density) in Ningaloo Marine Park and adjacent Commonwealth waters (March–July); and
 - Foraging northward from Ningaloo along the 200 m isobath (July – Nov).

BIAs for the whale shark are outlined in **Table 5-4** 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.

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.

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. Nineteen (19) listed sea snake species are known to occur in the NMR, as reported in the Protected Matters search (**Appendix A**).

There are significantly fewer marine reptile species that frequently occur within the SWMR and presently include three species of listed marine turtle and one sea snake species. Other species of sea snake may occur because of the southward-flowing Leeuwin Current, as vagrants in the region (DSEWPAC, 2012b).

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 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 as potentially occurring within or utilising habitats in the NWMR for key life cycle stages

Species Name	Common Name	Environment Protection and Biodiversity Conservation Act 1999			WA Biodiversity Conservation Act 2016	EPBC Act Part 13 Statutory Instrument
		Threatened Status	Migratory Status	Listed	Conservation Status	
<i>Caretta caretta</i>	Loggerhead turtle	Endangered	Migratory	Marine	Endangered	Recovery Plan for Marine Turtles in Australia 2017-2027 (Commonwealth of Australia, 2017)
<i>Chelonia mydas</i>	Green turtle	Vulnerable	Migratory	Marine	Vulnerable	
<i>Dermochelys coriacea</i>	Leatherback turtle	Endangered	Migratory	Marine	Vulnerable	
<i>Eretmochelys imbricata</i>	Hawksbill turtle	Vulnerable	Migratory	Marine	Vulnerable	
<i>Natator depressus</i>	Flatback turtle	Vulnerable	Migratory	Marine	Vulnerable	
<i>Lepidochelys olivacea</i>	Olive ridley turtle	Endangered	Migratory	Marine	Vulnerable	
<i>Aipysurus apraefrontalis</i>	Short-nosed sea snake	Critically endangered	N/A	Marine	Critically endangered	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	Approved Conservation Advice for <i>Aipysurus foliosquama</i> (Leaf-scaled Sea Snake) (DSEWPAC, 2011b)
<i>Crocodylus porosus</i>	Salt-water crocodile	N/A	Migratory	Marine	Other protected fauna	N/A

6.2 Marine Turtles in the NWMR

According to the Protected Matters search (**Appendix A**) 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*) turtle (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.

Three marine turtle species; the green, loggerhead, 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. Majority of their lives are spent in the ocean, but the adult female marine turtles will come ashore to lay eggs in the sand above the high water mark on natal beaches (Commonwealth of Australia, 2017). **Figure 6-1** summarises the generalised life cycle of marine turtles. Species-specific life cycle information is outlined within the Recovery Plan for Marine Turtles of Australia (Commonwealth of Australia, 2017).

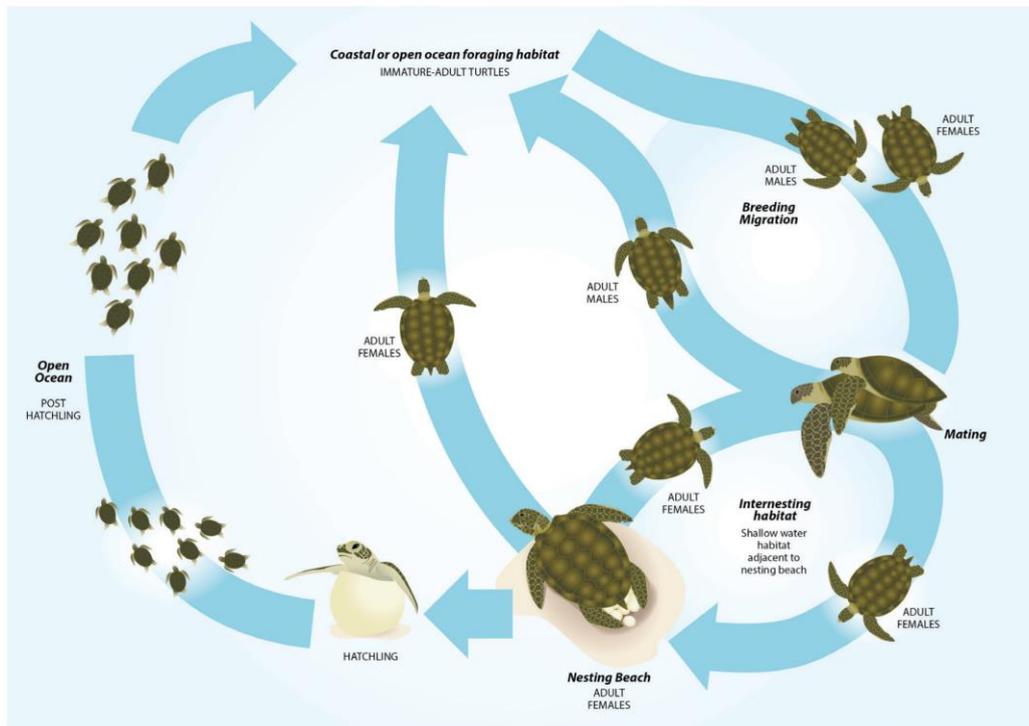


Figure 6-1 Generalised life cycle of marine turtles (Commonwealth of Australia, 2017)

6.2.2 Habitat Critical to Survival for Marine Turtles in the NWMR

The Recovery Plan for Marine Turtles of Australia (Commonwealth of Australia, 2017) identifies habitat critical to the survival of a species for marine turtle stocks under the EPBC Act. Habitat critical to survival is defined by the EPBC Act *Significant Impact Guidelines 1.1 – Matters of National Environmental Significance* as areas necessary:

- for activities such as foraging, breeding or dispersal;
- for the long-term maintenance of the species (including the maintenance of species essential to the survival of the species);
- to maintain genetic diversity and long term evolutionary development; and
- for the reintroduction of populations or recovery of the species.

The Recovery Plan for Marine Turtles of Australia (Commonwealth of Australia, 2017) has identified nesting locations and associated internesting areas as habitat critical to survival for four marine turtle species within the NWMR and these are identified, described and mapped in **Table 6-2** and **Figure 6-2**. No habitat critical to survival has been identified within the NWMR for olive ridley or leatherback turtles.

Table 6-2 outlines the relevant genetic stock, habitat critical to survival and key life cycle stage seasonality of the four species of marine turtles within the NWMR.

Table 6-2 Genetic stock, habitat critical to survival and key life cycle stage seasonality of the four species of marine turtles within the NWMR

Species	Woodside Activity Area			Habitat Critical to Survival			
	Browse	NWS/S	NWC	Nesting (* Major Rookery ¹)	Internesting Buffer	Seasonality-Nesting	Preferred Habitat ²
Green Turtle							
NWS Stock (G-NWS)	✓	✓	✓	Adele Island Maret Island Cassini Island Lacepede Islands* Barrow Island* Montebello Islands (all with sandy beaches)* Serrurier Island Dampier Archipelago Thevenard Island Northwest Cape* Ningaloo coast	20 km radius	Nov-Mar	Nearshore reef habitats in the photic zone.
Ashmore Reef Stock (G-AR)	✓	-	-	Ashmore Reef* Cartier Reef*		All year (peak: Dec-Jan)	
Scott Reef-Browse Island Stock (G-ScBr)	✓	-	-	Scott Reef (Sandy Islet)* Browse Island*		Nov-Mar	
Hawksbill Turtle							
Western Australia Stock (H-WA)	-	✓	-	Dampier Archipelago (including Rosemary Island and Delambre Island)* Montebello Islands (including Ah Chong Island, South East Island and Trimouille Island)* Lowendal Islands (including Varanus Island, Beacon Island and Bridled Island) Sholl Island	20 km radius	Oct-Feb	Nearshore and offshore reef habitats.

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Species	Woodside Activity Area			Habitat Critical to Survival			
	Browse	NWS/S	NWC	Nesting (* Major Rookery ¹)	Internesting Buffer	Seasonality-Nesting	Preferred Habitat ²
Flatback Turtle							
Cape Domett Stock (F-CD)	✓	-	-	Cape Domett* Lacrosse Island	60 km radius	All year (peak: Jul-Sep)	Nearshore and offshore sub-tidal and soft bottomed habitats of offshore islands.
South-west Kimberley Stock (F-swKim)	-	✓	-	Eighty Mile Beach* Eco Beach* Lacepede Islands		Oct-Mar	
Pilbara Stock (F-Pil)	-	✓	-	Montebello Islands Mundabullangana Beach* Barrow Island* Cemetery Beach Dampier Archipelago (including Delambre Island* and Huay Island) Coastal islands from Cape Preston to Locker Island		Oct-Mar	
Unknown genetic stock Kimberley, Western Australia	✓	✓	-	Maret Islands Montilivet Islands Cassini Island Coronation Islands (includes Lamarck Island) Napier-Broome Bay Islands (West Governor Island, Sir Graham Moore Island – near Kalumbaru) Champagny, Darcy and Augustus Islands (Camden Sound)		May-July	

Species	Woodside Activity Area			Habitat Critical to Survival			
	Browse	NWS/S	NWC	Nesting (* Major Rookery ¹)	Interesting Buffer	Seasonality-Nesting	Preferred Habitat ²
Loggerhead Turtle							
Western Australia Stock (LH-WA)	-	-	✓	Dirk Hartog Island* Muiron Islands* Gnaraloo Bay* Ningaloo coast	20 km radius	Nov-May	Nearshore and island coral reefs, bays and estuaries in tropical and warm temperate latitudes.

¹ Major rookeries as outlined in the Recovery Plan (Commonwealth of Australia, 2017)

² Preferred habitat as outlined in the Recovery Plan (Commonwealth of Australia, 2017)

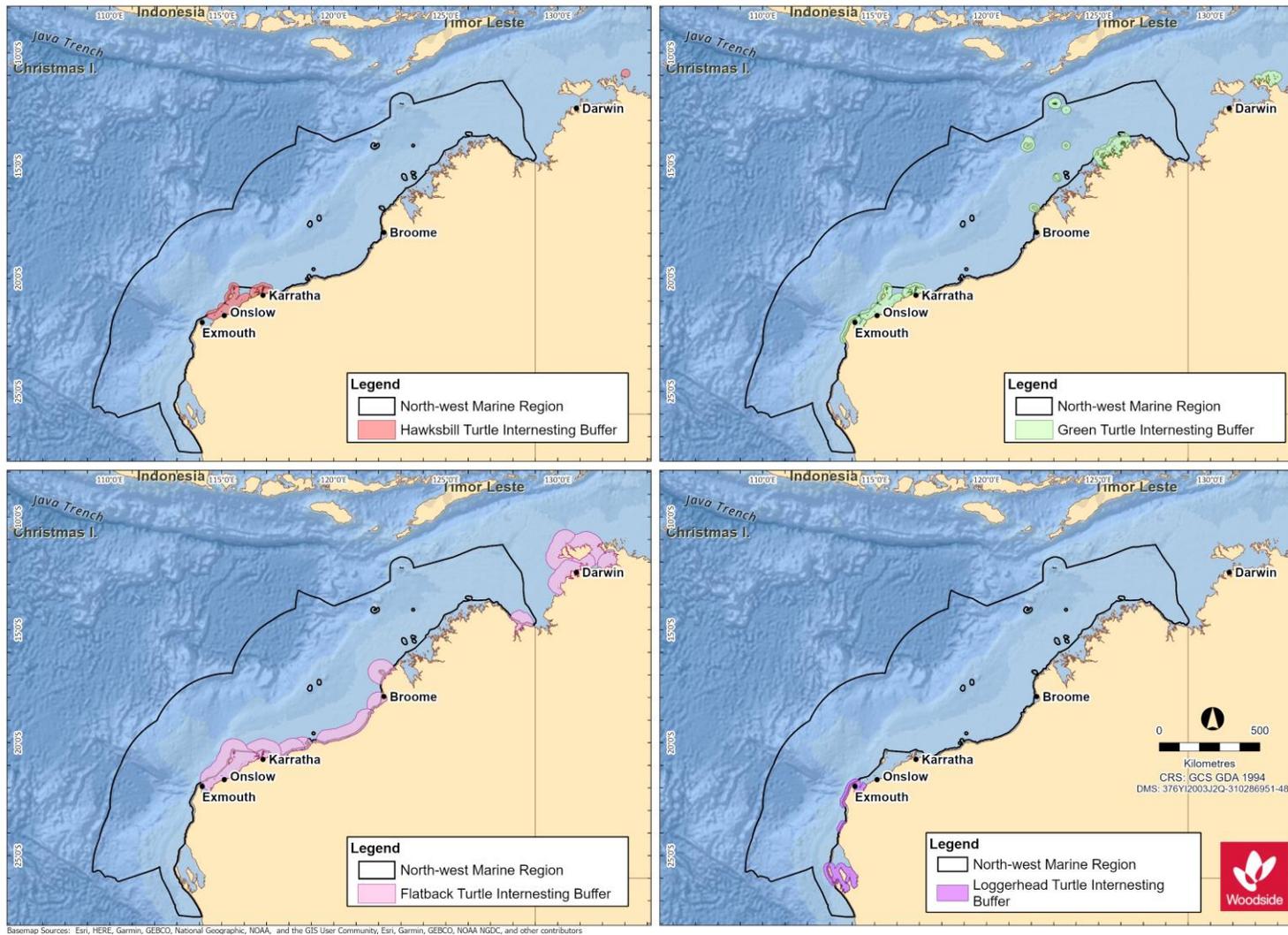


Figure 6-2 Marine turtle species habitat critical to survival (nesting beaches and interning buffers) for the NWMR

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6.3 Marine Turtle Biological Important Areas in the NWMR

A review of the National Conservation Values Atlas (DAWE, 2020²) identified BIAs for the four marine turtle species that occur within the NWMR. These are described in **Table 6-3**. Note that nesting and interesting BIAs are not listed in **Table 6-3** as they are defined as in the Recovery Plan as habitat critical to survival for marine turtles nesting beaches and interesting areas (refer **Table 6-2**).

² <http://www.environment.gov.au/webgis-framework/apps/ncva/ncva.jsf>

Table 6-3 Marine turtle BIAs within the NWMR

Species	Woodside Activity Area			BIAs		
	Browse	NWS/S	NWC	Mating	Foraging	Migration ³
Green turtle	✓	✓	✓	No mating BIA identified within the NWMR.	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 Foraging in waters adjacent to James Price Point	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 <i>et al.</i> , 1992). Ferreira <i>et al.</i> (2021) broadly identified two migratory corridors, one used by the NWS stock-Pilbara and another used by the NWS stock-Kimberley and the Scott-Browse stock with some overlap at the northern and southern extents respectively. This study showed that the foraging distribution of green turtles from two stocks in WA expands throughout north-west and northern Australian coastal waters, including the NT and Queensland.
Hawksbill turtle	✓	✓	✓	No mating BIA identified within the NWMR.	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	Individuals may migrate up to 2400 km between their nesting and foraging grounds (DSEWPAC, 2012a).

³ Migration BIA does not exist for Marine Turtles – general information provided.

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Species	Woodside Activity Area			BIAs		
	Browse	NWS/S	NWC	Mating	Foraging	Migration ³
					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	
Flatback turtle	✓	✓	-	Lacepede Islands Mating at Montebello Islands Mating at Dampier Archipelago (islands to the west of the Burrup Peninsula) Mating at Barrow Island A year-round internesting buffer biologically important area (BIA) of 80 km is located north and north-west of the Montebello Islands, extending 20 km further than the habitat critical to survival. However, use level for this BIA has been defined as very low (Commonwealth of Australia, 2017) and the habitat critical to survival internesting buffer is the legally recognised area of protection under the EPBC Act <i>Significant Impact Guidelines 1.1 – Matters of National Environmental Significance</i> Refer to the Marine Bioregional Plan for the North-west Marine Region (DSEWPAC, 2012a) for locations of seasonal 80 km internesting buffer BIAs for flatback turtles	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	There is evidence that some flatback turtles undertake long-distance migrations between breeding and feeding grounds (Limpus <i>et al.</i> , 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).

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Species	Woodside Activity Area			BIAs		
	Browse	NWS/S	NWC	Mating	Foraging	Migration ³
Loggerhead turtle	✓	✓	-	No mating BIA identified within the NWMR	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	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, 2012).
Olive ridley turtle	✓	✓	-	No mating BIA identified within the NWMR	Foraging in the Western Joseph Bonaparte Depression and Gulf Foraging in the Dampier Archipelago (islands to the west of the Burrup Peninsula)	Migration routes and distances between nesting beaches and foraging areas are not known for Australian olive ridley turtles.

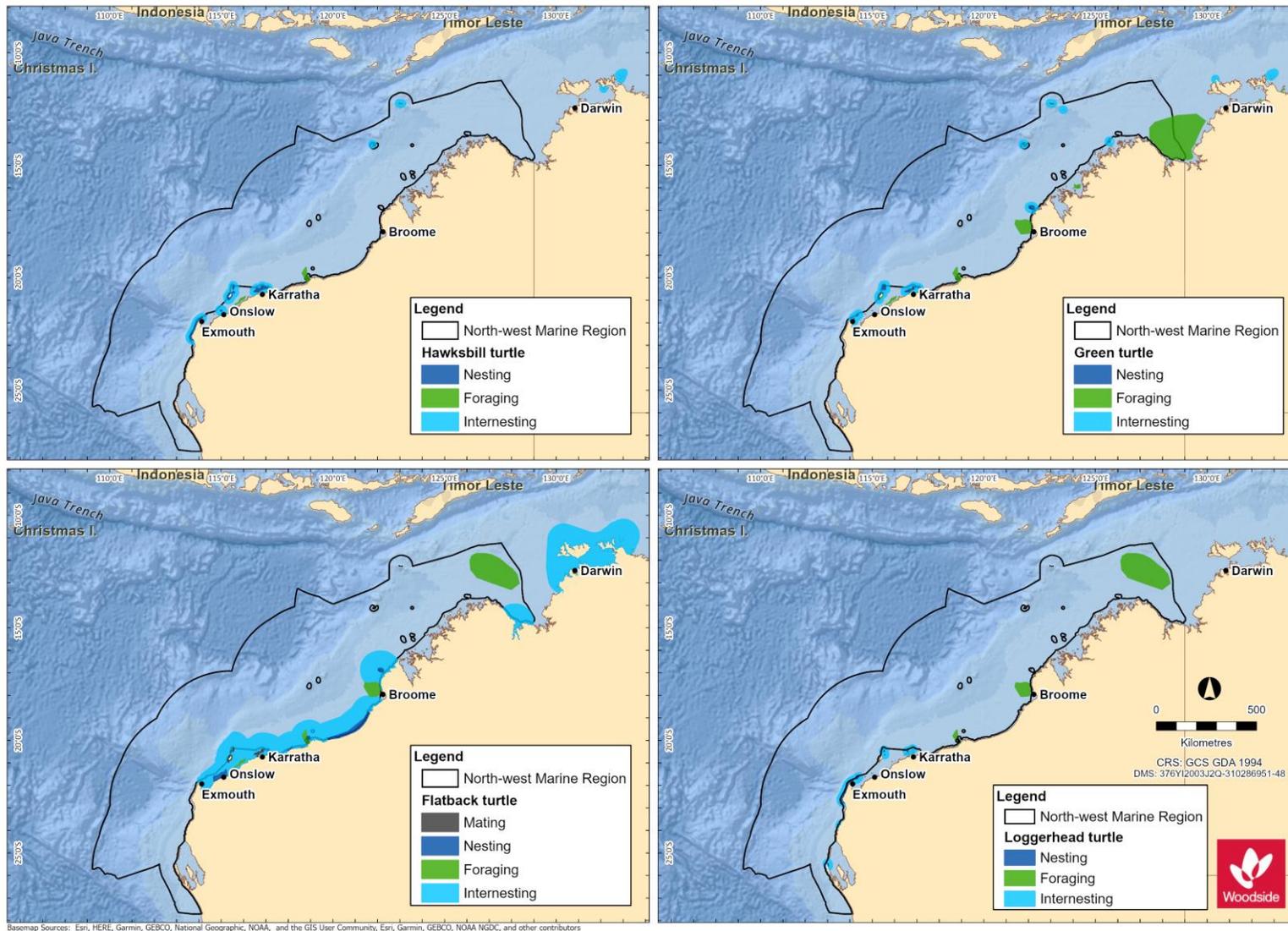


Figure 6-3 Marine turtle species BIAS within the NWMR

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6.4 Marine Turtle Summary for NWMR

Six of the seven marine turtle species occur within the Woodside activity areas. Across all three areas, globally significant breeding populations of four marine turtle species; the green, hawksbill, flatback and loggerhead turtle, have been recorded.

However, offshore waters do not represent biologically important habitat for marine turtles in any of the three Woodside activity areas. Isolated records of transient individuals (on post-nesting migration) are expected, but there is no evidence of important habitat or behaviours for marine turtles in offshore, open water environment of the NWS, in general.

6.4.1 Browse

The proposed Browse activity area includes major nesting areas that support globally significant breeding populations of two marine turtle species:

- the green turtle, including two distinct genetic stocks (Ashmore Reef and Scott Reef-Browse Island); and
- the flatback turtle, Cape Domett genetic stock.

Locations of habitat critical for each of the two species are outlined in **Table 6-2** and **Figure 6-2**.

BIAs for the green and flatback turtle are outlined in **Table 6-3** and **Figure 6-3**.

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 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 <i>et al.</i>, 2021).</p>

Species / Genetic Stock	Key Information
Flatback Turtle	
Cape Domett Stock (F-CD)	<p>Cape Domett is an important high density nesting area. 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 <i>et al.</i>, 2008).</p> <p>Designated habitat critical for the F-CD stock are the nesting locations of Cape Domett and Lacrosse Island, and an interesting buffer of 60 km radius around these rookeries, year-round with peak interesting activity occurring July to September.</p> <p>Extending further than the habitat critical interesting buffer, an interesting 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 discreet genetic stocks:

- the green turtle, NWS genetic stock;
- the hawksbill turtle, WA genetic stock; and
- the flatback turtle, South-west Kimberley stock and Pilbara genetic stocks.

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 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 G-NWS stock within the NWS / Scarborough activity area are located at Barrow 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, November to March.</p>
Hawksbill Turtle	
Western Australia Stock (H-WA)	<p>The H-WA stock is the largest in the Indian Ocean. The majority of the nesting for this stock is located in the Pilbara. The Dampier Archipelago has the largest nesting aggregation recorded. In particular, Rosemary Island supports the most significant hawksbill turtle rookery in the WA region and one of the largest in the Indian Ocean; approximately 500-1000 females nest on the island annually, more than at any other WA rookery (Pendoley, 2005; Pendoley <i>et al.</i>, 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, 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, October to March.</p>

Species / Genetic Stock	Key Information
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. This stock nests on many islands in the Pilbara and southern Kimberley, with major rookeries at Mundabullangana Beach, Delambre 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, October to March.</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).</p>

6.4.3 North-west Cape

The North-west Cape activity area includes major nesting areas that support globally significant breeding populations of two marine turtle species, representing two discreet genetic stocks:

- the green turtle, NWS genetic stock; and
- the loggerhead turtle, Western Australia genetic stock.

Locations of habitat critical for each of the two species are outlined in **Table 6-2** and **Figure 6-2**.

BIAs for the green and loggerhead turtles are outlined in **Table 6-3** and **Figure 6-3**.

A 2018 survey, including on-beach monitoring of the Muiron Islands and Ningaloo Coast from North-west Cape to Bungelup (Rob *et al.*, 2019), supports the concept that North-west Cape and the Muiron Islands are major important nesting areas for green and loggerhead turtles, as identified in the Recovery Plan (Commonwealth of Australia, 2017).

Table 6-6 Marine turtle key information for North-west Cape activity area

Species / Genetic Stock	Key Information
Green Turtle	
NWS Stock (G-NWS)	<p>The G-NWS stock is one of the largest green turtle stocks in the world and the largest in the Indian Ocean. The G-NWS stock is estimated at approximately 20,000 individuals (DSEWPAC, 2012a) and the trend for the stock is reported as stable (Commonwealth of Australia, 2017).</p> <p>There is one major rookery of the G-NWS stock located within the North-west Cape activity area. Located on the mainland coast of the North-west Cape, this area is designated habitat critical for the stock and includes an interesting buffer of 20 km radius around the rookery, November to March.</p>
Loggerhead Turtle	
Western Australia Stock (LH-WA)	<p>The LH-WA stock is one of the largest in the world (Limpus, 2009). The trend for the stock is reported as stable (Commonwealth of Australia, 2017).</p> <p>Major rookeries of the LH-WA stock are located at Dirk Hartog Island, Muiron Islands and Gnaraloo Bay. These areas are designated habitat critical for the stock and include an interesting buffer of 20 km radius around these rookeries, 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 <i>et al.</i>, 2019).</p>

6.5 Sea Snakes

Sea snakes are commonly found in the NWMR and NMR, but less so in the SWMR, and occupy three broad habitat types: shallow water coral reef and seagrass habitats, deepwater soft bottom habitats away from reefs, and surface water pelagic habitats (Guinea, 2007a).

There are 25 listed species of sea snake reported within or adjacent to the NWMR (Guinea, 2007a; Udyawer *et al.*, 2016), of which four are endemic to reef habitats in the remote parts of the region:

- dusky sea snake (*Aipysurus fuscus*);
- large headed sea snake (*Hydrophis pacificus*);
- short-nosed sea snake (*Aipysurus apraefrontalis*); and
- leaf-scaled sea snake (*Aipysurus foliosquama*).

The short-nosed sea snake and the leaf-scaled sea snake are listed threatened species (Critically Endangered) under the EPBC Act (**Table 6-7**).

There is currently limited knowledge about the ranges and distribution patterns of sea snake species in the NWMR, in addition to a lack of understanding of population status and threats. Recent findings of *A. apraefrontalis* and *A. foliosquama* in locations outside of their previously defined ranges have highlighted the lack of information on species distributions in the NWMR (Udyawer *et al.*, 2016). Udyawer *et al.* (2020) used a correlative modelling approach to understand habitat associations and identify suitable habitats for five sea snake species (*A. apraefrontalis*, *A. foliosquama*, *A. fuscus*, *A. l. pooleorum* and *A. tenuis*). Species-specific habitat suitability was modelled across 804,244 km² of coastal waters along the NWS, and the resulting habitat suitability maps enabled the identification of key locations of suitable habitat for these five species (refer **Table 6-6**).

No habitat critical to survival or BIAs for sea snake species have been identified in the NWMR. While the Ashmore Reef and Cartier Island AMPs have been recognised for their high diversity and density of sea snakes (DSEWPAC, 2012a), surveys have revealed a steep decline in sea snake numbers at Ashmore Reef (Guinea, 2007b; Lukoschek *et al.*, 2013). Leaf-scaled and short-nosed sea snakes have been absent from surveys at Ashmore Reef since 2001, despite an increase in survey intensity (Guinea, 2006, 2007b; Guinea and Whiting, 2005; Lukoschek *et al.*, 2013). The reason for the decline is unknown.

Table 6-7 Information on the two threatened sea snake species within the NWMR

Species	Preferred Habitat and Diet	Habitat Location
Short-nosed sea snake	Preferred habitat: Primarily on the reef flats or in shallow waters of the outer reef edges to depths of 10 m (Minton <i>et al.</i> , 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, Muiron Islands, Montebello Islands (Udyawer <i>et al.</i> , 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 <i>et al.</i> , 2020).

6.6 Crocodiles

The salt-water crocodile (*Crocodylus porosus*) is a listed migratory species under the EPBC Act known to occur within the NWMR. The species is found in most major river systems of the Kimberley, including the Ord, Patrick, Forrest, Durack, King, Pentecost, Prince Regent, Lawley, Mitchell, Hunter, Roe and Glenelg rivers. The largest populations occur in the rivers draining into the Cambridge Gulf and the Prince Regent River and Roe River systems. There have also been isolated records in rivers of the Pilbara region, around Derby near Broome and as far south as Carnarvon on the mid-west coast.

No BIAs for salt-water crocodile have been identified in the NWMR.

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, 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 also support significant populations of dugong (DSEWPAC, 2012a, c).

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 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. However, there is little knowledge of the seasonal movements, migrations and breeding seasonality for many of the marine mammal species in the NMR due to lack of extensive surveys (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 as occurring within the NWMR

Species Name	Common Name	Environment Protection and Biodiversity Conservation Act 1999			WA Biodiversity Conservation Act 2016	EPBC Act Part 13 Statutory Instrument
		Threatened Status	Migratory Status	Listed	Conservation Status	
Cetaceans - Mysticeti						
<i>Balaenoptera musculus</i>	Blue whale	Endangered	Migratory	Cetacean	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	Conservation Management Plan for the Southern Right Whale: A Recovery Plan under the <i>Environment Protection and Biodiversity Conservation Act 1999</i> 2011-2021 (DSEWPAC, 2012d)
<i>Balaenoptera borealis</i>	Sei whale	Vulnerable	Migratory	Cetacean	Endangered	Conservation Advice <i>Balaenoptera borealis</i> sei whale (Threatened Species Scientific Committee, 2015a)
<i>Megaptera novaeangliae</i>	Humpback whale	Vulnerable	Migratory	Cetacean	Conservation dependent	Conservation Advice <i>Megaptera novaeangliae</i> humpback whale (Threatened Species Scientific Committee, 2015b)
<i>Balaenoptera physalus</i>	Fin whale	Vulnerable	Migratory	Cetacean	Endangered	Conservation Advice <i>Balaenoptera physalus</i> fin whale (Threatened Species Scientific Committee, 2015c)
<i>Balaenoptera edeni</i>	Bryde's whale	N/A	Migratory	Cetacean	N/A	N/A
<i>Balaenoptera bonaerensis</i>	Antarctic minke whale	N/A	Migratory	Cetacean	N/A	N/A
Cetaceans - Odontoceti						
<i>Physeter macrocephalus</i>	Sperm whale	N/A	Migratory	Cetacean	Vulnerable	N/A
<i>Orcinus orca</i>	Killer whale	N/A	Migratory	Cetacean	N/A	N/A
<i>Orcaella heinsohni</i>	Australian snubfin dolphin	N/A	Migratory	Cetacean	Priority	N/A
<i>Sousa chinensis</i>	Indo-Pacific humpback dolphin	N/A	Migratory	Cetacean	Priority	N/A

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Species Name	Common Name	Environment Protection and Biodiversity Conservation Act 1999			WA Biodiversity Conservation Act 2016	EPBC Act Part 13 Statutory Instrument
		Threatened Status	Migratory Status	Listed	Conservation Status	
<i>Tursiops aduncus</i>	Spotted bottlenose dolphin (Arafura/Timor Sea populations)	N/A	Migratory	Cetacean	N/A	N/A
Sirenians and Pinnipeds						
<i>Dugong dugon</i>	Dugong	N/A	Migratory	Marine	Other protected fauna	N/A
<i>Neophoca cinerea</i>	Australian sea lion	Endangered	N/A	Marine	Vulnerable	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 areas, characterised by high productivity, and migration routes associated with reproductive patterns. The NWMR is thought to be an important migratory pathway between feeding grounds in the Southern Ocean and breeding grounds in tropical waters for several cetacean species (DSEWPAC, 2012a).

From the Protected Matters search, 34 EPBC Act listed species were recorded as potentially occurring or having habitat within the NWMR (**Appendix A**). 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.

There are a number of BIAs for dugong within and adjacent to waters of the NWMR (refer **Section 7.5**).

7.4 Pinnipeds in the NWMR

The Australian sea lion is listed as a species that may occur, or may have habitat within the NWMR (Protected Matters search - **Appendix A**). 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.

Table 7-2 Information on the threatened/migratory marine mammal species within the NWMR

Species	Key Information
Baleen whales (Mysticeti)	
Humpback whale	<p>In Australian waters two genetically distinct populations migrate annually along the west (Group IV) and east coasts (Group V) between May and November. In WA, the migration pathway for the Group IV population (also known as Breeding Stock D) extends from Albany to the Kimberley coastline, passing through the NWMR (Threatened Species Scientific Committee, 2015b). Since the 1982 moratorium on commercial whaling population numbers have recovered significantly; from approximately 2000 to 3000 individuals in 1991, to between 19,200–33,850 individuals in 2008 (Bannister and Hedley, 2001; Bejder <i>et al.</i>, 2019; Hedley <i>et al.</i>, 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 (CI 20,152–33,272) in 2008 (Salgado Kent <i>et al.</i>, 2012). Current population growth for the Group IV population is estimated to be between 9.7 and 13% per annum (Threatened Species Scientific Committee, 2015b). Using the Salgado-Kent <i>et al.</i> (2012) estimate of 26,100 individuals and an annual population growth rate of ~10%, current population size could be in excess of 75,000 individuals (Woodside, 2019).</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, around the time of breeding and calving (typically August to 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). There are reports of neonates further south, suggesting that the calving areas may be poorly defined. Aerial photogrammetric surveys in 2013 and 2015 recorded large numbers of humpback whale calves along North-west Cape, with estimated minimum relative calf abundance of 463–603 in 2013 and 557–725 in 2015 (Irvine <i>et al.</i>, 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, 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 <i>et al.</i>, 2018).</p> <p>There are BIAs for migration and breeding and calving for the humpback whale along the WA coast and within the NWMR (refer Table 7-3 and Figure 7-1).</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, nearly all blue whales sighted in the NWMR are likely to be pygmy blue whales.</p> <p>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). 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 <i>et al.</i> (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, 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; and a 'northbound migratory stage' (April to August) where animals travel north back to Indonesia again.</p> <p>There are 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 <i>et al.</i> (2008) (based on photographic mark and recapture) calculated between 712 and 1754 individuals, but both estimates did not account for animals</p>

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Species	Key Information
	<p>travelling further west into the Indian Ocean (McCauley <i>et al.</i>, 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 of the south-eastern Australia and may not reflect the full population but does imply an increasing population (McCauley <i>et al.</i>, 2018).</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 <i>et al.</i>, 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>Refer Table 7-3 and Figure 7-2 for the location and type of BIAs for blue whales in the NWMR. There is a migratory BIA for the pygmy blue whale within WA waters, which extends for most of the length of the NWMR within offshore waters.</p>
Bryde's whale	<p>The Bryde's whale is the least migratory of its genus and is restricted geographically from the equator to approximately 40°N and S, or the 20° isotherm (Bannister <i>et al.</i>, 1996). The species is known to exhibit inshore and offshore forms in other international locations that vary in morphology and migratory behaviours (Bannister <i>et al.</i>, 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 <i>et al.</i>, 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 (2011) 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, 2011).</p> <p>There are no identified BIAs for this species in the National Conservation Values Atlas.</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 <i>et al.</i>, 1996). Southern right whales aggregate in calving areas along the south coast of WA outside of the NWMR. However, there have been sightings in waters of the NWMR as far north as Ningaloo (Bannister and Hedley, 2001), and a stranding record exists for the far north Kimberley coast (ALA, 2020). Southern right whale calving grounds are found at mid to lower latitudes and are occupied during the austral winter and early-mid spring. They are regularly present on the southern Australian coast from about mid-May to mid-November, and peak periods for mating are from mid-July through August. Mating occurs within these breeding grounds as evidenced by many observations of intromission and mating behaviours. Southern right whales in south-western Australia appear to be increasing at the maximum biological rate but there is limited evidence of increase in south-eastern Australian waters (DSEWPAC, 2012d).</p> <p>There are no identified BIAs for this species in the NWMR.</p>
Antarctic minke whale	<p>The Antarctic minke whale is distributed worldwide and has been recorded off all Australian states (but not in the NT), feeding in cold waters and migrating to warmer waters to breed. It is thought that the Antarctic minke whale migrates up the WA coast to about 20°S to feed and possibly breed (Bannister <i>et al.</i>, 1996); however, detailed information about timing and location of migrations and breeding grounds within the NWMR is not well 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.</p> <p>There are no identified BIAs for this species in the National Conservation Values Atlas.</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 <i>et al.</i>, 1996; Prieto <i>et al.</i>, 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 <i>et al.</i>, 2012), and exhibits a migration pathway influenced by seasonal feeding and breeding patterns. Sei whales have been infrequently recorded in Australian waters (Bannister <i>et al.</i>, 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</p>

Species	Key Information
	<p>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 National Conservation Values Atlas.</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 <i>et al.</i>, 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 <i>et al.</i>, 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 are from stranding events.</p> <p>Fin whales have been recorded vocalising off the Perth Canyon, WA, between January and April 2000 (McCauley <i>et al.</i>, 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. A recent study by Aulich <i>et al.</i> (2019) 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 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 way-station for feeding (Aulich <i>et al.</i>, 2019). Some whales were found to continue migrating as far north as Dampier (Aulich <i>et al.</i>, 2019).</p> <p>There are no identified BIAs for this species in the National Conservation Values Atlas.</p>
Toothed whales (Odontoceti)	
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 <i>et al.</i>, 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 <i>et al.</i>, 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 <i>et al.</i>, 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 (23) sightings of sperm whales (variable pod sizes, ranging from one to six animals) were recorded by marine mammal observers (MMOs) during the North West Cape MC3D marine seismic survey (December 2016 to April 2017) (Woodside, 2020). These animals were observed in deep, continental slope 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>There are no identified BIAs for this species in the NWMR.</p>
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 <i>et al.</i>, 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</p>

Species	Key Information
	<p>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 <i>et al.</i>, 1996). Killer whales are known to target humpback whales, particularly calves, off Ningaloo Reef during the humpback southern migration season (Pitman <i>et al.</i>, 2015). Overall, observations suggest that humpback calves are a predictable, plentiful, and readily taken prey source for killer whales off Ningaloo Reef for at least five months of the year. Additionally, there are records of killer whales attacking dugongs in Shark Bay (Anderson and Prince, 1985). However, there are no recognised key localities or important habitats for killer whales within the NWMR (DSEWPAC, 2012a). There are no identified BIAs for this species in the NWMR.</p>
Australian snubfin dolphin	<p>Stranding and museum specimen records indicate that Australian snubfin dolphins occur only in waters off northern Australia, from approximately Broome on the west coast to the Brisbane River on the east coast (Parra <i>et al.</i>, 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 <i>et al.</i>, 2006; Parra <i>et al.</i>, 2002). Within the NWMR, 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 <i>et al.</i>, 2012). A first comprehensive catalogue of snubfin dolphin sightings has been compiled for the Kimberley, north-west Western Australia (Bouchet <i>et al.</i> 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. Refer Table 7-3 and Figure 7-3 for the location and type of BIAs for Australian snubfin dolphins in the NWMR.</p>
Indo-Pacific humpback dolphin (Australian humpback dolphin)	<p>Previously included with <i>Sousa chinensis</i>, the Australian humpback dolphin (<i>S. sahalensis</i>) was elevated to a species in 2014. <i>S. chinensis</i> is now applied for humpback dolphins in the eastern Indian and western Pacific Oceans and <i>S. sahalensis</i> for humpback dolphins in the waters of the Sahul Shelf from northern Australia to southern New Guinea (Jefferson and Rosenbaum, 2014). The Australian humpback dolphin is listed as <i>S. chinensis</i> under 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 <i>et al.</i>, 2016). Allen <i>et al.</i> (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 <i>et al.</i>, 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 <i>et al.</i>, 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 <i>et al.</i>, 2017).</p> <p>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 <i>et al.</i>, 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 <i>et al.</i>, 2016).</p> <p>Refer Table 7-3 and Figure 7-4 for the location and type of BIAs for Indo-Pacific humpback dolphins in the NWMR.</p>
Indo-Pacific bottlenose dolphin (Spotted bottlenose dolphin)	<p>There are four known sub-populations of spotted bottlenose dolphins, of which the Arafura/Timor Sea populations were identified as potentially occurring within the NWMR. The species is restricted to inshore areas such as bays and estuaries, nearshore waters, open coast environments, and shallow offshore waters including coastal areas around oceanic islands, from Shark Bay to the western edge of the Gulf of Carpentaria. The species</p>

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Species	Key Information
	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. Refer Table 7-3 the location and type of BIAs for spotted bottlenose dolphins in the NWMR.
Sirenians	
Dugong	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 <i>et al.</i> , 2002]); and Eighty Mile Beach and the Kimberley coast, including Roebuck Bay (Brown <i>et al.</i> , 2014). Dugong distribution is correlated with the seagrass habitats upon which it feeds, although water temperature has also been correlated with dugong movements and distribution (Preen <i>et al.</i> , 1997; Preen, 2004). Dugongs are known to migrate between seagrass habitats (hundreds of kilometres) (Sheppard <i>et al.</i> , 2006), and in Shark Bay they exhibit seasonal movements as a behavioural thermoregulatory response to winter water temperatures (Holley <i>et al.</i> , 2006; Marsh <i>et al.</i> , 2011). Aerial surveys since the mid-1980s indicate that dugong populations are now stable at a regional scale in Shark Bay and in the Exmouth/Ningaloo Reef. Refer Table 7-3 and Figure 7-5 for the location and type of BIAs for dugong in the NWMR.
Pinnipeds	
Australian sea lion	<p>The Australian sea lion is the only endemic pinniped (true seals, fur seals and sea lions) in Australian waters. It is a member of the Otariidae (eared seals) family. The birth interval in Australian sea lions is around 17–18 months. The Australian sea lion is unique among pinnipeds in being the only species that has a non-annual breeding cycle that is also temporally asynchronous across its range (DSEWPAC, 2013a; Threatened Species Scientific Committee, 2020a). This means the breeding period (copulation and birthing) in one colony will occur at different times to breeding in another colony. The Australian sea lion is considered to be 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 7-6 shows the foraging BIAs for the Australian sea lion to the south of the NWMR.</p>

7.5 Biological Important Areas in the NWMR

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	Breeding	Calving	Migration
Humpback whale ¹	✓	✓	✓	Shark Bay Exmouth Gulf (north migration – early June) (south migration – late Aug to Oct) Southern Kimberley region	No foraging BIA identified within the NWMR	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 ^{1 2}	✓	✓	✓	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)
Australian snubfin dolphin ¹	✓	✓	-	No resting BIA identified within the NWMR	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 Vansittart Bay Anjo Peninsula Napier	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	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	No migration BIA identified within the NWMR

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Species	Woodside Activity Area			BIAs				
	Browse	NWS/S	NWC	Resting	Foraging	Breeding	Calving	Migration
					Broome Bay Deep Bay Prince Regent River King George River Cape Londonderry Ord River	Ord River	King George River Cape Londonderry Ord River	
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 Cambridge Gulf Camden Sound area King Sound (south) King Sound (north) Yampi Sound	Roebuck Bay Cambridge Gulf Camden Sound area King Sound (south) King Sound (north) Yampi Sound	No calving BIA identified within the NWMR	No migration BIA identified within the NWMR

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Species	Woodside Activity Area			BIAs				
	Browse	NWS/S	NWC	Resting	Foraging	Breeding	Calving	Migration
Dugong ¹	✓	✓	✓	No resting BIA identified within the NWMR	Exmouth Gulf Ningaloo Reef Shark Bay Roebuck Bay Dampier Peninsula	No breeding BIA identified within the NWMR	Exmouth Gulf Ningaloo Reef Shark Bay	Not listed as a migratory species

¹ DSEWPAC (2012a)

² Commonwealth of Australia (2015a)

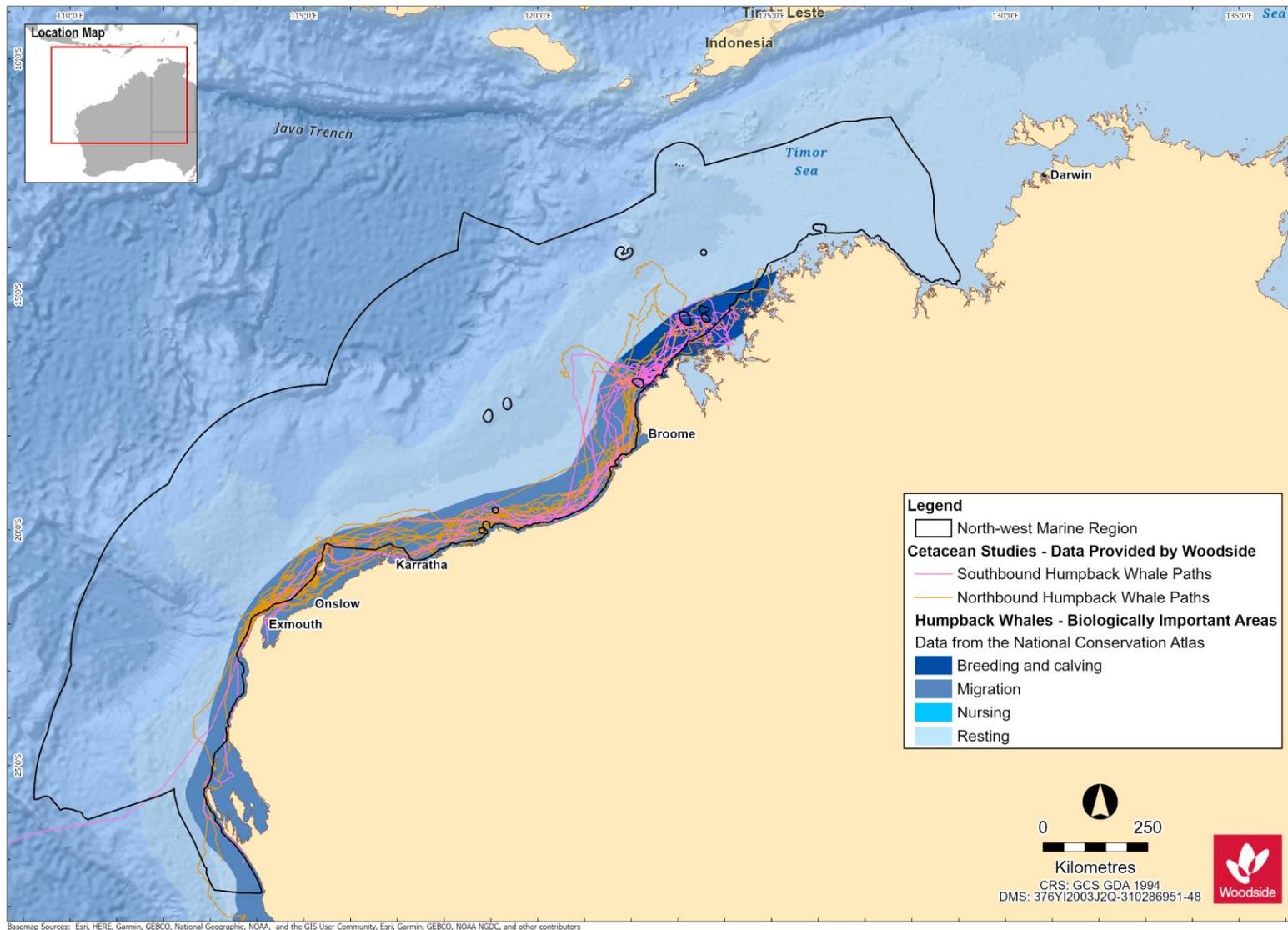


Figure 7-1 Humpback whale BIAs for the NWMR and tagged tracks for north and south bound migrations

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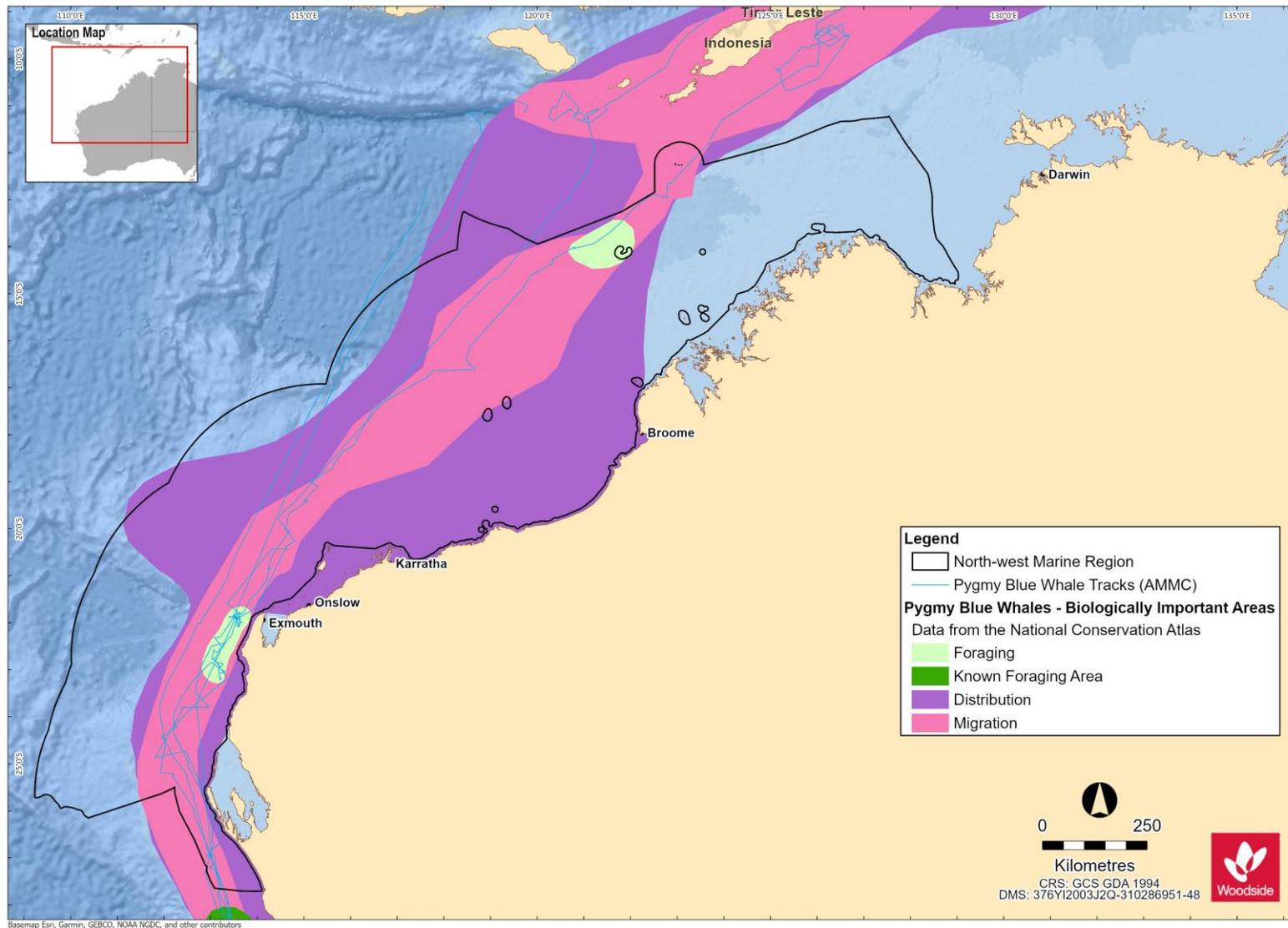


Figure 7-2 Pygmy blue whale BIAs for the NWMR and tagged whale tracks for northbound migration

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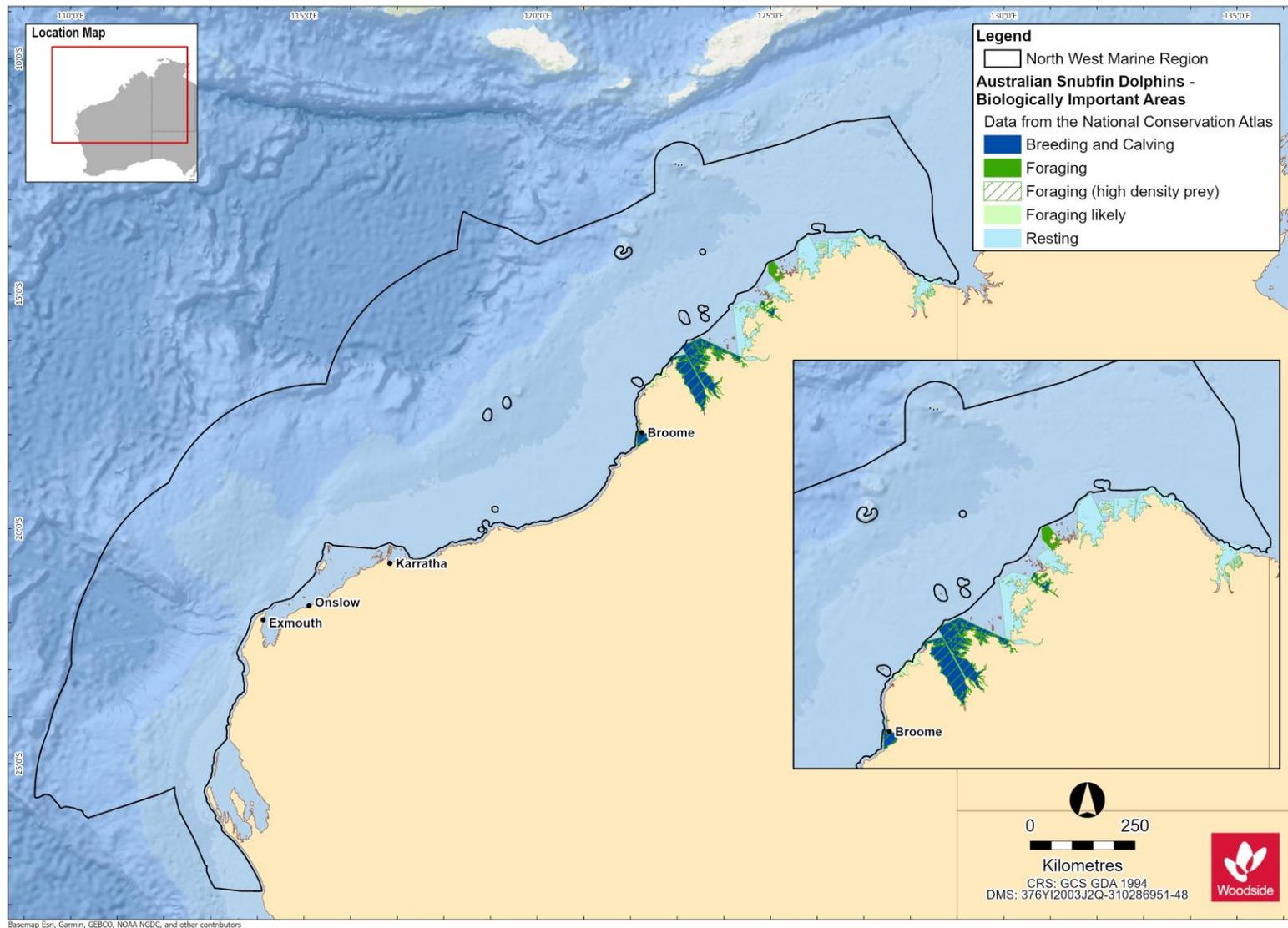


Figure 7-3 Australian snubfin dolphin BIAs for the NWMR

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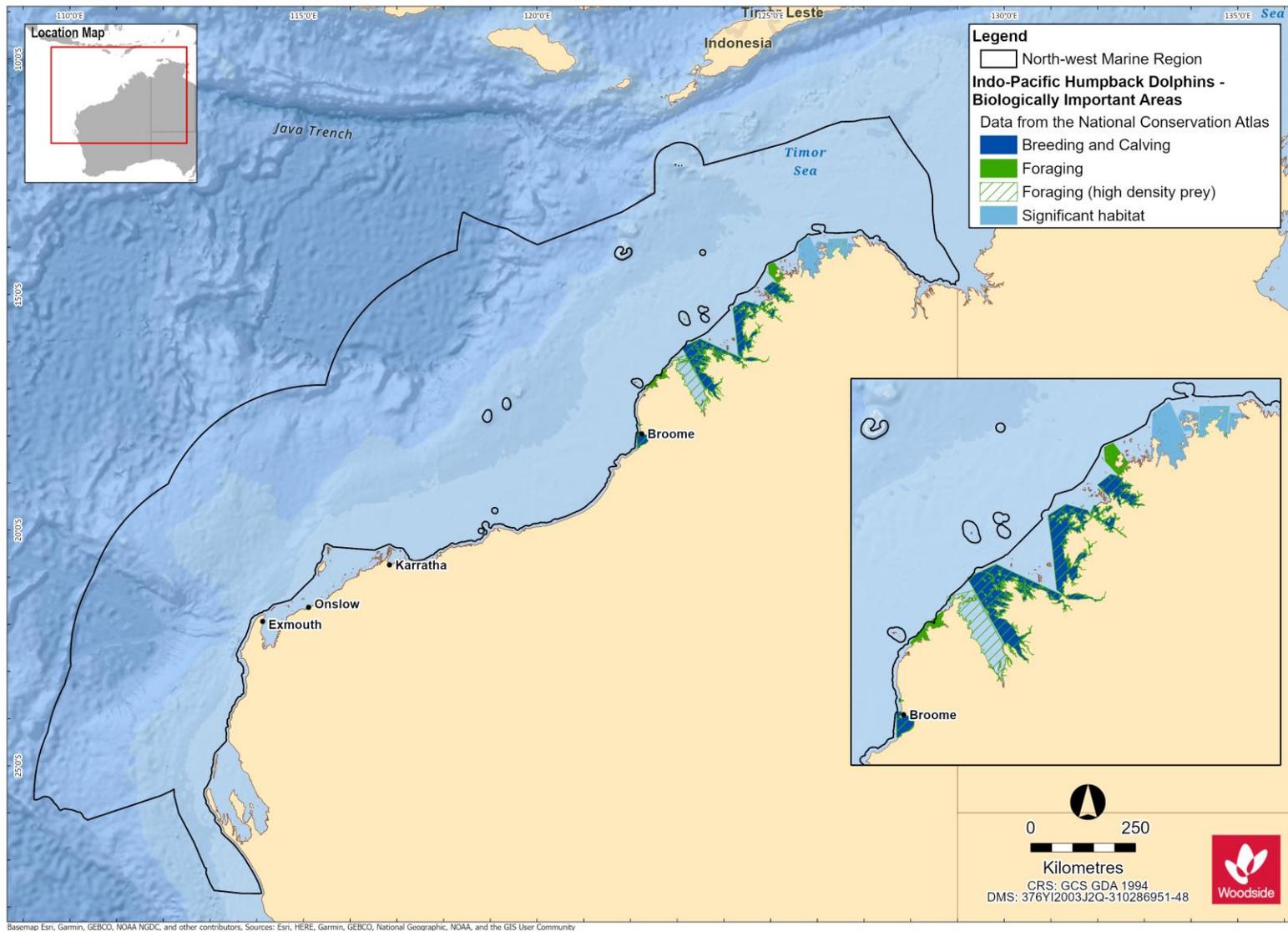


Figure 7-4 Indo-Pacific humpback dolphin BIAs for the NWMR

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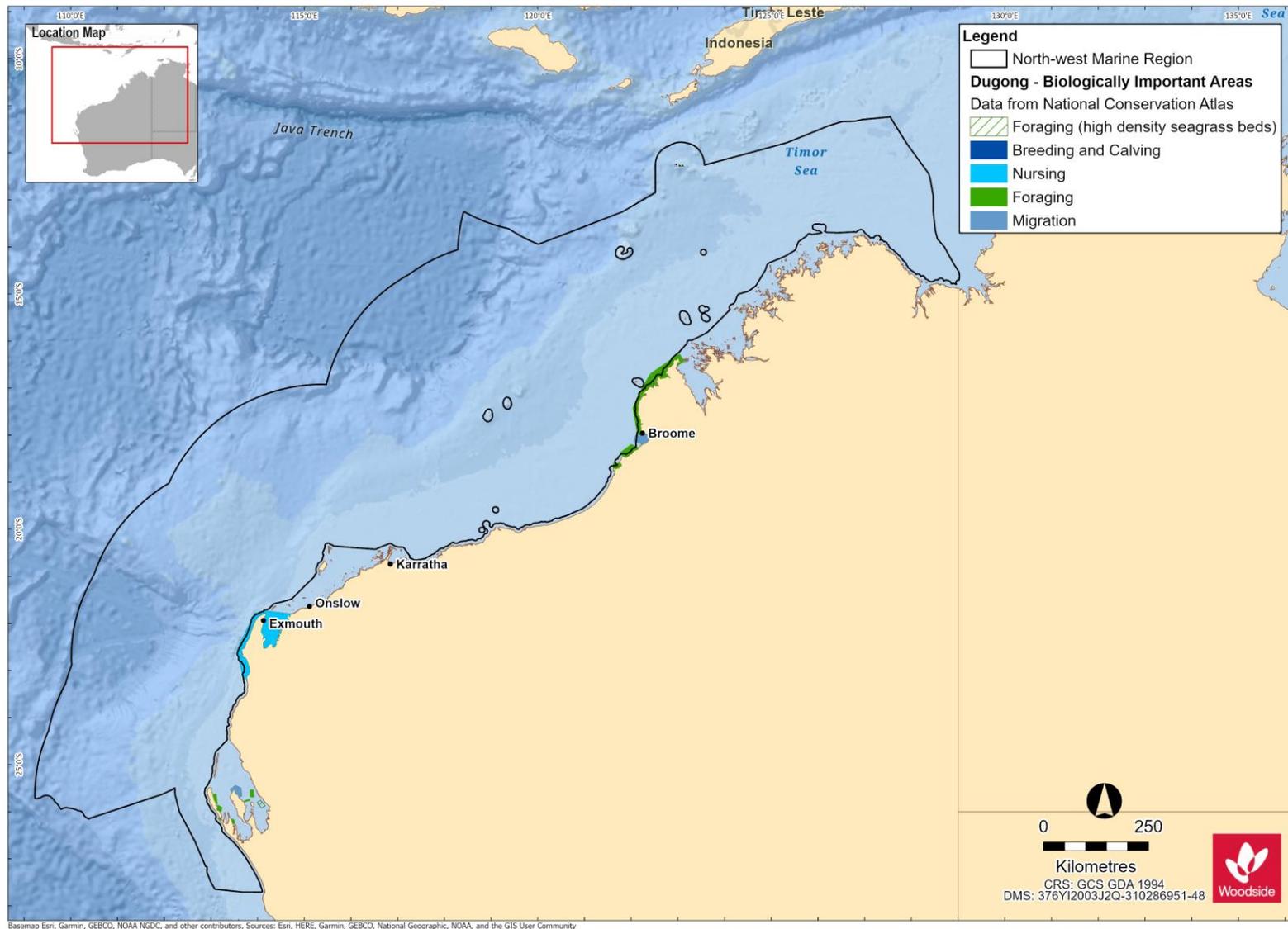


Figure 7-5 Dugong BIA for the NWMR

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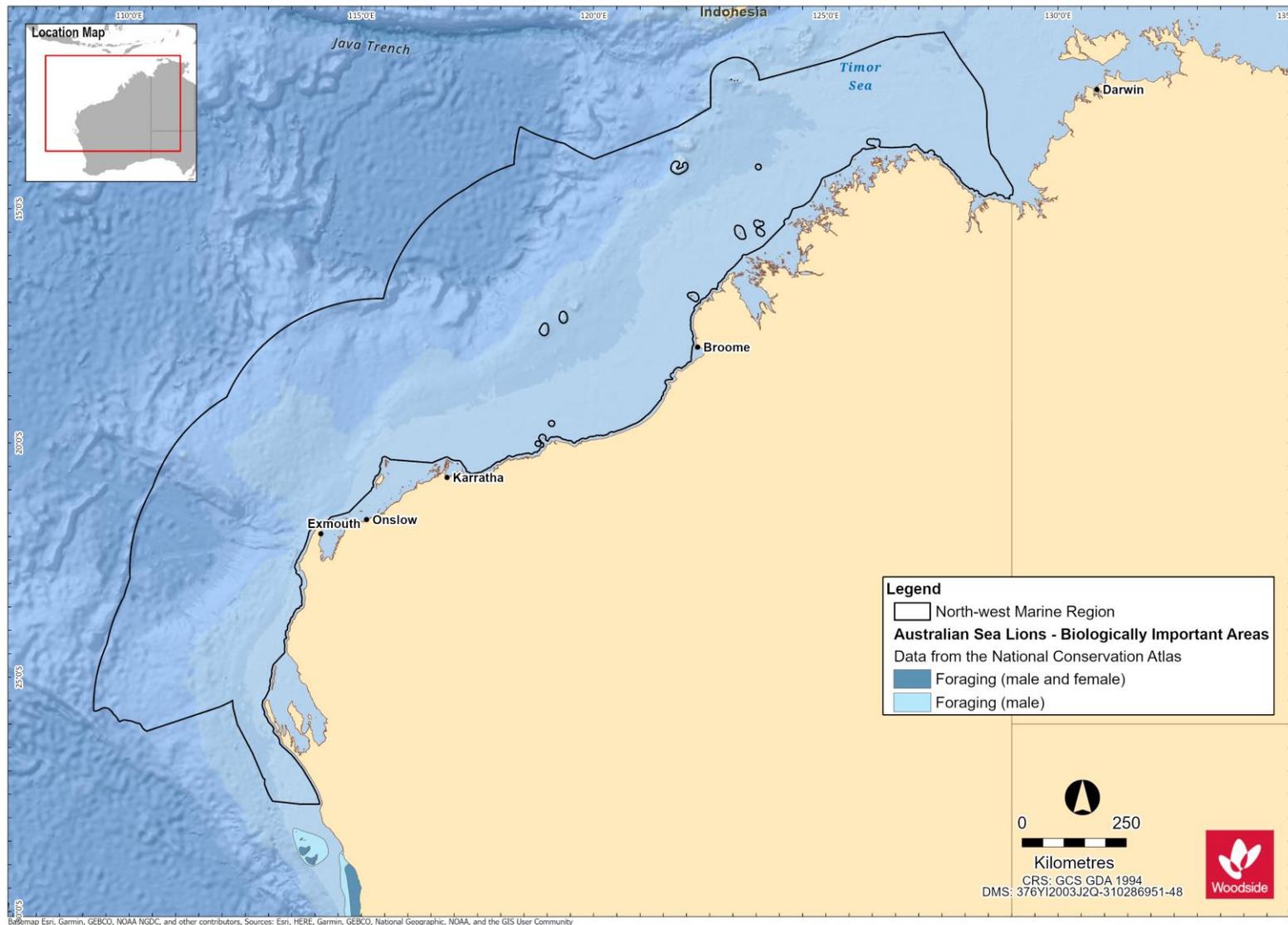


Figure 7-6 Australian sea lion BIAs in the northern extent of the SWMR closest to the NWMR

7.6 Marine Mammal Summary for the NWMR

7.6.1 Browse

The Browse activity area includes biologically important habitat for five 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); and
- dugong (foraging).

BIAs for the marine mammal species are outlined in **Table 7-3**.

7.6.2 North-west Shelf / Scarborough

The NWS / Scarborough activity area includes biologically important habitat for five 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); and
- dugong (foraging and calving areas).

BIAs for the marine mammal species are outlined in **Table 7-3**.

7.6.3 North-west Cape

The North-west Cape activity area includes biologically important habitat for three threatened and/or migratory marine mammal species:

- blue whale and pygmy blue whale (foraging and migration areas);
- humpback whale (resting and migration areas); and
- dugong (foraging and 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, 2012e). The NWMR marine bioregional plan also noted that Roebuck Bay and Eighty Mile Beach are internationally significant and recognised migratory shorebird locations.

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 the international significance under the Ramsar Convention. Important Bird Areas (IBAs) for the NWMR, which are also recognised as global Key Biodiversity Areas (KBAs) (BirdLife Australia⁴), 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 threatened and migratory seabird and shorebird species that occur within the NWMR, with their conservation status and relevant recovery plans and/or conservation advice.

4

[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. Bird species (threatened/migratory) identified by the EPBC Act PMST and other sources of information as potentially occurring within the NWMR

Species Name	Common Name	Environment Protection and Biodiversity Conservation Act 1999			WA Biodiversity Conservation Act 2016	EPBC Act Part 13 Statutory Instrument
		Threatened Status	Migratory Status	Listed	Conservation Status	
Seabirds						
<i>Macronectes giganteus</i>	Southern giant petrel	Endangered	Migratory	Marine	Migratory	National recovery plan for threatened albatrosses and giant petrels 2011-2016 (DSEWPAC, 2011c)
<i>Papasula abbotti</i>	Abbott's booby	Endangered	N/A	Marine	N/A	Conservation Advice for the Abbott's booby - <i>Papasula abbotti</i> (Threatened Species Scientific Committee, 2020b)
<i>Pterodroma mollis</i>	Soft-plumaged petrel	Vulnerable	N/A	Marine	N/A	Conservation Advice <i>Pterodroma mollis</i> soft-plumaged petrel (Threatened Species Scientific Committee, 2015f)
<i>Sternula nereis nereis</i>	Australian fairy tern	Vulnerable	N/A	N/A	Vulnerable	Conservation Advice for <i>Sternula nereis nereis</i> (Fairy Tern) (DSEWPAC, 2011d)
<i>Anous tenuirostris melanops</i>	Australian lesser noddy	Vulnerable	N/A	Marine	Endangered	Conservation Advice <i>Anous tenuirostris melanops</i> Australian lesser noddy (Threatened Species Scientific Committee, 2015e)
<i>Thalassarche carteri</i>	Indian yellow-nosed albatross	Vulnerable	Migratory	Marine	Endangered	National recovery plan for threatened albatrosses and giant petrels 2011-2016 (DSEWPAC, 2011c)
<i>Anous stolidus</i>	Common noddy	N/A	Migratory	Marine	Migratory	Draft Wildlife Conservation Plan for Seabirds (Commonwealth of Australia, 2019)
<i>Fregata ariel</i>	Lesser frigatebird	N/A	Migratory	Marine	Migratory	
<i>Fregata minor</i>	Great frigatebird	N/A	Migratory	Marine	Migratory	
<i>Sula leucogaster</i>	Brown booby	N/A	Migratory	Marine	Migratory	
<i>Sula sula</i>	Red-footed booby	N/A	Migratory	Marine	Migratory	

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Species Name	Common Name	Environment Protection and Biodiversity Conservation Act 1999			WA Biodiversity Conservation Act 2016	EPBC Act Part 13 Statutory Instrument
		Threatened Status	Migratory Status	Listed	Conservation Status	
<i>Onychoprion anaethetus</i> (listed as <i>Sterna anaethetus</i>)	Bridled tern	N/A	Migratory	Marine	Migratory	
<i>Thalasseus bergii</i>	Greater crested tern	N/A	Migratory	Marine	Migratory	
<i>Sternula albifrons</i>	Little tern	N/A	Migratory	Marine	Migratory	
<i>Sterna dougallii</i>	Roseate tern	N/A	Migratory	Marine	Migratory	
<i>Onychoprion fuscata</i>	Sooty tern	N/A	N/A	Marine	N/A	
<i>Hydroprogne caspia</i>	Caspian tern	N/A	Migratory	Marine	Migratory	
<i>Ardena pacifica</i>	Wedge-tailed shearwater	N/A	Migratory	Marine	Migratory	
<i>Puffinus assimillis</i>	Little shearwater	N/A	N/A	Marine	N/A	
<i>Ardena carneipes</i>	Flesh-footed shearwater	N/A	Migratory	Marine	Vulnerable	
<i>Calonectris leucomelas</i>	Streaked shearwater	N/A	Migratory	Marine	Migratory	
<i>Phaethon lepturus</i>	White-tailed tropicbird	N/A	Migratory	Marine	Migratory	
<i>Chroicocephalus novaehollandiae</i>	Silver gull	N/A	N/A	Marine	N/A	
Migratory shorebirds						
<i>Numenius madagascariensis</i>	Eastern curlew, Far Eastern curlew	Critically endangered	Migratory	Marine	Critically endangered	Conservation Advice <i>Numenius madagascariensis</i> eastern curlew (DOE, 2015a)
<i>Calidris ferruginea</i>	Curlew sandpiper	Critically endangered	Migratory	Marine	Critically endangered	Conservation Advice <i>Calidris ferruginea</i> curlew sandpiper (DOE, 2015b)
<i>Calidris tenuirostris</i>	Great knot	Critically endangered	Migratory	Marine	Critically endangered	Conservation Advice <i>Calidris tenuirostris</i> Great knot (Threatened Species Scientific Committee, 2016a)
<i>Limosa lapponica menzbieri</i>	Bar-tailed godwit (<i>menzbieri</i>)	Critically endangered	Migratory	Marine	Critically endangered	Conservation Advice <i>Limosa lapponica menzbieri</i> Bar-tailed godwit (northern Siberia). (Threatened Species Scientific Committee, 2016c)

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Species Name	Common Name	Environment Protection and Biodiversity Conservation Act 1999			WA Biodiversity Conservation Act 2016	EPBC Act Part 13 Statutory Instrument
		Threatened Status	Migratory Status	Listed	Conservation Status	
<i>Calidris canutus</i>	Red knot	Endangered	Migratory	Marine	Endangered	Conservation Advice <i>Calidris canutus</i> Red knot (Threatened Species Scientific Committee, 2016b)
<i>Charadrius mongolus</i>	Lesser sand plover	Endangered	Migratory	Marine	Endangered	Conservation Advice <i>Charadrius mongolus</i> Lesser sand plover (Threatened Species Scientific Committee, 2016e)
<i>Charadrius leschenaultii</i>	Greater sand plover	Vulnerable	Migratory	Marine	Vulnerable	Conservation Advice <i>Charadrius leschenaultia</i> Greater sand plover (Threatened Species Scientific Committee, 2016d)
All migratory shorebird species	Wildlife Conservation Plan for Migratory Shorebirds (Commonwealth of Australia, 2015c).					

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, 2019). At least 34 seabird species listed as threatened, migratory and/or marine under the EPBC Act are known to occur regularly in the NWMR and include a variety of species of terns, noddies, petrels, shearwaters, frigatebirds, and boobies. Many of these species spend most of their lives at sea (predominately pelagic species), 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, 2012e).

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. Sixteen (16) species of seabirds breed there. Eighty percent 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**) and the information on a select number of seabird species documented for the NWMR (based on the screening criteria presented in **Section 3**), as presented in **Table 8-2**.

Table 8-2 Information on threatened/migratory seabird species of the NWMR

Species	Key Information
Seabirds	
Southern giant petrel	This species is included in the National recovery plan for threatened albatrosses and giant petrels. Habitat critical to survival is defined for breeding and foraging. There are six known breeding localities under Australian jurisdiction (for all species giant petrels) and all are located in the Southern Ocean including islands off Tasmania and within the Australian Antarctic Territory (DSEWPAC, 2011c). Habitat critical to survival identified for foraging is defined as waters south of 25 degrees latitude. The giant petrel species distribution is mainly within the Southern Ocean but this species does migrate into subtropical waters during the winter and its distribution includes the southern extent of the NWMR. No BIAs for this species are located in the NWMR.
Abbott's booby	The Abbott's booby is a large, long-lived seabird known to nest only at Christmas Island. The recovery of this species is strongly dependent on the protection of breeding habitat defined habitat critical to the survival of this species on Christmas Island (Threatened Species Scientific Committee, 2020b). This species spends much of its time at sea and known to forage over large distances offshore when nesting and its range includes off the coast of Java, near the Chagos and in the Banda Sea, and may possibly extend into the north-western extent of the NWMR. No BIAs for this species are located in the NWMR.
Soft-plumaged petrel	This petrel species breeds only at two locations in Australian waters within the Southern Ocean (one off Tasmania and Macquarie Island) (Threatened Species Scientific Committee, 2015f). As a mainly sub-Antarctic species they are usually distributed in cooler seas but distribution extends into subtropical waters and its known distribution includes the southern extent of the NWMR. No BIAs for this species are located in the NWMR.
Australian fairy tern	The Australian fairy tern is listed as Vulnerable for the sub-species only recorded for WA. It has a coastal distribution from Sydney, south to Tasmania and around southern WA up to the Dampier Archipelago and out on the offshore island groups of Barrow, Montebello and the Lowendals (DSEWPAC, 2011d). The Australian fairy tern feeds on small baitfish and roosts and nests on sandy beaches below vegetation. These behaviours, generally, occur in inshore waters of island archipelagos and on the Australian mainland shores and adjacent wetlands. Fairy terns breed from August to February. The Australian fairy tern is unlikely to be present
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Species	Key Information
	within the offshore environment of the NWMR. The largest breeding colony in Western Australia for this species is in the Houtman Abrolhos Islands, SWMR (Surman, 2019). For the description and location of BIAs in the NWMR, refer to Table 8-3 and Figure 8-2 .
Australian lesser noddy	The Houtman Abrolhos, WA is an important breeding habitat for the Australian lesser noddy in the eastern Indian Ocean. This species exhibits nesting habitat specialisation (white mangrove stands) and has a limited foraging range during the breeding season. Furthermore, the lesser noddy forages over shelf waters and appears not to disperse over their non-breeding period as they remain largely in the general vicinity or slightly to the south of the colony in the non-breeding season (February to September; Surman <i>et al.</i> , 2018). No BIAs for this species are located in the NWMR.
Indian yellow-nosed albatross	This species is included in the National recovery plan for threatened albatrosses and giant petrels. Habitat critical to survival is defined for breeding and foraging. There are six known breeding localities under Australian jurisdiction (for all species of albatrosses) and all are located in the Southern Ocean including islands off Tasmania and within the Australian Antarctic Territory (DSEWPAC, 2011c). Habitat critical to survival identified for foraging is defined as waters south of 25 degrees latitude. All albatross species distribution (including the Indian yellow-nose albatross) is mainly within the Southern Ocean but this species does migrate into subtropical waters during the winter and its distribution includes the southern extent of the NWMR. No BIAs for this species are located in the NWMR.
Common noddy	This species is listed as migratory and marine. The common (or brown) noddy is the largest species of noddy found in Australian waters. The species is widespread in tropical and subtropical areas beyond Australia. This seabird species is gregarious and normally occurs in flocks, up to hundreds of individuals, when feeding or roosting. The Houtman Abrolhos, WA is the primary breeding habitat for the common noddy in the Eastern Indian Ocean. This species spends their non-breeding season (March to August) in the NWS area, around 950 km north from the breeding colony (Surman <i>et al.</i> 2018). The species occurs within NWMR waters, particularly around offshore islands such as the Montebello Island group. This species is recorded on unmanned oil and gas platforms within the NWS. No BIAs for this species are located in the NWMR.
Lesser frigatebird Great frigatebird	Both species of frigatebird are listed as migratory and marine. Within the NWMR, the lesser frigatebird is known to breed on Adele, Bedout and West Lacepede islands, Ashmore Reef and Cartier Island (Commonwealth of Australia, 2019). The lesser frigatebird feeds mostly on fish and sometimes cephalopods, and all food is taken while the bird is in flight. Lesser frigatebirds generally forage close to breeding colonies. Breeding/foraging BIAs for the lesser frigatebird are located in the NWMR; refer to Table 8-3 .
Brown booby	The brown booby is the most common booby, occurring throughout all tropical oceans bounded by latitudes 30° N and 30° S. There are large colonies on offshore islands within the NWMR such as the Lacepede Islands (one of the largest colonies in the world), Ashmore Reef, and other offshore Kimberley islands. This seabird species is a specialised plunge diver, mostly eating fish and some cephalopods (Commonwealth of Australia, 2019). Breeding/foraging BIAs for the brown booby are located in the NWMR; refer to Table 8-3 and Figure 8-3 .
Red-footed booby	Within the NWMR, its known breeding sites for this species include Ashmore Reef and Cartier Island. It is a pelagic species and generally occurs away from land. It mainly eats flying fish and squid. Prey abundance is reliant on the high productivity in slope areas off remote islands where the birds breed (Commonwealth of Australia, 2019). Breeding/foraging BIAs for the red-footed booby are located in the NWMR; refer to Table 8-3 and Figure 8-3 .
Greater crested tern	The greater crested tern has a widespread distribution recorded on islands and coastlines of tropical and subtropical areas, ranging from the Atlantic coast of South Africa, Indian Ocean and through south-east Asia and Australia. Outside the breeding season it can be found at sea throughout its range, with the exception of the central Indian Ocean (Commonwealth of Australia, 2019). The largest breeding colony in WA for this species is the Houtman Abrolhos Islands, SWMR (Surman, 2019). No BIAs for this species are located in the NWMR.
Little tern	There are three sub-populations of this species in Australia and two of these occur in the NWMR: northern Australian breeding sub-population occurring around Broome and extending across in to the NMR, and an east Asian breeding sub-population, with the terns present from Shark Bay to south-eastern Queensland during the austral summer. Little terns

Species	Key Information
	usually forage close to breeding colonies in the shallow water of estuaries (Commonwealth of Australia, 2019). For the description and location of BIAs in the NWMR, refer to Table 8-3 and Figure 8-2 .
Roseate tern	This species is generally tropical in distribution and there are many breeding populations in the NWMR, including Ashmore Reef, Napier Broome Bay, Bonaparte Archipelago, Lacepede Islands, Dampier Archipelago and the Lowendal Islands. A large number of non-breeding roseate terns have been observed at several remote locations in the Kimberley and there are high numbers also recorded for Eighty Mile Beach Ramsar site. The Kimberley colonies are likely to be another sub-species that breeds in east Asia. Roseate terns predominately eat small pelagic fish (Commonwealth of Australia, 2019). The largest breeding colony in Western Australia for this species is in the Houtman Abrolhos Islands, SWMR (Surman, 2019). For the description and location of BIAs in the NWMR, refer to Table 8-3 and Figure 8-2 .
Wedge-tailed shearwater	The wedge-tailed shearwater is a pelagic, marine seabird known from tropical and subtropical waters. Its distribution is widespread across the Indian and Pacific oceans. It is known to breed on the east and west coasts (and offshore islands) of Australia. This species is known to consume fish, cephalopods, and other biota primarily via contact-dipping. Wedge-tailed shearwaters are now understood to undertake extensive foraging trips (over thousands of kilometres over periods of days when chicking and provisioning young) and much longer and extensive pelagic travels over the north-west Indian Ocean during the non-breeding season, targeting current boundaries and upwellings. The species breeds throughout its range, mainly on vegetated islands, atolls and cays and excavates burrows in the ground where chicks are raised (Commonwealth of Australia, 2019). Large breeding colonies of the wedge-tailed shearwater are located on the Houtman Abrolhos islands (SWMR) (Surman <i>et al.</i> , 2018) and several locations in the NWMR including: Muiron Islands (North-west Cape), Varanus Island and the Dampier Archipelago in the Pilbara where burrow numbers were estimated to several hundred thousand to half a million such as on the Muiron Islands, though it is not known if all burrows are utilised on an annual basis (Birdlife Australia, 2018; Surman <i>et al.</i> , 2018). Cannell <i>et al.</i> (2019) satellite tracked adult wedge-tailed shearwaters during egg incubation and chick rearing on the Muiron Islands in January 2018. For the incubation trips, there was a strong consistency for the birds to travel towards seamounts, typically located north-west of the Muiron Islands, between Australia and Indonesia. One bird however remained south-west of the islands, in the Cape Range Canyon. A similar pattern to utilise areas associated with sea mounts was also observed for the long foraging trips during chick rearing, though some of the foraging was concentrated in deeper waters. A bimodal foraging strategy during chick-rearing was observed, with adults undertaking long foraging trips after a series of shorter foraging trips within the NWMR. Surman <i>et al.</i> (2018) reported most wedge-tailed shearwaters from the breeding colonies on the Houtman Abrolhos undertook extensive non-breeding migrations. This seabird species occupied waters adjacent or to the north of their nesting sites or migrated 4200 km north-west into the equatorial central Indian Ocean near the Ninety East Ridge during the non-breeding season (later April to mid-November). For the description and location of BIAs in the NWMR, refer to Table 8-3 and Figure 8-1 .
Flesh-footed shearwater	The species mainly occurs in the subtropics, over continental shelves and slopes and occasionally inshore waters, with individual birds pass through the tropics and over deeper waters during migration to the North Pacific and Indian oceans (Commonwealth of Australia, 2019). They are a common visitor to the waters off southern Australia, from south-western WA to south-eastern Queensland. The fleshy-footed shearwater is a trans-equatorial migrant, breeding from late September to May off south-western Australia, and migrating north by early May, across the southern Indian and possibly Indonesia to the northern Pacific Ocean. No BIAs for the flesh-footed shearwater are located in the NWMR.
Streaked shearwater	The streaked shearwater has a broad distribution in the western Pacific Ocean, breeding on the coast and offshore islands of Japan, Russia, China and the Korean Peninsula. During winter months (non-breeding season), the species undertakes trans-equatorial migration to the coasts of Vietnam, New Guinea, the Philippines, Australia, southern India and Sri Lanka. The streaked shearwater feeds mainly on fish and squid that it catches by surface-seizing and shallow plunges (Commonwealth of Australia, 2019). No BIAs for the streaked shearwater are located in the NWMR.
White-tailed tropicbird	Tropicbirds are predominately pelagic species and the white-tailed tropicbird forages in warm waters and over long distances (pan-tropical). The species is most common off north-west Australia. In the NWMR, this species is considered a sub-species and are limited in number and distribution. Nesting sites are known for Clerke Reef (Rowley Shoals) and Ashmore

Species	Key Information
	Reef. Christmas Island is also a known nesting site and the species can disperse several thousand kilometres during foraging trips. This species feeds mainly on fish and cephalopods, captured by deep plunge diving (Commonwealth of Australia, 2019). There are breeding BIAs at the Rowley Shoals and Ashmore Reef within the NWMR for the white-tailed tropicbird; refer to Table 8-3 .
Silver gull	The silver gull is typically described as an inshore and coastal foraging seabird and has an Australian-wide distribution including locations within the NWMR. It is noted as it has been recorded on unmanned oil and gas platforms located within the NWS.

8.2.1 Biologically Important Areas in the NWMR

BIAs representing important life cycle stages and behaviours for eight species of seabird in the NWMR are presented in **Table 8-3**.

Table 8-3 Seabird BIAs within the NWMR

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 barrier island of Shark Bay	-
Wedge-tailed shearwater	✓	✓	✓	Widespread area of the NWMR offshore and inshore waters	Foraging in high numbers: the BIA is located in the SWMR including the Houtman Abrolhos Islands	-	-
Great frigatebird	✓	-	-	Ashmore Reef, Adele Island	-	-	-
Lesser frigatebird	✓	✓	-	Off Eighty Mile Beach, Lacepedes, Adele Island, North Kimberley and Ashmore Reef	-	-	-
Brown booby	✓	✓	-	Off Eighty Mile Beach, Lacepedes, Adele Island, North Kimberley and Ashmore Reef	-	-	-
Red-footed booby	✓	-	-	Adele Island, Ashmore Reef	-	-	-
Little tern	✓	✓	-	Rowley Shoals, Adele Island	-	-	-
Roseate tern	✓	✓	✓	-	No foraging BIAs in the NWMR Foraging (provisioning young) and foraging BIAs located in the SWMR – Houtman Abrolhos Islands the	Dampier Archipelago, Montebello, Lowendal and Barrow Island Groups, south Ningaloo and barrier island of Shark Bay	Eighty Mile Beach

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Seabird Species	Woodside Activity Area			BIAs			
	Browse	NWS/S	NWC	Breeding/foraging	Foraging	Breeding	Resting
					nearest BIA to the NWMR		
White-tailed tropicbird	✓	-	-			Rowley Shoals Ashmore Reef	

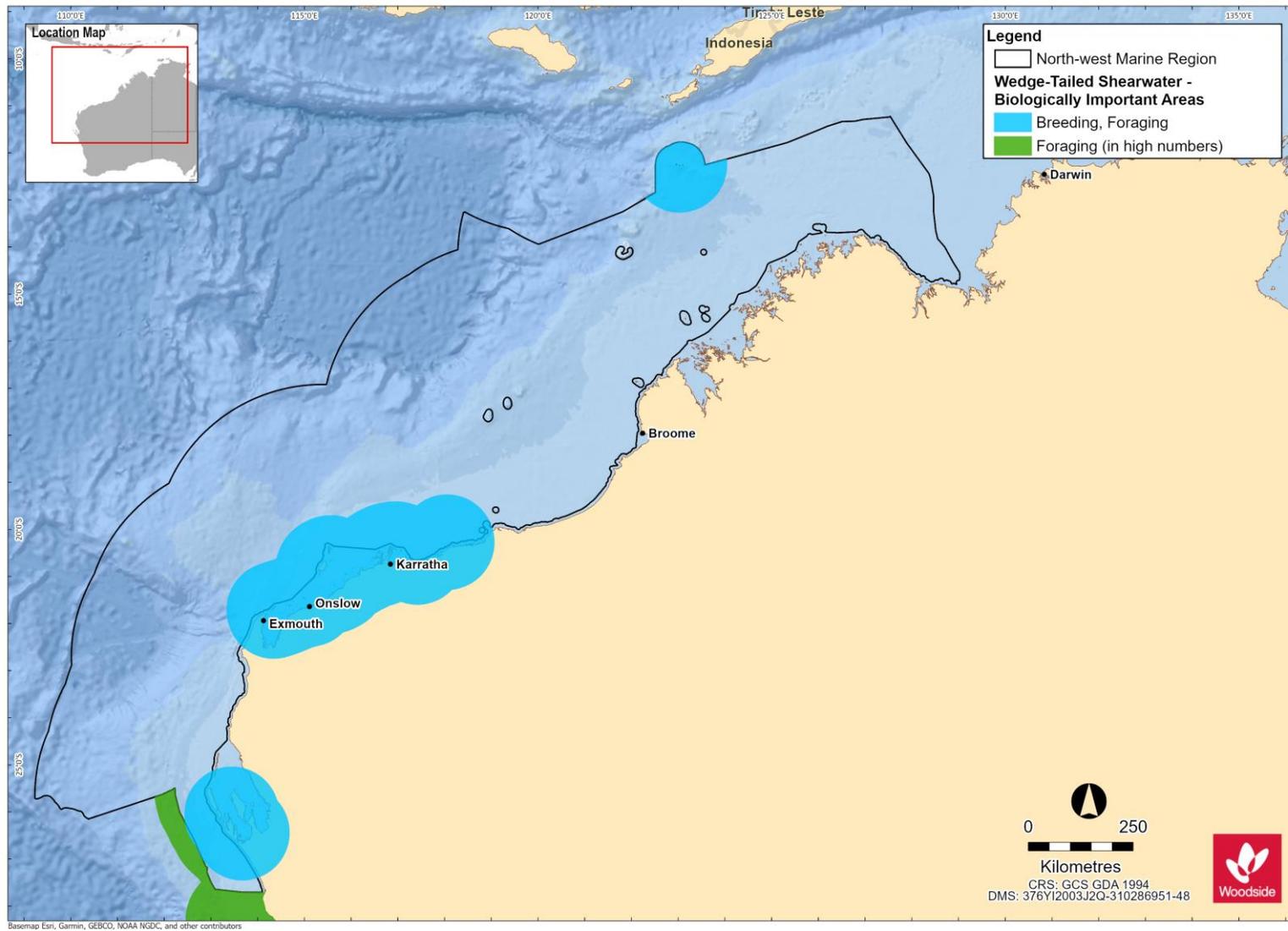


Figure 8-1 Wedge-tailed shearwater BIAs for the NWMR

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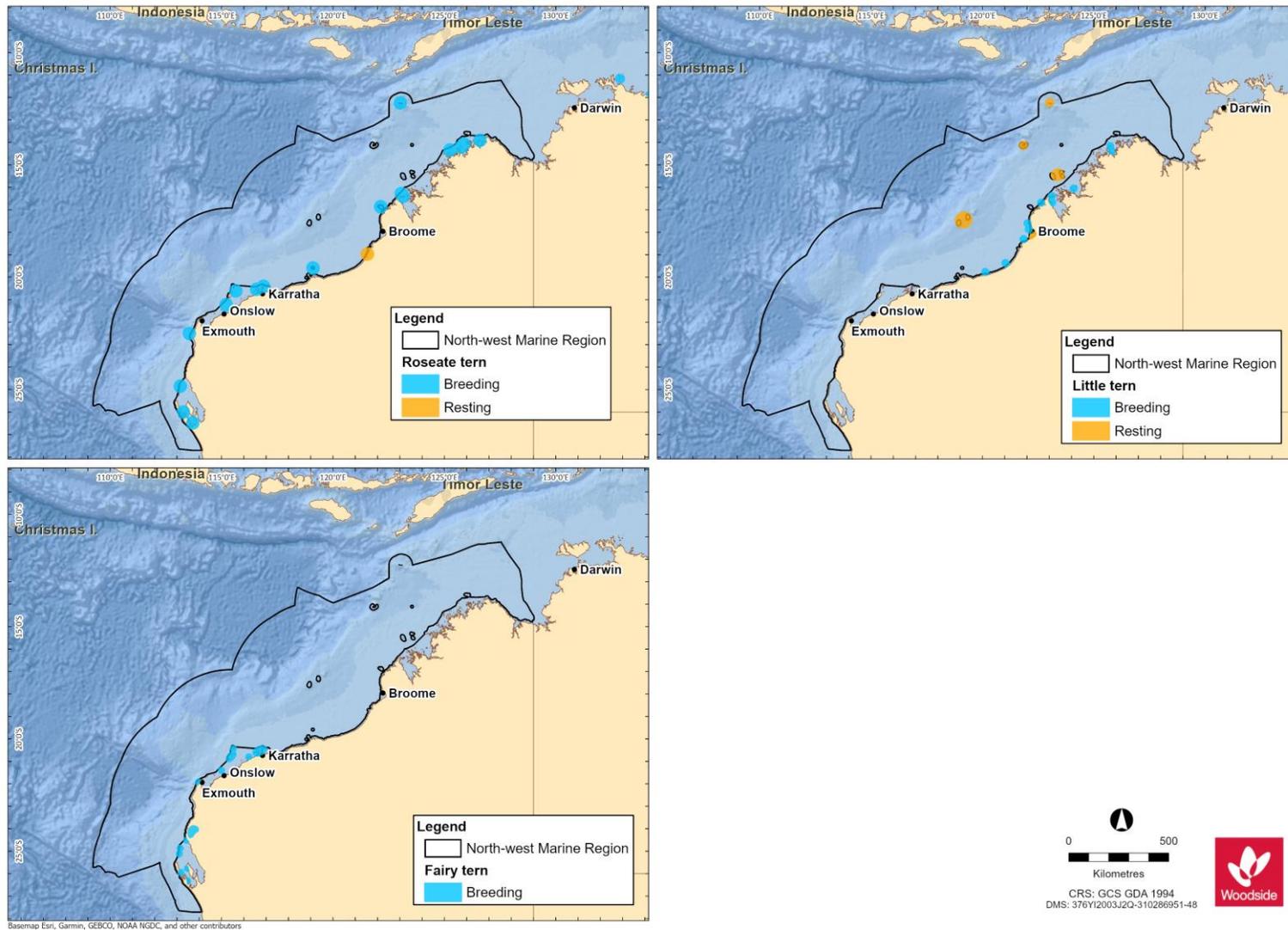


Figure 8-2 Tern species BIAs for the NWMR

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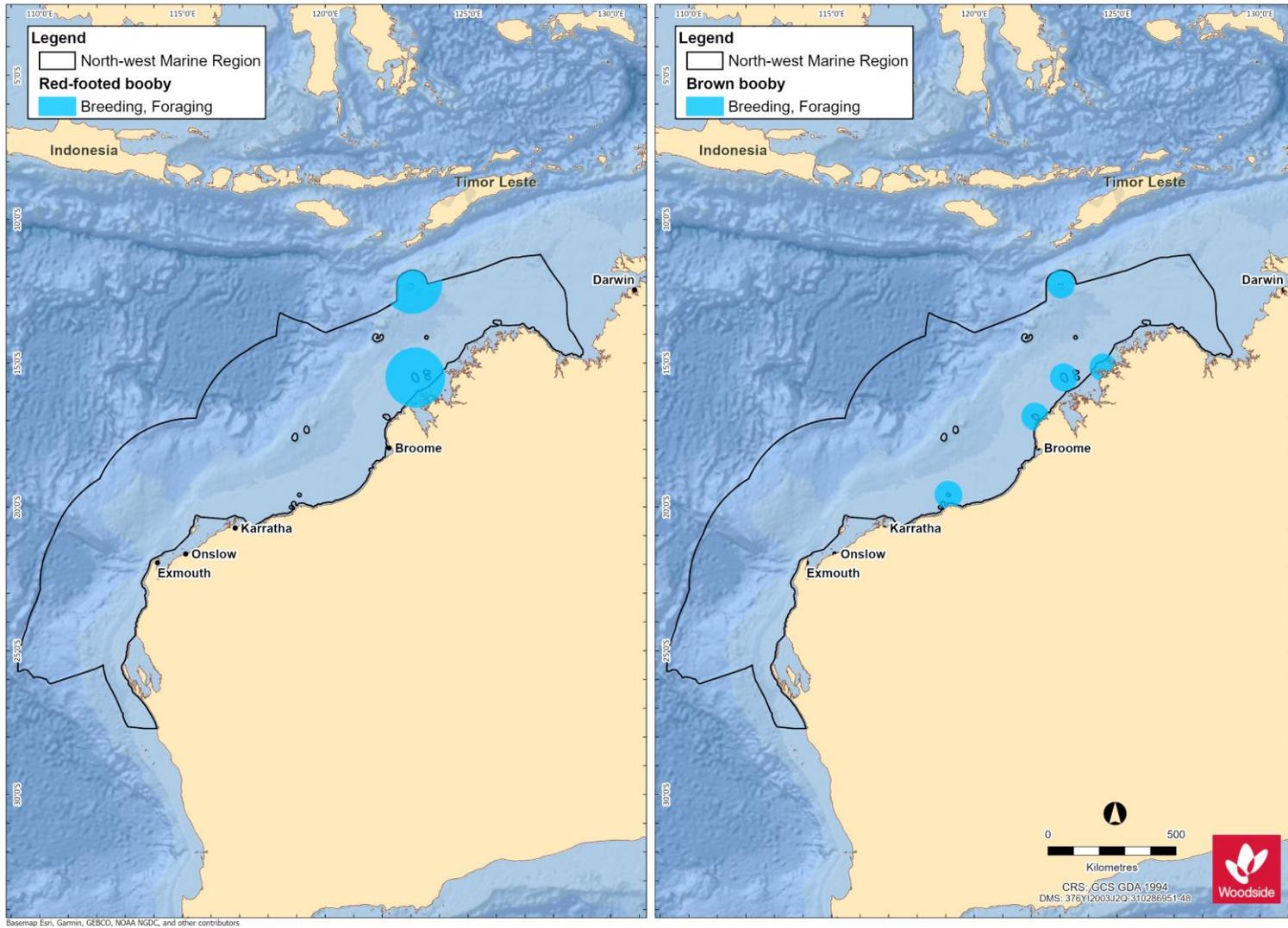


Figure 8-3 Red-footed and brown booby BIAs for the NWMR

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8.2.2 Seabird Summary for NWMR

8.2.2.1 Browse

The Browse activity area includes biologically important habitat for seven threatened and/or migratory seabird species:

- wedge-tailed shearwater (breeding/foraging);
- great and lesser frigatebirds (breeding/foraging);
- brown booby (breeding/foraging);
- red-footed booby (breeding/foraging);
- little tern (breeding/foraging);
- roseate tern (breeding and resting); and,
- white-tailed tropicbird (breeding).

BIAs for the seabird species are outlined in **Table 8-3**.

8.2.2.2 NWS / Scarborough

The NWS / Scarborough activity area includes biologically important habitat for five threatened and/or migratory seabird species:

- wedge-tailed shearwater (breeding/foraging);
- lesser frigatebird (breeding/foraging);
- brown booby (breeding/foraging);
- little tern (breeding/foraging); and
- roseate tern (breeding and resting).

BIAs for the seabird species are outlined in **Table 8-3**.

8.2.2.3 North-west Cape

The North-west Cape activity area includes biologically important habitat for five threatened and/or migratory seabird species:

- Australian fairy tern (breeding);
- wedge-tailed shearwater (breeding/foraging); and
- roseate tern (breeding and resting).

BIAs for the seabird species are outlined in **Table 8-3**.

8.3 Shorebirds

Shorebirds (migratory and resident species) are generally associated with wetland or coastal environments, and the NWMR hosts a large number of many shorebird species, particularly in the Austral summer (refer to **Appendix A** 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. Many shorebird species undergo annual migrations, typically breeding at high latitudes of the Northern Hemisphere and migrating south for the non-breeding season and Australia is part of the East Asian-Australasian Flyway (EAAF). 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). The EAAF is of most relevance to the NWMR. There are 37 species of shorebird which annually migrate to Australia via the EAAF and 36 of these species spend the austral summer (non-breeding season) foraging and roosting in coastal and wetland habitats (Commonwealth of Australia, 2015c; Weller and Lee, 2017).

Ashmore Reef is documented as a BIA for migratory shorebirds in the NWMR (DSEWPAC, 2012a).

Table 8-4. Information on threatened/migratory shorebird species of the NWMR

Species	Key Information
Shorebirds	
Eastern curlew, Far eastern curlew	This species is the largest, migratory shorebird in the world, with a long neck, long legs and a very long downcurved bill and is a long-haul flyer. The eastern curlew is a coastal species with a continuous distribution north from Barrow Island to the Kimberley region. The species is endemic to the EAAF and is a non-breeding visitor to Australia from August to March, primarily foraging on crabs and molluscs in intertidal mudflats. During the non-breeding season in Australia, this species is most associated with sheltered coasts, especially estuaries, bays, harbours, inlets and coastal lagoons, with large intertidal mudflats or sandflats, often with beds of seagrass (DOE, 2015a).
Curlew sandpiper	The curlew sandpiper breeds in northern Siberia but has a non-breeding range that extends from western Africa to Australia, with small numbers reaching New Zealand (Bamford <i>et al.</i> , 2008). In Australia, curlew sandpipers occur around the coasts and are also quite widespread inland, though in smaller numbers. Records occur in all states and the NT during the non-breeding period, and also during the breeding season when many non-breeding one-year old birds remain in Australia rather than migrating north along the EAAF. The species preferred habitat for foraging is mudflats and nearby shallow waters in sheltered coastal areas such as estuaries, bay, inlets and lagoons (DOE, 2015b).
Great knot	The great knot breeds in the Northern Hemisphere and undertakes biannual migrations along the EAAF to non-breeding habitat in Australia. The great knot winters in Australia and has been recorded around the entirety of the Australian coast the greatest numbers are found in northern Western Australia (Pilbara (Dampier Archipelago) and Kimberley and the Northern Territory. In Australia, this species prefers sheltered, coastal habitat with large intertidal mudflats or sandflats (inkling inlets, bays, harbours, estuaries and lagoons). High numbers (exceeding several thousand birds are regularly recorded from Roebuck Bay. The great knot feeds on a variety of invertebrates by pecking at or just below the surface of moist mud or sand (Threatened Species Scientific Committee, 2016a).
Bar-tailed godwit (<i>menzbieri</i>)	The bar-tailed godwit is a large, migratory shorebird and there are two sub-species in the EAAF (<i>Limosa lapponica baueri</i> and <i>L. l. menzbieri</i>). The sub-species <i>L. l. menzbieri</i> breeds in northern Siberia and spends its non-breeding period mostly in the north of WA but also in South-east Asia. The bar-tailed godwit (<i>menzbieri</i>) usually forages near the water in shallow water, mainly in tidal estuaries and harbours with a preference for exposed sandy or soft mud substrates on intertidal flats, banks and beaches (Threatened Species Scientific Committee, 2016c).
Red knot (<i>piersmai</i>)	This species is a small to medium migratory shorebird. There are two sub-species that cannot be distinguished from each other in nonbreeding plumage, however, <i>Calidris canutus piersmai</i> tend to overwinter almost exclusively in north-west Australia. The red knot migrates long distances from breeding grounds in high northern latitudes, where it breeds during the boreal summer, to the Southern Hemisphere during the austral summer with migration along the EAAF. Very large numbers are recorded for the north-west Australia and is common in all suitable habitats around the coast, including inland clay pans near Roebuck Bay (where the species roosts). The red knot usually forages in soft substrate along the waters edge on intertidal mudflats, sandflats and sandy beaches of sheltered coasts (Threatened Species Scientific Committee, 2016b).
Lesser sand plover	The lesser sand plover is a small to medium shorebird and one of 36 migratory shorebirds that breed in the Northern Hemisphere during the boreal summer and are known to annually migrate to the non-breeding grounds of Australia along the EAAF for the austral summer. There are five different sub-species and it is most likely the non-breeding ranges of the sub-species <i>Charadrius m. mongolus</i> overlaps with the NWMR. This species is widespread in coastal regions, preferring sandy beaches, mudflats of coastal bays and estuaries (Threatened Species Scientific Committee, 2016e).
Greater sand plover	The greater sand plover is a small to medium shorebird and in its non-breeding plumage is difficult to distinguish from the lesser sand plover. This species breeds in the Northern

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Species	Key Information
	Hemisphere and undertakes annual migrations to and from Southern Hemisphere feeding grounds in the austral summer along the EAAF. The species distribution in Australia during the non-breeding season is widespread, in WA the greater sand plover is widespread between Northwest Cape and Roebuck Bay (Threatened Species Scientific Committee, 2016d).

9. KEY ECOLOGICAL FEATURES

Key ecological features (KEFs) are elements of the Commonwealth marine environment that are considered to be important for a marine region's biodiversity or ecosystem function and integrity. KEFs have been identified by the Australian Government based on advice from scientists about the ecological processes and characteristics of the area.

KEFs meet one or more of the following criteria:

- a species, group of species, or a community with a regionally important ecological role (e.g. a predator, prey that affects a large biomass or number of other marine species),
- a species, group of species or a community that is nationally or regionally important for biodiversity,
- an area or habitat that is nationally or regionally important for:
 - enhanced or high productivity (such as predictable upwellings – an upwelling occurs when cold nutrient-rich waters from the bottom of the ocean rise to the surface),
 - aggregations of marine life (such as feeding, resting, breeding or nursery areas), or
 - biodiversity and endemism (species which only occur in a specific area),
- a unique seafloor feature, with known or presumed ecological properties of regional significance.

Thirteen KEFs are designated within the NWMR, twelve KEFs within the SWMR and eight KEFs within the NMR. These KEFs have been identified in the Protected Matters search (**Appendix A**) and outlined in **Table 9-1**, **Table 9-2** and **Table 9-3**, and **Figure 9-1**, **Figure 9-2** and **Figure 9-3**.

Table 9-1 Key Ecological Features (KEF) within the NWMM

KEF Name	Woodside Activity Area			Values ¹	Description
	Browse	NWS/S	NW Cape		
Carbonate bank and terrace system of the Sahul Shelf	✓	-	-	<p>Unique seafloor feature with ecological properties of regional significance</p> <p>Regionally important because of their role in enhancing biodiversity and local productivity relative to their surrounds. The carbonate banks and terraces provide areas of hard substrate in an otherwise soft sediment environment which are important for sessile species</p>	<p>The Carbonate banks and terrace system of the Sahul Shelf are located in the western Joseph Bonaparte Gulf and to the north of Cape Bougainville and Cape Londonderry. The carbonate banks and terraces are part of a larger complex of banks and terraces that occurs on the Van Diemen Rise in the adjacent NMR.</p> <p>The bank and terrace system of the Van Diemen Rise covers approximately 31,278 km² and forms part of the larger system associated with the Sahul Banks to the north and Londonderry Rise to the east. The feature is characterised by terrace, banks, channels and valleys (DSEWPAC, 2012c). The banks, ridges and terraces of the Van Diemen Rise are raised geomorphic features with relatively high proportions of hard substrate that support sponge and octocoral gardens. These, in turn, provide habitat to other epifauna, by providing structure in an otherwise flat environment (Przeslawski <i>et al.</i>, 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 NWMM and NMR (refer Table 9-3)</p>	<p>The Pinnacles of the Bonaparte Basin provide areas of hard substrate in an otherwise relatively featureless environment, the pinnacles are likely to support a high number of species, although a better understanding of the species richness and diversity associated with these structures is required (DSEWPAC, 2012a, 2012c). Covering >520 km² within the Bonaparte Basin, this feature contains the largest concentration of pinnacles along the Australian margin. The Pinnacles of the Bonaparte Basin are thought to be the eroded remnants of underlying strata; it is likely that the vertical walls generate local upwelling of nutrient-rich water, leading to phytoplankton productivity that attracts aggregations of planktivorous and predatory fish, seabirds, and foraging turtles (DSEWPAC, 2012a, 2012c).</p>
Ashmore Reef and Cartier Island and surrounding Commonwealth waters	✓	-	-	<p>High productivity, biodiversity and aggregation of marine life that apply to both the benthic and pelagic habitats within the feature</p>	<p>Ashmore Reef is the largest of only three emergent oceanic reefs present in the north-eastern Indian Ocean and is the only oceanic reef in the region with vegetated islands. Ashmore contains a large reef shelf, two large lagoons, several channelled carbonate sand flats, shifting sand cays, an extensive reef flat, three vegetated islands—East, Middle and West islands—and</p>

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KEF Name	Woodside Activity Area			Values ¹	Description
	Browse	NWS/S	NW Cape		
					surrounding waters. Rising from a depth of more than 100 m, the reef platform is at the edge of the NWS and covers an area of 239 km ² . Ashmore Reef and Cartier Island and the surrounding Commonwealth waters are regionally important for feeding and breeding aggregations of birds and other marine life; they are areas of enhanced primary productivity in an otherwise low-nutrient environment (DSEWPAC, 2012a). Ashmore Reef supports the highest number of coral species of any reef off the WA coast.
Seringapatam Reef and the Commonwealth waters in the Scott Reef complex	✓	-	-	Support diverse aggregations of marine life, have high primary productivity relative to other parts of the region, are relatively pristine and have high species richness, which apply to both the benthic and pelagic habitats within the feature	Seringapatam Reef and the Commonwealth waters in the Scott Reef complex are regionally important in supporting the diverse aggregations of marine life, high primary productivity, and high species richness associated with the reefs themselves. As two of the few offshore reefs in the north-west, they provide an important biophysical environment in the region (DSEWPAC, 2012a).
Continental slope demersal fish communities	✓	✓	✓	High biodiversity of demersal fish assemblages, including high levels of endemism	The diversity of demersal fish assemblages on the continental slope in the Timor Province, the Northwest Transition and the North-west Province is high compared to elsewhere along the Australian continental slope (DSEWPAC, 2012a). The continental slope between North-west Cape and the Montebello Trough has more than 500 fish species, 76 of which are endemic, which makes it the most diverse slope bioregion in Australia (Last <i>et al.</i> , 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 <i>et al.</i> , 2005), making it the second richest area for demersal fishes throughout the whole continental slope. Demersal fish species occupy two distinct demersal biomes associated with the upper slope (225–500 m water depths) and the mid-slope (750–1000 m). Although poorly known, it is suggested that the demersal slope communities rely on bacteria and detritus-based systems comprised of infauna and epifauna, which in turn become prey for a range of teleost fishes, molluscs and crustaceans (Brewer <i>et al.</i> , 2007). Higher-order consumers may include carnivorous fishes, deepwater sharks, large squid, and toothed whales (Brewer <i>et al.</i> , 2007). Pelagic production is phytoplankton-based, with hot spots around oceanic reefs and islands (Brewer <i>et al.</i> , 2007).

KEF Name	Woodside Activity Area			Values ¹	Description
	Browse	NWS/S	NW Cape		
Ancient coastline at 125 m depth contour	✓	✓	✓	<p>Unique seafloor feature with ecological properties of regional significance</p> <p>Provides areas of hard substrate and therefore may provide sites for higher diversity and enhanced species richness relative to surrounding areas of predominantly soft sediment</p>	<p>Several steps and terraces as a result of Holocene sea level changes occur in the region, with the most prominent of these features occurring as an escarpment along the NWMR and Sahul Shelf at a water depth of 125 m.</p> <p>The Ancient Coastline is not continuous throughout the NWMR and coincides with a well-documented eustatic stillstand at about 130 m worldwide (Falkner <i>et al.</i>, 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 <i>et al.</i>, 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 <i>et al.</i>, 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>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 <i>et al.</i>, 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 <i>et al.</i>, 2007).</p>
Glomar Shoal	-	✓	-	<p>An area of high productivity and aggregations of marine life including commercial and recreational fish species</p>	<p>Glomar Shoal is a submerged littoral feature located about 150 km north of Dampier on the Rowley shelf at depths of 33–77 m (Falkner <i>et al.</i>, 2009). Studies by Abdul Wahab <i>et al.</i> (2018) found a number of hard coral and sponge species in water depths less than 40 m. One hundred and seventy (170) different species of fishes were detected with greatest species richness and abundance in shallow habitats (Abdul Wahab <i>et al.</i>, 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 <i>et al.</i>, 2009; Fletcher and Santoro, 2009). These species have recorded high catch rates associated with Glomar Shoal, indicating that the shoal is likely to be an area of high productivity.</p>

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KEF Name	Woodside Activity Area			Values ¹	Description
	Browse	NWS/S	NW Cape		
Mermaid Reef and Commonwealth waters surrounding Rowley Shoals	-	✓	-	Regionally important in supporting high species richness, higher productivity and aggregations of marine life	The Mermaid Reef and Commonwealth waters surrounding the Rowley Shoals KEF and is adjacent to the three nautical mile State waters limit surrounding Clerke and Imperieuse reefs, and include the Mermaid Reef Marine Park as described in Section 10 . 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 <i>et al.</i> , 1994).
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 <i>et al.</i> , 2007). Satellite observations suggest that productivity is enhanced along the northern and southern boundaries of the plateau (Brewer <i>et al.</i> , 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 <i>et al.</i> , 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 is an area of moderately enhanced productivity, attracting aggregations of fish and higher-order consumers such as large predatory	The canyons are associated with upwelling as they channel deep water from the Cuvier Abyssal Plain up onto the slope. 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.

KEF Name	Woodside Activity Area			Values ¹	Description
	Browse	NWS/S	NW Cape		
				fish, sharks, toothed whales and dolphins Likely to be important due to their historical association with sperm whale aggregations	
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 plateau are interconnected and support the high productivity and species richness of Ningaloo Reef, globally significant as 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 NCVA, is defined as the waters contained in the existing Ningaloo AMP provided in Section 10 .
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 <i>et al.</i> 2009)	The Wallaby Saddle may be an area of enhanced productivity. Historical whaling records provide evidence of sperm whale aggregations in the area of the Wallaby Saddle, possibly due to the enhanced productivity of the area and aggregations of baitfish (DSEWPAC, 2012a).

¹: Values description sourced from Marine bioregional plan for the North-west Marine Region (DSEWPAC, 2012a) and the Department of Agriculture, Water and the Environment (DAWE) SPRAT database.

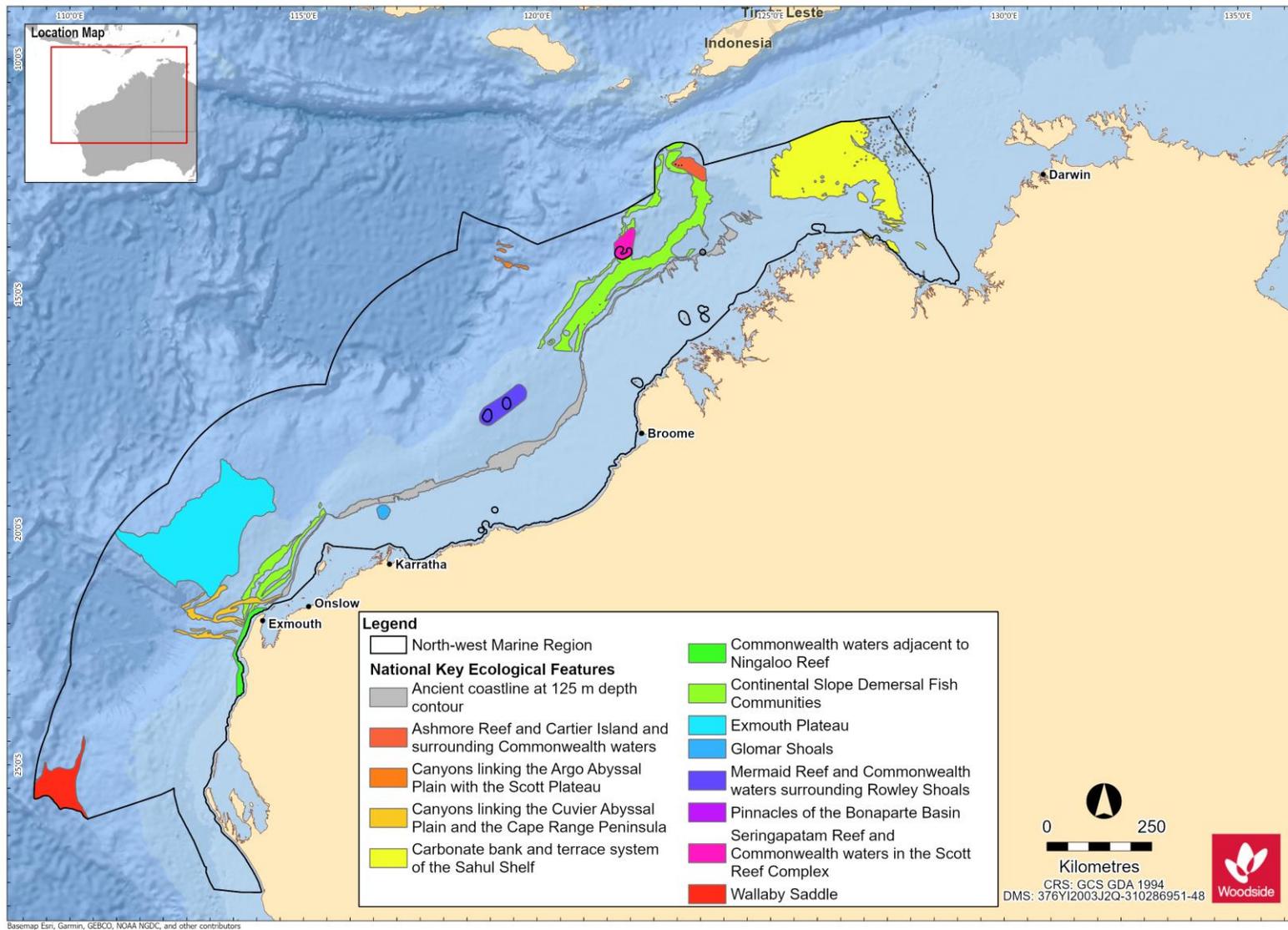


Figure 9-1 Key Ecological Features (KEFs) within the NWMR.

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Table 9-2 Key Ecological Features (KEF) within the SWMR

KEF Name	Values ¹	Description
Albany Canyons group and adjacent shelf break	High productivity and aggregations of marine life, and unique seafloor feature with ecological properties of regional significance Both benthic and demersal habitats within the feature are of conservation value	The Albany Canyons group is thought to be associated with small, periodic subsurface upwelling events, which may drive localised regions of high productivity. The canyons are known to be a feeding area for sperm whale and sites of orange roughly aggregations. Anecdotal evidence also indicates that this area supports fish aggregations that attract large predatory fish and sharks.
Ancient coastline at 90-120 m depth	Relatively high productivity and aggregations of marine life, and high levels of biodiversity and endemism The feature creates topographic complexity, that may facilitate benthic biodiversity and enhanced biological productivity	Benthic biodiversity and productivity occur where the ancient coastline forms a prominent escarpment, such as in the western Great Australian Bight, where the sea floor is dominated by sponge communities of significant biodiversity and structural complexity.
Cape Mentelle upwelling	Facilitates nutrient upwelling, supporting high productivity and diverse aggregations of marine life	The Cape Mentelle upwelling draws relatively nutrient-rich water from the base of the Leeuwin Current, up the continental slope and onto the inner continental shelf, where it results in phytoplankton blooms at the surface. The phytoplankton blooms provide the basis for an extended food chain characterised by feeding aggregations of small pelagic fish, larger predatory fish, seabirds, dolphins and sharks.
Commonwealth marine environment surrounding the Houtman Abrolhos Islands (and adjacent shelf break)	High levels of biodiversity and endemism within benthic and pelagic habitats	The Houtman Abrolhos Islands and surrounding reefs support a unique mix of temperate and tropical species, resulting from the southward transport of species by the Leeuwin Current over thousands of years. The Houtman Abrolhos Islands are the largest seabird breeding station in the eastern Indian Ocean. They support more than one million pairs of breeding seabirds.

KEF Name	Values ¹	Description
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.
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 <i>et al.</i> , 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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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.

¹. Values description sourced from Marine bioregional plan for the South-west Marine Region (DSEWPAC, 2012b) and the Department of Agriculture, Water and the Environment (DAWE) SPRAT database

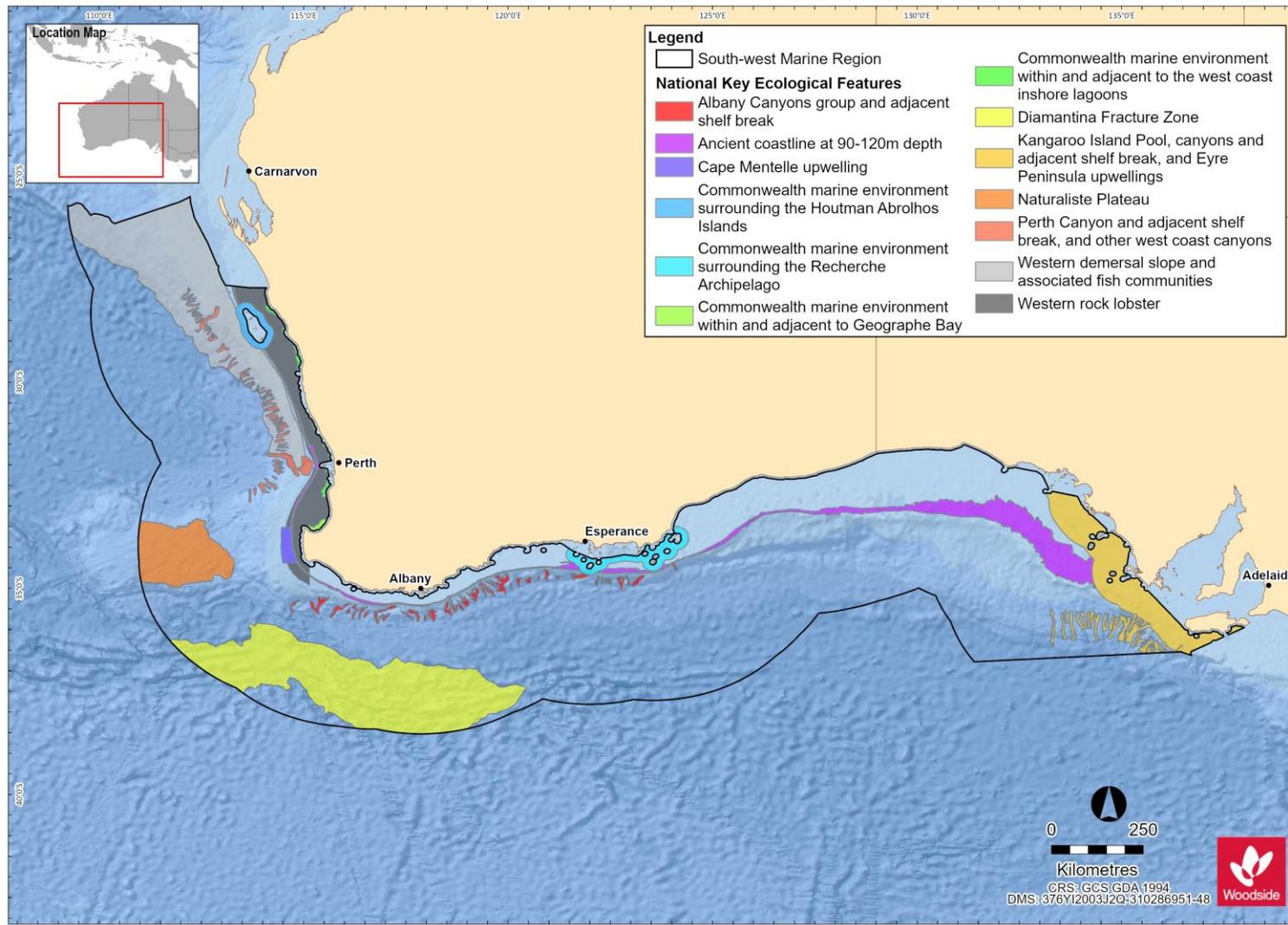


Figure 9-2. Key Ecological Features (KEFs) within the SWMR

Table 9-3 Key Ecological Features (KEF) within the NMR

KEF Name	Values ¹	Description
Carbonate bank and terrace system of the Van Diemen Rise	Important for its role in enhancing biodiversity and local productivity relative to its surrounds and for supporting relatively high species diversity The feature has been identified as a sponge biodiversity hotspot (Przeslawski <i>et al.</i> 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 9-1)	Covering more than 520 km ² within the Bonaparte Basin, this feature contains the largest concentration of pinnacles along the Australian margin. The Pinnacles of the Bonaparte Basin are thought to be the eroded remnants of underlying strata; it is likely that the vertical walls generate local upwelling of nutrient-rich water, leading to phytoplankton productivity that attracts aggregations of planktivorous and predatory fish, seabirds and foraging turtles.

KEF Name	Values ¹	Description
Plateaux and saddle north-west of the Wellesley Islands	High species abundance, diversity and endemism of marine life	Abundance and species density are high in the plateaux and saddle as a result of increased biological productivity associated with habitats rather than currents. Submerged reefs support corals that are typical of northern Australia, including corals that have bleach-resistant zooxanthellae; and particular reef fish species that are different to those found elsewhere in the Gulf of Carpentaria. Species present include marine turtles and reef fish such as coral trout, cod, mackerel, and shark. Seabirds frequent the plateaux and saddle, most likely due to the presence of predictable food resources for feeding offspring.
Shelf break and slope of the Arafura Shelf	The Shelf break and slope of the Arafura Shelf is defined as a key ecological feature for its ecological significance associated with productivity emanating from the slope It also forms part of a unique biogeographic province (Last <i>et al.</i> , 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 <i>et al.</i> , 2007)	The submerged coral reefs of the Gulf of Carpentaria are characterised by submerged patch, platform and barrier reefs that form a broken margin around the perimeter of the Gulf of Carpentaria basin, rising from the sea floor at depths of 30–50 m. These reefs provide breeding and aggregation areas for many fish species including mackerel and snapper and offer refuges for sea snakes and apex predators such as sharks. Coral trout species that inhabit the submerged reefs are smaller than those found in the Great Barrier Reef and may prove to be an endemic sub-species.
Tributary Canyons of the Arafura Depression	High productivity and high levels of species diversity and endemism of marine life within the benthic and pelagic habitats of the feature	The tributary canyons are approximately 80–100 m deep and 20 km wide. The largest of the canyons extend some 400 km from Cape Wessel into the Arafura Depression, and are the remnants of a drowned river system that existed during the Pleistocene era. Sediments in this feature are mainly calcium-carbonate rich, although sediment type varies from sandy substrate to soft muddy sediments and hard, rocky substrate. Marine turtles, deep sea sponges, barnacles and stalked crinoids have all been identified in the area.

¹ Values description sourced from *Marine bioregional plan for the North Marine Region (DSEWPAC, 2012c)* and *Department of Agriculture, Water and the Environment (DAWE) SPRAT database*.

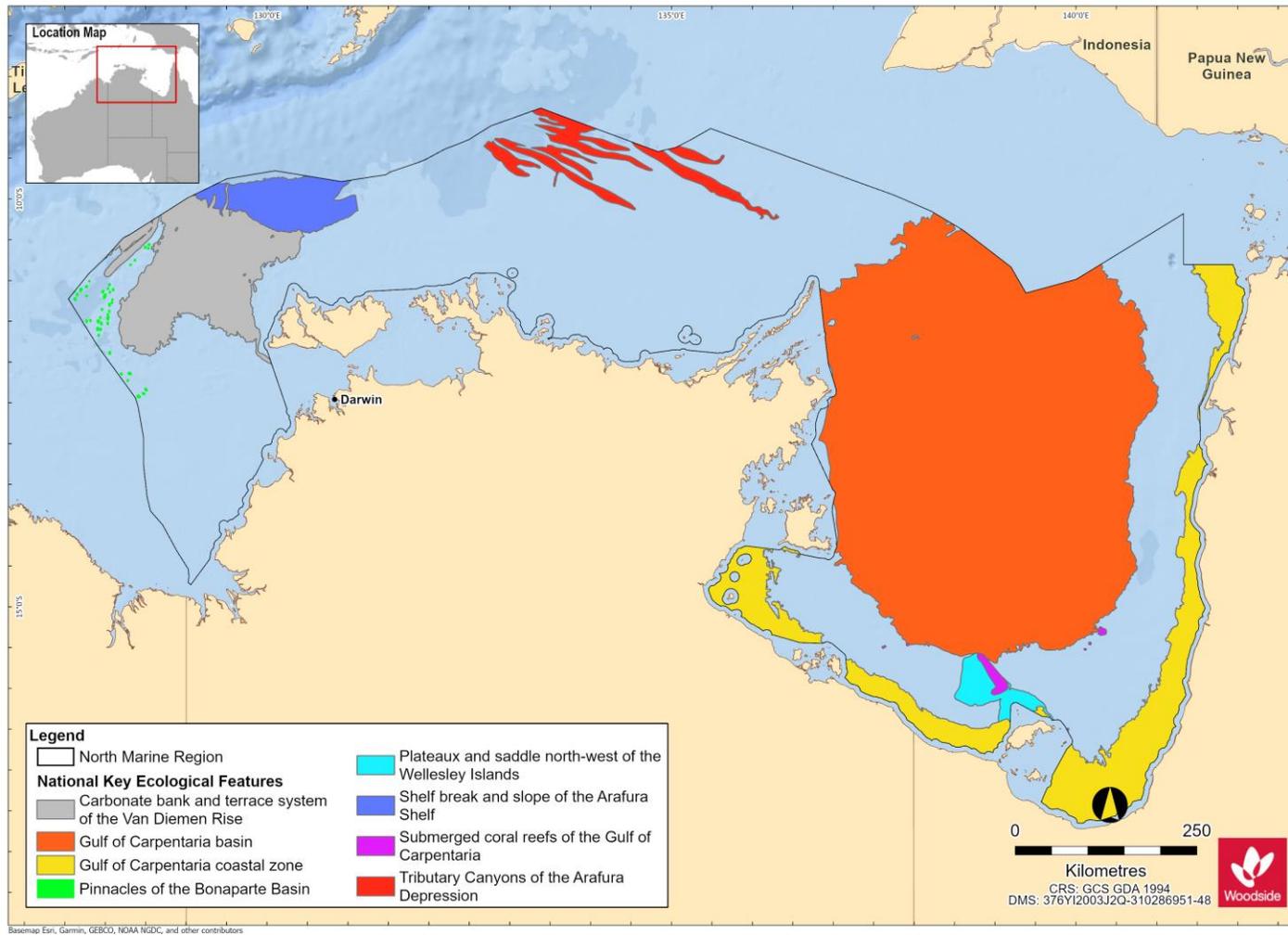


Figure 9-3. Key Ecological Features (KEFs) within the NMR

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10. PROTECTED AREAS

10.1 Regional Context

Protected areas included World Heritage Properties, National Heritage Places, Wetlands of International Importance, Australian Marine Parks, State Marine Parks and Reserves, Threatened Ecological Communities and the Australian Whale Sanctuary. The PMST Reports (**Appendix A**) shows that there are twenty-nine protected areas found in the NWMR, eighteen in the SWMR and nine in the NMR.

Table 10-1, **Table 10-2** and **Table 10-3** outline the protected areas of each of the marine regions NWMR, SWMR and NMR, respectively.

10.2 World Heritage Properties

Properties nominated for World Heritage listing are inscribed on the list only after they have been carefully assessed as representing the best examples of the world's cultural and natural heritage. Only World Heritage listings classed as natural are discussed in this section. World Heritage sites classed as cultural are discussed in **Section 11**.

The list of Australia's World Heritage Properties and the PMST Reports (**Appendix A**) show two World Heritage Properties within the NWMR (**Table 10-1**), no World Heritage Properties within the SWMR (**Table 10-2**), and though not reported in the NMR PMST Report, Kakadu National Park and World Heritage Area is included in **Table 10-3**.

10.3 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 11**.

A search of the National Heritage List Spatial Database and the PMST Reports (**Appendix A**) identified three natural National Heritage Places in the NWMR (**Table 10-1**), three in the SWMR (**Table 10-2**) and for the NMR, Kakadu National Park (not included in the PMST report) is included in **Table 10-3**.

A search of the Commonwealth Heritage List identified four natural commonwealth heritage places within the NWMR (**Table 10-1**).

10.4 Wetlands of International Importance (listed under the Ramsar Convention)

Australia has 65 Ramsar wetlands that cover >8.3 million ha. Ramsar wetlands are those that are representative, rare, or unique wetlands, or that are important for conserving biological diversity.

The List of Wetlands of International Importance held under the Ramsar Convention and the PMST Reports (**Appendix A**) identified four Ramsar Sites with coastal features within the NWMR (**Table 10-1**), four in the SWMR (**Table 10-2**) and two for the New Territory, included for the NMR (**Table 10-3**).

10.5 Australian Marine Parks

Australian Marine Parks (AMPs), proclaimed under the EPBC Act in 2007 and 2013, are located in Commonwealth waters that start at the outer edge of State and Territory waters, generally three

nautical miles (~5.5 km) from the shore, and extend to the outer boundary of Australia's EEZ, 200 nm (~370 km) from the shore.

PMST Reports (**Appendix A**) show sixteen AMPs within the NWMR (**Table 10-1**), ten within the SWMR (**Table 10-2**) and eight within the NMR (**Table 10-3**).

10.6 Threatened Ecological Communities

No Threatened Ecological Communities (TECs) as listed under the EPBC Act are known to occur within the marine waters of the NWMR, SWMR or NMR as indicated by the PMST Reports (**Appendix A**).

10.7 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 EEZ (i.e. out to 200 nm and further in some places). Within the Sanctuary it is an offence to kill, injure or interfere with a cetacean. Severe penalties apply to anyone convicted of such offences.

10.8 State Marine Parks and Reserves

State Marine Parks and Reserves, proclaimed under the *Conservation and Land Management Act 1984* (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 14 occurring in the NWMR (**Table 10-1**) and six occurring in the SWMR (**Table 10-2**).

10.9 Summary of Protected Areas within the NWMR

Table 10-1 Protected Areas within the NWMR

Protected Area	Woodside Activity Area			IUCN Protected Area Category* or Relevant Park Zone	Description	Conservation Values
	Browse	NWS/S	NW Cape			
World Heritage Properties						
Shark Bay World Heritage Property	-	-	✓		The Shark Bay World Heritage Property is adjacent to the Shark Bay AMP and was included on the World Heritage List in 1991.	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.
The Ningaloo Coast World Heritage Property	-	-	✓		The Ningaloo Coast World Heritage Property lies within the Ningaloo AMP and was included on the World Heritage List in 2011.	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.
National Heritage Places - Natural						
Shark Bay	-	-	✓		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.	The 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.
The Ningaloo Coast	-	-	✓		The Ningaloo Coast National Heritage Place consists of the same area included in the Ningaloo	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.

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Protected Area	Woodside Activity Area			IUCN Protected Area Category* or Relevant Park Zone	Description	Conservation Values
	Browse	NWS/S	NW Cape			
					Coast World Heritage Property (refer above) and was established on the National Heritage List in 2010.	The Ningaloo Coast meets the national heritage listing criteria a, b, c, d, and f.
The West Kimberley	✓	✓	-		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.	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. The national heritage place also contains a remarkable history of Aboriginal 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 Heritage Places - Natural						
Mermaid Reef – Rowley Shoals	-	✓	-	N/A	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.	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.

Protected Area	Woodside Activity Area			IUCN Protected Area Category* or Relevant Park Zone	Description	Conservation Values
	Browse	NWS/S	NW Cape			
Ashmore Reef National Nature Reserve	✓	-	-		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.	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.
Scott Reef and Surrounds – Commonwealth Area	✓	-	-		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.	The Scott Reef and Surrounds Commonwealth Heritage Place is regionally important for the diversity of its fauna and has biogeographical significance due to the presence of species which are at, or close to, the limits of their geographic ranges, including fish known previously only from Indonesian waters. Scott Reef is recognised as important for scientific research and benchmark studies due to its age, the extensive documentation of its 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.

Protected Area	Woodside Activity Area			IUCN Protected Area Category* or Relevant Park Zone	Description	Conservation Values
	Browse	NWS/S	NW Cape			
Ningaloo Marine Area – Commonwealth Waters	-	-	✓		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.	The Ningaloo Marine Area Commonwealth Heritage Place provides a migratory pathway for humpback whales and foraging habitat for whale sharks. The place is an important breeding area for billfish and manta ray. The Ningaloo Marine Area provides opportunities for scientific research relating to aspects of the area's unique features including tourism (marine ecology, whales, turtles, whale sharks, fish and oceanography).
Wetlands of International Importance (Ramsar)						
Ashmore Reef National Nature Reserve	✓	-	-	Ramsar	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.	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 WA 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.
Eighty Mile Beach	-	✓	-	Ramsar	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).	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.
Roebuck Bay	-	✓	-	Ramsar	The Roebuck Bay Ramsar site covers an area of 550	The Roebuck Bay Ramsar site is recognised as one of the most important areas for migratory shorebirds in Australia.

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Protected Area	Woodside Activity Area			IUCN Protected Area Category* or Relevant Park Zone	Description	Conservation Values
	Browse	NWS/S	NW Cape			
					km ² , located south of Broome and adjacent to the Roebuck AMP (refer below).	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.
Ord River Floodplain	✓			Ramsar	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 Ramsar Site is a nursery, feeding and/or breeding ground for migratory birds, waterbirds, fish, crabs, prawns, and crocodiles.	The site represents the best example of wetlands associated with the floodplain and estuary of a tropical river system in the Tanami-Timor Sea Coast Bioregion in the Kimberley. In addition, the False Mouths of the Ord are the most extensive mudflat and tidal waterway complex in Western Australia.
Wetlands of National Importance (DAWE, 2019)						
Ashmore Reef	✓	-	-		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.	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.
Mermaid Reef	-	✓	-		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.	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.

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Protected Area	Woodside Activity Area			IUCN Protected Area Category* or Relevant Park Zone	Description	Conservation Values
	Browse	NWS/S	NW Cape			
Exmouth Gulf East	-	-	✓		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.	The Exmouth Gulf East is an outstanding example of tidal wetland systems of 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.
Hamelin Pool	-	-	✓		Hamelin Pool covers an area of 900 km ² in the far south-east part of Shark Bay.	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.
Shark Bay East	-	-	✓		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.	The site is an outstanding example of a very large, shallow marine embayment, with particularly extensive occurrence of seagrass beds and substantial areas of intertidal mud/sandflats and mangrove swamp. The site supports what is probably the world's largest discrete population of dugong; it is also a major nursery and/or feeding area for turtles, rays, sharks, other fishes, prawns and other marine fauna; and is a major migration stop-over area for shorebirds. The area meets criteria 1, 2, 3, 4, 5 and 6 for inclusion on the Directory of Important Wetlands in Australia.
Australian Marine Parks (DNP, 2018a)						
Abrolhos Marine Park	-	-	✓	II, IV, VI	Abrolhos Marine Park is located adjacent to the WA Houtman Abrolhos Islands, covering a large offshore	Abrolhos Marine Park is significant because it contains habitats, species and ecological communities associated with four bioregions:

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Protected Area	Woodside Activity Area			IUCN Protected Area Category* or Relevant Park Zone	Description	Conservation Values
	Browse	NWS/S	NW Cape			
					<p>area of 88,060 km² extending from the WA State waters boundary to the edge of Australia's EEZ.</p> <p>The Abrolhos Marine Park is located within both the NWMR and SWMR.</p>	<ul style="list-style-type: none"> • Central Western Province • Central Western Shelf Province • Central Western Transition • South-west Shelf Transition <p>It includes seven KEFs: 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 at 90-120 m depth; and Wallaby Saddle.</p> <p>The AMP supports a range of species including species listed as threatened, migratory, marine or cetacean under the EPBC Act. BIAs within the AMP 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 AMP is adjacent to the northernmost Australian sea lion breeding colony in Australia on the Houtman Abrolhos Islands.</p>
Carnarvon Canyon Marine Park	-	-	✓	IV	Carnarvon Canyon Marine Park covers an area of 6177 km ² , located ~300 km north-west of Carnarvon.	Carnarvon Canyon Marine Park is significant because it contains habitats, species and ecological communities associated with the Central Western Transition bioregion. The AMP supports a range of species, including species listed as threatened, migratory, marine or cetacean under the EPBC Act. There is limited information about species' use of this AMP.
Shark Bay Marine Park	-	-	✓	VI	Shark Bay Marine Park covers an area of 7443 km ² located ~60 km offshore of Carnarvon, adjacent to the Shark Bay World Heritage Property and National Heritage Place.	<p>Shark Bay Marine Park is significant because it contains habitats, species and ecological communities associated with two bioregions:</p> <ul style="list-style-type: none"> • Central Western Shelf Province • Central Western Transition. <p>The AMP supports a range of species including species listed as threatened, migratory, marine or cetacean under</p>

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Protected Area	Woodside Activity Area			IUCN Protected Area Category* or Relevant Park Zone	Description	Conservation Values
	Browse	NWS/S	NW Cape			
						the EPBC Act. BIAs within the AMP include breeding habitat for seabirds, interesting habitat for marine turtles, and a migratory pathway for humpback whales.
Gascoyne Marine Park	-	-	✓	II, IV, VI	Gascoyne Marine Park covers an area of 81,766 km ² , located ~20 km off the west coast of the Cape Range Peninsula, adjacent to the Ningaloo Marine Park.	Gascoyne Marine Park is significant because it contains habitats, species and ecological communities associated with three bioregions: <ul style="list-style-type: none"> • Central Western Shelf Transition • Central Western Transition • Northwest Province. It includes four KEFs: Canyons linking the Cuvier Abyssal Plain and the Cape Range Peninsula; Commonwealth waters adjacent to Ningaloo Reef; Continental slope demersal fish communities; and Exmouth Plateau. The AMP supports a range of species including species listed as threatened, migratory, marine or cetacean under the EPBC Act. BIAs within the AMP 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.
Ningaloo Marine Park	-	-	✓	II, IV	Ningaloo Marine Park covers an area of 2435 km ² , stretching ~300 km along the west coast of the Cape Range Peninsula, and is adjacent to the WA Ningaloo Marine Park and Gascoyne Marine Park.	Ningaloo Marine Park is significant because it contains habitats, species and ecological communities associated with four bioregions: <ul style="list-style-type: none"> • Central Western Shelf Transition • Central Western Transition • Northwest Province • Northwest Shelf Province. It includes three KEFs: Canyons linking the Cuvier Abyssal Plain and the Cape Range Peninsula; Commonwealth waters adjacent to Ningaloo Reef; and Continental slope demersal fish communities. The AMP supports a range of species including species listed as threatened, migratory, marine or cetacean under the EPBC Act. BIAs within the AMP include breeding and

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Protected Area	Woodside Activity Area			IUCN Protected Area Category* or Relevant Park Zone	Description	Conservation Values
	Browse	NWS/S	NW Cape			
						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.
Montebello Marine Park	-	✓	-	VI	Montebello Marine Park covers an area of 3413 km ² , located offshore of Barrow Island and 80 km west of Dampier extending from the WA State waters boundary, and is adjacent to the WA Barrow Island and Montebello Islands Marine Parks.	Montebello Marine Park is significant because it contains habitats, species and ecological communities associated with the Northwest Shelf Province bioregion. It includes one KEF: Ancient coastline at 125 m depth contour. The AMP supports a range of species including species listed as threatened, migratory, marine or cetacean under the EPBC Act. BIAs within the AMP include breeding habitat for seabirds, interesting, foraging, mating, and nesting habitat for marine turtles, a migratory pathway for humpback whales and foraging habitat for whale sharks.
Dampier Marine Park	-	✓	-	II, IV, VI	Dampier Marine Park covers an area of 1252 km ² , located ~10 km north-east of Cape Lambert and 40 km from Dampier extending from the WA State waters boundary.	Dampier Marine Park is significant because it contains habitats, species and ecological communities associated with the Northwest Shelf Province bioregion. The AMP provides protection for offshore shelf habitats adjacent to the Dampier Archipelago, and the area between Dampier and Port Hedland, and is a hotspot for sponge biodiversity. The AMP supports a range of species including those listed as threatened, migratory, marine or cetacean under the EPBC Act. BIAs within the AMP include breeding and foraging habitat for seabirds, interesting habitat for marine turtles and a migratory pathway for humpback whales.
Eighty Mile Beach Marine Park	-	✓	-	VI	Eighty Mile Beach Marine Park covers an area of 10,785 km ² , located ~74 km north-east of Port Hedland, adjacent to the	Eighty Mile Beach Marine Park is significant because it contains habitats, species and ecological communities associated with the Northwest Shelf Province and consists of shallow shelf habitats, including terrace, banks and shoals.

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Protected Area	Woodside Activity Area			IUCN Protected Area Category* or Relevant Park Zone	Description	Conservation Values
	Browse	NWS/S	NW Cape			
					WA Eighty Mile Beach Marine Park.	The AMP supports a range of species including species listed as threatened, migratory, marine or cetacean under the EPBC Act. BIAs within the AMP include breeding, foraging and resting habitat for seabirds, interesting and nesting habitat for marine turtles, foraging, nursing and pupping habitat for sawfishes and a migratory pathway for humpback whales.
Argo – Rowley Terrace Marine Park	✓	✓	-	II, VI, VI (Trawl)	Argo-Rowley Terrace Marine Park covers an area of 146,003 km ² , located ~270 km north-west of Broome, and extends to the limit of Australia's EEZ. The AMP is adjacent to the Mermaid Reef Marine Park and the WA Rowley Shoals Marine Park.	Argo-Rowley Marine Park is significant because it contains habitats, species and ecological communities associated with two bioregions: <ul style="list-style-type: none"> • Northwest Transition • Timor Province. It includes two KEFs: Canyons linking the Argo Abyssal Plain with the Scott Plateau; and Mermaid Reef and Commonwealth waters surrounding Rowley Shoals. The AMP supports a range of species including species listed as threatened, migratory, marine or cetacean under the EPBC Act. BIAs within the AMP include resting and breeding habitat for seabirds and a migratory pathway for the pygmy blue whale.
Mermaid Reef Marine Park	-	✓	-	II	Mermaid Reef Marine Park covers an area of 540 km ² , located ~280 km north-west of Broome, adjacent to the Argo-Rowley Terrace Marine Park and ~13 km from the WA Rowley Shoals Marine Park. Mermaid Reef is one of three reefs forming the Rowley Shoals. The other two are Clerke Reef and Imperieuse Reef, to the	Mermaid Reef Marine Park is significant because it contains habitats, species and ecological communities associated with the Northwest Transition. It includes one KEF: Mermaid Reef and Commonwealth waters surrounding Rowley Shoals. The Rowley Shoals have been described as the best geological examples of shelf atolls in Australian waters. The AMP supports a range of species, including species listed as threatened, migratory, marine or cetacean under the EPBC Act. BIAs within the AMP include breeding habitat for seabirds and a migratory pathway for the pygmy blue whale.

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Protected Area	Woodside Activity Area			IUCN Protected Area Category* or Relevant Park Zone	Description	Conservation Values
	Browse	NWS/S	NW Cape			
					south-west of the AMP, which are included in the WA Rowley Shoals Marine Park.	
Roebuck Marine Park	-	✓	-	VI	Roebuck Marine Park covers an area of 304 km ² , located ~12 km offshore of Broome, and is adjacent to the WA Yawuru Nagulagun/Roebuck Bay Marine Park.	Roebuck Marine Park is significant because it contains habitats, species and ecological communities associated with the Northwest Shelf Province and consists entirely of shallow continental shelf habitat. The AMP supports a range of species including species listed as threatened, migratory, marine or cetacean under the EPBC Act. BIAs within the AMP 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.
Kimberley Marine Park	✓	✓	-	II, IV, VI	Kimberley Marine Park covers an area of 74,469 km ² , located ~100 km north of Broome, extending from the WA State waters boundary north from the Lacepede Islands to the Holothuria Banks offshore from Cape Bougainville.	Kimberley Marine Park is significant because it includes habitats, species and ecological communities associated with three bioregions: <ul style="list-style-type: none"> • Northwest Shelf Province • Northwest Shelf Transition • Timor Province. It includes two KEFs: Ancient coastline at 125 m depth contour; and Continental slope demersal fish communities. The AMP supports a range of species, including protected species listed as threatened, migratory, marine or cetacean under the EPBC Act. BIAs within the AMP 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.
Ashmore Reef Marine Park	✓	-	-	Ia, IV	Ashmore Reef Marine Park covers an area of 583 km ² , located ~630 km north of	Ashmore Reef Marine Park is significant because it includes habitats, species and ecological communities associated with the Timor Province. It includes two KEFs:

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Protected Area	Woodside Activity Area			IUCN Protected Area Category* or Relevant Park Zone	Description	Conservation Values
	Browse	NWS/S	NW Cape			
					Broome and 110 km south of the Indonesian island of Roti. The AMP is located in Australia's External Territory of Ashmore and Cartier Islands and is within an area subject to a Memorandum of Understanding (MoU) between Indonesia and Australia, known as the MoU Box.	Ashmore Reef and Cartier Island and surrounding Commonwealth waters; and Continental slope demersal fish communities. The AMP supports a range of species, including species listed as threatened, migratory, marine or cetacean under the EPBC Act. BIAs within the AMP include breeding, foraging and resting habitat for seabirds, resting and foraging habitat for migratory shorebirds, foraging, mating, nesting and internesting habitat for marine turtles, foraging habitat for dugong, and a migratory pathway for pygmy blue whales.
Cartier Island Marine Park	✓	-	-	Ia	Cartier Island Marine Park covers an area of 172 km ² , located ~45 km south-east of Ashmore Reef Marine Park and 610 km north of Broome. It is also located in Australia's External Territory of Ashmore and Cartier Islands and within an area subject to an MoU between Indonesia and Australia, known as the MoU Box.	Cartier Island Marine Park is significant because it includes habitats, species and ecological communities associated with the Timor Province. It includes two key ecological features: Ashmore Reef and Cartier Island and surrounding Commonwealth waters and continental slope demersal fish communities. The AMP supports a range of species, including species listed as threatened, migratory, marine or cetacean under the EPBC Act. BIAs within the AMP include breeding and foraging habitat for seabirds, internesting, nesting and foraging habitat for marine turtles and foraging habitat for whale sharks. The AMP is also internationally significant for its abundance and diversity of sea snakes, some of which are listed species under the EPBC Act.
Joseph Bonaparte Gulf Marine Park	✓	-	-	VI	Joseph Bonaparte Gulf Marine Park covers an area of 8597 km ² and is located ~15 km west of Wadeye, NT, and ~90 km north of Wyndham, WA, in the Joseph Bonaparte Gulf.	Joseph Bonaparte Gulf Marine Park is significant because it contains habitats, species and ecological communities associated with the Northwest Shelf Transition bioregion. It includes one KEF: Carbonate bank and terrace system of the Sahul Shelf. The AMP supports a range of species, including species listed as threatened, migratory, marine or cetacean under

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Protected Area	Woodside Activity Area			IUCN Protected Area Category* or Relevant Park Zone	Description	Conservation Values
	Browse	NWS/S	NW Cape			
					It is adjacent to the WA North Kimberley Marine Park. The Joseph Bonaparte Gulf Marine Park is located within both the NWMR and NMR.	the EPBC Act. BIAs within the AMP include foraging habitat for marine turtles and the Australian snubfin dolphin.
Oceanic Shoals Marine Park	✓	-	-	II, IV, VI	Oceanic Shoals Marine Park covers an area of 71,743 km ² and is located west of the Tiwi Islands, ~155 km north-west of Darwin, NT and 305 km north of Wyndham, WA. The Oceanic Shoals Marine Park is located within both the NWMR and NMR.	Oceanic Shoals Marine Park is significant because it contains habitats, species and ecological communities associated with the Northwest Shelf Transition bioregion. It contains four KEFs: Carbonate bank and terrace systems of the Van Diemen Rise; Carbonate bank and terrace systems of the Sahul Shelf; Pinnacles of the Bonaparte Basin; and Shelf break and slope of the Arafura Shelf. The AMP supports a range of species, including species listed as threatened, migratory, marine or cetacean under the EPBC Act. BIAs within the AMP include foraging and interesting habitat for marine turtles.
State Marine Parks and Reserves						
North Kimberley Marine Park	✓	-	-	Sanctuary, Special Purpose and General Use Zones	The North Kimberley Marine Park covers approx. 18,450 km ² with its south-western boundary located ~270 km north-east of Derby.	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).
Lalang-garram / Horizontal Falls Marine Park and North Lalang-garram Marine Park (jointly managed)	✓	-	-	Sanctuary, Special Purpose and General Use Zones	The Lalang-garram / Horizontal Falls Marine Park covers ~3530 km ² from Talbot Bay in the west and Glenelg River in the east. The North Lalang-garram Marine Park covers ~1100	The Lalang-garram / Horizontal Falls Marine Park's most celebrated attraction 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. The North Lalang-garram Marine Park has a number of islands fringed with coral reef and has been identified as an

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Protected Area	Woodside Activity Area			IUCN Protected Area Category* or Relevant Park Zone	Description	Conservation Values
	Browse	NWS/S	NW Cape			
					km ² between Camden Sound and North Kimberley Marine Parks.	ecological hotspot and supports more than 1% of the world's population of brown boobies, with up to 2000 breeding pairs. About 500 pairs of crested terns also nest on the island (DPAW, 2016b).
Lalang-garram / Camden Sound Marine Park	✓	-	-	Sanctuary, Special Purpose and General Use Zones	Lalang-garram / Camden Sound Marine Park covers 7050 km ² located about 150 km north of Derby.	The Lalang-garram / Camden Sound Marine Park is the most important humpback whale nursery in the Southern Hemisphere. It also features the spectacular coastal Montgomery Reef. The marine park is home to six species of threatened marine turtle. Australian snubfin and Indo-Pacific humpback dolphins, dugongs, saltwater crocodiles, and several species of sawfish (DPAW, 2013).
Rowley Shoals Marine Park	-	✓	-	Sanctuary, Recreation and General Use Zones	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.	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 km ² at the edge of Australia's continental shelf. 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).
Yawuru Nagulagun / Roebuck Bay Marine Park	-	✓	-	Special Purpose Zone	Yawuru Nagulagun / Roebuck Bay Marine Park is a series of intertidal flats lying on the coast to the south-east of Broome.	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 turtle (DPAW, 2016c).
Eighty Mile Beach Marine Park	-	✓	-	Sanctuary, Recreation, Special	Eighty Mile Beach Marine Park covers ~2000 km ² stretching across 220km of	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

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Protected Area	Woodside Activity Area			IUCN Protected Area Category* or Relevant Park Zone	Description	Conservation Values
	Browse	NWS/S	NW Cape			
				Purpose and General Use Zones	coastline between Port Hedland and Broome.	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, 2014).
Montebello Islands Marine Park, Barrow Island Marine Park and Barrow Island Marine Management Area (jointly managed)	-	✓	-	Sanctuary, Recreation, General Use and Special Purpose Zones	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 km ² , 42 km ² and 1,147 km ² , respectively.	The Montebello/Barrow islands marine conservation reserves have very complex seabed and island topography, resulting in a myriad of different habitats subtidal coral reefs, macroalgal and seagrass communities, subtidal soft-bottom communities, rocky shores and intertidal reef platforms, which support a rich diversity of invertebrates and finfish. The reserves are important breeding areas for several species of marine turtles and seabirds, which use the undisturbed sandy beaches for nesting. Humpback whales migrate through the reserves and dugongs occur in the shallow warm waters (DEC, 2007b).
Ningaloo Marine Park and Muiron Islands Marine Management Area (jointly managed)	-	-	✓	Sanctuary, Recreation, General Use and Special Purpose Zones	The Ningaloo Marine Park and Muiron Islands Marine Management Area are located off the North-west Cape of WA, ~1200 km north of Perth, and cover areas of ~2633 km ² and 286 km ² , respectively.	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).

Protected Area	Woodside Activity Area			IUCN Protected Area Category* or Relevant Park Zone	Description	Conservation 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	The Shark Bay Marine Park and Hamelin Pool Marine Nature Reserves are located 400 km north of Geraldton, covering areas of ~7487 km ² and 1270 km ² , respectively.	Seagrass covers over 4000 km ² 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. 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).

*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 (DNP, 2018a)

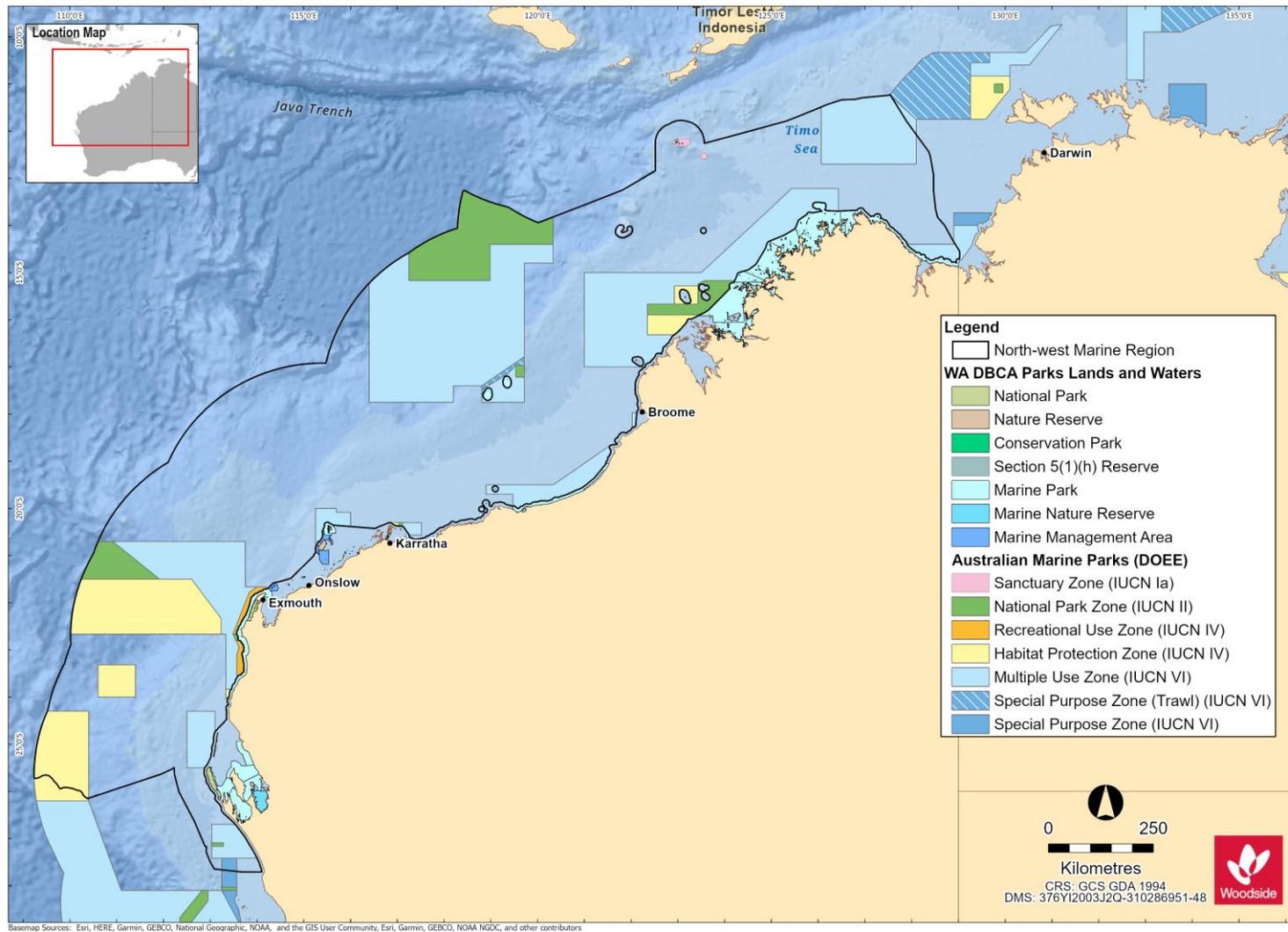


Figure 10-1 Commonwealth and State Marine Protected Areas for the NWMR

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10.10 Summary of Protected Areas within the SWMR

Table 10-2 Protected Areas within the SWMR

Protected Area	IUCN Protected Area Category* or Relevant Park Zone	Description	Conservation Values
World Heritage Properties			
N/A			
National Heritage Places - Natural			
N/A			
Commonwealth Heritage Places - Natural			
N/A			
Wetlands of International Importance (Ramsar)			
Beecher Point Wetlands	Ramsar	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.	The wetlands support sedgeland, herbland, grassland, open-shrubland and low open-forest. The sedgelands that occur within the linear wetland depressions of the Ramsar site are a nationally listed TEC. At least four species of amphibians and twenty-one (21) species of reptiles have been recorded on the site. The site also supports the southern brown bandicoot. The site meets criteria 1 and 2 of the Ramsar Convention.
Forrestdale and Thomsons Lakes	Ramsar	Forrestdale Lake is located in the City of Armadale and Thomsons Lake is located in the City of Cockburn both of which lie within the southern Perth metropolitan area, in Western Australia. The site was listed under the Ramsar Convention in 1990.	The lakes are surrounded by medium density urban development and some agricultural land. The sediments of Thomsons Lake are between 30,000 and 40,000 years old, which are the oldest lake sediments discovered in WA to date. These lakes are the best remaining examples of brackish, seasonal lakes with extensive fringing sedgeland, typical of the Swan Coastal Plain. The site meets criteria 1, 3, 5 and 6 of the Ramsar Convention.
Peel-Yalgorup System	Ramsar	Peel-Yalgorup System, located adjacent to the City of Mandurah in	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

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Protected Area	IUCN Protected Area Category* or Relevant Park Zone	Description	Conservation Values
		WA, is a large and diverse system of shallow estuaries, coastal saline lakes and freshwater marshes. The site was listed under the Ramsar Convention in 1990.	wide variety of waterbird species. It also supports a wide variety of invertebrates, and estuarine and marine fish. The site meets criteria 1, 3, 5 and 6 of the Ramsar Convention.
Vasse-wonnerup system	Ramsar	Vasse-Wonnerup System Ramsar wetland is situated in the Perth Basin, south-western WA. The site was listed under the Ramsar Convention in 1990.	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. 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. Thirteen 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.
Wetlands of National Importance (DAWE, 2019)			
Rottneest Island Lakes		The Rottneest Island Lakes site is the cluster of 18 lakes and swamps on the north-east part of Rottneest Island.	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.
Australian Marine Parks (DNP, 2018b)			
Abrolhos Marine Park	II, IV, VI	The Abrolhos Marine Park is located within both the NWMR and SWMR. Refer Table 10-1 for description and conservation values.	
Bremer Marine Park	II, VI	Bremer Marine Park covers an area of 4472 km ² and is located approximately half-way between Albany and Esperance, offshore from the Fitzgerald River National Park, extending from the WA State waters boundary.	Bremer Marine Park is significant because it contains habitats, species and ecological communities associated with two bioregions: <ul style="list-style-type: none"> • Southern Province • South-west Shelf Province. It includes two KEFs: Albany Canyon group and adjacent shelf break; and Ancient coastline at 90-120 m depth.

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Protected Area	IUCN Protected Area Category* or Relevant Park Zone	Description	Conservation Values
			The AMP supports a range of species including species listed as threatened, migratory, marine or cetacean under the EPBC Act. BIAs within the AMP 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. The AMP includes canyons—important aggregation areas for killer whales.
Eastern Recherche Marine Park	II, VI	Eastern Recherche Marine Park covers an area of 20,575 km ² and is located ~135 km east of Esperance, adjacent to the Recherche Archipelago, close to the WA Cape Arid National Park.	Eastern Recherche Marine Park is significant because it contains habitats, species and ecological communities associated with three bioregions: <ul style="list-style-type: none"> • South-west Shelf Province • Southern Province • Great Australian Bight Shelf Transition. It includes three KEFs: Mesoscale eddies; Ancient coastline at 90-120 m depth; and Commonwealth marine environment surrounding the Recherche Archipelago. <p>The AMP supports a range of species including species listed as threatened, migratory, marine or cetacean under the EPBC Act. BIAs within the AMP include foraging habitat for seabirds, Australian sea lions and white sharks, and a calving buffer area for southern right whales.</p>
Geographe Marine Park	II, IV, VI	Geographe Marine Park covers an area of 977 km ² and is located in Geographe Bay, ~8 km west of Bunbury and 8 km north of Busselton, adjacent to the WA Ngari Capes Marine Park.	Geographe Marine Park is significant because it contains habitats, species and ecological communities associated with the South-west Shelf Province bioregion. <p>It includes two KEFs: Commonwealth marine environment within and adjacent to Geographe Bay; and Western rock lobster.</p> <p>The AMP supports a range of species including species listed as threatened, migratory, marine or cetacean under the EPBC Act. BIAs within the AMP include foraging habitat for seabirds, a migratory pathway for humpback and pygmy blue whales, and a calving buffer area for southern right whales.</p>
Great Australian Bight Marine Park	II, VI	Great Australian Bight Marine Park covers an area of 45,822 km ² and is located ~12 km south-east of Eucla and 174 km west of Ceduna, adjacent to the SA Far West Coast and Nuyts Archipelago Marine Parks.	Great Australian Bight Marine Park is significant because it contains habitats, species and ecological communities associated with two bioregions: <ul style="list-style-type: none"> • Great Australian Bight Shelf Transition • Southern Province. <p>It includes three KEFs: Ancient coastline at 90-120 m depth; Benthic invertebrate communities of the eastern Great Australian Bight; and Small pelagic fish of the South-west Marine Region.</p> <p>The AMP supports a range of species including species listed as threatened, migratory, marine or cetacean under the EPBC Act. BIAs within the AMP include foraging habitat for seabirds, Australian sea lions, white sharks and</p>

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Protected Area	IUCN Protected Area Category* or Relevant Park Zone	Description	Conservation Values
			pygmy blue and sperm whales, and a calving area, migratory pathway and large aggregation area for southern right whales.
Jurien Marine Park	II, VI	Jurien Marine Park covers an area of 1851 km ² and is located ~148 km north of Perth and 155 km south of Geraldton, adjacent to the WA Jurien Bay Marine Park.	<p>Jurien Marine Park is significant because it includes habitats, species and ecological communities associated with two bioregions:</p> <ul style="list-style-type: none"> • South-west Shelf Transition • Central Western Province. <p>It includes three KEFs: Ancient coastline at 90-120 m depth; Demersal slope and associated fish communities of the Central Western Province; and Western rock lobster</p> <p>The AMP supports a range of species including species listed as threatened, migratory, marine or cetacean under the EPBC Act. BIAs within the AMP include foraging habitat for seabirds, Australian sea lions and white sharks, and a migratory pathway for humpback and pygmy blue whales.</p>
Perth Canyon Marine Park	II, IV, VI	Perth Canyon Marine Park covers an area of 7409 km ² and is located ~52 km west of Perth and ~19 km west of Rottnest Island.	<p>Perth Canyon Marine Park is significant because it includes habitats, species and ecological communities associated with four bioregions:</p> <ul style="list-style-type: none"> • Central Western Province • South-west Shelf Province • Southwest Transition • South-west Shelf Transition. <p>It includes four KEFs: Perth Canyon and adjacent shelf break, and other west-coast canyons; Demersal slope and associated fish communities of the Central Western Province; Western rock lobster; and Mesoscale eddies.</p> <p>The AMP supports a range of species including species listed as threatened, migratory, marine or cetacean under the EPBC Act. BIAs within the AMP include foraging habitat for seabirds, Antarctic blue, pygmy blue and sperm whales, a migratory pathway for humpback, Antarctic blue and pygmy blue whales, and a calving buffer area for southern right whales.</p>
South-west Corner Marine Park	II, IV, VI	South-west Corner Marine Park covers an area of 271,833 km ² and is located adjacent to the WA Ngari Capes Marine Park. It covers an extensive offshore area that is closest to WA State waters ~48 km west of Esperance, 73 km west of Albany and 68 km west of Bunbury.	<p>South-west Corner Marine Park is significant because it contains habitats, species and ecological communities associated with three bioregions:</p> <ul style="list-style-type: none"> • Southern Province • South-west Transition • South-west Shelf Province. <p>It includes six KEFs: Albany Canyon group and adjacent shelf break; Cape Mentelle upwelling; Diamantina Fracture Zone; Naturaliste Plateau; Western rock lobster; and Ancient coastline at 90 m-120 m depth.</p>

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Protected Area	IUCN Protected Area Category* or Relevant Park Zone	Description	Conservation Values
			The AMP supports a range of species including species listed as threatened, migratory, marine or cetacean under the EPBC Act. BIAs within the AMP 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.
Twilight Marine Park	II, VI	Twilight Marine Park covers an area of 4641 km ² and is located ~245 km south-west of Eucla and 373 km north-east of Esperance, adjacent to the WA State waters boundary.	Twilight Marine Park is significant because it contains habitats, species and ecological communities associated with the Great Australian Bight Shelf Transition bioregion. The AMP supports a range of species including species listed as threatened, migratory, marine or cetacean under the EPBC Act. BIAs within the AMP include foraging habitat for seabirds, Australian sea lions and white sharks, and a calving buffer area for southern right whales.
Two Rocks Marine Park	II, VI	Two Rocks Marine Park covers an area of 882 km ² and is located ~25 km north-west of Perth, to the north-west of the WA Marmion Marine Park.	Two Rocks Marine Park is significant because it includes habitats, species and ecological communities associated with the South-west Shelf Transition bioregion. It includes three KEFs: Commonwealth marine environment within and adjacent to the west-coast inshore lagoons; Western rock lobster; and Ancient coastline at 90-120 m depth. The AMP supports a range of species including species listed as threatened, migratory, marine or cetacean under the EPBC Act. BIAs within the AMP 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.
State Marine Parks and Reserves			
Jurien Bay Marine Park	Sanctuary, Special Purpose and General Use Zones.	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 .	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).
Marmion Marine Park	Sanctuary, Recreation and Special Use Zones.	The Marmion Marine Park lies within State waters between Trigg Island and Burns Beach and encompasses a coastal area of ~95 km ² . Marmion	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, to a general use zone and the Waterman Recreation Area. The marine park contains important habitat for the endemic Australian

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Protected Area	IUCN Protected Area Category* or Relevant Park Zone	Description	Conservation Values
		Marine Park was the State's first marine park, declared in 1987.	sea lion, an array of seabird species migratory whales are regular visitors (CALM, 1992; DPAW, 2016d).
Swan Estuary Marine Park	Special Purpose and Nature Reserve Zones.	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 km ² .	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. The Park and adjacent reserves also provide habitat for a diverse assemblage of aquatic and terrestrial flora and fauna (CALM, 1999).
Shoalwater Islands Marine Park	Sanctuary, Special Purpose and General Use Zones.	The Shoalwater Islands Marine Park is located adjacent to Rockingham on the south-west coast of WA, ~50 km south of Perth and covers an area of ~66 km ² .	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 the 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).
Ngari Capes Marine Park	Sanctuary, Special Purpose and Recreation Zones.	The Ngari Capes Marine Park is located off the south-west coast of WA, ~250 km south of Perth, covering ~1238 km ² .	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 the marine park as well as a diverse range of seabirds and shorebirds (DEC, 2013).
Walpole and Nornalup Inlets Marine Park	Recreation Zone.	The Walpole and Nornalup Inlets Marine Park is located adjacent to the towns of Walpole and Nornalup on the south coast of WA, ~120 km west of Albany, and covers ~14 km ² .	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 the marine park (DEC, 2009).

*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

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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 South-west Marine Parks Network Management Plan 2018 (DNP, 2018b)

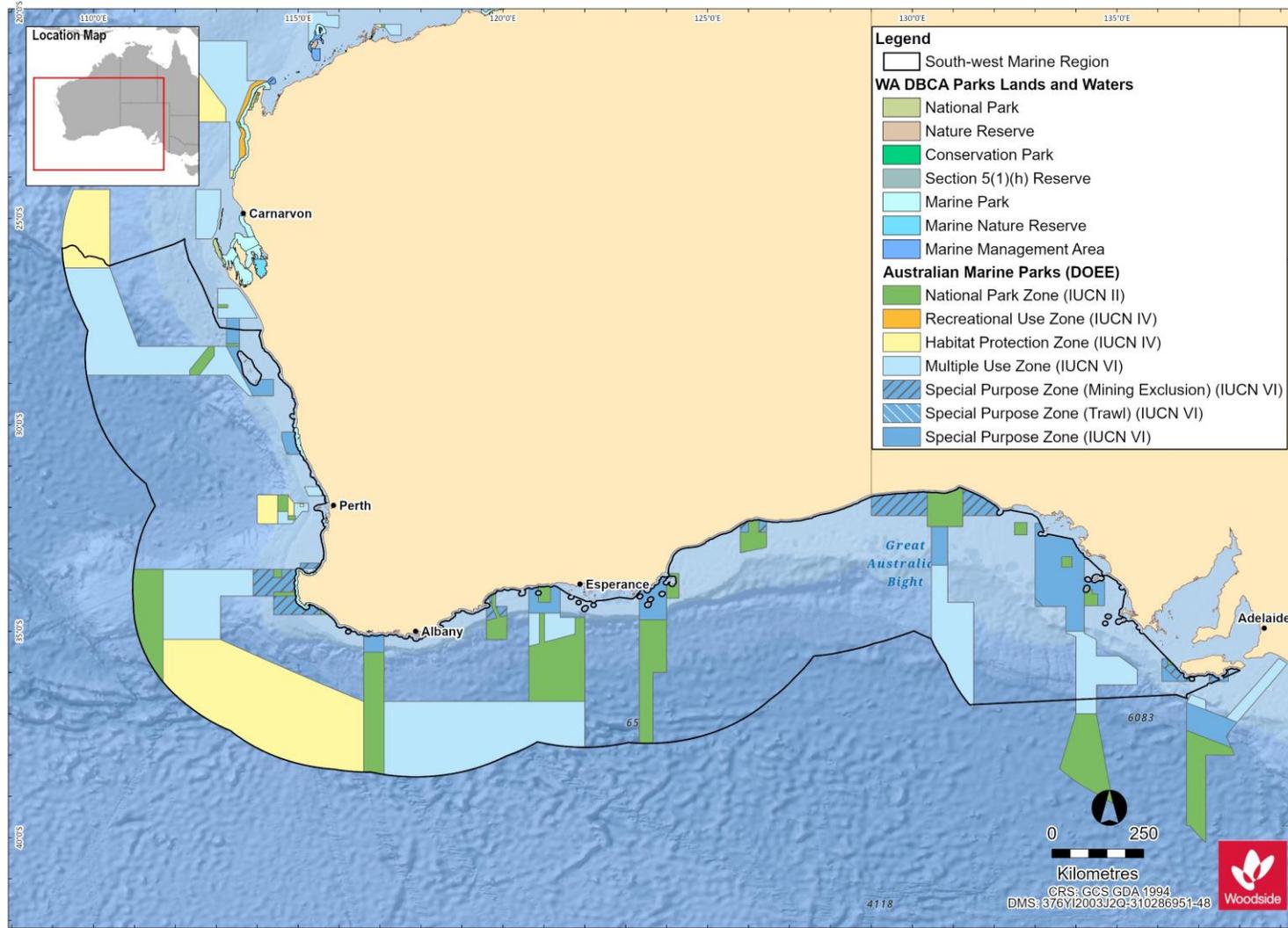


Figure 10-2. Commonwealth and State Marine Protected Areas for the SWMR

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10.11 Summary of Protected Areas within the NMR

Table 10-3 Protected Areas within the NMR

Protected Area	IUCN Protected Area Category* or Relevant Park Zone	Description	Conservation Values
World Heritage Properties			
Kakadu National Park		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 the World Heritage list in three stages over 11 years. It is located in tropical north Australia covering a total area of 19,804 square kilometres.	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.
National Heritage Places - Natural			
Kakadu National Park		Refer to World Heritage property description above.	Refer to World Heritage property conservation values above
Commonwealth Heritage Places - Natural			
N/A			
Wetlands of International Importance (Ramsar)			
Kakadu National Park		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.	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.
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Protected Area	IUCN Protected Area Category* or Relevant Park Zone	Description	Conservation Values
Cobourg Peninsula		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.	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.
Wetlands of National Importance (DAWE, 2019)			
Southern Gulf Aggregation		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.	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.
Australian Marine Parks (DNP, 2018c)			
Arafura Marine Park	VI	Arafura Marine Park covers an area of 22,924 km ² is located ~256 km north-east of Darwin and 8 km offshore of Croker Island, NT. It extends from NT waters to the limit of Australia's EEZ.	The AMP is significant because it contains habitats, species and ecological communities associated with two bioregions: <ul style="list-style-type: none"> •Northern Shelf Province •Timor Transition. It includes one KEF: Tributary canyons of the Arafura Depression. The AMP supports a range of species, including species listed as threatened, migratory, marine or cetacean under the EPBC Act. BIAs within the AMP include interesting habitat for marine turtles and important foraging and breeding habitat for seabirds.
Arnhem Marine Park	VI	Arnhem Marine Park covers an area of 7125 km ² and is located ~100 km south-east of Croker Island and 60 km south-east of the Arafura Marine Park. It extends from NT waters surrounding the Goulburn Islands, to the waters north of Maningrida.	Arnhem Marine Park is significant because it contains habitats, species and ecological communities associated with the Northern Shelf Province bioregion. The AMP supports a range of species, including species listed as threatened, migratory, marine or cetacean under the EPBC Act. BIAs within the AMP include foraging habitat and a migratory pathway for marine turtles and seabirds.
Gulf of Carpentaria Marine Park	II, VI	Gulf of Carpentaria Marine Park covers an area of 23,771 km ² and is located ~90 km north-west of Karumba, Queensland and is adjacent to the Wellesley Islands in	Gulf of Carpentaria Marine Park is significant because it contains habitats, species and ecological communities associated with the Northern Shelf Province bioregion.

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Protected Area	IUCN Protected Area Category* or Relevant Park Zone	Description	Conservation Values
		the south of the Gulf of Carpentaria basin.	It includes four KEFs: Gulf of Carpentaria basin; Gulf of Carpentaria coastal zone; Plateaux and saddle north-west of the Wellesley Islands; and Submerged coral reefs of the Gulf of Carpentaria. The AMP supports a range of species, including species listed as threatened, migratory, marine or cetacean under the EPBC Act. BIAs within the AMP include breeding and foraging areas for seabirds and interesting and foraging areas for turtles.
Joseph Bonaparte Gulf Marine Park	VI	The Joseph Bonaparte Gulf Marine Park is located within both the NWMR and NMR. Refer Table 10-1 for description and conservation values.	
Limmen Marine Park	IV	Limmen Marine Park covers an area of 1399 km ² and is located ~315 km south-west of Nhulunbuy, NT, in the south-west of the Gulf of Carpentaria. It extends from NT waters, between the Sir Edward Pellew Group of Islands and Maria Island in the Limmen Bight, adjacent to the NT Limmen Bight Marine Park.	Limmen Marine Park is significant because it contains habitats, species and ecological communities associated with the Northern Shelf bioregion. It includes one KEF: Gulf of Carpentaria coastal zone. The AMP supports a range of species, including species listed as threatened, migratory, marine or cetacean under the EPBC Act. BIAs within the AMP include interesting and foraging habitat for marine turtles.
Oceanic Shoals Marine Park	II, IV, VI	The Oceanic Shoals Marine Park is located within both the NWMR and NMR. Refer Table 10-1 for description and conservation values.	
Wessel Marine Park	IV, VI	Wessel Marine Park covers an area of 5908 km ² and is located ~22 km east of Nhulunbuy, NT. It extends from NT waters adjacent to the tip of the Wessel Islands to NT waters adjacent to Cape Arnhem.	Wessel Marine Park is significant because it contains habitats, species and ecological communities associated with the Northern Shelf bioregion. It includes one KEF: Gulf of Carpentaria basin. The AMP supports a range of species, including species listed as threatened, migratory, marine or cetacean under the EPBC Act. BIAs within the AMP include breeding habitat for seabirds and interesting and foraging habitat for marine turtles.
West Cape York Marine Park	II, IV, VI	West Cape York Marine Park covers an area of 16,012 km ² and is located adjacent to the northern end	West Cape York Marine Park is significant because it contains species and ecological communities associated with two bioregions: • Northeast Shelf Transition

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Protected Area	IUCN Protected Area Category* or Relevant Park Zone	Description	Conservation Values
		of Cape York Peninsula ~25 km south-west of Thursday Island and 40 km north-west of Weipa, Queensland.	<ul style="list-style-type: none"> Northern Shelf Province. It includes two KEFs: Gulf of Carpentaria basin; and Gulf of Carpentaria coastal zone. The AMP supports a range of species, including species listed as threatened, migratory, marine or cetacean under the EPBC Act. BIAs within the AMP include breeding and foraging habitat for seabirds, internesting and foraging habitat for marine turtles and dugong, and foraging, breeding and calving habitat for dolphins.
Territory Marine Parks and Reserves			
Cobourg Marine Park	II, IV, VI	Cobourg Marine Park covers an area of 2,290 km ² and is located in the waters surrounding the Cobourg Peninsula ~220 km north-east of Darwin. The Marine Park is part of the larger Garig Gunak Barlu National Park. Garig Gunak Barlu National Park includes both the Marine Park and the Cobourg Sanctuary.	Cobourg Marine Park is located in the Cobourg and Van Diemen Gulf marine bioregions with the northern portion of the Park covered by the Cobourg marine bioregion and the southern portion covered by the Van Diemen Gulf marine bioregion. The 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 Park. The areas of the Park that have been studied and where extensive collections have been made indicates that the Park supports rich and diverse marine life including live coral reefs, seagrass, diverse reef and pelagic fish populations, marine turtles and dugong.

*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 Marine Parks Network Management Plan 2018 (DNP, 2018c)

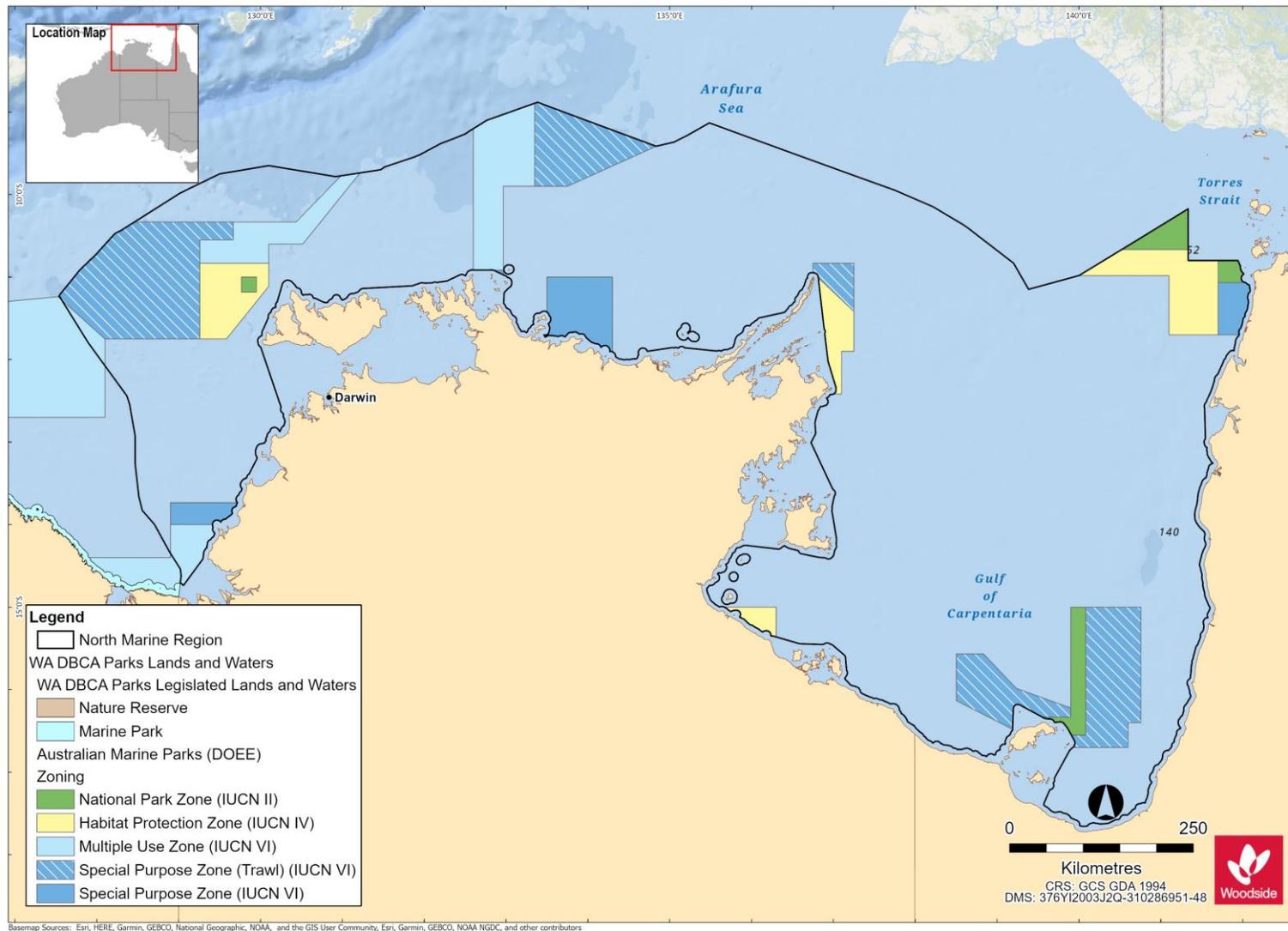


Figure 10-3. Commonwealth and State Marine Protected Areas within the NMR

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11. SOCIO-ECONOMIC AND CULTURAL ENVIRONMENT

This section summarises the information relating to the socio-economic and cultural environment of the regions offshore Western Australia, with a focus on the NWMR and to a lesser extent the SWMR and NWR.

The cultural environment includes Indigenous and European heritage values, including underwater values such as historic shipwrecks. Socio-economic values include commercial and traditional fishing, tourism and recreation, shipping, oil and gas activities and defence activities.

11.1 Cultural Heritage

11.1.1 Indigenous 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 Aboriginal 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.

Woodside also recognises the potential for heritage to survive in submerged landscapes. Sea-level rises since the last ice age mean that areas now under the sea were once exposed, that many of today's islands would have been connected to the mainland, and that Aboriginal people are highly likely to have inhabited these places. Woodside works with traditional custodians, academics and heritage professionals to identify tangible and intangible heritage values in the submerged landscape to avoid disturbing heritage where possible and to minimise impacts where heritage cannot be avoided.

It is an offence to excavate, destroy, damage, conceal or alter Indigenous heritage onshore or in state waters under section 17 of the *Aboriginal Heritage Act 1972 (WA) (AHA)* without ministerial 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.

The Department of Planning, Lands and Heritage maintains a register of registered sites and heritage places including middens, burial, ceremonial [sites], artefacts, rock shelters, mythological [sites] and engraving sites. 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 *Environment Protection and Biodiversity Conservation Act 1999 (Cth)*. Murujuga National Park is managed under the *Conservation and Land Management Act 1984 (WA)*.

11.1.2 European Sites of Significance

European sites of significance and heritage value are found along adjacent foreshores of the SWMR, NWMR and NWR. Heritage values are protected in Western Australia under the *Heritage Act 2018*.

11.1.3 Underwater Cultural Heritage

Places of historic cultural significance are protected under Commonwealth, State and local regimes. Places inscribed on the National or World Heritage list are protected through various provisions of the *Environment Protection and Biodiversity Conservation Act 1999* (Cth). Historic places may also be protected under the *Heritage Act 2018* (WA); under section 129 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).

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. 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).

The Australian National Shipwreck Database and the WA Maritime Museum Shipwreck Database list these protected wrecks.

11.1.4 National and Commonwealth Listed Heritage Places

Australia's National Heritage Sites are those of outstanding natural, historic and/or Indigenous significance to Australia. National Heritage places classed as natural are discussed in **Section 10.3**. Historic and/or Indigenous National Heritage Listed Places of the NWMR include:

- Dampier Archipelago (including Burrup Peninsula)
- Dirk Hartog Landing Site/Cape Inscription
- HMAS Sydney II and the HSK Kormoran Shipwreck Sites
- Batavia Shipwreck Site and Survivor Camps Area 1629 – Houtman Abrolhos

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 10.3**. Listed Heritage Places in the NWMR include:

- Mermaid Reef – Rowley Shoals (refer **Section 10.3**)
- Ashmore Reef National Nature Reserve (refer **Section 10.3**)
- Scott Reef and Surrounds – Commonwealth Area (refer **Section 10.3**)
- Ningaloo Marine Area (refer **Section 10.3**)

World Heritage Properties are those sites that hold universal value which transcends any value they may be held by any one nation. These sites and their qualities are detailed in the Convention concerning the Protection of the World Cultural and Natural Heritage (the World Heritage Convention), to which Australia is a founding member. The Protected Matters Search Report (**Appendix A**) lists two natural World Heritage Properties in the NWMR (refer **Section 10.2**). There are no cultural heritage listings located within the NWMR.

Summary tables of heritage places for NWMR, SWMR and NMR are presented in **Table 11-1, Table 11-2** and **Table 11-3**.

11.2 Summary of Heritage Places within the NWMR

Table 11-1 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						
N/A						

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11.3 Summary of Heritage Places within the NMR

Table 11-2 Heritage Places (Indigenous and Historic) within the NMR

Heritage Places	Class	Description	Conservation Values
National Heritage Properties			
None			
Commonwealth Heritage Properties			
None			

11.4 Summary of Heritage Places within the SWMR

Table 11-3 Heritage Places (Indigenous and Historic) within the SWMR

Heritage Places	Class	Description	Conservation Values
National Heritage Properties			
Cheetup Rock Shelter	Indigenous	Cheetup meaning "place of the birds" is the name of a spacious rock shelter located in Cape Le Grand National Park, about 55 km east of Esperance in WA. Aboriginal 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 Aboriginal 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 the Aboriginal 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.

Heritage Places	Class	Description	Conservation Values
Batavia Shipwreck Site and Survivor Camps Area 1629 – Houtman Abrolhos	Historic	The Batavia and its associated sites hold an important place in the discovery and delineation of the WA coastline. The wreck of the Batavia, and other Dutch ships like her, convinced the VOC (Dutch East India Company) of the necessity of more accurate charts of the coastline and resulted in the commissioning of Vlamingh's 1696 voyage.	Because of its relatively undisturbed nature the archaeological investigation of the wreck itself has revealed a range of objects of considerable value as well as to artefact specialists and historians.
HMAS Sydney II and HSK Kormoran Shipwreck Sites	Historic	The naval battle fought between the Australian warship HMAS Sydney II and the German commerce raider HSK Kormoran off the WA coast during World War II was a defining event in Australia's cultural history. HMAS Sydney II was Australia's most famous warship of the time and this battle has forever linked the stories of these warships to each other. The loss of HMAS Sydney II along with its entire crew of 645 following the battle with HSK Kormoran, remains as Australia's worst naval disaster.	The shipwreck sites of HMAS Sydney II and HSK Kormoran have outstanding heritage value to the nation because of their importance in a defining event in Australia's cultural history and for their part in development of the process of the defence of Australia.
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	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

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Heritage Places	Class	Description	Conservation Values
		corner of Garden Island elements of the J Battery complex are now covered in part by sand.	strategic role in the coastal defences of Cockburn Sound and Fremantle following the entry of Japan into the Second World War (1939-45).

11.5 Fisheries - Commercial

11.5.1 Commonwealth and State Fisheries

The diverse range of habitats and species offshore WA has allowed for various fisheries to develop and operate throughout the region.

The Australian Fisheries Management Authority (AFMA) manages fisheries on behalf of the Commonwealth Government and is bound by objectives under the Commonwealth *Fisheries Management Act 1991*.

WA State commercial fisheries are managed by the WA Department of Primary Industries and Regional Development (WA DPIRD) under the WA *Fish Resources Management Act 1994* (FRMA), Fisheries Resources Management Regulations 1995, relevant gazetted notices and licence conditions, and applicable Fishery Management Plans.

Commonwealth and State managed fisheries that operate within the NWMR and in areas beyond this region are summarised in the **Table 11-4**.

Table 11-4 Commonwealth and State managed fisheries

Fishery	Woodside Activity Area			Description																				
	Browse	NWS/S	NW Cape																					
Commonwealth Managed Fisheries																								
Southern Bluefin Tuna Fishery	✓	✓	✓	<table border="1"> <tr> <td>Management area</td> <td colspan="3">The Southern Bluefin Tuna Fishery (SBTF) covers the entire EEZ around Australia, out to 200 nm from the coast. They do not fish in the Woodside activity area.</td> </tr> <tr> <td>Species targeted</td> <td>Fishing methods</td> <td colspan="2">Fishing depth</td> </tr> <tr> <td>Southern bluefin tuna (<i>Thunnus maccoyii</i>)</td> <td>Longline and purse seine fishing.</td> <td colspan="2">Southern bluefin tuna is a pelagic species which can be found to depths of 500 m (AFMA, 2021a)</td> </tr> <tr> <td>Fishing effort</td> <td colspan="3"> <p>Most of the Australian fishing effort is by purse-seine vessels in the Great Australian Bight and waters off South Australia during summer months, and by longline off the New South Wales coastline during winter months (Patterson <i>et al.</i>, 2020).</p> <p>SBTF is a fishery that is shared amongst many countries. Australia currently has a 35% share of the total global allowable catch, and while wild capture fishing in Australia to sell directly to market can occur anywhere throughout the SBTF's range, currently the vast majority of that quota is value-added through ranching (on-growing the wild captured fish for extra 5-6 months). Ranching requires significant infrastructure, a resident labour force, plus proximity to a fishery able to supply a large quantity of natural feed/sardines (40,000+ tonnes) (for example as available in Port Lincoln). 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.</p> <p>The stock remains classified as overfished.</p> </td> </tr> <tr> <td>Active licences/vessels</td> <td colspan="3">Seven purse seine vessels, 20 longline vessels (Patterson <i>et al.</i>, 2020).</td> </tr> </table>	Management area	The Southern Bluefin Tuna Fishery (SBTF) 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 and purse seine fishing.	Southern bluefin tuna is a pelagic species which can be found to depths of 500 m (AFMA, 2021a)		Fishing effort	<p>Most of the Australian fishing effort is by purse-seine vessels in the Great Australian Bight and waters off South Australia during summer months, and by longline off the New South Wales coastline during winter months (Patterson <i>et al.</i>, 2020).</p> <p>SBTF is a fishery that is shared amongst many countries. Australia currently has a 35% share of the total global allowable catch, and while wild capture fishing in Australia to sell directly to market can occur anywhere throughout the SBTF's range, currently the vast majority of that quota is value-added through ranching (on-growing the wild captured fish for extra 5-6 months). Ranching requires significant infrastructure, a resident labour force, plus proximity to a fishery able to supply a large quantity of natural feed/sardines (40,000+ tonnes) (for example as available in Port Lincoln). 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.</p> <p>The stock remains classified as overfished.</p>			Active licences/vessels	Seven purse seine vessels, 20 longline vessels (Patterson <i>et al.</i> , 2020).		
				Management area	The Southern Bluefin Tuna Fishery (SBTF) 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 and purse seine fishing.	Southern bluefin tuna is a pelagic species which can be found to depths of 500 m (AFMA, 2021a)																		
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Active licences/vessels	Seven purse seine vessels, 20 longline vessels (Patterson <i>et al.</i> , 2020).																							
Western Skipjack Tuna Fishery	✓	✓	✓	<table border="1"> <tr> <td>Management area</td> <td colspan="3">The combined western and eastern skipjack tuna (<i>Katsuwonus pelamis</i>) fisheries (STF) encompass the entire Australian EEZ. The Western Skipjack Tuna Fishery (WSTF) extends westward from the SA/Victorian border across the Great Australian Bight and around the west coast of WA to the Cape York Peninsula.</td> </tr> </table>	Management area	The combined western and eastern skipjack tuna (<i>Katsuwonus pelamis</i>) fisheries (STF) encompass the entire Australian EEZ. The Western Skipjack Tuna Fishery (WSTF) extends westward from the SA/Victorian border across the Great Australian Bight and around the west coast of WA to the Cape York Peninsula.																		
Management area	The combined western and eastern skipjack tuna (<i>Katsuwonus pelamis</i>) fisheries (STF) encompass the entire Australian EEZ. The Western Skipjack Tuna Fishery (WSTF) extends westward from the SA/Victorian border across the Great Australian Bight and around the west coast of WA to the Cape York Peninsula.																							

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Fishery	Woodside Activity Area			Description														
	Browse	NWS/S	NW Cape															
				<table border="1"> <thead> <tr> <th>Species targeted</th> <th>Fishing methods</th> <th>Fishing depth</th> </tr> </thead> <tbody> <tr> <td>Western skipjack tuna (<i>Katsuwonus pelamis</i>)</td> <td>Fishers use purse seine gear (about 98% of catch) and sometimes pole and line when fishing for skipjack tuna.</td> <td>Western skipjack tuna is a pelagic species that can be found to depths of 260 m (AFMA, 2021b).</td> </tr> <tr> <td>Fishing effort:</td> <td colspan="2">The Skipjack Tuna Fishery (STF) has not been actively fished since the 2008-2009 fishing season (Patterson <i>et al.</i>, 2020). The management arrangements for this fishery will be reviewed if active boats re-enter the fishery.</td> </tr> <tr> <td>Active licences/vessels:</td> <td colspan="2">No active vessels operating since 2009.</td> </tr> </tbody> </table>	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 (STF) has not been actively fished since the 2008-2009 fishing season (Patterson <i>et al.</i> , 2020). 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.			
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Fishery	Woodside Activity Area			Description		
	Browse	NWS/S	NW Cape			
				Species targeted More than 50 species, historically dominated by six commercial finfish species or species groups: Orange roughy (<i>Hoplostethus atlanticus</i>) Oreos (Oreosomatidae) Boarfish (Pentacerotidae) Eteline snapper (Lutjanidae: Etelinae) Apsiline snapper (Lutjanidae: Apsilinae) Sea bream (Lethrinidae)	Fishing methods Demersal trawl.	Fishing depth Water deeper than 200 m, stakeholder consultation has indicated that this may be to depths of 800 m.
				Fishing effort: The number of vessels active in the fishery and total hours trawled have fluctuated from year to year. Notably, total hours trawled were relatively high for a brief period during the early 2000s when fishers targeted ruby snapper and deepwater bugs (Patterson <i>et al.</i> , 2020). Total fishing effort has been variable but relatively low since then. Effort in 2018-2019 (492 trawl hours) was less than half that of 2017-2018 (1108 trawl hours) (Patterson <i>et al.</i> , 2020).		
				Active licences/vessels: One active vessel in 2018-2019 (Patterson <i>et al.</i> , 2020).		
North-west Slope Trawl Fishery	✓	✓		Management area The North-west Slope Trawl Fishery (NWSTF) 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 Australian scampi (<i>Metanephrops australiensis</i>) and smaller quantities of velvet and Boschma's scampi (<i>M. velutinus</i> and <i>M. boschmai</i>) Mixed snappers have historically been an important component of the catch.	Fishing methods Demersal trawl.	Fishing depth Typically at depths of 350 to 600 m (Patterson <i>et al.</i> , 2017), however stakeholder consultation has indicated that this may be to depths of 800 m.

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Fishery	Woodside Activity Area			Description		
	Browse	NWS/S	NW Cape			
				<p>Fishing effort: The NWSTF commenced in 1985 and the number of active vessels peaked at 21 in the 1986-1987 season and declined through the 1990s before increasing to 10 vessels in 2000-2001 and 2002-2002 seasons. Four vessels operated in the 2017-2018 and 2018-2019 seasons (Patterson <i>et al.</i> 2020). Fishing for scampi occurs over soft, muddy sediments or sandy habitats, using demersal trawl gear on the continental slope (Patterson <i>et al.</i>, 2017).</p> <p>Active licences/vessels: Four vessels (Patterson <i>et al.</i>, 2020).</p>		
State Managed Fisheries						
Pilbara Fish Trawl (Interim) Managed Fishery		✓		<p>Management area The Pilbara Trawl (Interim) Managed Fishery is of high intensity and is 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 <i>et al.</i>, 2020a). No fish trawl units have been allocated for use in Area 6 of Zone 2 since the management plan commenced operation in 1998.</p>		
				<p>Species targeted</p> <p>The Pilbara Fish Trawl (Interim) Managed Fishery (PFTIMF) targets more than 50 scalefish species. The five main demersal scalefish species landed by the fisheries in the Pilbara region are blue-spotted emperor, crimson snapper, rosy threadfin bream, red emperor and goldband snapper in 2018 (Newman <i>et al.</i>, 2020a).</p>	<p>Fishing methods</p> <p>Demersal trawl.</p>	<p>Fishing depth</p> <p>The Pilbara Fish Trawl Fishery lands the largest component of the catch and operates in waters between 50 and 200 m water depth (Allen <i>et al.</i>, 2014, Newman <i>et al.</i> 2015). Stakeholders have advised that trawling can occur in depths of up to approximately 800 m.</p>
				<p>Fishing effort:</p> <p>Based on State of the Fisheries annual reports provided by DPIRD, catch trends are seen to be increasing over the past reporting years:</p>		

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Fishery	Woodside Activity Area			Description		
	Browse	NWS/S	NW Cape			
				<p>Pilbara Trawl (Interim) Managed Fishery caught 1996 t in 2018-19, 1780 t in 2017-18, 1529 t in 2016-17, 1172 t in 2015-16, 1105 t in 2014-15.</p> <p>Active licences/vessels: Two Pilbara Trawl (Interim) Managed Fishery vessels in 2017 (Newman <i>et al.</i>, 2020a). Active vessels data are confidential as there were fewer than three vessels in the Pilbara Fish Trawl Interim Managed Fishery (Newman <i>et al.</i>, 2020a).</p>		
Pilbara Trap Managed Fishery		✓	✓	<p>Management area The Pilbara Trap 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.</p>		
				<p>Species targeted</p> <p>Pilbara Trap Managed Fishery catch is made up of around 45-50 different fish species. The four main species landed by the fisheries in the Pilbara region are blue-spotted emperor, red emperor, goldband snapper and Rankin cod.</p>	<p>Fishing methods</p> <p>Demersal fish traps.</p>	<p>Fishing depths</p> <p>Greatest effort in waters less than 50 m depth targeting high value species such as red emperor and goldband snapper.</p>
				<p>Fishing effort</p> <p>Based on State of the Fisheries annual reports provided by DPIRD, catch trends are seen to be increasing over the past reporting years: Pilbara Trap Managed Fishery caught 563 t in 2018-19, 573 t in 2017-18, 495 t in 2016-17, 510 t in 2015-16, 268 t in 2014-15. In 2018, the total catch for the Pilbara Trap Managed Fishery was 563 t, making up 21% of the total catch by the Pilbara Demersal Scale Fishery (Newman <i>et al.</i>, 2019).</p>		

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Fishery	Woodside Activity Area			Description		
	Browse	NWS/S	NW Cape			
				<p>Active licences/vessels</p> <p>In the 2019 season, there were six licences in the Pilbara Trap Managed Fishery, (Newman <i>et al.</i>, 2020a). Active vessels data are confidential as there were fewer than three vessels in the Pilbara Trap Managed Fishery (Newman <i>et al.</i>, 2019).</p>		
Pilbara Line Managed Fishery		✓	✓	<p>Management area</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>Species targeted</p> <p>The Pilbara Line Managed Fishery catch is made up around 45-50 different fish species. The Pilbara Line Managed 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 The Pilbara Line Managed Fishery operates on an exemption basis that enables licence holders to fish for any nominated five-month block during the year.</p>	<p>Fishing method</p> <p>Demersal long line.</p>	<p>Fishing depths</p> <p>Pilbara Line Fishing Depth: Operates up to a depth of 600 m.</p>
				<p>Fishing effort</p> <p>Based on State of the Fisheries annual reports provided by DPIRD, catch trends are seen to be increasing over the past reporting years: Pilbara Line Managed Fishery caught 93 t in 2018-19, 143 t in 2017-18, 126 t in 2016-17, 97 t in 2015-16, 40 t in 2014-15. The total catch in 2018 for the Pilbara Line Managed Fishery was 93 t, making up 3% of the total catch by the Pilbara Demersal Scalefish Fishery (Newman <i>et al.</i>, 2019).</p>		

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Fishery	Woodside Activity Area			Description		
	Browse	NWS/S	NW Cape			
				Active licences/vessels In the 2018 season there are nine individual licences in the Pilbara Line Fishery, held by seven operators. Active vessels data is confidential as there were fewer than three vessels in the Pilbara Line Fishery (Newman <i>et al.</i> , 2018).		
Mackerel Managed Fishery	✓	✓	✓	Management area The commercial fishery extends from Geraldton to the Northern Territory border. There are three managed fishing areas: Kimberley (Area 1), Pilbara (Area 2), and Gascoyne and West Coast (Area 3).		
				Species targeted Spanish mackerel (<i>Scomberomorus commerson</i>) Grey mackerel (<i>S. semifasciatus</i>) Other species from the genus <i>Scomberomorus</i>	Fishing methods Near-surface trawling gear. Jig fishing.	Fishing depth Previous engagement with WAFIC suggests that the depth of fisheries may extend to 70 m.
				Fishing effort: Most of the catch is taken from waters off the Kimberley coasts (Lewis and Brand-Gardner, 2018), reflecting the tropical distribution of mackerel species (Molony <i>et al.</i> , 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 <i>et al.</i> , 2003). Based on State of the Fisheries annual reports provided by DPIRD, catch trends are as follows: 213 t in 2018-19 (the lowest on record (Lewis <i>et al.</i> , 2020), 283 t in 2017-18, 276 t in 2016-17, 302 t in 2015-16, 322 t in 2014-15.		
				Active licences/vessels: Fifteen boats fished in 2018, with approximately 35-40 people directly employed in the Mackerel Managed Fishery, primarily from May-November (Lewis <i>et al.</i> , 2020).		
Marine Aquarium Managed Fishery	✓	✓	✓	Management area The Marine Aquarium Managed Fishery is able to operate in all 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 <i>et al.</i> , 2020b).		
				Species targeted	Fishing methods	Fishing depth

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Fishery	Woodside Activity Area			Description		
	Browse	NWS/S	NW Cape			
				Finfish, hard coral, soft coral, tridacnid clams, syngnathids (seahorses and pipefish), other invertebrates (including molluscs, crustaceans, echinoderms etc.), algae, seagrasses and 'live rock'.	The fishery is diver-based, which typically restricts effort to safe diving depths (less than 30 m).	Less than 30 m, as advised by WAFIC.
				Fishing effort:	Total catch for the Marine Aquarium Managed Fishery in 2018 was 156,188 fishes, 32.025 t of coral, live rock and living sand and 176.02 L of marine plants and live feed.	
				Active licences/vessels:	Eleven licences were active in 2019 (Newman <i>et al.</i> , 2020b).	
Beche-de-mer Fishery	✓	✓	✓	Management area	Fishing occurs in the northern half of WA from Exmouth Gulf to the NT border and is managed under Ministerial Exemptions.	
				Species targeted	Fishing methods	Fishing depth
				The sea cucumber fishery targets two main species: sandfish (<i>Holothuria scabra</i>) and redfish (<i>Actinopyga echinites</i>).	Diving	The targeted species typically inhabit nearshore in shallow depths.
				Fishing effort	Based on State of the Fisheries annual reports provided by DPRID, catch trends are as follows: 62t in 2018 (Gaughan and Santoro, 2020), 135t in 2017, 93t in 2016, 38t in 2015	
				Active licences/vessels	Six active licences in 2019 (Hart <i>et al.</i> , 2019). Active vessels data is confidential as there were fewer than three vessels.	
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	Fishing depth

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Fishery	Woodside Activity Area			Description						
	Browse	NWS/S	NW Cape							
				<p>The fishery targets: Western king prawns (<i>Penaeus esculentus</i>) Brown tiger prawns (<i>Penaeus esculentus</i>) Blue endeavour prawns (<i>Metapenaeus endeavouri</i>)</p> <p>Low opening, otter prawn trawl systems.</p> <p>Prawn trawling takes place in water depths of approximately 30 metres and less (licence holder feedback). Fishery and or fishing activity overlaps the Beadon Creek dredging scope (Sporer <i>et al.</i>, 2015).</p> <p>Fishing effort: The total landings for the Onslow Prawn Managed Fishery in 2018 were less than 60 t below the target catch range (Kangas <i>et al.</i>, 2020a).</p> <p>Active licences/vessels: One vessel (Kangas <i>et al.</i>, 2020a).</p>						
Pearl Oyster Managed Fishery	✓	✓	✓	<p>Management area Located in shallow coastal waters with the pearl oyster managed fishery designated by four zones extending from Exmouth to Kununurra and the seaward boundary demarcated by the 200 nm EEZ.</p> <table border="1"> <thead> <tr> <th>Species targeted</th> <th>Fishing methods</th> <th>Fishing depth</th> </tr> </thead> <tbody> <tr> <td>Pearl oysters (<i>Pinctada maxima</i>).</td> <td>Drift diving.</td> <td>Fishing effort is mostly focussed in shallow coastal waters (10-15 m depth), with a maximum depth of 35 m (Lulofs <i>et al.</i> 2002).</td> </tr> </tbody> </table> <p>Fishing effort: In 2018, catch was taken from Zones 2 and 3 with no fishing in Zone 1. The number of pearl oysters caught for 2018-19 was 614,002. Total effort was 15,637 dive hours, this was an increase from 2017 effort of 12,845 hours. No fishing occurred in Zone 1 in 2017 and 2018 (Gaughan and Santoro, 2020).</p> <p>Active licences/vessels: 15,637 diver hours (Hart <i>et al.</i>, 2020a).</p>	Species targeted	Fishing methods	Fishing depth	Pearl oysters (<i>Pinctada maxima</i>).	Drift diving.	Fishing effort is mostly focussed in shallow coastal waters (10-15 m depth), with a maximum depth of 35 m (Lulofs <i>et al.</i> 2002).
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		✓	✓	<p>Management area The Pilbara Crab Managed Fishery comprises WA waters off the north-western coast of WA north of 23° 34' south latitude and west of 120° 00' east longitude. Areas of the fishery north and east of Exmouth and</p>						

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Fishery	Woodside Activity Area			Description			
	Browse	NWS/S	NW Cape				
Pilbara Crab Managed Fishery				nearshore are currently closed as per Schedule 2 of the Draft Management Plan for the Pilbara Crab Managed Fishery.			
				Species targeted	Fishing methods	Fishing depth	
				Crabs of the Family Portunidae, excluding crabs of the genus <i>Scylla</i> .	Traps.	Up to 50 m deep.	
				Fishing effort:	The capacity of the fishery is 600 traps.		
				Active licences/vessels:	No information available at this time.		
South-west Coast Salmon Managed Fishery	✓	✓	✓	Management area			
				Species targeted	Fishing methods	Fishing depth	
				Western Australian salmon (<i>Arripis truttaceus</i>)	Beach seine nets.	Information not available however, species generally found in shallow waters (up to 30 m).	
				Fishing effort:	No fishing occurs north of the Perth metropolitan area, despite the managed fishery boundary extending to Cape Beaufort (WA/Northern Territory border), as advised by WAFIC. The 2018 commercial catch was 191 t, with 72% taken by the South West Coast Salmon Managed Fishery, 25% by the South Coast Salmon Managed Fishery and 3% by other fisheries (Duffy and Blay, 2020a).		
				Active licences/vessels:	Six licences.		
	✓	✓	✓	Management area			
				The Specimen Shell Managed Fishery (SSMF) encompasses the entire WA coastline, but effort is concentrated in areas adjacent to the population centres such as Broome, Exmouth, Shark Bay,			

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Fishery	Woodside Activity Area			Description			
	Browse	NWS/S	NW Cape				
Specimen Shell Managed Fishery				Geraldton, Perth, Mandurah, the Capes area and Albany (Hart <i>et al.</i> , 2020b). There are a number of closed areas where the SSMF is not permitted to operate. These include various marine parks and aquatic reserves, such as Ningaloo Marine Park.			
				Species targeted	Fishing methods	Fishing depth	
				The Specimen Shell Managed Fishery targets the collection of specimen shells for display, collection, cataloguing and sale.	Collection is predominantly by hand when diving to wading in shallow, coastal waters, though in deeper water collection may be conducted by remotely operated vehicles (limited to one per licence).	For collection by hand, (diver-based) this typically restricts effort to safe diving depths (less than 30 m). ROV collection could enable depths up to 300 m (Hart <i>et al.</i> , 2017). In the past there has been one licence holder in the Specimen Shell Managed Fishery who has trialled ROV means of shell collection, WAFIC have provided advice that this fishery is no longer active.	
				Fishing effort:	Information not available.		
				Active licences/vessels:	In 2018 there were 31 licences with only two divers allowed in the water per licences at one time (Hart <i>et al.</i> , 2018). The number of people employed regularly in the fishery is likely to be about 21 (Hart <i>et al.</i> , 2018).		
West Australian Abalone Fishery	✓	✓	✓	Management area			
				The Western Australian Abalone 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.			
				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).					

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Fishery	Woodside Activity Area			Description		
	Browse	NWS/S	NW Cape			
				<p>Fishing effort: In 2018, the total commercial catch was 48 t, 1 t less than the catch in each of the last two seasons. No commercial fishing for abalone north of Moore River (Zone 8 of the managed fishery) has occurred since 2011–2012 (Strain <i>et al.</i>, 2018).</p> <p>Active licences/vessels: 26 vessels active in Roe's abalone fishery (WAFIC⁵).</p>		
West Coast Deep Sea Crustacean Managed Fishery	✓	✓	✓	<p>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.</p>		
				<p>Species targeted</p>	<p>Fishing methods</p>	<p>Fishing depth</p>
				<p>The fishery targets deepwater crustaceans. Catches were dominated by crystal crabs of which 99% of their Total Allowable Catch (TAC) was landed (How and Orme, 2020a). Crystal (snow) crab (<i>Chaceon albus</i>) Giant (king) crab (<i>Pseudocarcinus gigas</i>) Champagne (spiny) crabs (<i>Hypothalassia acerba</i>)</p>	<p>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.</p>	<p>Deeper than 150 m (and mostly at depths of between 500 m – 800 m). Most of the commercial Crystal crab catch is taken in depths of 500 m – 800 m (WAFIC⁶).</p>
				<p>Fishing effort: The total landings in 2018 was 168. t. Two vessels operated in the fishery in 2017, using baited pots operated in a longline formation in the shelf edge waters, mostly in depths between 500 and 800 m (How and Orme, 2020a). Fishing effort was concentrated between Fremantle and Carnarvon.</p>		
				<p>Active licences/vessels: There were four active vessels in 2018 (How and Orme, 2020a).</p>		

⁵ <https://www.wafic.org.au/fishery/roes-abalone-fishery/>

⁶ <https://www.wafic.org.au/fishery/west-coast-deep-sea-crustacean-fishery/>

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Fishery	Woodside Activity Area			Description		
	Browse	NWS/S	NW Cape			
Abrolhos Islands and Mid-West Trawl Fishery			✓	Management area	The Abrolhos Islands and Mid-West Trawl Fishery (AIMWTMF) 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>)	Trawl.	Information not available, however, the species occurs at depth of around 30-60 m and therefore fishing effort would likely be at these depths (Himmelman <i>et al.</i> , 2009).
				Fishing effort:	The scallop landings in the AIMWTMF were 31.0 t meat weight (154.8 t whole weight). Between 2011 and 2015, the annual pre-season surveys showed very low recruitment (1-year old), as a result of the 2011 extreme marine heatwave and subsequent poor spawning stock (Kangas <i>et al.</i> , 2020b). The fishery was closed between 2011 and 2016.	
				Active licences/vessels:	Information about licences or vessels is not available but the Department of Primary Industry and Regional Development reported 774 t of catch from this fishery in the 2019 annual report (DPIRD, 2019).	
Broome Prawn Managed Fishery	✓			Management area	The Broome Prawn Managed Fishery (BPMF) 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>) Coral prawn	Trawl.	Trawling is generally in waters between 30 and 60 m deep, however can occur down to 100 m (DOEH, 2004).
				Fishing effort:	BPMF recorded extremely low fishing effort in 2018. Only two vessels undertook trial fishing to investigate whether the catch rates were sufficient for commercial fishing. This resulted in negligible landings of Western king prawn (Kangas <i>et al.</i> , 2020a).	

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Fishery	Woodside Activity Area			Description			
	Browse	NWS/S	NW Cape				
				Active licences/vessels: Two vessels conducting fishing trial operated in 2018 (Kangas <i>et al.</i> , 2020a).			
Exmouth Gulf Prawn Managed Fishery			✓	Management area The estimated employment in the fishery in 2017 was 18 people including skippers and other crew (Kangas <i>et al.</i> , 2018). 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 merguinensis</i>)	Trawl.	Information not available.	
				Fishing effort:	The total landings of prawns in 2018 were 880 t (Kangas <i>et al.</i> , 2020a). In the 2016 season, a fishing effort of about 23,000 hours resulted in a catch of 822 t.		
				Active licences/vessels:	The precise number of vessels is unreported. Eighteen people were said to be employed in this fishery in 2018 (Kangas <i>et al.</i> , 2019); however, in 2013 it was reported that 18 skippers as well as other crew and support staff were employed (WAFIC ⁷).		
Gascoyne Demersal Scalefish Managed Fishery			✓	Management area The Gascoyne Demersal Scalefish Fishery (GDSF) is located between the southern Ningaloo Coast to south of Shark Bay (23°07.30'S to 26°.30'S) with a closure area at Point Maud to Tantabiddi (21°56.30'S) (WAFIC ⁸).			
				Species targeted	Fishing methods	Fishing depth	

⁷ <https://www.wafic.org.au/fishery/exmouth-gulf-prawn-fishery/>

⁸ <https://www.wafic.org.au/fishery/gascoyne-demersal-scalefish-fishery/>

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Fishery	Woodside Activity Area			Description		
	Browse	NWS/S	NW Cape			
				Pink snapper (<i>Chrysophrys auratus</i>) Goldband snapper (<i>Pristipomoides multidentis</i>) Red emperor (<i>Lutjanus sebae</i>) Cods (<i>Gadus morhua</i>) Emperors (<i>Lethrinus miniatus</i>)	Mechanised handlines.	Information not available.
				Fishing effort:	The GDSF reported a total commercial catch of 210 t in 2017-18.	
				Active licences/vessels:	In 2018, 13 vessels fished during the season, in the 2017 season there were 16 vessels (Gaughan and Santoro, 2018).	
Kimberley Developing Mud Crab Fishery	✓			Management area	The Kimberley Developing Mud Crab 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).	
				Species targeted	Fishing methods	Fishing depth
				Brown mud crab (<i>Scylla olivacea</i>) Green mud crab (<i>Scylla serrata</i>)	Trap.	Information not available.
				Fishing effort:	The catch landed represents all commercially caught mud crabs landed in WA for 2018. A nominal catch rate of 0.66 kg/traplift was recorded for 2018, which is a 28% decrease from 2017 but remains above the harvest strategy threshold (Johnston <i>et al.</i> , 2020).	
				Active licences/vessels:	There are currently three licences issued to commercial operators (600 trap limit), and three exemptions issued to Indigenous groups (total of 210 traps currently allocated of a maximum 600 traps) (Johnston <i>et al.</i> , 2020).	
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.	
				Species targeted	Fishing methods	Fishing depth

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Fishery	Woodside Activity Area			Description						
	Browse	NWS/S	NW Cape							
				<p>Banana prawn (<i>Penaeus merguianus</i>) Western king prawn (<i>Penaeus latisulcatus</i>) Brown tiger prawn (<i>Penaeus esculentus</i>) Blue endeavour prawn (<i>Metapenaeus endeavouri</i>)</p> <p>Fishing effort: 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). The total landings for the 2018 season were 81 t. Fishing effort was less than half at 138 days, compared to 281 boat days in 2017 (Kangas <i>et al.</i>, 2020a).</p> <p>Active licences/vessels: The precise number of vessels is unreported, though low effort produced a catch of 17 t in 2016 (Kangas <i>et al.</i>, 2018).</p>						
Northern Demersal Scalefish Managed Fishery	✓			<p>Management area The fishery is divided into two fishing areas: an inshore sector (Area 1) and an offshore sector (Area 2) (Newman <i>et al.</i>, 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 <i>et al.</i>, 2017).</p> <table border="1"> <thead> <tr> <th>Species targeted</th> <th>Fishing methods</th> <th>Fishing depth</th> </tr> </thead> <tbody> <tr> <td>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>)</td> <td>Line fishing, handline, dropline and fish trap fishing.</td> <td>Information not available.</td> </tr> </tbody> </table>	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>)	Line fishing, handline, dropline and fish trap fishing.	Information not available.
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Fishery	Woodside Activity Area			Description			
	Browse	NWS/S	NW Cape				
				<p>Fishing effort: In 2018, the fishery reported a total catch of 1297 t. Most of the catch is landed from Zone B, with a catch of 1106 t in 2018. The level of catch in Zone B is the highest reported since zoning was implemented in 2006 (Newman <i>et al.</i>, 2019).</p> <p>Active licences/vessels: Six vessels fished in the 2018 season and at least 20 people were directly employed (Gaughan and Santoro, 2018).</p>			
Octopus Interim Management Fishery				<p>Management area The developing Octopus Fishery operates from Kalbarri Cliffs in the north to Esperance in the south.</p>			
				<p>Species targeted</p>	<p>Fishing methods</p>	<p>Fishing depth</p>	
				<p><i>Octopus sp. cf. tetricus</i></p>	<p>Passive shelter pots and active traps.</p>	<p>In inshore waters to a depth of 70 m (DPIRD, 2018).</p>	
				<p>Fishing effort:</p>	<p>In 2019, the total commercial octopus catch was 314 t, which was 22% higher than the 2017 catch of 257 t. In 2016, about 200 vessels reported a total catch of 252 t (Hart <i>et al.</i>, 2020c).</p>		
				<p>Active licences/vessels:</p>	<p>About 21 vessels fish within the octopus specific fisheries, and about 200 vessels from the West Coast Rock Lobster Fishery catch octopus as bycatch (Gaughan and Santoro, 2018).</p>		
Shark Bay Beach Seine and Mesh Net Managed Fishery				<p>Management area The Shark Bay Beach Seine and Mesh Net Managed Fishery operates from Denham.</p>			
				<p>Species targeted</p>	<p>Fishing methods</p>	<p>Fishing depth</p>	
				<p>Whiting (yellowfin <i>Sillago schomburgkii</i> and goldenline <i>S. analis</i>) Sea mullet (<i>Mugil cephalus</i>) Tailor (<i>Pomatomus saltatrix</i>) Western yellowfin bream (<i>Acanthopagrus australis</i>)</p>	<p>Beach seine and mesh net.</p>	<p>Information not available.</p>	

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Fishery	Woodside Activity Area			Description		
	Browse	NWS/S	NW Cape			
				<p>Fishing effort: In 2018, the total catch was 176 t (Gaughan and Santoro, 2020). The fishery currently employs about 14 fishers based on the seven fishery licences in operation (WAFIC⁹).</p> <p>Active licences/vessels: Six vessels operated employing around 12 fishers (Gaughan and Santoro, 2018).</p>		
Shark Bay Crab Managed Fishery				<p>Management area The Shark Bay Crab Managed Fishery operates within the NWMR.</p>		
				<p>Species targeted</p>	<p>Fishing methods</p>	<p>Fishing depth</p>
				Blue swimmer crab (<i>Portunus armatus</i>)	Trap and trawl.	Information not available.
				<p>Fishing effort: Commercial fishing for blue swimmer crabs in Shark Bay was voluntarily halted by industry in 2012 to facilitate stock rebuilding. The stock is still in a recovery phase; however, the fishery has resumed and reported a total commercial catch of 518 t in the 2017/18 season. The average commercial trap catch rate was 1.5 kg/traplift during 2017/18 (Chandrapavan <i>et al.</i>, 2017).</p>	<p>Active licences/vessels: The precise number of vessels in the Shark Bay Blue Swimmer Crab Fishery is unreported. There are five crab trap permits. These permits are consolidated onto three active vessels (WAFIC¹⁰).</p>	
				<p>Management area The Shark Bay Prawn Managed Fishery is the highest producing WA fishery for prawns.</p>		
Shark Bay Prawn and Scallop Managed Fishery				<p>Species targeted</p>	<p>Fishing methods</p>	<p>Fishing depth</p>
				Western king prawn (<i>Penaeus latisulcatus</i>) Brown tiger prawn (<i>Penaeus esculentus</i>)	Low-opening otter trawls.	Information not available.
				<p>Management area The Shark Bay Prawn Managed Fishery is the highest producing WA fishery for prawns.</p>		

⁹ <https://www.wafic.org.au/fishery/inner-shark-bay-scalefish-fishery/>

¹⁰ <https://www.wafic.org.au/fishery/shark-bay-prawn-and-scallop-managed-fisheries/>

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Fishery	Woodside Activity Area			Description		
	Browse	NWS/S	NW Cape			
				<p>Endeavour prawns (<i>Metapenaeus endeavouri</i>)</p> <p>Coral prawns (<i>Metapenaeopsis sp.</i>)</p> <p>Saucer scallop (<i>Amusium balloti</i>)</p>		
				<p>Fishing effort: The Shark Bay Scallop Managed Fishery is currently in a recovery phase due to the results from the pre-season survey of stock abundance (Fletcher and Santoro, 2015; Kangas <i>et al.</i>, 2018).</p> <p>Active licences/vessels: The precise number of vessels in the Shark Bay Prawn Managed Fishery is unreported; however, about 100 people are employed in this fishery (Gaughan and Santoro, 2018). About 20 skippers and crew are employed in scallop fishing in the Shark Bay and South Coast fisheries across 18 vessels in 2015 (Sporer <i>et al.</i>, 2015).</p>		
South Coast Crustacean Managed Fishery	-	-	-	<p>Management area The South Coast Crustacean Managed Fishery comprises four fisheries: the Windy Harbour/Augusta Rock Lobster Managed Fishery, the Esperance Rock Lobster Managed Fishery, the Southern Rock Lobster Pot Regulation Fishery and the South Coast Deep-Sea Crab Fishery.</p>		
				<p>Species targeted</p>	<p>Fishing methods</p>	<p>Fishing depth</p>
				<p>Southern rock lobster (<i>Jasus edwardsii</i>)</p> <p>Western rock lobster (<i>Panulirus cygnus</i>)</p> <p>Giant crab (<i>Pseudocarcinus gigas</i>)</p> <p>Crystal crab (<i>Chaceon albus</i>)</p> <p>Champagne crab (<i>Hypothalassia acerba</i>)</p>	<p>Pots.</p>	<p>Information not available.</p>
				<p>Fishing effort: The South Coast Crustacean Managed Fishery reported a total catch of 101.2 t in 2018 season and the value of the fishery for 2017/2018 was about \$5.9 million (Howe and Orme, 2020b).</p>	<p>Active licences/vessels: The number of vessels is unknown; however, a total of 1977 pots are licensed to be used.</p>	
				<p>Management area The fishery is active in coastal waters between Cape Leeuwin and the South Australia border. Landings are primarily at Albany, Bremer Bay and Esperance (Norriss and Blazeski, 2020).</p>		

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Fishery	Woodside Activity Area			Description												
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South Coast Purse Seine Managed Fishery				<table border="1"> <thead> <tr> <th>Species targeted</th> <th>Fishing methods</th> <th>Fishing depth</th> </tr> </thead> <tbody> <tr> <td>Small pelagic finfish such as pilchards and yellowtail scad using purse seine nets from vessels. Sandy sprat (<i>Hyperlophus vittatus</i>) Blue sprat (<i>Spratelloides robustus</i>)</td> <td>Purse seine.</td> <td>Information not available.</td> </tr> <tr> <td>Fishing effort:</td> <td colspan="2">In the 2017/18 season the total catch effort was 2,168 t (Norriss and Blazeski, 2020).</td> </tr> <tr> <td>Active licences/vessels:</td> <td colspan="2">Nine active vessels in 2017/18 (Norriss and Blazeski, 2020).</td> </tr> </tbody> </table>	Species targeted	Fishing methods	Fishing depth	Small pelagic finfish such as pilchards and yellowtail scad using purse seine nets from vessels. Sandy sprat (<i>Hyperlophus vittatus</i>) Blue sprat (<i>Spratelloides robustus</i>)	Purse seine.	Information not available.	Fishing effort:	In the 2017/18 season the total catch effort was 2,168 t (Norriss and Blazeski, 2020).		Active licences/vessels:	Nine active vessels in 2017/18 (Norriss and Blazeski, 2020).	
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Fishery	Woodside Activity Area			Description		
	Browse	NWS/S	NW Cape			
The South Coast Salmon Managed Fishery	-	-	-	Management area	The South Coast Salmon Managed Fishery is one of two fisheries operating in the South Coast Bioregion that target nearshore and estuarine finfish.	
				Species targeted	Fishing methods	Fishing depth
				Western Australian salmon (<i>Arripis truttaceus</i>) Southern school whiting (<i>Sillago bassensis</i>) Australian herring (<i>Arripis georgianus</i>) King George whiting (<i>Sillaginodes punctatus</i>) Sea mullet (<i>Mugil cephalus</i>) Estuary cobbler (<i>Cnidoglanis macrocephalus</i>) Black bream (<i>Acanthopagrus butcheri</i>)	Beach seines, haul nets and gill nets.	Information not available.
				Fishing effort:	The total catch for 2018 was 243 t (Duffy and Blay, 2020b).	
				Active licences/vessels:	Number of vessels is unknown; however, 12 commercial fishers were employed in 2018 (Duffy and Blay, 2020b).	
West Coast Beach Bait Managed Fishery	-	-	-	Management area	Primarily active in the Bunbury areas in the SWMR.	
				Species targeted	Fishing methods	Fishing depth
				Whitebait	Beach-based haul nets.	Information not available.
				Fishing effort:	In recent years the fishery is primarily active in the Bunbury area. Total catch of whitebait in 2015 was 40.2 t (Duffy and Blay, 2020c).	

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				Fishing effort:	Catch estimated annual value of the fishery was \$0.2 million for 2017 to 2018 (Braccini and Blay, 2020).																			
Active licences/vessels:	Vessel numbers are unknown; however, 17 interim managed fishery permits were held in 2019 (DPIRD, 2019) and between 18 and 21 skippers and crew were employed between 2016 and 2017.																							
West Coast Demersal Scalefish Fishery	-	-	-	<table border="1"> <tr> <td>Management area</td> <td colspan="3">These fisheries include the West Coast Demersal Scalefish (Interim) Managed Fishery (51 boats), the West Coast Demersal Gillnet and Demersal Longline (Interim) Managed Fishery and the temperate Demersal Gillnet and Demersal Longline Fisheries. The West Coast Demersal Scalefish 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.</td> </tr> <tr> <td>Species targeted</td> <td>Fishing methods</td> <td colspan="2">Fishing depth</td> </tr> <tr> <td>Baldchin groper (<i>Choerodon rubescens</i>) Dhufish (<i>Glaucosoma hebraicum</i>) Pink snapper (<i>Pagrus auratus</i>)</td> <td>Lines.</td> <td colspan="2">Inshore species – 20 to 250 m water depth.</td> </tr> </table>	Management area	These fisheries include the West Coast Demersal Scalefish (Interim) Managed Fishery (51 boats), the West Coast Demersal Gillnet and Demersal Longline (Interim) Managed Fishery and the temperate Demersal Gillnet and Demersal Longline Fisheries. The West Coast Demersal Scalefish 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		Baldchin groper (<i>Choerodon rubescens</i>) Dhufish (<i>Glaucosoma hebraicum</i>) Pink snapper (<i>Pagrus auratus</i>)	Lines.	Inshore species – 20 to 250 m water depth.									
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Baldchin groper (<i>Choerodon rubescens</i>) Dhufish (<i>Glaucosoma hebraicum</i>) Pink snapper (<i>Pagrus auratus</i>)	Lines.	Inshore species – 20 to 250 m water depth.																						

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Fishery	Woodside Activity Area			Description		
	Browse	NWS/S	NW Cape			
				<p>Offshore species – more than 250 m water depth.</p> <p>Fishing effort: In 2016, the West Coast Demersal Scalefish (interim) Managed Fishery reported a total catch of 256 t.</p> <p>Active licences/vessels: The precise number of vessels in the West Coast Demersal Scalefish Fisheries is unreported; however, it is restricted to 60 interim managed fishery permit holders.</p>		
West Coast Purse Seine Managed Fishery	-	-	-	<p>Management area Located in waters from Cape Bouvard extending to Lancelin.</p>		
				<p>Species targeted</p> <p>Small pelagic finfish such as: Scaly mackerel (<i>Sardinella lemuru</i>) Pilchards (<i>Sardinops sagax</i>) Australian anchovy (<i>Engraulis australis</i>) Yellowtail scad (<i>Trachurus novaezelandiae</i>) Maray (<i>Etrumeus teres</i>)</p>	<p>Fishing methods</p> <p>Purse seine.</p>	<p>Fishing depth</p> <p>Information not available.</p>
				<p>Fishing effort: Information not available</p>		
				<p>Active licences/vessels: Seven vessels in 2017 (Gaughan and Santoro, 2018).</p>		
West Coast Rock Lobster Managed Fishery			✓	<p>Management area The West Coast Rock Lobster Fishery operates from Shark Bay south to Cape Leeuwin. The fishery is managed using zones, seasons and total allowable catch. The recreational fishery targets the western rock lobsters using baited pots and by diving between North-west Cape and Augusta.</p>		

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Fishery	Woodside Activity Area			Description		
	Browse	NWS/S	NW Cape			
				Species targeted	Fishing methods	Fishing depth
				Western rock lobster (<i>Panulirus cygnus</i>)	Baited pots.	Less than 20 m.
				Fishing effort:	In 2018, 234 vessels reported a total catch of 6400 t in 2017 (de Lestang <i>et al.</i> , 2018). In 2016, 226 vessels reported a total catch of 6,086 t (Gaughan and Santoro, 2018).	
				Active licences/vessels:	234 vessels operated in 2017 and 233 vessels operated in 2018 (Gaughan and Santoro, 2018).	

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11.5.2 Aquaculture

Aquaculture operations in the northwest are typically restricted to inland and shallow coastal waters.

West Coast Bioregion

Aquaculture activities in the West Coast bioregion, defined by the Department of Primary Industries and Regional Development (DPIRD) (as the government body responsible management of primary industries in WA) are focused on blue mussels and edible oysters (mainly in Cockburn Sound) and marine algae for production of beta-carotene, used as a food additive and as a nutritional supplement. Offshore marine finfish production is also being developed, initially focusing on yellowtail kingfish.

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.

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.

North Coast Bioregion

Aquaculture activities in the North Coast bioregion is dominated by the production of pearls. 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 (Gaughan and Santoro, 2018). 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).

Other aquaculture developments in the North Coast include emerging producers of coral and live rock species for aquariums as well as barramundi (*Lates calcarifer*) farms and microalgae culturing for Omega-3, biofuels and protein biomass (Gaughan and Santoro, 2020).

11.6 Fisheries – Traditional

Traditional or customary fisheries are typically restricted to shallow coastal waters and/or areas with structures such as reef.

Dugong, fish and marine turtles that move between coastal and Commonwealth waters are important components of the Aboriginal people's culture and diet. Aboriginal 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 11-1**), 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.

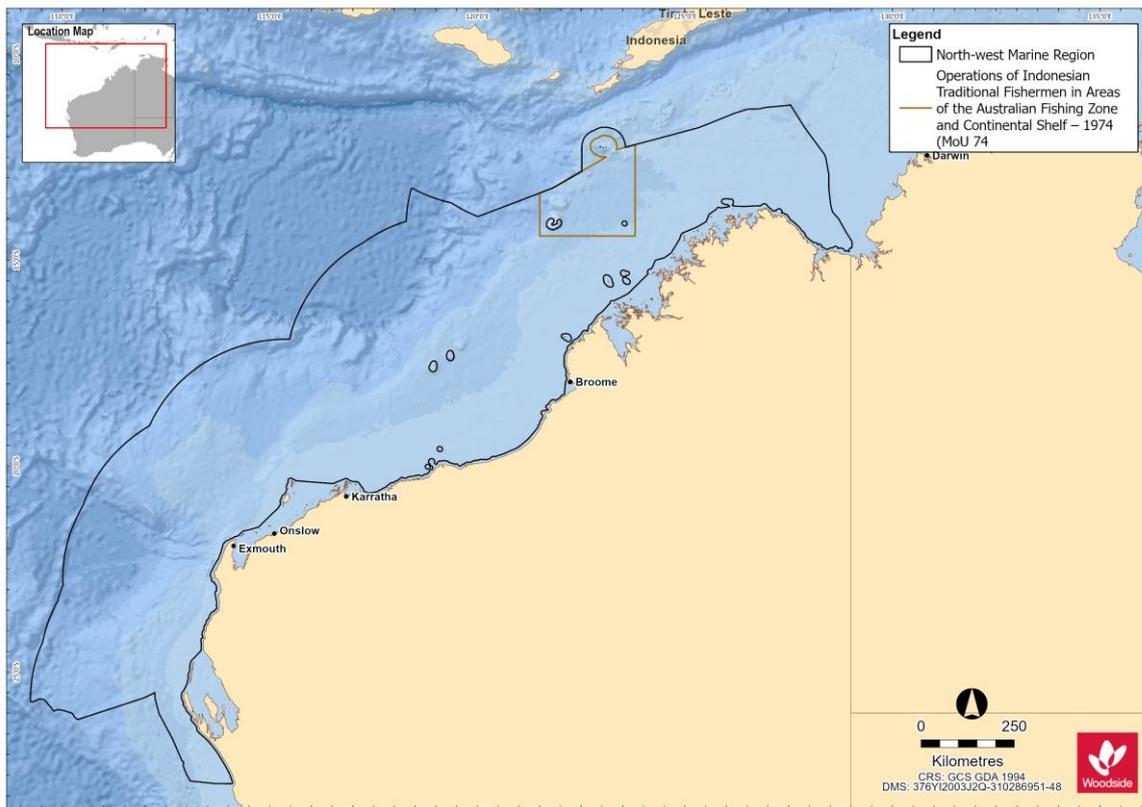


Figure 11-1 MOU 74 Box. Operations of Indonesian Traditional Fishermen in Areas of the Australian Fishing Zone and Continental Shelf – 1974

11.7 Tourism and Recreation

There are growing tourism and recreational sectors in WA. 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, other recreational fishing, diving, snorkelling, marine fauna watching, and yachting.

11.7.1 Gascoyne Region

Outside the petroleum industry, tourism is the largest revenue earner of all the major industries of the Gascoyne region. It contributes significantly to the local economy in terms of both income and

employment. In 2018 there was an average of 337,400 visitors with a visitor spend of \$359 million (Gascoyne Development Commission¹¹).

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). The main marine nature-based tourist activities are concentrated around and within the Ningaloo WHA.

11.7.2 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, generating \$413 million in gross revenue annually (Pilbara Development Commission¹²).

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 (Williamson *et al.*, 2006). Once at sea, charter vessels may also frequent the waters surrounding the Montebello Islands.

11.7.3 Kimberley Region

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.

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.

11.8 Shipping

Commercial shipping traffic is high within the NWMR with vessel activities including commercial fisheries, tourism such as cruises, international shipping and oil and gas operations. There are 12 ports adjacent to the NWMR, including the major ports of Dampier, Port Hedland and Broome, which are operated by their respective port authorities. These ports handle large tonnages of iron ore and petroleum exports in addition to salt, manganese, feldspar chromite and copper (DEWHA, 2008).

Heavy vessel traffic exists within the Pilbara Port Authority management area which recorded 10,064 vessel movements in Port of Dampier 2019/20 annual reporting period (PPA, 2020). 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).

¹¹ <https://www.gdc.wa.gov.au/industry-profiles/tourism/>

¹² <https://www.pdc.wa.gov.au/our-focus/strategicinitiatives/tourism>

11.9 Oil and Gas Infrastructure

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. 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.

11.10 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.
- 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.

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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: 27-Jun-2023

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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:	1
Listed Threatened Ecological Communities:	None
Listed Threatened Species:	20
Listed Migratory Species:	31

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:	24
Whales and Other Cetaceans:	27
Critical Habitats:	None
Commonwealth Reserves Terrestrial:	None
Australian Marine Parks:	1
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:	None
Regional Forest Agreements:	None
Nationally Important Wetlands:	None
EPBC Act Referrals:	26
Key Ecological Features (Marine):	2
Biologically Important Areas:	4
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

EEZ and Territorial Sea

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 canutus](#)

Red Knot, Knot [855]

Endangered

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

[Pterodroma mollis](#)

Soft-plumaged Petrel [1036]

Vulnerable

Species or species habitat may occur within area

Scientific Name	Threatened Category	Presence Text
Sternula nereis nereis Australian Fairy Tern [82950]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area
Thalassarche carteri Indian Yellow-nosed Albatross [64464]	Vulnerable	Species or species habitat may occur within area
FISH		
Thunnus maccoyii Southern Bluefin Tuna [69402]	Conservation Dependent	Species or species habitat likely 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
Eubalaena australis Southern Right Whale [40]	Endangered	Species or species habitat may occur within area
REPTILE		
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 known to occur within area

Scientific Name	Threatened Category	Presence Text
Eretmochelys imbricata Hawksbill Turtle [1766]	Vulnerable	Species or species habitat known to occur within area
Natator depressus Flatback Turtle [59257]	Vulnerable	Congregation or aggregation known to occur within area
SHARK		
Carcharodon carcharias White Shark, Great White Shark [64470]	Vulnerable	Species or species habitat may occur within area
Sphyrna lewini Scalloped Hammerhead [85267]	Conservation Dependent	Species or species habitat may 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
Fregata ariel Lesser Frigatebird, Least Frigatebird [1012]		Species or species habitat may occur within area
Macronectes giganteus Southern Giant-Petrel, Southern Giant Petrel [1060]	Endangered	Species or species habitat may occur within area
Phaethon lepturus White-tailed Tropicbird [1014]		Species or species habitat may occur within area
Thalassarche carteri Indian Yellow-nosed Albatross [64464]	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

Scientific Name	Threatened Category	Presence Text
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 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	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 known to occur within area
Eretmochelys imbricata Hawksbill Turtle [1766]	Vulnerable	Species or species habitat known to occur within area
Eubalaena australis as Balaena glacialis australis Southern Right Whale [40]	Endangered	Species or species habitat may occur within area

Scientific Name	Threatened Category	Presence Text
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]		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
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
Tursiops aduncus (Arafura/Timor Sea populations) Spotted Bottlenose Dolphin (Arafura/Timor Sea populations) [78900]		Species or species habitat may 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]		Species or species habitat may occur within area
Calidris canutus Red Knot, Knot [855]	Endangered	Species or species habitat may occur within area

Scientific Name	Threatened Category	Presence Text
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area
Calidris melanotos Pectoral Sandpiper [858]		Species or species habitat may occur within area
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat may occur within area

Other Matters Protected by the EPBC Act

Listed Marine Species		[Resource Information]
Scientific Name	Threatened Category	Presence Text
Bird		
Actitis hypoleucos Common Sandpiper [59309]		Species or species habitat may occur within area
Anous stolidus Common Noddy [825]		Species or species habitat may occur within area
Calidris acuminata Sharp-tailed Sandpiper [874]		Species or species habitat may occur within area
Calidris canutus Red Knot, Knot [855]	Endangered	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

Scientific Name	Threatened Category	Presence Text
Fregata ariel Lesser Frigatebird, Least Frigatebird [1012]		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 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
Pterodroma mollis Soft-plumaged Petrel [1036]	Vulnerable	Species or species habitat may occur within area
Thalassarche carteri Indian Yellow-nosed Albatross [64464]	Vulnerable	Species or species habitat may occur within area
Reptile		
Aipysurus laevis Olive Seasnake [1120]		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 known to occur within area

Scientific Name	Threatened Category	Presence Text
Disteira kingii Spectacled Seasnake [1123]		Species or species habitat may occur within area
Disteira major Olive-headed Seasnake [1124]		Species or species habitat may occur within area
Ephalophis greyi North-western Mangrove Seasnake [1127]		Species or species habitat may occur within area
Eretmochelys imbricata Hawksbill Turtle [1766]	Vulnerable	Species or species habitat known to occur within area
Hydrophis elegans Elegant Seasnake [1104]		Species or species habitat may occur within area
Natator depressus Flatback Turtle [59257]	Vulnerable	Congregation or aggregation known to occur within area
Pelamis platurus Yellow-bellied Seasnake [1091]		Species or species habitat may 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	Species or species habitat likely to occur within area

Current Scientific Name	Status	Type of Presence
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
Eubalaena australis Southern Right Whale [40]	Endangered	Species or species habitat may occur within area
Feresa attenuata Pygmy Killer Whale [61]		Species or species habitat may occur within area
Globicephala macrorhynchus Short-finned Pilot Whale [62]		Species or species habitat may occur within area
Grampus griseus Risso's Dolphin, Grampus [64]		Species or species habitat may occur within area
Kogia breviceps Pygmy Sperm Whale [57]		Species or species habitat may occur within area
Kogia sima Dwarf Sperm Whale [85043]		Species or species habitat may occur within area
Lagenodelphis hosei Fraser's Dolphin, Sarawak Dolphin [41]		Species or species habitat may occur within area

Current Scientific Name	Status	Type of Presence
Megaptera novaeangliae Humpback Whale [38]		Species or species habitat likely to occur within area
Mesoplodon densirostris Blainville's Beaked Whale, Dense-beaked Whale [74]		Species or species habitat may occur within area
Orcinus orca Killer Whale, Orca [46]		Species or species habitat may occur within area
Peponocephala electra Melon-headed Whale [47]		Species or species habitat may occur within area
Physeter macrocephalus Sperm Whale [59]		Species or species habitat may occur within area
Pseudorca crassidens False Killer Whale [48]		Species or species habitat likely to occur within area
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 (Arafura/Timor Sea populations) Spotted Bottlenose Dolphin (Arafura/Timor Sea populations) [78900]		Species or species habitat may occur within area

Current Scientific Name	Status	Type of Presence
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	Multiple Use Zone (IUCN VI)	

Extra Information

EPBC Act Referrals				[Resource Information]
Title of referral	Reference	Referral Outcome	Assessment Status	
Controlled action				
Development of Stybarrow petroleum field incl drilling and facility installation	2004/1469	Controlled Action	Post-Approval	
Enfield full field development	2001/257	Controlled Action	Post-Approval	
Greater Enfield (Vincent) Development	2005/2110	Controlled Action	Post-Approval	
Pyrenees Oil Fields Development	2005/2034	Controlled Action	Post-Approval	
Not controlled action				
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	
Exploratory drilling in permit area WA-225-P	2001/490	Not Controlled Action	Completed	
Montesa-1 and Bultaco-1 Exploration Wells	2000/102	Not Controlled Action	Completed	
Subsea Gas Pipeline From Stybarrow Field to Griffin Venture Gas Export Pipeline	2005/2033	Not Controlled Action	Completed	

Not controlled action (particular manner)

Title of referral	Reference	Referral Outcome	Assessment Status
Not controlled action (particular manner)			
3D Seismic Survey, WA	2008/4428	Not Controlled Action (Particular Manner)	Post-Approval
CVG 3D Marine Seismic Survey	2012/6654	Not Controlled Action (Particular Manner)	Post-Approval
Deep Water Northwest Shelf 2D Seismic Survey	2007/3260	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 oilfield 3D Seismic Survey	2006/3132	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
Rydal-1 Petroleum Exploration Well, WA	2012/6522	Not Controlled Action (Particular Manner)	Post-Approval
Stybarrow 4D Marine Seismic Survey	2011/5810	Not Controlled Action (Particular Manner)	Post-Approval
Stybarrow Baseline 4D marine seismic survey	2008/4530	Not Controlled Action (Particular Manner)	Post-Approval
Vincent M1 and Enfield M5 4D Marine Seismic Survey	2010/5720	Not Controlled Action (Particular Manner)	Post-Approval

Title of referral	Reference	Referral Outcome	Assessment Status
Not controlled action (particular manner)			
		Manner)	
Warramunga Non-Inclusive 3D Seismic Survey	2008/4553	Not Controlled Action (Particular Manner)	Post-Approval
Westralia SPAN Marine Seismic Survey, WA & NT	2012/6463	Not Controlled Action (Particular Manner)	Post-Approval
Referral decision			
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
Stybarrow Baseline 4D Marine Seismic Survey (Permit Areas WA-255-P, WA-32-L, WA-	2008/4165	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
Canyons linking the Cuvier Abyssal Plain and the Cape Range Peninsula	North-west
Continental Slope Demersal Fish Communities	North-west

Biologically Important Areas

Scientific Name	Behaviour	Presence
Seabirds		
Ardena pacifica		
Wedge-tailed Shearwater [84292]	Breeding	Known to occur
Whales		
Balaenoptera musculus brevicauda		
Pygmy Blue Whale [81317]	Distribution	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

Scientific Name

Behaviour

Presence

Caveat

1 PURPOSE

This report is designed to assist in identifying the location of matters of national environmental significance (MNES) and other matters protected by the Environment Protection and Biodiversity Conservation Act 1999 (Cth) (EPBC Act) which may be relevant in determining obligations and requirements under the EPBC Act.

The report contains the mapped locations of:

- World and National Heritage properties;
- Wetlands of International and National Importance;
- Commonwealth and State/Territory reserves;
- distribution of listed threatened, migratory and marine species;
- listed threatened ecological communities; and
- other information that may be useful as an indicator of potential habitat value.

2 DISCLAIMER

This report is not intended to be exhaustive and should only be relied upon as a general guide as mapped data is not available for all species or ecological communities listed under the EPBC Act (see below). Persons seeking to use the information contained in this report to inform the referral of a proposed action under the EPBC Act should consider the limitations noted below and whether additional information is required to determine the existence and location of MNES and other protected matters.

Where data are available to inform the mapping of protected species, the presence type (e.g. known, likely or may occur) that can be determined from the data is indicated in general terms. It is the responsibility of any person using or relying on the information in this report to ensure that it is suitable for the circumstances of any proposed use. The Commonwealth cannot accept responsibility for the consequences of any use of the report or any part thereof. To the maximum extent allowed under governing law, the Commonwealth will not be liable for any loss or damage that may be occasioned directly or indirectly through the use of, or reliance

3 DATA SOURCES

Threatened ecological communities

For threatened ecological communities where the distribution is well known, maps are generated based on information contained in recovery plans, State vegetation maps and remote sensing imagery and other sources. Where threatened ecological community distributions are less well known, existing vegetation maps and point location data are used to produce indicative distribution maps.

Threatened, migratory and marine species

Threatened, migratory and marine species distributions have been discerned through a variety of methods. Where distributions are well known and if time permits, distributions are inferred from either thematic spatial data (i.e. vegetation, soils, geology, elevation, aspect, terrain, etc.) together with point locations and described habitat; or modelled (MAXENT or BIOCLIM habitat modelling) using

Where little information is available for a species or large number of maps are required in a short time-frame, maps are derived either from 0.04 or 0.02 decimal degree cells; by an automated process using polygon capture techniques (static two kilometre grid cells, alpha-hull and convex hull); or captured manually or by using topographic features (national park boundaries, islands, etc.).

In the early stages of the distribution mapping process (1999-early 2000s) distributions were defined by degree blocks, 100K or 250K map sheets to rapidly create distribution maps. More detailed distribution mapping methods are used to update these distributions

4 LIMITATIONS

The following species and ecological communities have not been mapped and do not appear in this report:

- threatened species listed as extinct or considered vagrants;
- some recently listed species and ecological communities;
- some listed migratory and listed marine species, which are not listed as threatened species; and
- migratory species that are very widespread, vagrant, or only occur in Australia in small numbers.

The following groups have been mapped, but may not cover the complete distribution of the species:

- listed migratory and/or listed marine seabirds, which are not listed as threatened, have only been mapped for recorded
- seals which have only been mapped for breeding sites near the Australian continent

The breeding sites may be important for the protection of the Commonwealth Marine environment.

Refer to the metadata for the feature group (using the Resource Information link) for the currency of the information.

Acknowledgements

This database has been compiled from a range of data sources. The department acknowledges the following custodians who have contributed valuable data and advice:

- [-Office of Environment and Heritage, New South Wales](#)
- [-Department of Environment and Primary Industries, Victoria](#)
- [-Department of Primary Industries, Parks, Water and Environment, Tasmania](#)
- [-Department of Environment, Water and Natural Resources, South Australia](#)
- [-Department of Land and Resource Management, Northern Territory](#)
- [-Department of Environmental and Heritage Protection, Queensland](#)
- [-Department of Parks and Wildlife, Western Australia](#)
- [-Environment and Planning Directorate, ACT](#)
- [-Birdlife Australia](#)
- [-Australian Bird and Bat Banding Scheme](#)
- [-Australian National Wildlife Collection](#)
- Natural history museums of Australia
- [-Museum Victoria](#)
- [-Australian Museum](#)
- [-South Australian Museum](#)
- [-Queensland Museum](#)
- [-Online Zoological Collections of Australian Museums](#)
- [-Queensland Herbarium](#)
- [-National Herbarium of NSW](#)
- [-Royal Botanic Gardens and National Herbarium of Victoria](#)
- [-Tasmanian Herbarium](#)
- [-State Herbarium of South Australia](#)
- [-Northern Territory Herbarium](#)
- [-Western Australian Herbarium](#)
- [-Australian National Herbarium, Canberra](#)
- [-University of New England](#)
- [-Ocean Biogeographic Information System](#)
- [-Australian Government, Department of Defence](#)
- [Forestry Corporation, NSW](#)
- [-Geoscience Australia](#)
- [-CSIRO](#)
- [-Australian Tropical Herbarium, Cairns](#)
- [-eBird Australia](#)
- [-Australian Government – Australian Antarctic Data Centre](#)
- [-Museum and Art Gallery of the Northern Territory](#)
- [-Australian Government National Environmental Science Program](#)
- [-Australian Institute of Marine Science](#)
- [-Reef Life Survey Australia](#)
- [-American Museum of Natural History](#)
- [-Queen Victoria Museum and Art Gallery, Inveresk, Tasmania](#)
- [-Tasmanian Museum and Art Gallery, Hobart, Tasmania](#)
- Other groups and individuals

The Department is extremely grateful to the many organisations and individuals who provided expert advice and information on numerous draft distributions.

Please feel free to provide feedback via the [Contact us](#) page.

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Department of Climate Change, Energy, the Environment and Water

GPO Box 3090

Canberra ACT 2601 Australia

+61 2 6274 1111



Australian Government

Department of Climate Change, Energy,
the Environment and Water

EPBC Act Protected Matters Report

This report provides general guidance on matters of national environmental significance and other matters protected by the EPBC Act in the area you have selected. Please see the caveat for interpretation of information provided here.

Report created: 27-Jun-2023

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Summary

Matters of National Environment Significance

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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:	33
Listed Migratory Species:	51

Other Matters Protected by the EPBC Act

This part of the report summarises other matters protected under the Act that may relate to the area you nominated. Approval may be required for a proposed activity that significantly affects the environment on Commonwealth land, when the action is outside the Commonwealth land, or the environment anywhere when the action is taken on Commonwealth land. Approval may also be required for the Commonwealth or Commonwealth agencies proposing to take an action that is likely to have a significant impact on the environment anywhere.

The EPBC Act protects the environment on Commonwealth land, the environment from the actions taken on Commonwealth land, and the environment from actions taken by Commonwealth agencies. As heritage values of a place are part of the 'environment', these aspects of the EPBC Act protect the Commonwealth Heritage values of a Commonwealth Heritage place. Information on the new heritage laws can be found at <https://www.dcceew.gov.au/parks-heritage/heritage>

A [permit](#) may be required for activities in or on a Commonwealth area that may affect a member of a listed threatened species or ecological community, a member of a listed migratory species, whales and other cetaceans, or a member of a listed marine species.

Commonwealth Lands:	None
Commonwealth Heritage Places:	1
Listed Marine Species:	86
Whales and Other Cetaceans:	32
Critical Habitats:	None
Commonwealth Reserves Terrestrial:	None
Australian Marine Parks:	7
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:	1
Regional Forest Agreements:	None
Nationally Important Wetlands:	None
EPBC Act Referrals:	126
Key Ecological Features (Marine):	5
Biologically Important Areas:	20
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 [\[Resource Information \]](#)

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
EEZ and Territorial Sea

Extended Continental Shelf

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 canutus Red Knot, Knot [855]	Endangered	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

Scientific Name	Threatened Category	Presence Text
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	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
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
FISH		
Thunnus maccoyii Southern Bluefin Tuna [69402]	Conservation Dependent	Breeding known to occur within area
MAMMAL		
Balaenoptera borealis Sei Whale [34]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area

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
Eubalaena australis Southern Right Whale [40]	Endangered	Species or species habitat likely to occur within area

REPTILE

Aipysurus apraefrontalis Short-nosed Seasnake [1115]	Critically Endangered	Species or species habitat likely to occur within area
Aipysurus foliosquama Leaf-scaled Seasnake [1118]	Critically Endangered	Species or species habitat known to occur within area
Caretta caretta Loggerhead Turtle [1763]	Endangered	Congregation or aggregation known to occur within area
Chelonia mydas Green Turtle [1765]	Vulnerable	Congregation or aggregation known to occur within area
Dermochelys coriacea Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Species or species habitat known to occur within area
Eretmochelys imbricata Hawksbill Turtle [1766]	Vulnerable	Congregation or aggregation known to occur within area
Natator depressus Flatback Turtle [59257]	Vulnerable	Congregation or aggregation known to occur within area

SHARK

Carcharias taurus (west coast population) Grey Nurse Shark (west coast population) [68752]	Vulnerable	Species or species habitat known to occur within area
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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 listed as Centrophorus zeehaani Little Gulper Shark [68446]	Conservation Dependent	Species or species habitat likely to occur within area
Pristis clavata Dwarf Sawfish, Queensland Sawfish [68447]	Vulnerable	Species or species habitat known to occur within area
Pristis pristis Freshwater Sawfish, Largetooth Sawfish, River Sawfish, Leichhardt's Sawfish, Northern Sawfish [60756]	Vulnerable	Species or species habitat likely to occur within area
Pristis zijsron Green Sawfish, Dindagubba, Narrowsnout Sawfish [68442]	Vulnerable	Species or species habitat known to occur within area
Rhincodon typus Whale Shark [66680]	Vulnerable	Foraging, feeding or related behaviour known to occur within area
Sphyrna lewini Scalloped Hammerhead [85267]	Conservation Dependent	Species or species habitat known to occur within area

Listed Migratory Species [[Resource Information](#)]

Scientific Name	Threatened Category	Presence Text
Migratory Marine Birds		
Anous stolidus Common Noddy [825]		Species or species habitat may 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

Scientific Name	Threatened Category	Presence Text
Calonectris leucomelas Streaked Shearwater [1077]		Species or species habitat likely to occur within area
Fregata ariel Lesser Frigatebird, Least Frigatebird [1012]		Species or species habitat likely to occur within area
Fregata minor Great Frigatebird, Greater Frigatebird [1013]		Species or species habitat may occur within area
Macronectes giganteus Southern Giant-Petrel, Southern Giant Petrel [1060]	Endangered	Species or species habitat may occur within area
Phaethon lepturus White-tailed Tropicbird [1014]		Species or species habitat known to occur within area
Sterna dougallii Roseate Tern [817]		Breeding likely 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

Scientific Name	Threatened Category	Presence Text
Anoxypristis cuspidata Narrow Sawfish, Knifetooth Sawfish [68448]		Species or species habitat likely to occur within area
Balaenoptera bonaerensis Antarctic Minke Whale, Dark-shoulder Minke Whale [67812]		Species or species habitat likely to occur within area
Balaenoptera borealis Sei Whale [34]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area
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	Congregation or aggregation known to occur within area
Chelonia mydas Green Turtle [1765]	Vulnerable	Congregation or aggregation known to occur within area
Dermochelys coriacea Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Species or species habitat 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	Congregation or aggregation 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
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	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 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]		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 Wetlands Species		
Actitis hypoleucos Common Sandpiper [59309]		Species or species habitat may occur within area
Calidris acuminata Sharp-tailed Sandpiper [874]		Species or species habitat may occur within area
Calidris canutus Red Knot, Knot [855]	Endangered	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
Pandion haliaetus Osprey [952]		Species or species habitat known to occur within area

Other Matters Protected by the EPBC Act

Commonwealth Heritage Places			[Resource Information]
Name	State	Status	
Natural			
Ningaloo Marine Area - Commonwealth Waters	WA	Listed place	

Listed Marine Species			[Resource Information]
Scientific Name	Threatened Category	Presence Text	
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	
Apus pacificus Fork-tailed Swift [678]		Species or species habitat likely to occur within area overfly marine area	
Ardena carneipes as Puffinus carneipes Flesh-footed Shearwater, Fleshy-footed Shearwater [82404]		Species or species habitat likely to occur within area	
Calidris acuminata Sharp-tailed Sandpiper [874]		Species or species habitat may occur within area	

Scientific Name	Threatened Category	Presence Text
Calidris canutus Red Knot, Knot [855]	Endangered	Species or species habitat may occur within area overfly marine area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area overfly marine area
Calidris melanotos Pectoral Sandpiper [858]		Species or species habitat may occur within area overfly marine area
Calonectris leucomelas Streaked Shearwater [1077]		Species or species habitat likely to occur within area
Fregata ariel Lesser Frigatebird, Least Frigatebird [1012]		Species or species habitat likely to occur within area
Fregata minor Great Frigatebird, Greater Frigatebird [1013]		Species or species habitat may occur within area
Macronectes giganteus Southern Giant-Petrel, Southern Giant Petrel [1060]	Endangered	Species or species habitat may occur within area
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat may occur within area
Onychoprion fuscatus as Sterna fuscata Sooty Tern [90682]		Foraging, feeding or related behaviour likely to occur within area
Pandion haliaetus Osprey [952]		Species or species habitat known to occur within area

Scientific Name	Threatened Category	Presence Text
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
Sterna dougallii Roseate Tern [817]		Breeding likely 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

Fish

Scientific Name	Threatened Category	Presence Text
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 galei Gale's Pipefish [66191]		Species or species habitat may occur within area
Campichthys tricarinatus Three-keel Pipefish [66192]		Species or species habitat may occur within area
Choeroichthys brachysoma Pacific Short-bodied Pipefish, Short-bodied Pipefish [66194]		Species or species habitat may occur within area
Choeroichthys latispinosus Muiron Island Pipefish [66196]		Species or species habitat may occur within area
Choeroichthys suillus Pig-snouted Pipefish [66198]		Species or species habitat may occur within area
Corythoichthys flavofasciatus Reticulate Pipefish, Yellow-banded Pipefish, Network Pipefish [66200]		Species or species habitat may occur within area
Cosmocampus banneri Roughridge Pipefish [66206]		Species or species habitat may occur within area
Doryrhamphus dactyliophorus Banded Pipefish, Ringed Pipefish [66210]		Species or species habitat may occur within area
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 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 spinostris Spiny-snout Pipefish [66225]		Species or species habitat may occur within area
Haliichthys taeniophorus Ribbioned Pipehorse, Ribbioned Seadragon [66226]		Species or species habitat may occur within area
Hippichthys penicillus Beady Pipefish, Steep-nosed Pipefish [66231]		Species or species habitat may occur within area

Scientific Name	Threatened Category	Presence Text
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
Lissocampus fatiloquus Prophet's Pipefish [66250]		Species or species habitat may occur within area
Micrognathus micronotopterus Tidepool Pipefish [66255]		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
Solegnathus hardwickii Pallid Pipehorse, Hardwick's Pipehorse [66272]		Species or species habitat may occur within area

Scientific Name	Threatened Category	Presence Text
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
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		
Acalyptophis peronii Horned Seasnake [1114]		Species or species habitat may occur within area
Aipysurus apraefrontalis Short-nosed Seasnake [1115]	Critically Endangered	Species or species habitat likely to occur within area
Aipysurus duboisii Dubois' Seasnake [1116]		Species or species habitat may occur within area
Aipysurus eydouxii Spine-tailed Seasnake [1117]		Species or species habitat may occur within area

Scientific Name	Threatened Category	Presence Text
Aipysurus foliosquama Leaf-scaled Seasnake [1118]	Critically Endangered	Species or species habitat known to occur within area
Aipysurus laevis Olive Seasnake [1120]		Species or species habitat may occur within area
Astrotia stokesii Stokes' Seasnake [1122]		Species or species habitat may occur within area
Caretta caretta Loggerhead Turtle [1763]	Endangered	Congregation or aggregation known to occur within area
Chelonia mydas Green Turtle [1765]	Vulnerable	Congregation or aggregation known to occur within area
Chitulia ornata as Hydrophis ornatus Spotted Seasnake, Ornate Reef Seasnake [87377]		Species or species habitat may occur within area
Dermochelys coriacea Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Species or species habitat known to occur within area
Disteira kingii Spectacled Seasnake [1123]		Species or species habitat may occur within area
Disteira major Olive-headed Seasnake [1124]		Species or species habitat may occur within area
Emydocephalus annulatus Turtle-headed Seasnake [1125]		Species or species habitat may occur within area
Ephalophis greyi North-western Mangrove Seasnake [1127]		Species or species habitat may occur within area

Scientific Name	Threatened Category	Presence Text
Eretmochelys imbricata Hawksbill Turtle [1766]	Vulnerable	Congregation or aggregation known to occur within area
Hydrophis elegans Elegant Seasnake [1104]		Species or species habitat may occur within area
Leioselasma czeblukovi as Hydrophis czeblukovi Fine-spined Seasnake, Geometrical Seasnake [87374]		Species or species habitat may occur within area
Natator depressus Flatback Turtle [59257]	Vulnerable	Congregation or aggregation known to occur within area
Pelamis platurus Yellow-bellied Seasnake [1091]		Species or species habitat may 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
Balaenoptera musculus Blue Whale [36]	Endangered	Migration route known to occur within area

Current Scientific Name	Status	Type of Presence
Balaenoptera physalus Fin Whale [37]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area
Delphinus delphis Common Dolphin, Short-beaked Common Dolphin [60]		Species or species habitat may occur within area
Eubalaena australis Southern Right Whale [40]	Endangered	Species or species habitat likely to occur within area
Feresa attenuata Pygmy Killer Whale [61]		Species or species habitat may occur within area
Globicephala macrorhynchus Short-finned Pilot Whale [62]		Species or species habitat may occur within area
Grampus griseus Risso's Dolphin, Grampus [64]		Species or species habitat may occur within area
Indopacetus pacificus Longman's Beaked Whale [72]		Species or species habitat may occur within area
Kogia breviceps Pygmy Sperm Whale [57]		Species or species habitat may occur within area
Kogia sima Dwarf Sperm Whale [85043]		Species or species habitat may occur within area
Lagenodelphis hosei Fraser's Dolphin, Sarawak Dolphin [41]		Species or species habitat may occur within area
Megaptera novaeangliae Humpback Whale [38]		Breeding known to occur within area

Current Scientific Name	Status	Type of Presence
Mesoplodon densirostris Blainville's Beaked Whale, Dense-beaked Whale [74]		Species or species habitat may occur within area
Mesoplodon ginkgodens Ginkgo-toothed Beaked Whale, Ginkgo-toothed Whale, Ginkgo Beaked Whale [59564]		Species or species habitat may occur within area
Orcaella heinsohni Australian Snubfin Dolphin [81322]		Species or species habitat may occur within area
Orcinus orca Killer Whale, Orca [46]		Species or species habitat may occur within area
Peponocephala electra Melon-headed Whale [47]		Species or species habitat may occur within area
Physeter macrocephalus Sperm Whale [59]		Species or species habitat may occur within area
Pseudorca crassidens False Killer Whale [48]		Species or species habitat likely to occur within area
Sousa sahalensis Australian Humpback Dolphin [87942]		Species or species habitat known to occur within area
Stenella attenuata Spotted Dolphin, Pantropical Spotted Dolphin [51]		Species or species habitat may occur within area
Stenella coeruleoalba Striped Dolphin, Euphrosyne Dolphin [52]		Species or species habitat may occur within area
Stenella longirostris Long-snouted Spinner Dolphin [29]		Species or species habitat may occur within area

Current Scientific Name	Status	Type of Presence
Steno bredanensis Rough-toothed Dolphin [30]		Species or species habitat may occur within area
Tursiops aduncus Indian Ocean Bottlenose Dolphin, Spotted Bottlenose Dolphin [68418]		Species or species habitat likely to occur within area
Tursiops aduncus (Arafura/Timor Sea populations) Spotted Bottlenose Dolphin (Arafura/Timor Sea populations) [78900]		Species or species habitat 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
Carnarvon Canyon	Habitat Protection Zone (IUCN IV)
Gascoyne	Habitat Protection Zone (IUCN IV)
Gascoyne	Multiple Use Zone (IUCN VI)
Shark Bay	Multiple Use Zone (IUCN VI)
Gascoyne	National Park Zone (IUCN II)
Ningaloo	National Park Zone (IUCN II)
Ningaloo	Recreational Use Zone (IUCN IV)

Habitat Critical to the Survival of Marine Turtles

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
Ningaloo	Marine Park	WA

EPBC Act Referrals [\[Resource Information \]](#)

Title of referral	Reference	Referral Outcome	Assessment Status
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 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

Title of referral	Reference	Referral Outcome	Assessment Status
Controlled action			
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	2003/1294	Controlled Action	Post-Approval
Gorgon Gas Development 4th Train Proposal	2011/5942	Controlled Action	Post-Approval
Greater Enfield (Vincent) Development	2005/2110	Controlled Action	Post-Approval
Light Crude Oil Production	2001/365	Controlled Action	Post-Approval
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
Pyrenees Oil Fields Development	2005/2034	Controlled Action	Post-Approval
The Scarborough Project - FLNG & assoc subsea infrastructure, Carnarvon Basin	2013/6811	Controlled Action	Post-Approval
Vincent Appraisal Well	2000/22	Controlled Action	Post-Approval
Not controlled action			
'Van Gogh' Oil Appraisal Drilling Program, Exploration Permit Area WA-155-P(1)	2006/3148	Not Controlled Action	Completed
Bollinger 2D Seismic Survey 200km North of North West Cape WA	2004/1868	Not Controlled Action	Completed
Bultaco-2, Laverda-2, Laverda-3 and Montesa-2 Appraisal Wells	2000/103	Not Controlled Action	Completed
Carnarvon 3D Marine Seismic Survey	2004/1890	Not Controlled Action	Completed
Cazadores 2D seismic survey	2004/1720	Not Controlled Action	Completed
Construction and operation of an unmanned sea platform and connecting pipeline to Varanus	2004/1703	Not Controlled Action	Completed

Title of referral	Reference	Referral Outcome	Assessment Status
Not controlled action			
<u>Island for</u>			
<u>Controlled Source Electromagnetic Survey</u>	2007/3262	Not Controlled Action	Completed
<u>Development of Halyard Field off the west coast of WA</u>	2010/5611	Not Controlled Action	Completed
<u>Exploration drilling well WA-155-P(1)</u>	2003/971	Not Controlled Action	Completed
<u>Exploration Well in Permit Area WA-155-P(1)</u>	2002/759	Not Controlled Action	Completed
<u>Exploratory drilling in permit area WA-225-P</u>	2001/490	Not Controlled Action	Completed
<u>HCA05X Macedon Experimental Survey</u>	2004/1926	Not Controlled Action	Completed
<u>Hess Exploration Drilling Programme</u>	2007/3566	Not Controlled Action	Completed
<u>INDIGO West Submarine Telecommunications Cable, WA</u>	2017/8126	Not Controlled Action	Completed
<u>Infill Production Well (Griffin-9)</u>	2001/417	Not Controlled Action	Completed
<u>Jansz-2 and 3 Appraisal Wells</u>	2002/754	Not Controlled Action	Completed
<u>Klammer 2D Seismic Survey</u>	2002/868	Not Controlled Action	Completed
<u>Montesa-1 and Bultaco-1 Exploration Wells</u>	2000/102	Not Controlled Action	Completed
<u>Project Highclere Geophysical Survey</u>	2021/9023	Not Controlled Action	Completed
<u>Subsea Gas Pipeline From Stybarrow Field to Griffin Venture Gas Export Pipeline</u>	2005/2033	Not Controlled Action	Completed
<u>Wanda Offshore Research Project, 80 km north-east of Exmouth, WA</u>	2018/8293	Not Controlled Action	Completed
<u>Wheatstone 3D seismic survey, 70km north of Barrow Island</u>	2004/1761	Not Controlled Action	Completed
Not controlled action (particular manner)			
<u>'Kate' 3D marine seismic survey, exploration permits WA-320-P and WA-345-P, 60km</u>	2005/2037	Not Controlled Action (Particular Manner)	Post-Approval

Title of referral	Reference	Referral Outcome	Assessment Status
Not controlled action (particular manner)			
"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	2008/4493	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 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
Acheron Non-Exclusive 2D Seismic Survey	2008/4565	Not Controlled Action (Particular	Post-Approval

Title of referral	Reference	Referral Outcome	Assessment Status
Not controlled action (particular manner)			
		Manner)	
Acheron Non-Exclusive 2D Seismic Survey	2009/4968	Not Controlled Action (Particular Manner)	Post-Approval
Agrippina 3D Seismic Marine Survey	2009/5212	Not Controlled Action (Particular Manner)	Post-Approval
Apache Northwest Shelf Van Gogh Field Appraisal Drilling Program	2007/3495	Not Controlled Action (Particular Manner)	Post-Approval
Aperio 3D Marine Seismic Survey, WA	2012/6648	Not Controlled Action (Particular Manner)	Post-Approval
Australia to Singapore Fibre Optic Submarine Cable System	2011/6127	Not Controlled Action (Particular Manner)	Post-Approval
Babylon 3D Marine Seismic Survey, Commonwealth Waters, nr Exmouth WA	2013/7081	Not Controlled Action (Particular Manner)	Post-Approval
Balnaves Condensate Field Development	2011/6188	Not Controlled Action (Particular Manner)	Post-Approval
Bonaventure 3D seismic survey	2006/2514	Not Controlled Action (Particular Manner)	Post-Approval
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

Title of referral	Reference	Referral Outcome	Assessment Status
Not controlled action (particular manner)			
Cue Seismic Survey within WA-359-P, WA-361-P and WA-360-P	2007/3647	Not Controlled Action (Particular Manner)	Post-Approval
CVG 3D Marine Seismic Survey	2012/6654	Not Controlled Action (Particular Manner)	Post-Approval
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
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 Manner)	Post-Approval
Exmouth West 2D Marine Seismic Survey	2008/4132	Not Controlled Action (Particular Manner)	Post-Approval

Title of referral	Reference	Referral Outcome	Assessment Status
Not controlled action (particular manner)			
		Manner)	
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
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
Honeycombs MC3D Marine Seismic Survey	2012/6368	Not Controlled Action (Particular Manner)	Post-Approval
Huzzas MC3D Marine Seismic Survey (HZ-13) Carnarvon Basin, offshore WA	2013/7003	Not Controlled Action (Particular Manner)	Post-Approval
Huzzas phase 2 marine seismic survey, Exmouth Plateau, Northern Carnarvon Basin, WA	2013/7093	Not Controlled Action (Particular Manner)	Post-Approval
INDIGO Marine Cable Route Survey (INDIGO)	2017/7996	Not Controlled Action (Particular Manner)	Post-Approval
John Ross & Rosella Off Bottom Cable Seismic Exploration Program	2008/3966	Not Controlled Action (Particular Manner)	Post-Approval

Title of referral	Reference	Referral Outcome	Assessment Status
Not controlled action (particular manner)			
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
Laying a submarine optical fibre telecommunications cable, Perth to Singapore and Jakarta	2014/7332	Not Controlled Action (Particular Manner)	Post-Approval
Leopard 2D marine seismic survey	2005/2290	Not Controlled Action (Particular Manner)	Post-Approval
Lion 2D Marine Seismic Survey	2007/3777	Not Controlled Action (Particular Manner)	Post-Approval
Macedon Gas Field Development	2008/4605	Not Controlled Action (Particular Manner)	Post-Approval
Marine reconnaissance survey	2008/4466	Not Controlled Action (Particular Manner)	Post-Approval
Munmorah 2D seismic survey within permits WA-308/9-P	2003/970	Not Controlled Action (Particular Manner)	Post-Approval
Ocean Bottom Cable Seismic Program, WA-264-P	2007/3844	Not Controlled Action (Particular Manner)	Post-Approval
Ocean Bottom Cable Seismic Survey	2005/2017	Not Controlled Action (Particular Manner)	Post-Approval
Orcus 3D Marine Seismic Survey in WA-450-P	2010/5723	Not Controlled Action (Particular Manner)	Post-Approval

Title of referral	Reference	Referral Outcome	Assessment Status
Not controlled action (particular manner)			
		Manner)	
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
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
Quiberon 2D Seismic Survey, permit area WA-385P, offshore of Carnarvon	2009/5077	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
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

Title of referral	Reference	Referral Outcome	Assessment Status
Not controlled action (particular manner)			
Stybarrow 4D Marine Seismic Survey	2011/5810	Not Controlled Action (Particular Manner)	Post-Approval
Stybarrow Baseline 4D marine seismic survey	2008/4530	Not Controlled Action (Particular Manner)	Post-Approval
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 three dimensional marine seismic survey	2010/5679	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
Westralia SPAN Marine Seismic Survey, WA & NT	2012/6463	Not Controlled Action (Particular Manner)	Post-Approval
Referral decision			
3D Seismic Survey	2008/4219	Referral Decision	Completed
Bianchi 3D Marine Seismic Survey, Carnavon Basin, WA	2013/7078	Referral Decision	Completed
CVG 3D Marine Seismic Survey	2012/6270	Referral Decision	Completed
Enfield 4D Marine Seismic Surveys, Production Permit WA-28-L	2005/2370	Referral Decision	Completed

Title of referral	Reference	Referral Outcome	Assessment Status
Referral decision			
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

Key Ecological Features

[[Resource Information](#)]

Key Ecological Features are the parts of the marine ecosystem that are considered to be important for the biodiversity or ecosystem functioning and integrity of the Commonwealth Marine Area.

Name	Region
Ancient coastline at 125 m depth contour	North-west
Canyons linking the Cuvier Abyssal Plain and the Cape Range Peninsula	North-west
Commonwealth waters adjacent to Ningaloo Reef	North-west
Continental Slope Demersal Fish Communities	North-west
Exmouth Plateau	North-west

Biologically Important Areas

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

Scientific Name	Behaviour	Presence
Chelonia mydas Green Turtle [1765]	Internesting buffer	Known to occur
Eretmochelys imbricata Hawksbill Turtle [1766]	Internesting buffer	Known to occur
Eretmochelys imbricata Hawksbill Turtle [1766]	Nesting	Known to occur
Natator depressus Flatback Turtle [59257]	Internesting buffer	Known to occur
Seabirds		
Ardena pacifica Wedge-tailed Shearwater [84292]	Breeding	Known to occur
Sterna dougallii Roseate Tern [817]	Breeding	Known to occur
Sternula nereis Fairy Tern [82949]	Breeding	Known to occur
Thalasseus bengalensis Lesser Crested Tern [66546]	Breeding	Known to occur
Sharks		
Rhincodon typus Whale Shark [66680]	Foraging	Known to occur
Rhincodon typus Whale Shark [66680]	Foraging (high density prey)	Known to occur
Whales		
Balaenoptera musculus brevicauda Pygmy Blue Whale [81317]	Distribution	Known to occur
Balaenoptera musculus brevicauda Pygmy Blue Whale [81317]	Foraging	Known to occur
Balaenoptera musculus brevicauda Pygmy Blue Whale [81317]	Migration	Known to occur

Scientific Name	Behaviour	Presence
Megaptera novaeangliae Humpback Whale [38]	Migration (north and south)	Known to occur

Caveat

1 PURPOSE

This report is designed to assist in identifying the location of matters of national environmental significance (MNES) and other matters protected by the Environment Protection and Biodiversity Conservation Act 1999 (Cth) (EPBC Act) which may be relevant in determining obligations and requirements under the EPBC Act.

The report contains the mapped locations of:

- World and National Heritage properties;
- Wetlands of International and National Importance;
- Commonwealth and State/Territory reserves;
- distribution of listed threatened, migratory and marine species;
- listed threatened ecological communities; and
- other information that may be useful as an indicator of potential habitat value.

2 DISCLAIMER

This report is not intended to be exhaustive and should only be relied upon as a general guide as mapped data is not available for all species or ecological communities listed under the EPBC Act (see below). Persons seeking to use the information contained in this report to inform the referral of a proposed action under the EPBC Act should consider the limitations noted below and whether additional information is required to determine the existence and location of MNES and other protected matters.

Where data are available to inform the mapping of protected species, the presence type (e.g. known, likely or may occur) that can be determined from the data is indicated in general terms. It is the responsibility of any person using or relying on the information in this report to ensure that it is suitable for the circumstances of any proposed use. The Commonwealth cannot accept responsibility for the consequences of any use of the report or any part thereof. To the maximum extent allowed under governing law, the Commonwealth will not be liable for any loss or damage that may be occasioned directly or indirectly through the use of, or reliance

3 DATA SOURCES

Threatened ecological communities

For threatened ecological communities where the distribution is well known, maps are generated based on information contained in recovery plans, State vegetation maps and remote sensing imagery and other sources. Where threatened ecological community distributions are less well known, existing vegetation maps and point location data are used to produce indicative distribution maps.

Threatened, migratory and marine species

Threatened, migratory and marine species distributions have been discerned through a variety of methods. Where distributions are well known and if time permits, distributions are inferred from either thematic spatial data (i.e. vegetation, soils, geology, elevation, aspect, terrain, etc.) together with point locations and described habitat; or modelled (MAXENT or BIOCLIM habitat modelling) using

Where little information is available for a species or large number of maps are required in a short time-frame, maps are derived either from 0.04 or 0.02 decimal degree cells; by an automated process using polygon capture techniques (static two kilometre grid cells, alpha-hull and convex hull); or captured manually or by using topographic features (national park boundaries, islands, etc.).

In the early stages of the distribution mapping process (1999-early 2000s) distributions were defined by degree blocks, 100K or 250K map sheets to rapidly create distribution maps. More detailed distribution mapping methods are used to update these distributions

4 LIMITATIONS

The following species and ecological communities have not been mapped and do not appear in this report:

- threatened species listed as extinct or considered vagrants;
- some recently listed species and ecological communities;
- some listed migratory and listed marine species, which are not listed as threatened species; and
- migratory species that are very widespread, vagrant, or only occur in Australia in small numbers.

The following groups have been mapped, but may not cover the complete distribution of the species:

- listed migratory and/or listed marine seabirds, which are not listed as threatened, have only been mapped for recorded
- seals which have only been mapped for breeding sites near the Australian continent

The breeding sites may be important for the protection of the Commonwealth Marine environment.

Refer to the metadata for the feature group (using the Resource Information link) for the currency of the information.

Acknowledgements

This database has been compiled from a range of data sources. The department acknowledges the following custodians who have contributed valuable data and advice:

- [-Office of Environment and Heritage, New South Wales](#)
- [-Department of Environment and Primary Industries, Victoria](#)
- [-Department of Primary Industries, Parks, Water and Environment, Tasmania](#)
- [-Department of Environment, Water and Natural Resources, South Australia](#)
- [-Department of Land and Resource Management, Northern Territory](#)
- [-Department of Environmental and Heritage Protection, Queensland](#)
- [-Department of Parks and Wildlife, Western Australia](#)
- [-Environment and Planning Directorate, ACT](#)
- [-Birdlife Australia](#)
- [-Australian Bird and Bat Banding Scheme](#)
- [-Australian National Wildlife Collection](#)
- Natural history museums of Australia
- [-Museum Victoria](#)
- [-Australian Museum](#)
- [-South Australian Museum](#)
- [-Queensland Museum](#)
- [-Online Zoological Collections of Australian Museums](#)
- [-Queensland Herbarium](#)
- [-National Herbarium of NSW](#)
- [-Royal Botanic Gardens and National Herbarium of Victoria](#)
- [-Tasmanian Herbarium](#)
- [-State Herbarium of South Australia](#)
- [-Northern Territory Herbarium](#)
- [-Western Australian Herbarium](#)
- [-Australian National Herbarium, Canberra](#)
- [-University of New England](#)
- [-Ocean Biogeographic Information System](#)
- [-Australian Government, Department of Defence](#)
- [Forestry Corporation, NSW](#)
- [-Geoscience Australia](#)
- [-CSIRO](#)
- [-Australian Tropical Herbarium, Cairns](#)
- [-eBird Australia](#)
- [-Australian Government – Australian Antarctic Data Centre](#)
- [-Museum and Art Gallery of the Northern Territory](#)
- [-Australian Government National Environmental Science Program](#)
- [-Australian Institute of Marine Science](#)
- [-Reef Life Survey Australia](#)
- [-American Museum of Natural History](#)
- [-Queen Victoria Museum and Art Gallery, Inveresk, Tasmania](#)
- [-Tasmanian Museum and Art Gallery, Hobart, Tasmania](#)
- Other groups and individuals

The Department is extremely grateful to the many organisations and individuals who provided expert advice and information on numerous draft distributions.

Please feel free to provide feedback via the [Contact us](#) page.

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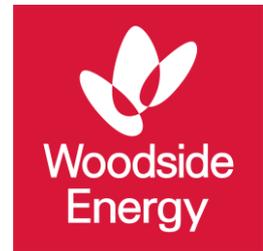
Department of Climate Change, Energy, the Environment and Water

GPO Box 3090

Canberra ACT 2601 Australia

+61 2 6274 1111

Appendix D. Stybarrow Plug and Abandonment Oil Pollution Emergency Plan



STYBARROW PLUG AND ABANDONMENT OIL POLLUTION EMERGENCY PLAN

REVISION RECORD					
Rev	Date	Description	Prepared by	Reviewed by	Approved by
0	22/06/2023	Issued for NOSPEMA Submission	Advisian	Hydrocarbon Spill Response	Environment Manager

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REVISION RECORD		
Rev	Date	Description
A	10/08/2022	Internal review
0	22/06/2023	Issued for NOSPEMA Submission

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1 Introduction

1.1 Purpose

This Oil Pollution Emergency Plan (OPEP) has been developed to establish the processes and procedures within Woodside to respond to and effectively manage incidents that may occur during Stybarrow plug and abandonment activities within Production Licence WA-32-L, offshore Western Australia (WA).

This OPEP is an appendix to the *Stybarrow Plug and Abandonment Environment Plan* (EP) (Appendix D) and is required under the Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations (the OPGGS (Environment Regulations)) for approval to perform petroleum activities in Commonwealth waters.

1.2 Scope

This OPEP applies to Woodside activities associated with Stybarrow plug and abandonment.

This OPEP applies to oil spills resulting from activities associated with the Stybarrow plug and abandonment or operating under an instrument of the OPGGS Act.

Specifically in reference to oil spill preparedness, this OPEP contains:

- a summary description of the activity and locations (Section 3 of the EP)
- a list of the spill scenarios that may occur during the petroleum activities (Section 2.1)
- an overview of the operational net environmental benefit analysis (NEBA) in relation to the spill scenarios (Section 4)
- details associated with each of the response strategies (Section 3)
- an outline of activities associated with the response to an oil spill (Section 3)

the First Strike Response Plan (Appendix A – First Strike Plan)

-).

The spill scenarios listed in Table 2-1 may impact on WA State waters, therefore this plan considers the Western Australia State Hazard Plan – Maritime Environmental Emergencies (SHP-MEE) (Government of WA, 2021) and Offshore Petroleum Industry Guidance Note (IGN) on Marine Oil Pollution: Response and Consultation Arrangements (Department of Transport (DoT), 2020). Woodside acknowledges that as per the IGN, DoT will be the Controlling Agency in a State waters response (Refer to Section 1.5). Woodside will provide all necessary resources, including personnel and equipment, to support DoT's Incident Management Team (IMT) and response, as agreed during consultations with DoT. Woodside has access to staff for the Initial Personnel Requirements as outlined in Annexure 2 of the IGN. Refer to Appendix B of this plan for these requirements and the control and coordination/IMT structure that will be applied during a marine oil pollution response that impacts State waters.

This plan is to be reviewed and implemented in conjunction with the Stybarrow Plug and Abandonment EP (Section 3) Activity Description and Location.

The activity covered by this OPEP involves plug and abandonment of 10 wells within Stybarrow Production Licence WA-32-L, continued field management scopes on subsea infrastructure and removal of historic wellheads and associated infrastructure within Production Licence WA-32-L. The Stybarrow Field is in 810-850 m water depth around 55 km north-west of Exmouth, WA. For a detailed description of the petroleum activities, refer to Section 3 of the EP.

1.3 Hydrocarbons and their Sources

The petroleum activities will be performed using a semi-submersible MODU and up to three general support/supply vessels with further detail provided in Section 3.6 of the EP. Plug and abandonment involves well intervention activities, which will be undertaken in accordance with the accepted Well Operations Management Plan (WOMP), but do present a loss of well control (LOWC) risk. Woodside has identified a subsea LOWC of 10,264 m³ over 73 days as the worst-case credible scenario from plug and abandonment activities.

The presence of support vessels in the operational area for the plug and abandonment activities presents a spill risk from a possible but unlikely vessel collision. A vessel collision has the potential to result in the rupture of a fuel tank and the release of marine diesel oil (MDO). The worst-case scenario is associated with the rupture of the largest fuel tank (1,000 m³ of MDO) of one of the project vessels.

Hydrocarbon properties are presented in Table 0-1.

Table 0-1: Chemical Properties of hydrocarbons

Hydrocarbon Type	API Gravity	Wax Content (%)	Pour Point (°C)	Asphaltene (%)	Specific Gravity	Viscosity (cP)
Stybarrow crude	22.8	16.8	-36	<0.5	0.916	45.5 @ 20°C
MDO ¹	36.4	0.05	-36	0.05	0.843	3.9 @ 20°C

¹ Data from SINTEF's Marine Diesel (IKU)

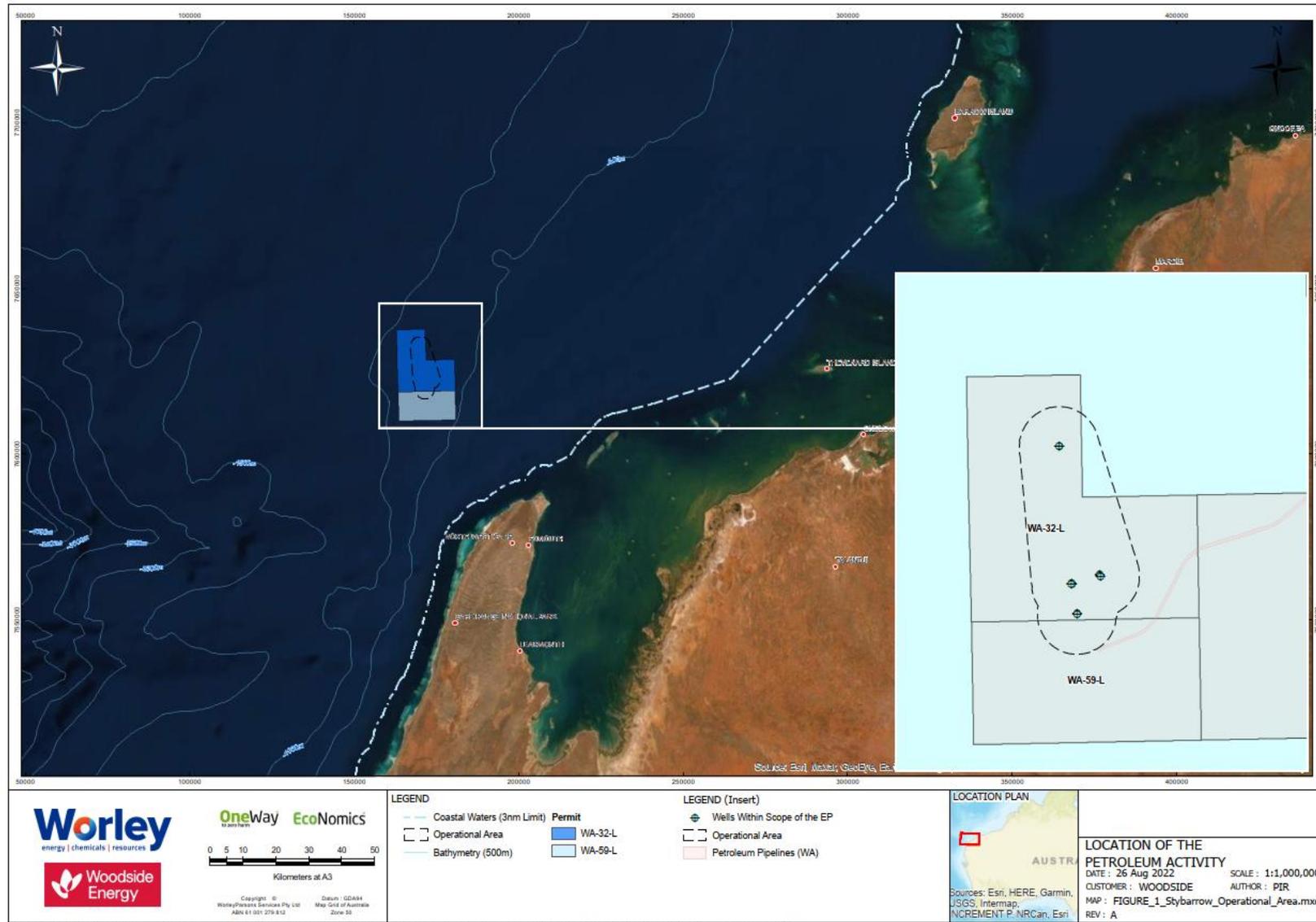


Figure 0-1: Stybarrow Plug and Abandonment Operational Area

1.4 Emergency Management and Oil Spill Response Documentation

Table 3-2 demonstrates the scope and content of oil spill related documents developed by Woodside. It excludes other tactical and industry plans, standard operating procedures and field guides prepared by DoT, Department of Biodiversity, Conservation and Attractions, Australian Maritime Oil Spill Centre (AMOSOC), Oil Spill Response Limited (OSRL), National Oceanic and Atmospheric Administration and IPIECA-International Association of Oil and Gas Producers available to Woodside to support oiled shoreline assessment, oiled wildlife response and waste management.

1.5 Oil Spill Response Control Agencies

During a spill response, there will be a 'Control Agency' and a 'Jurisdictional Authority' assigned to the incident for all spill response levels.

Definitions of a Control Agency and Jurisdictional Authority are as follows:

- Control Agency: the organisation assigned by legislation, administrative arrangements or within the relevant contingency plan, to control response activities to a maritime environmental emergency (AMSA, 2020). Control Agencies have the operational responsibility of response activities (AMSA, 2002) but may have arrangements in place with other parties to provide response assistance under their direction (AMSA, 2020).
- Jurisdictional Authority: the organisation which has responsibility to verify that an adequate spill response plan is prepared and, in the event of an incident, that a satisfactory response is implemented. The Jurisdictional Authority is also responsible for initiating prosecutions and the recovery of clean-up costs on behalf of all participating agencies.

The applicable Control Agency and Jurisdictional Authority is dependent on the location (Commonwealth vs State waters), type of activity (vessel based or petroleum activity) and the spill response level as shown in Table 0-2.

To aid in the determination of a vessel versus a facility spill, the following guidance is adopted:

- A vessel is a ship at sea to which the *Navigation Act 2012* applies.
- A facility is a petroleum facility as defined under the OPGGS Act, Volume 3, Schedule 3, Part 1, Clause 4 & Volume 2, Part 6.8, Section 640.

Table 0-2: Control Agencies and Jurisdictional Authorities for Oil Spill Response

Source	Location	Level	Hazard Management Agency/ Jurisdictional Authority	Control Agency	Incident Controller
Spill from facility including subsea infrastructure ¹ Note: pipe laying and accommodation vessels are considered a "facility" under Australian regulations	Commonwealth waters	1	NOPSEMA	Woodside	Person In Charge (PIC) with support from Onshore Team Leader (OTL)
		2/3	NOPSEMA	Woodside	Corporate Incident Management Team (CIMT) Duty Manager
	State waters	1	Department of Transport (DoT)	Woodside	CIMT Duty Manager
		2/3	DoT	DoT	DoT Incident Controller
	Within port limits	1	DoT	Woodside	CIMT Duty Manager
		2/3	DoT	DoT	DoT Incident Controller
Spill from vessel² 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	AMSA (with response assistance from Woodside)
	State waters	1	DoT	DoT	DoT Incident Controller
		2/3	DoT	DoT	DoT Incident Controller
	Within port limits	1	DoT	Port Authority	Port Harbour Master
		2/3	DoT	Port Authority/DoT	Port Harbour Master/ DoT Incident Controller

1.5.1 Petroleum Activity Spill in Commonwealth Waters

Woodside holds the Control Agency role for its facility related spills within Commonwealth waters. Facility spills include vessels undertaking construction, decommissioning and pipelaying activities in Woodside's operational area. This definition of a 'facility' is defined by Schedule 3, Part 1, Clause 4 of the OPGGS Act 2006.

1.5.2 Vessel Spills in WA State Waters

For WA State waters, the DoT Chief Executive Officer is prescribed as the Hazard Management Agency (HMA) for marine oil pollution as per the *WA Emergency Management Act 2005* and *Emergency Management Regulations 2006*. The DoT manages the SHP – MEE (WA DoT, 2021) and is the Control Agency for all vessel-

¹ Includes a 'Facility', such as a fixed platform, FPSO/FSO, MODU, subsea infrastructure, or a construction, decommissioning and pipelaying vessel. As defined by Schedule 3, Part 1, Clause 4 of the OPGGS Act 2006.

² Vessels are defined by Australian Government Coordination Arrangements for Maritime Environmental Emergencies (AMSA, 2017) as a seismic vessel, supply or support vessel, or offtake tanker.

based spills in WA waters outside of a port proclaimed pursuant to the *Port Authorities Act 1999* (WA). For vessel-based spills within a port proclaimed pursuant to the *Port Authorities Act 1999* (WA), the relevant Port Authority or DoT may be the Control Agency.

1.5.3 Vessel Spills in Commonwealth Waters

AMSA is the Control Agency for any shipping sourced spill in Australian Commonwealth waters (AMSA, 2020). AMSA is the national shipping and maritime industry regulator and was established under the *Australian Maritime Safety Authority Act 1990*. AMSA manages the National Plan for Maritime Environmental Emergencies (AMSA, 2020) on behalf of the Australian Government, working with State and the Northern Territory governments, emergency services and private industry to maximise Australia's marine pollution response capability.

1.5.4 Cross Jurisdictional Spills

Cross Jurisdictional Petroleum Activity Spills

If a Marine Oil Pollution Incident enters, or has potential to enter, State waters, the DoT is the Hazard Management Agency (HMA) (DoT Chief Executive Officer or proxy). The Assistant Executive Director (or proxy) has been nominated by the HMA to perform the role of State Marine Pollution Coordinator (SMPC) (as prescribed in Section 1.3 of the SHP – MEE (WA DoT, 2021)) and DoT will take on the role as a Control Agency. The role of the SMPC is to provide strategic management of the incident response on behalf of the HMA.

Woodside will notify the DoT Maritime Environmental Emergency Response (MEER) unit as soon as reasonably practicable (within 2 hours of spill occurring) if an actual or impending spill may impact WA State waters. On notification, the HMA will activate their Maritime Environmental Emergency Coordination Centre and the DoT IMT. Woodside will work in partnership with DoT during such instances, as outlined within the DoT's Offshore Petroleum Industry Guidance Note – Marine Oil Pollution: Response and Consultation Arrangements (WA DoT, 2020).

Woodside will conduct initial response actions in State waters as necessary in accordance with its OPEP and continue to manage those operations until formal handover of incident control is completed. Appendix 1 in DoT's Offshore Petroleum Industry Guidance Note (WA DoT, 2020) provides a checklist for formal handover.

For a cross-jurisdictional response, there will be a Lead IMT (DoT or Woodside) for each spill response activity, with DoT's control resting primarily for State waters activities.

Appendix 2 in DoT's Offshore Petroleum Industry Guidance Note (WA DoT, 2020) provides guidance on the allocation of a Lead IMT to response activities for a cross-jurisdictional spill.

To facilitate effective coordination between the two Control Agencies and their respective IMT's, a Joint Strategic Coordination Committee (JSCC) will be established. The JSCC will be jointly chaired by the State Maritime Environmental Emergency Coordinator and Woodside's nominated Crisis Management Team (CMT) Leader and will comprise of individuals deemed necessary by the chairs to ensure an effective coordinated response across both jurisdictions.

For a cross-jurisdictional response, Woodside will be responsible for ensuring adequate resources are provided to DoT as Control Agency, initially 11 personnel to fill roles in the DoT IMT or FOB and operational personnel to assist with those response strategies where DoT is the Lead IMT. Concurrently DoT will also provide two of their personnel to the Woodside IMT. Woodside's CMT Liaison Officer and the Deputy Incident Controller are to attend the DoT Fremantle Incident Command Centre (ICC) as soon as possible after the formal request has been made by the SMPC. It is an expectation that the remaining initial cohort will attend the DoT Fremantle ICC no later than 8am on the day following the request being formally made to Woodside by the SMPC. Woodside personnel designated to serve in DoT's FOB will arrive no later than 24 hours after receipt of formal request from the SMPC.

Cross Jurisdictional Vessel Spills

For a large vessel spill (e.g. Level 2 and above) that crosses jurisdictions between Commonwealth and State waters, the Control Agency will remain with the original nominated agency or organisation unless otherwise

appointed through agreement between the HMA / Jurisdictional Authority of both waters. AMSA may request that DoT manage a vessel incident in Australian Commonwealth waters (Government of WA ,2021).

Woodside may be requested by the Control Agency to provide a first strike response and all necessary resources (including personnel and equipment) as a Supporting Agency.

1.6 Cost recovery

As required under Section 571(2) of the OPGGS Act 2006, Woodside has financial assurances in place to cover any costs, expenses and liabilities arising from carrying out its petroleum activities, including major oil spills. This includes costs incurred by relevant control agencies (e.g. DoT) and third-party spill response service providers.

2 Identified Risks

2.1 Spill Scenarios for the Stybarrow Plug and Abandonment Activities

The spill scenarios in which hydrocarbons may be released to the marine environment during the petroleum activities are provided in Table 2-1. The justification for selecting these spill scenarios is described in Section 8 of the EP.

Table 2-1: Hydrocarbon Spill Scenarios

Hydrocarbon	Activity	Scenarios	Volume (m ³)	Duration	Likelihood
Stybarrow crude	Plug and abandonment	Loss of well control	10,264	73 days	Highly Unlikely
MDO	Vessels required to perform petroleum activities	Vessel collision – which ruptures a MDO tank. One-time instantaneous release.	1,000	Instantaneous	Highly Unlikely
MDO	Bunkering	Bunkering incident.	37.5	Instantaneous	Highly Unlikely

Section 8 of the EP details the risk assessment and management for each of these scenarios respectively, which is not repeated in this document. This includes:

- description of the spill scenario
- spill frequency
- hydrocarbon properties
- environment that may be affected (EMBA)
- risk analysis conclusion and ranking
- objectives for spill prevention
- control measures.

2.1.1 Stybarrow Crude

Stybarrow crude has a high density of 916.9 kg/m³ (API of 22.8) and a low pour point of -36°C. This crude contains about 3.1% (by mass) that should evaporate within the first 12 hours (BP < 180°C), a further 23.7% should evaporate within the first 24 hours (180°C < BP < 265°C), and an additional 30.6% would likely evaporate over several days to a week (265°C < BP < 380°C). Approximately, 42.6% (by mass) of the crude will not evaporate, but rather persist in the environment and gradually decay over time. The persistent characteristics of the crude and the absence of aromatic components indicate that it has been exposed to bacterial degradation within the reservoir and as such can be classified as a biodegraded crude.

The crude is categorised as a group 4 heavy-persistent oil based on categorisation and classification derived from AMSA (2015) guidelines. The classification is based on the specific gravity of hydrocarbons in combination with relevant boiling point ranges.

2.1.2 Diesel (Marine Diesel Oil)

Marine diesel is a mixture of volatile and persistent hydrocarbons with low proportions of highly volatile and residual components. In general, about 6% of the oil mass should evaporate within the first 12 hours (BP < 180 °C); a further 35% should evaporate within the first 24 hours (180 °C < BP < 265 °C); and a further 54% should evaporate over several days (265 °C < BP < 380 °C). Approximately 5% of the oil is shown to be persistent. The aromatic content of the oil is approximately 3%.

If released in the marine environment and in contact with the atmosphere (i.e. surface spill), approximately 41% by mass of this oil is predicted to evaporate over the first couple of days depending upon the prevailing conditions, with further evaporation slowing over time. The heavier (low volatility) components of the oil have a tendency to entrain into the upper water column due to wind-generated waves but can subsequently resurface if wind-waves abate. Therefore, the heavier components of this oil can remain entrained or on the sea surface for an extended period, with associated potential for dissolution of the soluble aromatic fraction.

2.2 Environment that May Be Affected

The EMBA for the worst-case spill from Stybarrow plug and abandonment activities is described in the EP. In defining the EMBA, a range of factors detailed in National Offshore Petroleum Safety and Environmental Management Authority Oil Pollution Risk Management Guidance Note A382148 (NOPSEMA, 2021) have been considered. Specifically, the size of the EMBA has been based upon the quantity of hydrocarbons, duration of discharge, concentration of hydrocarbons, film thickness of hydrocarbons that can result in ecological impacts, zone of spill response activities and the environmental conditions that contribute to the largest distance travelled by the hydrocarbon.

2.3 Response and monitoring priorities

During an oil spill it is not always feasible to protect all receptors. Prioritising receptors helps to aid decision-making in the preliminary stages of a response, so initial resources are used for best effect. For the purposes of this OPEP, priority areas refer to those locations with significant receptors and values that require protection from the impacts of a spill.

Results from the stochastic hydrocarbon spill modelling were compared against the location of key sensitive receptors with high conservation-valued habitat or species or important socio-economic/heritage value within the EMBA. Relevant values and sensitivities of the environment are described in Section 5 of the EP. The ranking of these sensitivities (also referred to as receptors) are listed, which is consistent with the rankings in *Provisions of Western Australian Marine Oil Pollution Risk Assessment – Protection Priorities: Assessment for Zone 2: Pilbara* (Advisian, 2017).

2.4 Spill modelling

2.4.1 Stochastic

Stochastic modelling for the Stybarrow plug and abandonment spill scenarios was performed using a three-dimensional spill trajectory and weathering model, SIMAP (Spill Impact Mapping and Analysis Program). This model is designed to simulate the transport, spreading and weathering of specific oil types under the influence of changing meteorological and oceanographic forces. The modelling outputs do not represent the potential behaviour of a single spill (which would have a much smaller area of influence) but provides an indication of the probability of any given area of the sea surface being contacted by hydrocarbons above impact thresholds.

A total of 300 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 over three seasons (Summer: October to March; transitional periods of April and September; Winter: May to August).

2.4.2 Deterministic

The stochastic model run demonstrating the fastest shoreline contact at $>100 \text{ g/m}^2$ and the run demonstrating the widest spread of shoreline contact at $>100 \text{ g/m}^2$ were then selected for deterministic analysis. The results of the deterministic modelling have been used as the basis for scaling the hydrocarbon spill response preparedness requirements.

2.4.3 Modelling results

The selected deterministic runs used to represent the WCCS are based on response thresholds:

- 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).

The volumes as presented in Table 2-1 are the worst-case volumes resulting from the deterministic modelling and have been used to determine appropriate level of response.

Response parameter	Modelled result	
	CS-01: Hydrocarbon release caused by loss of containment (Stybarrow-7 well)	CS-02: hydrocarbon release due to vessel collision
Maximum continuous liquid hydrocarbon release rate and duration	10,264 m ³ of Stybarrow Crude over 73 days	Instantaneous release of 1000 m ³ of marine diesel
Maximum residual surface hydrocarbon after weathering	42% residual component of 4372 m ³	5% residual component of 50 m ³
Deterministic modelling results		
Minimum time to commencement of hydrocarbon accumulation at any shoreline receptor (at a concentration of 100 g/m ²)	5 days at Exmouth (26 m ³)	<i>No contact at threshold</i>
Maximum cumulative hydrocarbon volume accumulated at any individual shoreline receptor (at a concentration of 100 g/m ²).	297 m ³ at Exmouth (day 58)	<i>No contact at threshold</i>
Maximum cumulative hydrocarbon volume accumulated across all shoreline receptors contacted by accumulated hydrocarbons (at a concentration of 100 g/m ²)	297 m ³ at Exmouth (day 58)	<i>No contact at threshold</i>

The full modelling results from the two selected deterministic modelling runs are included in Table 2-2:

Table 2-2: Protection Priorities for Stybarrow Plug and Abandonment Activities

Priority protection area	CS-01: Hydrocarbon release caused by loss of containment (Stybarrow-7 well)		CS-02: hydrocarbon release due to vessel collision	
	Minimum time to receptor (days at 100 g/m ²)	Maximum accumulated volume (m ³)	Minimum time to receptor (days at 100 g/m ²)	Maximum accumulated volume (m ³)
Exmouth	5 days (26.1 m ³)	297.1 m ³ (day 58)	No contact at threshold	No contact at threshold
Airlie Island	40 days (4.1 m ³)	11.3 m ³ (day 74)	No contact at threshold	No contact at threshold
Mary Anne Group	41 days (14.3 m ³)	18.8 m ³ (day 61)	No contact at threshold	No contact at threshold
Passage Islands	42 days (7.7 m ³)	89.0 m ³ (day 69)	No contact at threshold	No contact at threshold
Boodie Island	43 days (4.1 m ³)	21.0 m ³ (day 63)	No contact at threshold	No contact at threshold
Middle Island	57 days (6.5 m ³)	20.4 m ³ (day 63)	No contact at threshold	No contact at threshold
Barrow Island	58 days (13.7 m ³)	36.8 m ³ (day 68)	No contact at threshold	No contact at threshold
Hermite Island	62 days (14.9 m ³)	16 m ³ (day 85)	No contact at threshold	No contact at threshold
Whalebone Island	37 days (7.9 m ³)	8.1 m ³ (day 38)	No contact at threshold	No contact at threshold
Rivoli Islands	36 days (32.1 m ³)	67.0 m ³ (day 38)	No contact at threshold	No contact at threshold
Fly Island	37 days (4.1 m ³)	6.5 m ³ (day 40)	No contact at threshold	No contact at threshold
Observation Island	36 days (1.35 m ³)	8.9 m ³ (day 40)	No contact at threshold	No contact at threshold
Locker Island	37 days (1.9 m ³)	5.4 m ³ (day 41)	No contact at threshold	No contact at threshold
Sunday Island	35 days (6.6 m ³)	15.5 m ³ (day 37)	No contact at threshold	No contact at threshold
Murion Islands	35 days (20.5 m ³)	108 m ³ (day 39)	No contact at threshold	No contact at threshold
Round Island	37 days (2.2 m ³)	3.1 m ³ (day 40)	No contact at threshold	No contact at threshold
Table Island	37 days (2.3 m ³)	2.3 m ³ (day 37)	No contact at threshold	No contact at threshold
Flat Island	35 days (4.4 m ³)	29.9 m ³ (day 38)	No contact at threshold	No contact at threshold
Peak Island	35 days (14.4 m ³)	25.7 m ³ (day 38)	No contact at threshold	No contact at threshold
Serrurier Island	36 days (9.4 m ³)	24.6 m ³ (day 38)	No contact at threshold	No contact at threshold
Ashburton Island	56 days (2.3 m ³)	2.5 m ³ (day 73)	No contact at threshold	No contact at threshold
Tortoise Island	37 days (1.1 m ³)	2.5 m ³ (day 72)	No contact at threshold	No contact at threshold

Priority protection area	CS-01: Hydrocarbon release caused by loss of containment (Stybarrow-7 well)		CS-02: hydrocarbon release due to vessel collision	
	Minimum time to receptor (days at 100 g/m ²)	Maximum accumulated volume (m ³)	Minimum time to receptor (days at 100 g/m ²)	Maximum accumulated volume (m ³)
Direction Island	40 days (2.5 m ³)	2.5 m ³ (day 42)	<i>No contact at threshold</i>	<i>No contact at threshold</i>
Twin Island	40 days (2.8 m ³)	5.0 m ³ (day 74)	<i>No contact at threshold</i>	<i>No contact at threshold</i>
Bessieres Island	36 days (2.2 m ³)	18.9 m ³ (day 56)	<i>No contact at threshold</i>	<i>No contact at threshold</i>
Mangrove Islands	41 days (6.7 m ³)	6.7 m ³ (day 41)	<i>No contact at threshold</i>	<i>No contact at threshold</i>
Thevenard Island	38 days (5.1 m ³)	20.7 m ³ (day 73)	<i>No contact at threshold</i>	<i>No contact at threshold</i>
Carnarvon	39 days (63.5 m ³)	63.5 m ³ (day 39)	<i>No contact at threshold</i>	<i>No contact at threshold</i>
Karratha	62 days (20.3 m ³)	61.5 m ³ (day 68)	<i>No contact at threshold</i>	<i>No contact at threshold</i>
Derby - West Kimberely	70 days (11.8 m ³)	20.6 m ³ (day 103)	<i>No contact at threshold</i>	<i>No contact at threshold</i>

At the time of a spill, the CIMT has the following tools at its disposal to assess the oil spill scenario risk assessment, determine the environmental protection priorities and subsequent response needs for an emergency event related to the Stybarrow Plug and Abandonment activities.

NEBA

The NEBA response strategy evaluation process is a decision support tool used to help select the most appropriate response options that together make up the oil spill response strategies the IMT is to implement in a spill. Using the Strategic NEBA in the EP, the IMT has the foundation for preparing an Operational NEBA to inform response priorities.

WMAP

This Woodside map and geospatial platform provides base maps showing Woodside's assets and activity locations with the ability to activate layers (as required) which include environmental and cultural heritage sensitivities, oil spill response resources, logistics and infrastructure layers, metocean data, vessel locations etc. The software also has an inbuilt oil spill modelling 'Rapid Assessment Tool' (RAT) which uses Oilmap software to allow preliminary trajectory modelling to be undertaken during a response event.

Oil Spill Response Atlas (OSRA)-Web Map Application (WMA)

WA OSRA is a spatial database of environmental, logistical and oil spill response data. Using a GIS platform, OSRA displays datasets collated from a range of custodians, allowing decision-makers to visualise environmental sensitivities and response considerations in a selected location. OSRA-WMA allows the layers found in OSRA to be viewed via a secure portal from the DoT website and provides basic functional tools.

North West Cape Sensitivities Mapping

The purpose of this shoreline sectorisation was to outline sensitive resources at risk, describe a baseline using the systematic cause analysis technique, and outline important segment access information. The document describes localised environmental type (shoreline, substrate) and accessibility of shorelines and required permissions.

3 Applicable Response Strategies

The strategies selected during the NEBA process for the worst-case spill scenarios are summarised in Table 3-1. Further description of each strategy includes a risk assessment on performing it, the control options and a conclusion as to how the strategy demonstrates as low as reasonably practicable (ALARP) criteria and Woodside's acceptability criteria.

Table 3-1: Summarised Response Strategies for the Stybarrow Plug and Abandonment Spill Scenarios

Response Strategy	LOWC Crude Spill	Vessel based MDO Spill
Source Control – Vessel-based	x	Primary
Source Control – Subsea Intervention	Primary	x
Source Control – Relief Well	Primary	x
Source Control – Capping Stack	Primary	x
Source Control – Subsea First Response Toolkit (SFRT)	Primary	x
Monitor and Evaluate	Primary	Primary
Dispersant – Surface Application	x [^]	x
Dispersant – Subsea Application	Secondary	x
Containment and Recovery	x [^]	x
Shoreline Protection	Primary	x [#]
Mechanical Dispersion	x	x
In-Situ Burning	x	x
Shoreline Clean-Up	Primary	x [#]
Natural Recovery	Primary	Primary
Environmental Monitoring	Primary	Primary
Oiled Wildlife Response	Primary*	Primary*
Waste Management	Primary	Secondary

x Response strategy not applicable for spill scenario

No shoreline accumulation >100 g/m² predicted from spill modelling

* Potentially activated depending on reports and observations of Monitor and Evaluate

[^] No floating surface hydrocarbons predicted above 50 g/m² (minimum thickness required to commence effective surface dispersant application or containment and recovery operations).

Each option has advantages and disadvantages with regard to effectiveness, operational constraints and environmental impacts. Consequently, spill response strategies need to be assessed for each case, taking into account the nature of the spill, oil spill trajectory modelling, the weather conditions, and the advantages and disadvantages of each response strategy.

Table 3-2: Summary of Relevant Response Plans

Document	Document overview	Stakeholders	Relevant information	Document subsections (if applicable)
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 functions for first strike activities.</p> <p>CIMT: Planning Function 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</p> <p>Vessel Shipboard Oil Pollution Emergency Plan (SOPEP)</p> <p>Source Control Emergency Response Planning (SCERP) Guideline</p> <p>Activity SCERP</p> <p>Subsea dispersant injection</p> <p>Protection and Deflection</p> <p>Shoreline Clean-up</p> <p>Oiled Wildlife</p> <p>Scientific Monitoring</p>
Tactical Response Plans (TRPs)	<p>Provides options for response techniques in selected Response Protection Areas (RPAs). Provides site, access and deployment information to support a response at the location.</p>	<p>CIMT: Planning Function to help develop IAPs, and Logistics function to assist with determining resources required.</p>	<p>Indicative response techniques.</p> <p>Access requirements and/or permissions.</p> <p>Relevant information for undertaking a response at that site.</p> <p>Where applicable, may include equipment deployment locations and site layouts.</p>	<p>See Appendix C of this document</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 functions.</p>	<p>Strategy for mobilising and managing additional resources outside of Woodside’s</p>	<p>Logistics Support Plan</p> <p>Aviation Support Plan</p> <p>Marine Support Plan</p>

Document	Document overview	Stakeholders	Relevant information	Document subsections (if applicable)
			<p>immediate preparedness arrangements.</p>	<p>Accommodation and Catering Plan – Australia Transport Management Plan – Australia Waste Management Plan – Australia Health and Safety Support Plan Hydrocarbon Spill Responder Health Monitoring Guideline 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 IT Support Plan</p>

4 Net Environmental Benefit Analysis and Decision-Making Criteria for Response Strategy Selection

For oil spill response, the Incident Action Plan (IAP) response strategies are identified through a process that involves reviewing key decision-making criteria, the outcomes of which are used as inputs to the Operational NEBA. This ensures the most effective response strategies with the least detrimental impacts can be selected and implemented.

The IMT must first gain situational awareness by obtaining answers to the following key questions, which are fundamental to any oil spill response:

- What type of oil has been released?
- What is the expected behaviour of the oil that has been released?
- What volume has been released?
- Is the source under control?
- Where is the oil going?
- What environmental receptors and sensitivities are in the path of the predicted oil trajectory?
- Can the oil be approached or are there safety concerns?
- Can the oil be contained?
- Can the oil be dispersed?
- Will shoreline impact occur, and clean-up be required?

To answer these questions, the Incident Commander must review key information such as engineering advice about the volume and characteristics of the oil released, oil spill trajectory modelling, oil spill tracker buoys, the weather forecast, Automatic Identification System (AIS) vessel feed, aircraft data feeds, operational reports from field teams and operational and environmental monitoring teams to determine presence and/or extent of environmental receptors, advice from the State Government Environmental Scientific Coordinator, any other external advice, the window of ecological sensitivity (Section 4.5 of EP), oil spill reference documents (as detailed in each response strategy within the EP) and any other Daily Field Reports.

The outcome of this data review step is then used to update the Operational NEBA, which assesses the impacts and risks of response strategy options on environmental sensitivities. The spill response risk assessment applies predefined assessment classifications (3P to 3N), as shown in Table 4-1, to assess the potential 'impact, for the receptor sensitivities for each response option. To aid interpretation where both positive and negative impacts have been indicated for a spill response in Table 4-2, cross-referencing potential impacts with the receptor's protection priority can be used to weight benefits and risks to receptors. Those with higher protection priorities can be weighted as of greater importance than risks to lower priorities for determining net environmental benefit.

Where a response has 'zero' scores for all receptors and sensitivities, this may still be assessed as being of net environmental benefit (or carried forward to ALARP assessment) based on potential for indirect (rather than direct) reduction in risk. For example, Monitor and Evaluate has no direct impact on the spill due to implementation of this strategy, but the situational awareness gained from the response allows proactive and effective application of other response strategies, thereby contributing to reducing risk to ALARP.

The NEBA Matrix (Table 4-2) prioritises environmental sensitivities and assesses the individual net effect each response option may have on it, allowing informed decisions to be made. If there are conflicting outcomes for a particular response option, the sensitivity with the higher priority becomes the preferred response option. A NEBA is a decision-making process and will ultimately result in a trade-off of priorities and response strategies.

It is possible for a response strategy to be used for one sensitivity, even if it has been identified that this response option may not benefit one or several other sensitivities. The final outcome of the response, however, should result in an overall net environment benefit. Spill response options identified by Woodside are outlined in Section 3. An evaluation of the impacts and risks of the spill response options is provided in Section 7 of the EP.

The CIMT will apply the Operational NEBA process to identify the response options that are preferred for the situation, oil type and behaviour, environmental conditions, direction of plume and protection priority of sensitive receptors.

The steps in the Operational NEBA aim to identify:

- key ecological values, environmental, socio-economic and cultural heritage receptors (Table 2-2 herein and Section 4 of the EP) within the plume path and predicted EMBA, based on operational monitoring arrangements in Response Strategy 2 (Monitor and Evaluate)
- protection priorities of either High, Medium or Low in line with the rankings in *Provisions of Western Australian Marine Oil Pollution Risk Assessment – Protection Priorities: Assessment for Zone 2: Pilbara* (Advisian, 2017)
- receptors within the window of ecological sensitivity for the period of the oil spill
- response strategies to be included in the IAP work instruction
- new situational awareness information that becomes available from the range of operational monitoring arrangements in Monitor and Evaluate such as updated spill trajectory models, observations of oil on the water and shorelines, locations of sensitive receptors, effectiveness of implemented response strategies, Daily Field Reports, any updated advice from the Environmental Scientific Coordinator (nominated officer from the Department of Biodiversity Conservation and Attractions) and other external sources (such as consideration of recommendations from the WA Hazard Management Agency) for inclusion in daily updates of the Operational NEBA to optimise the IAP. Some sensitive receptors are mobile (such as fish, mammals, birds) and may move in and out of the predicted oil path on numerous occasions throughout the response, requiring frequent review of the NEBA table and selection of response techniques documented in IAPs by the IMT.

The Planning Coordinator will supervise the development of the IAP with the CIMT. The Incident Commander authorises the IAP before releasing it to the Operations Functional Support Team (FST).

Table 4-1: Net Environmental Benefit Analysis Impact Categories Identifying Potential Change in Impact Due to Response Strategies, Relative to the Impact of the Spill

NEBA Categories		Degree of Impact		Potential Duration of Impact	Equivalent Woodside Severity 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, such as changes daily business operations, public opinion/behaviours (for example, avoidance of amenities such as beaches), or regulatory designations. 	Decrease in duration of impact by more than five years	N/A.
	2P	Moderate	Likely to prevent: <ul style="list-style-type: none"> significant impact single phase of reproductive cycle for biological receptors, or detectable financial impact, either directly (such as loss of income) or indirect (such as 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. 	Decrease in duration of impact by one to five years	N/A.
	1P	Minor	Likely to prevent impact to: <ul style="list-style-type: none"> significant proportion of population or breeding stages, for biological receptors, or significant impact to the sensitivity of protective designation for socio-economic receptors; or significant long-term impact to business/industry. 	Decrease in duration of impact by several seasons (less than one year)	N/A.
	0	Non-mitigated spill impact	No detectable difference to unmitigated spill difference		
Negative	1N	Minor	Likely to result in: <ul style="list-style-type: none"> behavioural impact for biological receptors behavioural impact for socio-economic receptors, such as changes to daily business operations, public opinion/behaviours (such as avoidance of amenities such as beaches), or regulatory designations. [Note 1]	Decrease in duration of impact by several seasons (less than one year)	Measurable but limited impacts to the environment, where recovery of ecosystems function takes less than one year. Woodside Petroleum Risk Matrix Severity Level 2, Non-Material Risk.
	2N	Moderate	Likely to result in: <ul style="list-style-type: none"> significant impact single phase of reproductive cycle for biological receptors, or detectable financial impact, either directly (such as loss of income) or indirect (such as 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 (one year to less than three years)	Substantial impacts to the environment, where recovery of ecosystem function takes between one to three years. Woodside Petroleum Risk Matrix Severity Level 3, Non-Material Risk.
	3N	Major	Likely to result in impact to: <ul style="list-style-type: none"> significant proportion of population or breeding stages, for biological receptors, or significant impact to the sensitivity of protective designation for socio-economic receptors, or significant long-term impact to business/industry for socio-economic receptors. 	Increase in duration of impact (three years to more than ten years or unrecoverable)	Serious or severe impacts to the environment and where recovery of ecosystem function takes three years or more. Woodside Petroleum Risk Matrix Severity Level ≥4, Material Risk.

Note 1: Behavioural impacts tend to be short-term and limited in their impact (even on a regional scale). The maximum likely should be considered if a response strategy directly impacts behaviour that results in an impact to reproduction and/or the breeding population, such as failure of fish spawning aggregations, then score should be a 2 or 3 rather than 1.

Table 4-2: Operational Net Environmental Benefit Analysis – Response Strategy Selection

Sensitivity	Protection Priority*	Seasonal presence on NWS												Response Strategy									
		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	RS1 Source Control	RS2 Monitor and Evaluate	RS3 Subsea Dispersant	RS5 Shoreline Protection	RS8 Shoreline Clean-Up	RS9 Natural Recovery	RS10 Environmental Monitoring	RS11 Oiled Wildlife Response	RS 13 Waste Management	
Ecological																							
Whales	High (T, M)	N	N	N	N	N	N	Y	Y	Y	Y	N	N	2P	0	1N	0	0	0	0	0	0	0
Dugongs	High (M)	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	2P	0	1N	0	0	0	0	0	0	0
Dolphins	High (M)	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	2P	0	1N	0	0	0	0	0	0	0
Whale sharks	High (T, M)	N	N	Y	Y	Y	Y	N	N	N	N	N	N	2P	0	1N	0	0	0	0	0	0	0
Fishes (resident, demersal, pelagic)	High	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	2P	0	2N	0	0	0	0	0	0	0
Turtles (foraging, interesting, nesting)	High (T, M)	Y	Y	Y	N	N	N	N	N	Y	Y	Y	Y	2P	0	1N	1P	1P	0	0	2P	0	
Migratory birds	Extreme (T, M)	Y	Y	Y	Y	N	N	N	N	Y	Y	Y	Y	2P	0	2P	1P	1P	0	0	2P	0	
Seabirds	Medium	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	2P	0	2P	1P	0	0	0	2P	0	
Shorebirds	Medium	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	2P	0	2P	1P	1P	0	0	2P	0	
Ecosystem																							
Coral spawning	Medium	Y	Y	Y	Y	N	N	N	N	Y	Y	Y	Y	2P	0	2N	0	0	0	0	0	0	
Mangroves	Extreme	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	2P	0	1N	1P	2N	0	0	0	0	
Coral reef	Medium	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	2P	0	2N	0	0	0	0	0	0	
Seagrasses	Medium	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	2P	0	1N	0	0	0	0	0	0	
Sandy beaches	Low	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	2P	0	1P	1P	1P	0	0	0	1P	
Rocky shores	Low	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	2P	0	1P	1P	0	0	0	0	0	
Open waters	Low	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	2P	0	1N	0	0	0	0	0	0	
Socio-economic																							
Tourism	Low	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	2P	0	1P	1P	1P	0	0	0	1P	
Fisheries	Low	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	2P	0	2N	0	0	0	0	0	0	
Cultural Heritage	High	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	2P	0	1P	1P	1P	0	0	0	1P	
Response strategy provides net environmental benefit?														Yes	Yes	Potential	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Response strategy feasible?														Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Is response strategy recommended (and ALARP assessment required)?														Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

*Protection priority: This ranking is based on a combination of factors, including the likelihood of impact (time of year) and severity of impact (type of exposure to the sensitivity, ranking of the sensitivity (Advisian, 2017) and recovery time after exposure to hydrocarbons).

NA: Modelling predicted no shoreline accumulation for any season at or above the low threshold (10 g/m²) (RPS, 2022).

Shoreline response: Where shoreline clean-up has been given a negative score, this indicates use of equipment, machinery and personnel in that environment is likely to have negative effect, potentially causing more damage and prolonging the recovery and environmental benefit to that sensitivity.

5 Response

5.1 Incident Management Team Briefing Documents and Task Checklists

The purpose of the CIMT is to gain control of an incident or event and bring it to a safe resolution while minimising the impact on personnel, the environment, assets and reputation. The key to controlling an incident is successful transition from an initial reactive mode to a proactive planning mode. This is achieved through a series of iterative stages that create and refine an IAP.

The Stybarrow Plug and Abandonment – First Strike Plan is listed in Appendix A – First Strike Plan

of this document.

The First Strike Plan provides guidance to the Woodside CIMT in the first 24 hours of the spill to respond to a loss of hydrocarbons.

After 24 hours, the Woodside CIMT will further develop Incident Action Plans and Operational NEBAs, which are described further in Section 3.2.

The First Strike Plan acts as the IAP for the initial response (within the first 24 hours of the incident) and is used and updated until Planning prepares the first IAP that is approved by the CIMT Leader. This checklist also acts as a permanent record of the initial response to the incident.

The roles and responsibilities for each CIMT position are described in Woodside's *Incident and Crisis Management Procedure* and position-specific *Duty Cards*. Initial notifications and response actions are detailed within the Stybarrow Plug and Abandonment First Strike Plan included herein at Appendix A..

6 Response Resources

6.1 Source Control

To facilitate and expedite the use of regional MODU for relief well drilling, an Australian Petroleum Production & Exploration Association (APPEA) Memorandum of Understanding: Mutual Assistance is in place. This agreement provides the mechanism to facilitate the transfer of drilling units and well-site services between operators in Australian and Timor Leste administered waters in order to respond urgently to emergency source control events.

Woodside has contracts in place with Wild Well Control Inc (WWCI) and would deploy their Singapore-based Capping Stack. The Singapore-based Capping Stack would be assembled quayside, tested and then transported via barge to a suitable deployment vessel where it would then be transferred, fastened and then commence its transit to the well site.

If the SFRT was required, Woodside has a contract in place with AMOSC to access the SFRT. The SFRT includes debris clearance equipment and ancillary tools. Woodside also has existing contractual arrangements in place with ROV providers. Specialist personnel to deploy the SFRT will be provided via Woodside's contract with Oceaneering.

6.1.1 Well Control Specialists

The Source Control Functional Support Team (FST) will comprise Woodside employees, led by the Woodside Source Control Coordinator. As required, Woodside may request personnel from WWCI or Oceaneering to provide specialist support within the CIMT.

6.2 Oil Spill Response Agencies

Woodside maintains contracts with a number of Oil Spill Response Organisations (OSROs). These OSROs have capability to provide technical specialists to supplement the Woodside CIMT if required. OSRO resources also include trained personnel to lead Field Response Teams and provide access to industry response equipment. The main relationships are detailed in the following sub-sections and contact details are included in the First Strike Plan in Appendix A.

6.2.1 AMOSC

Woodside is a Member Company of AMOSC and as such has access to AMOSC's Level 2/3 equipment and personnel as outlined in the AMOSPlan.

AMOSC has contracts with all its member companies to enable the immediate release of Core Group personnel to be made available for any Woodside requirements, as outlined in Woodside' Master Service Contract and Principle and Agency Agreement with AMOSC.

The mutual aid arrangements that AMOSC operates under are collaborated under the AMOSPlan. This provides the mechanism for members of AMOSC to access oil spill response capability of other members. To further enhance the mutual aid arrangements Woodside, Santos, Chevron, and Jadestone have signed a memorandum of understanding (MoU) that defines the group's mutual aid arrangements. Under this MoU, Woodside, Santos, Chevron, and Jadestone have agreed to use their reasonable endeavours to assist in the provision of emergency response services, personnel, consumables and equipment.

6.2.2 Oil Spill Response Limited (OSRL)

Woodside is a member of the OSRL group. OSRL have capacity to mobilise additional equipment and personnel to Western Australia from their Singapore location. Only nominated Woodside personnel may request the assistance of OSRL via the CIMT Leader under OSRL's Service Level Agreement (SLA).

OSRL also has a Memorandum of Understanding (MoU) with AMOSC, and OSRL may also be activated by AMOSC to provide resources to AMOSC to respond to a situation. Following initial spill notification, OSRL may be mobilised if required within 8 hours.

Oil spill response equipment maintained by AMOSC (Exmouth, Fremantle and Geelong) and OSRL is available to Woodside during a spill response as part of contractual arrangements in place with these agencies. A complete list of equipment maintained by Woodside's OSRA, including stockpiles in Exmouth and Dampier from the MOSES database (DoT; equipment owners include AMSA, DoT and other titleholders) is provided in Appendix C.

6.3 Marine Spill Response Corporation

For protracted response operations, Woodside has an agreement in place with Marine Spill Response Corporation (MSRC), a US-based industry-owned OSRO, for the provision of up to 16 specialist response personnel.

6.4 Technical Support (Environmental Monitoring)

Woodside maintains emergency response contracts for the provision of environmental monitoring (operational and scientific monitoring) including water quality monitoring for subsea dispersant injection. Contact details are included in the First Strike Plan in Appendix A.

6.5 General Support

Woodside has arrangements in place and access to providers to supply personnel as required to populate response teams. Woodside has tested these arrangements and considers that personnel for shoreline response operations can be sourced to and maintained for the full duration of response to worst-case spill scenario including redundancy, rostering, shift coverage, and rotation for maintaining field capability for the duration of the response. Woodside will mobilise shoreline crews at the direction of WA DoT, and where possible prior to the predicted arrival of hydrocarbons. These crews will focus on pre-cleaning beach areas (e.g., removing debris such as seaweed to areas above the high tide mark) and establishing staging areas to enable a more efficient response when hydrocarbons are arriving ashore.

During the first strike response phase, Woodside will rely on the skilled personnel (i.e., Woodside's Burrup Response Team, AMOSC Core Group, OSRL) to supervise response crews. In addition, personnel from the National Response Team (NRT) will be mobilised. Pending international travel restrictions due to COVID-19 pandemic, OSRL may also supply a selection of ground staff who have the practical skills and experience to assist and support Woodside during a spill response.

All labour-hire or internal personnel not trained in oil spill response would receive role-specific on-the-job training prior to undertaking response operations. Training would be ongoing throughout the response operation.

Woodside has standing contract with labour-hire companies to enable access to a work force that have experience and understanding of HSEQ requirements and remote / regional working with appropriate clearance checks for onsite work.

6.6 Spill Response Logistics

A response to a worst-case discharge event will require a large number of equipment and personnel to be deployed and accommodated in multiple locations. Coordination of these aspects of the response will be the responsibility of the Logistics section in the IMT. Woodside has a number of existing arrangements for the storage and transport of equipment in and around Exmouth and Dampier, which will be initially used in a response. These arrangements include agreements with logistics providers for air, marine and land.

The current facilities in Exmouth can be supplemented by regional resources within appropriate timeframes for the response. Regional locations such as Onslow, Karratha and Port Headland are equipped to manage the logistical arrangements for construction, mining and petroleum projects, which are similar in scale to a

large-scale spill response. Woodside maintains a supply base in Dampier, which is immediately available to support response operations. These resources involve the movement of personnel, freight and equipment over large distances.

Woodside has internal resources and utilises third-party logistics providers for movements of freight from overseas locations by air or sea. Woodside along with the specialist contractors, are highly experienced in procurement and supply chain management for large scale projects and ongoing offshore operational activities. These skills are directly transferable to a spill response.

Road transportation of personnel will be by hire cars (for team leaders, SCAT teams, small teams) and by charter buses for large movements of teams such as shoreline responders. Woodside has arrangements in place with multiple service providers that are based in Exmouth and Karratha that can call on additional resources regionally as well as other regional providers. Regional providers can supplement the Exmouth/Karratha arrangements within 2-3 days.

Freight logistics by road will utilise existing local contracts and other local operators supplemented by larger regional providers. Woodside has existing arrangements in place for large scale freight movements by road in the North West.

Accommodation is likely to be a constraint in the response as the lack of suitable accommodation may restrict the numbers of response personnel that could be brought into the region. There is a variety of accommodation options in Exmouth ranging from hotel/motel, backpacker, holiday home rental and caravan and camping sites. This can be supplemented by fly-in-fly-out (FIFO) arrangements with mine camps, accommodation and aerodromes within the iron ore side of the business.

Dampier and Karratha currently have additional accommodation with large accommodation villages (i.e., Gap village) previously used for large construction projects available. These facilities can be used to accommodate responders to address shorelines in the Onslow – Dampier region if required or as a base for long commute by road or air to locations further south.

6.7 Response resource status

Woodside maintains databases of available response equipment and dispersant stockpiles which are updated on a monthly bases as part of the Hydrocarbon Spill Preparedness 'Internal Control Environment' (ICE) assurance process.

The Hydrocarbon Spill Response competency dashboard records the number of trained and competent responders that are available across Woodside, and some external providers, to participate in a response.

This number varies depending 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.

6.8 Vessel Support

Woodside maintains an integrated fleet of vessels which are suited to offshore response activities and maintains a contract for provision of a monthly report on the availability and status of suitable emergency vessels and equipment for offshore response and source control operations. The report identifies suitable vessels including those that have an approved Safety Case for working in Australia and those closest to the incident location.

Port facilities at Exmouth, Onslow and Dampier will be used throughout the response. Woodside has access to a supply base in Dampier, which is immediately available to support response operations. A logistics plan will be developed by the IMT with a look ahead to replace or supplement vessels during the response operations to maintain the operational capability.

There may be circumstances where additional support vessels may be required to assist with spill response, e.g., deployment of equipment for an inshore response on North West Cape or transportation of equipment and people to offshore installations or island locations. Woodside monitors suitable vessel availability on a monthly basis. Requests for offshore vessel support can also be made by AMSA. The marine response strategies outlined in this plan can be performed independently or concurrently. In a Level 2/3 spill response, marine strategies are expected to be performed concurrently. During a response, if the CIMT determines that

additional vessels are required, Woodside can source them through supplier contracts or through vessels of opportunity available on local charter market in Exmouth or Onslow.

6.9 State and National Resources

In accordance with the State Hazard Plan – Maritime Environmental Emergency (SHP-MEE), and following consultation with the WA DoT, additional personnel to assist with labour intensive aspects of a response (if required) may be sourced through the State Combat Committee (Executive Advisory Group). Depending on the level of response required, sources of labour may include the local shire, DBCA and AMSA.

Under the National Plan, a National Response Team (NRT), comprising experienced personnel from operator to senior spill response manager level from Commonwealth/State/NT agencies, industry and other organisations, has been developed.

The services of the NRT will be obtained through the Environment Protection Group (EPG) and AMSA, which has made arrangements with the respective government and industry agencies, for the release of designated personnel for oil spill response activities. These services will be activated when it is assessed that an oil spill incident exceeds the resource availability at the state level.

During a National Plan incident, the Woodside CIMT or the State Marine Pollution Controller appointed by a Control Agency may submit a request to AMSA for personnel from other States/Territories to become part of the Incident Management Team or the incident response team.

A request should be made initially through the Environment Protection Duty Officer via the Emergency Response Centre on 1800 641 792 or 02 6230 6811. This request must be followed by written confirmation within three (3) hours of the verbal request.

The following information will be provided when making such a request:

- Roles or skills required (e.g., Planning Officer, Aerial Observer);
- Number of personnel required to fill each role;
- Contact name, address, and time of where personnel are to initially report; and
- Brief overview of the work to be undertaken.

Suitable personnel will then be selected by AMSA from the National Response Team or the National Response Support Team (NRST), unless special circumstances exist.

7 References

Advisian (2017). Provision of Western Australian Marine Oil Pollution Risk Assessment – Protection Priorities: Protection Priority Assessment for Zone 2: Pilbara – Final Report. Report No: 301320-09591-EN-REP-0003 – DOT307215. Prepared for Western Australian Department of Transport. Accessed 12 October 2021.

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Government of Western Australia. (2021). State Hazard Plan – Marine Environmental Emergencies. Department of Transport, Perth, Western Australia. Accessed 15 February 2022- https://www.transport.wa.gov.au/mediaFiles/marine/MAC_P_StateHazardPlanMaritimeEnviroEmergMEE.pdf

NOPSEMA (2021). Oil Pollution Risk Management Guidance Note, Document No. N-04750-GN1488 A382148.

RPS (2022). BHP Stybarrow Oil Spill Modelling report, MAQ1102J Rev 0

Appendix A – First Strike Plan

Control Agencies and Incident Controllers

Source	Location	Level	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	Woodside	Person In Charge (PIC) with support from Onshore Team Leader (OTL)
		2/3	Woodside	Corporate Incident Management Team (CIMT) Duty Manager
	State waters	1	Woodside	CIMT Duty Manager
		2/3	Department of Transport (DoT)	DoT Incident Controller
	Within port limits	1	Woodside	CIMT Duty Manager
		2/3	DoT	DoT Incident Controller
Spill from vessel Note: SOPEP should be implemented in conjunction with this document	Commonwealth waters	1	Australian Marine Safety Authority (AMSA)	Vessel Master
		2/3	AMSA	AMSA (with response assistance from Woodside)
	State waters	1	DoT	DoT Incident Controller
		2/3	DoT	DoT Incident Controller
	Within port limits	1	Port Authority	Port Harbour Master
		2/3	Port Authority/ DoT	Port Harbour Master/ DoT Incident Controller

Spills in State/Port Waters

As detailed in the table above, in the event of a hydrocarbon spill (hereafter 'spill') where Woodside Energy Ltd ('Woodside') is the responsible party and the spill may impact State waters and shorelines, Woodside (or the Vessel Master) will commence the initial response actions and notify the Western Australian Department of Transport (DoT). In the event that Woodside is the responsible party for a spill that occurs within port limits, Woodside will notify the Port Authority for all spills, and also notify DoT for Level 2 and 3 spills.

Initially Woodside will be required to make available an appropriate number of suitably qualified persons to work in the DoT IMT (Annex 6 – Woodside Liaison Officer Resources to DoT). DoT/ Port Authority's role as the Controlling Agency in State waters/ within port limits does not negate the requirement for Woodside to have appropriate plans and resources in place to adequately respond to a marine hydrocarbon spill incident in State Waters/ within port limits or to commence the initial response actions to a spill prior to DoT establishing incident control in line with DoT *Offshore Petroleum Industry Guidance Note – Marine Oil Pollution: Response and Consultation Arrangements* (July 2020). Cost recovery arrangements for offshore marine pollution incidents (MOP) are in accordance with Section 9 of the Guidance Note:

https://www.transport.wa.gov.au/mediaFiles/marine/MAC_P_Westplan_MOP_OffshorePetroleumIndGuidance.pdf

Woodside's Incident Management Structure for a hydrocarbon spill, including Woodside Liaison Officer's command structure within DoT can be seen at [Annex 5 – Woodside Incident Management Structure](#).

The coordination structure for a concurrent hydrocarbon spill in both Commonwealth and State waters/ shorelines is shown in Annex 4 – 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	<p>Notify the Woodside Communication Centre (WCC) on: 1300 833 333, +61 8 9348 7184 / 4624 or sat phone +881 632 410 392</p>	
	<p>Incident Controller or delegate to make relevant notifications in Table 1-1 of this Oil Pollution First Strike Plan.</p>	
LEVEL 1	<p>FACILITY INCIDENT</p>	<p>VESSEL INCIDENT</p>
	<p>Coordinate pre-identified tactics in Table 2-1 of this Oil Pollution First Strike Plan. Remember to download each Operational Plan.</p>	<p>Notify AMSA or Port Authority (if within port limits) and coordinate pre-identified tactics in Table 2-1 of this Oil Pollution First Strike Plan Remember to download each Operational Plan.</p>
	<p>If the spill escalates such that the site cannot manage the incident, inform the WCC on: 1300 833 333, +61 8 9348 7184/ 4624 or sat phone +881 632 410 392 and escalate to a level 2/3 incident.</p>	
LEVEL 2/3	<p>FACILITY INCIDENT</p>	<p>VESSEL INCIDENT</p>
	<p>Handover control to CIMT and notify DoT or Port Authority (if within port limits)</p>	<p>Handover control to AMSA or Port Authority (if within port limits) and stand up CIMT to assist.</p>
	<p>Commence quick revalidation of the recommended strategies on Table 2-1 taking into consideration seasonal sensitivities and current situational awareness. Commence validated strategies.</p>	<p>If requested by AMSA/Port Authority: Commence quick revalidation of the recommended strategies on Table 2-1 taking into consideration seasonal sensitivities and current situational awareness. Commence validated strategies.</p>
	<p>Create an Incident Action Plan (IAP) for all ongoing operational periods The content of the IAP should reflect the selected response strategies based on current situational awareness. For the Strategic Net Environmental Benefit Analysis (NEBA) see the Stybarrow Plug and Abandonment Environment Plan</p>	<p>If requested by AMSA/Port Authority: 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 Strategic Net Environmental Benefit Analysis (NEBA) see the Stybarrow Plug and Abandonment Environment Plan</p>

1. Notifications

The Incident Controller or delegate must ensure the below notifications (Table 1-1) are completed within the designated timeframes.

For spills from a vessel, relevant notifications must be undertaken by a WEL representative.

Table 1-1: Notifications

In the event of an incident between campaign vessels, also activate relevant vessel Emergency Response Plans and/or Bridging Documents								
Timing	By	To	Name	Contact	Instruction	Form	Complete? (✓)	
NOTIFICATIONS FOR ALL LEVELS OF SPILL								
Immediately	Offshore Installation Manager (OIM) or Vessel Master	Woodside Communication Centre (WCC)	Duty Manager	Tel: 1300 833 333 Tel: +61 893 487 184/ 4624 Sat phone: +881 632 410 392	Verbally notify WCC of event and estimated volume and hydrocarbon type.	Verbal		
Within 2 hours	Woodside Site Rep (WSR)	National Offshore Petroleum Safety Environmental Management Authority (NOPSEMA ³)	Incident notification office	Tel: 1300 674 472	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 DMIRS).	Link		
Within 3 days	WSR				Provide a written NOPSEMA Incident Report Form as soon as practicable (no later than 3 days after notification) (cc to NOPTA and DMIRS)	Link		
					NOPSEMA	submissions@nopsema.gov.au		
					NOPTA	resources@nopta.gov.au		
				DMIRS	petroleum.environment@dmirs.wa.gov.au			
As soon as practicable	CIMT DM or Delegate	Woodside	Environment Duty Manager	As per roster	Verbally notify Duty Environment of event and seek advice on relevant performance standards from EP	Verbal		
Within 2 hours of becoming aware of a marine oil pollution incident (MOP) that occurs in or may impact state waters	CIMT DM or Delegate	WA Department of Transport	DoT Maritime Environmental Emergency Response Unit (MEER) Duty Officer	Tel: +61 8 9480 9924	Verbally notify DoT MEER Duty Officer that a spill has occurred and, if required, request use of equipment stored in Karratha/Fremantle. Follow up with a written 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 WEL IMT.	Link		
As soon as practicable	CIMT DM or Delegate	Department of Climate Change, Energy, the Environment and Water (DCCEEW) Director of National Parks	Marine Park Compliance Duty Officer	Tel: +61 419 293 465	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		

³ 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 DM or Delegate	WA Department of Biodiversity, Conservation and Attractions (DBCA)	Duty Officer	Tel: +61 8 9219 9108	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, tourism operators or relevant cultural authorities may be affected, Woodside would, at the relevant time, engage with these parties as appropriate. Relevant persons/ organisations 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 protection of the Sea Act, part II, section 11(1)	Vessel Master	Australian Maritime Safety Authority (AMSA)	Response Coordination Centre (RCC)	Tel: 1800 641 792 Tel: +61 2 6230 6811	Verbally notify AMSA RCC of the hydrocarbon spill. Follow up with a written Marine Pollution Report (POLREP) as soon as practicable following verbal notification.	Link	
ADDITIONAL LEVEL 2/3 NOTIFICATIONS							
As soon as practicable	CIMT DM or Delegate	AMOSOC	AMOSOC Duty Manager	Tel: +61 438 379 328	Notify AMOSC that a spill has occurred and follow-up with an email from the CIMT Leader/ CIMT Deputy Leader/ IMT IC/ CMT Adviser/ 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.	Link	
As soon as practicable	CIMT DM or Delegate	Oil Spill Response Limited (OSRL)	OSRL Duty Manager	Tel: +65 6266 1566	Contact OSRL duty manager and request assistance from technical advisor in Perth. Send the completed notification form to OSRL as soon as practicable. For mobilisation of resources, send the Mobilisation Form to OSRL as soon as practicable. The mobilisation form must be signed by a nominated callout authority from Woodside. OSRL can advise the names on the call out authority list, if required.	Link Link	
As soon as practicable if extra personnel are required for incident support	CIMT DM or Delegate	Marine Spill Response Corporation (MSRC)	MSRC Response Manager	Tel: +1 732 417 0175 Tel: +1 703 326 5609	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	

IN THE EVENT OF A HYDROCARBON SPILL THAT IS LIKELY TO TRAVERSE INTERNATIONAL WATERS, CIMT WILL NOTIFY THE AUSTRALIAN DEPARTMENT OF FOREIGN AFFAIRS AND TRADE (DFAT):

sea.law@dfat.gov.au and globalwatchoffice@dfat.gov.au

2. Response techniques

Table 2-1: Response techniques

Technique	Spill type		Level	Pre- Identified Tactics	Responsible	ALARP Commitment Summary	Link to Operational Plans for notification numbers and actions
	Vessel (MDO)	LOWC (Crude)					
Operational monitoring – tracking buoy (OM02)	Yes	Yes	ALL	If a vessel is on location, consider the need to deploy the oil spill tracking buoy. If no vessel is on location, consider the need to mobilise oil spill tracking buoys from the King Bay Supply Base (KBSB) Stockpile. If a surface sheen is visible from the facility, deploy the satellite tracking buoy within two hours.	Operations	DAY 1: Tracking buoy deployed within 2 hours.	Surveillance and Reconnaissance to Detect Hydrocarbons and Resources at Risk (OM02) of The Operational Monitoring Operational Plan. Deploy tracking buoy in accordance with Link .
Operational monitoring – predictive modelling (OM01)	Yes	Yes	ALL	Undertake initial modelling using the Rapid Assessment Oil Spill Tool and weathering fate analysis using Automated Data Inquiry for Oil Spills (ADIOS) or refer to the hydrocarbon information in Appendix A .	Intelligence or Environment	DAY 1: Initial modelling within 6 hours using the Rapid Assessment Tool.	Predictive Modelling of Hydrocarbons to Assess Resources at Risk (OM01 of The Operational Monitoring Operational Plan). Link
	Yes	Yes	ALL	Send Oil Spill Trajectory Modelling (OSTM) form (Appendix B, Form 7) to RPS Response (rpsresponse@rpsgroup.com).	Intelligence	DAY 1: Detailed modelling within 4 hours of RPS Response receiving information from Woodside.	<i>Planning to download immediately and follow steps</i>
Operational monitoring – aerial surveillance (OM02)	Yes	Yes	ALL	Instruct Aviation Duty Manager 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 (OM02 of The Operational Monitoring Operational Plan). Link <i>Planning to download immediately and follow steps</i>
Operational monitoring – satellite tracking (OM02)	Yes	Yes	ALL	The Intelligence duty manager should be instructed to stand up Kongsberg Satellite Services (KSAT) to provide satellite imagery of the spill (emergency@ksat.no , +4777661300).	Intelligence	DAY 1: Service provider will confirm availability of an initial acquisition within 2 hours. Data received to be uploaded into Woodside Common Operating Picture.	
Operational monitoring – monitoring hydrocarbons in water (OM03)	Yes	Yes	ALL	Consider the need to mobilise resources to undertake water quality monitoring (OM03).	Planning or Environment	DAY 3: Service provider deploy resources within 3 days: - 3 specialists in water quality monitoring - 2 monitoring systems and ancillaries - 1 vessel for deploying the monitoring systems with a dedicated winch, A-frame or Hiab and ancillaries to deploy the equipment. Daily fluorometry reports will be provided to IMT.	Detecting and Monitoring for the Presence and Properties of Hydrocarbons in the Marine Environment (OM03 of The Operational Monitoring Operational Plan). Link <i>Planning to download immediately and follow steps</i>
Operational monitoring – pre-emptive assessment of receptors at risk (OM04)	Yes	Yes	ALL	Consider the need to mobilise resources to undertake pre-emptive assessment of sensitive receptors at risk (OM04).	Planning or Environment	Within 2 days of impacts predicted by OM01/02/03, 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	Pre-emptive Assessment of Sensitive Receptors (OM04 of The Operational Monitoring Operational Plan). Link <i>Planning to download immediately and follow steps</i>

Technique	Spill type		Level	Pre- Identified Tactics	Responsible	ALARP Commitment Summary	Link to Operational Plans for notification numbers and actions
	Vessel (MDO)	LOWC (Crude)					
Operational monitoring – shoreline assessment (OM05)	Yes	Yes	ALL	Consider the need to mobilise resources to undertake shoreline assessment surveys (OM05).	Planning or Environment	Within 2 days of impacts predicted by OM01/02/03, and in agreement with WA DoT (for Level 2/3 incidents), deployment of 1 specialist in SCAT for each RPA	Shoreline Assessment (OM05 of The Operational Monitoring Operational Plan). Link <i>Planning to download immediately and follow steps</i>
Surface dispersant	No	No	N/A	Modelling for a LOWC of Stybarrow Crude does not predict floating hydrocarbons at minimum threshold required for feasible surface dispersant application. Surface dispersant application is also not deemed to be a feasible response technique for spills of highly volatile hydrocarbons such as MDO as it is prone to rapid spreading, thinning and evaporation. Dispersant droplets pass through thin surface films without binding to the hydrocarbon and thus its use would unnecessarily introduce additional chemical substances to the marine environment and increase entrained hydrocarbons. Dispersant use is therefore not considered to provide a net environmental benefit.			
Containment and recovery	No	No	N/A	Modelling for a LOWC of Stybarrow Crude does not predict floating hydrocarbons at minimum threshold required for feasible deployment of containment and recovery operations. Additionally, volatile hydrocarbons such as MDO are likely to weather, spread and evaporate quickly and lead to unsafe conditions in the vicinity of fresh hydrocarbon. Corralling volatile substances such as MDO also poses a safety risk and thus should be avoided. This response technique is therefore not feasible.			
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	Yes	L2/3	Shoreline protection and deflection may be deployed in agreement with WA DoT (Level 2/3 spills) if Operational Monitoring activities predict shoreline contact. Woodside will mobilise and commence shoreline protection and deflection tactics to reduce the volume of oil accumulating on shorelines at selected RPAs. Equipment and relevant personnel from Woodside, AMOSC and AMSA stockpiles to be mobilised. Consideration to be given to the requirement for interstate and international shoreline protection equipment and relevant personnel (e.g. OSRL stockpiles). Mobilise security provider as per security support plan.	Logistics and Planning	In agreement with WA DoT, activate relevant Tactical Response Plans (TRPs) within 24 hours of the release. In agreement with WA DoT, mobilise teams to RPAs within 2 days of operational monitoring predicting impacts. Equipment mobilised from closest stockpile within 2 days of operational monitoring predicting impacts. Supplementary equipment mobilised from AMOSC and AMSA stockpiles within 2 days of operational monitoring predicting impacts. Supplementary equipment mobilised from OSRL within 5 days of operational monitoring predicting impacts.	Protection and Deflection Operational Plan Link <i>Logistics to download immediately and follow steps</i>

Technique	Spill type		Level	Pre- Identified Tactics	Responsible	ALARP Commitment Summary	Link to Operational Plans for notification numbers and actions
	Vessel (MDO)	LOWC (Crude)					
Shoreline clean-up	No	Yes	L2/3	<p>Shoreline clean-up operations may be deployed in agreement with WA DoT (Level 2/3 spills) if Operational Monitoring activities predict shoreline contact.</p> <p>Equipment and relevant personnel from Woodside, AMOSC and AMSA stockpiles to be mobilised. Consideration to be given to the requirement for interstate and international shoreline protection equipment and relevant personnel (e.g. OSRL stockpiles).</p> <p>Mobilise security provider as per security support plan.</p>	Logistics and Planning	<p>In agreement with WA DoT, activate relevant Tactical Response Plans (TRPs) within 24 hours of the release.</p> <p>In agreement with WA DoT, mobilise teams to RPAs within 2 days of operational monitoring predicting impacts.</p> <p>Equipment mobilised from closest stockpile within 2 days of operational monitoring predicting impacts.</p> <p>Supplementary equipment mobilised from AMOSC and AMSA stockpiles within 2 days of operational monitoring predicting impacts.</p> <p>Supplementary equipment mobilised from OSRL within 5 days of operational monitoring predicting impacts.</p>	<p>Shoreline Clean-up Operational Plan</p> <p>Link</p> <p><i>Logistics to download immediately and follow steps</i></p>
Oiled wildlife response	Yes	Yes	ALL	<p>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.</p> <p>Mobilise AMOSC Oiled Wildlife Containers.</p> <p>Consider whether additional equipment is required from local suppliers.</p>	Logistics and Planning		<p>Oiled Wildlife Response Operational Plan</p> <p>Link</p>
Scientific monitoring (type II)	Yes	Yes	ALL	<p>Notify Woodside science team of spill event.</p>			<p>Oil Spill Scientific Monitoring Programme – Operational Plan</p> <p>Link</p>
SOURCE CONTROL TECHNIQUES							
Subsea First Response Toolkit	No	Yes	L2/3	<p>Debris clearance equipment may require mobilisation prior to the undertaking of any further source control activities or Subsea Dispersant Injection.</p> <p>Source control via ROV intervention using the intervention riser system (IRS) or subsea tree may be feasible.</p>	Operations and Logistics	<p>DAY 2:</p> <p>Remotely Operated Vehicle (ROV) on Mobile Offshore Drilling Unit (MODU) ready for deployment within 48 hours subject to risk assessment and approvals, to undertake inspection and/or well intervention.</p> <p>Intervention vessel with minimum requirement of a working class ROV and operator mobilised to with for deployment within 11 days.</p> <p>ROV equipment deployed within 7 days.</p>	<ul style="list-style-type: none"> Subsea Dispersant Injection Operational Plan Source Control Emergency Response Planning Guideline Activity Source Control Emergency Response Plan
Subsea Dispersant	No	Potentially	L2/3	<p>Consider the need to mobilise suitable vessel and reeled injection unit.</p> <p>N.B. Subsea dispersant injection at the wellhead may be required to assist in reducing the volatile plume at the surface to facilitate access to the wellhead for other source control techniques e.g. capping stack deployment.</p>	Operations – Source Control Unit	<p>Equipment to be activated within 24 hours if required.</p> <p>SSDI operations to be deployed in the field within 12 days if required.</p> <p>Access to 5,000 m³ of dispersant on activation of the OSRL Global Dispersant Stockpile (GDS) membership within 24-48 hours.</p>	

Technique	Spill type		Level	Pre- Identified Tactics	Responsible	ALARP Commitment Summary	Link to Operational Plans for notification numbers and actions
	Vessel (MDO)	LOWC (Crude)					
				Subsea dispersant would be applied at the Stybarrow wellhead within Commonwealth waters utilising OSCA-approved or transitional dispersants.			
Capping Stack	No	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: a plume radius and acceptable environmental conditions e.g. wind speed, wave height and current.	Operations – Source Control Unit	Capping stack deployed by a chartered construction vessel by day 16.	
Relief Well	No	Yes	L2/3	As per Activity Source Control Emergency Response Plan	Operations – Source Control Unit	DAY 1: Identify source control vessel availability within 24 hours of the release. MODU mobilised to location within 21 days.	

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, there are no sensitive receptors with the potential to be contacted by hydrocarbon at or above impact threshold levels within 48 hours of a spill.

The deterministic hydrocarbon spill modelling run demonstrating the shortest timeframe to shoreline contact at or above feasible response threshold levels (>100 g/m²) indicates that the following sensitive receptor has the potential to be contacted by hydrocarbons beyond 48 hours of a spill:

- Exmouth (Day 5, 26 m³)

The deterministic hydrocarbon spill modelling run demonstrating the greatest spread of shoreline impact at or above feasible response threshold levels (>100 g/m²) indicate potential contact from Day 35 and beyond as follows:

- Between Day 35 and Day 56 (Month 2) – peak accumulations (>100 g/m²) total 622.6 m³ across 26 sites with the maximum single accumulation of 226 m³ at Ashburton on Day 40.
- Between Day 57 and Day 103 (Months 3 and 4) – peak accumulations (>100 g/m²) total 623.3 m³ across 5 additional sites with the maximum single accumulation of 297 m³ at Exmouth on Day 58.

Additional information on these receptors can be found in Section 2.2.3 of the Stybarrow Plug and Abandonment OPEP.

Tactical Response plans for these locations can be accessed via the [Oil Spill Portal - Tactical Response Plans](#) and include the details of potential forward operating bases and staging areas.

Oil Spill Trajectory Modelling specific to the spill event will be required to determine the regional sensitive receptors to be contacted beyond 48 hours of a spill.

Figure 3-1 illustrates the location of regional sensitive receptors in relation to the Stybarrow Plug and Abandonment Operational Area and identifies priority protection areas.

Consideration should be given to other stakeholders (including mariners) in the vicinity of the spill location. **Table 3-1** indicates the assets within the vicinity of the Stybarrow Plug and Abandonment Operational Area.

Table 3-1: Assets in the vicinity of the Stybarrow Plug and Abandonment Operational Area

Asset	Distance and Direction from Operational Area	Operator
Ngujima-Yin FPSO	20 km east	Woodside
Ningaloo Vision FPSO	23 km east	Santos
Pyrenees Venture FPSO	26 km east-south-east	Woodside

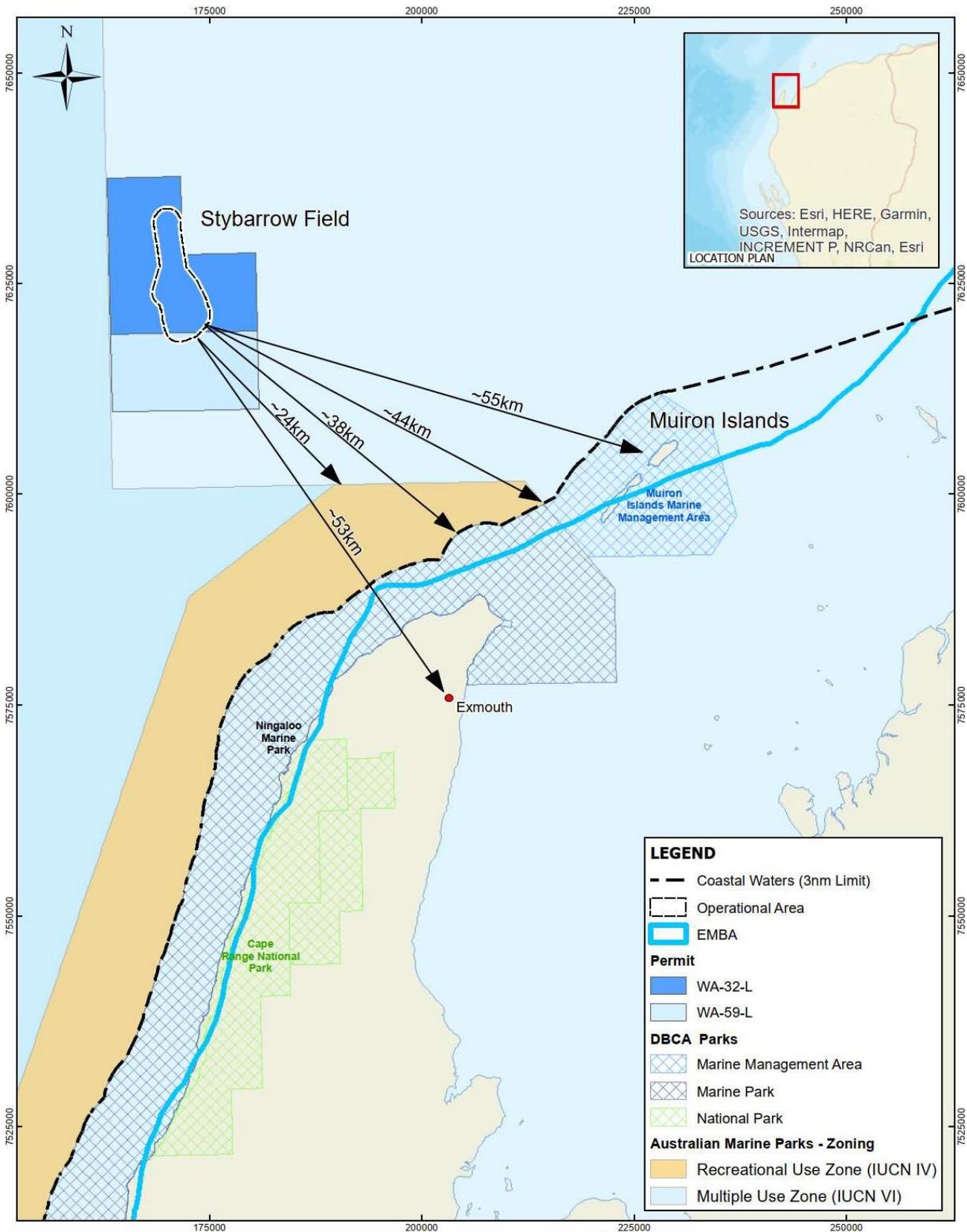


Figure 3-1: Map of Stybarrow Plug and Abandonment Operational Area

4. Surface Dispersant application

Surface dispersant application is not considered an appropriate response strategy for this activity as described in the Stybarrow Plug and Abandonment Environment Plan.

Annex 1 – 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 ⁴
CS-01 (WCCS) Loss of well control (LOWC)	Stybarrow Crude	22.8	10,264 m ³	42.6% or 4,372 m ³	12 hours (BP < 180 °C)	3.1%	Wandoo (AD01895) API 19.4
					24 hours (180 °C < BP < 265 °C)	23.7%	
					Several days (265 °C < BP < 380 °C)	30.6%	
CS-02 Vessel collision resulting in rupture of MDO tank	Marine Diesel Oil	37.6	1,000 m ³	5% or 50 m ³	12 hours (BP < 180 °C)	6%	Diesel Fuel Oil (Southern USA 1)
					24 hours (180 °C < BP < 265 °C)	35%	
					Several days (265 °C < BP < 380 °C)	54%	

⁴ Initial screening of possible ADIOS2 analogues considered hydrocarbons with similar APIs. Suggested selection is based on the closest distillation cut to the Woodside hydrocarbon. Only hydrocarbons with >380°C distillation cuts were included in selection process.

Annex 2 – Notification forms

Table A2 - 1: Notification forms

No.	Form Name	Link
1	Record of initial verbal notification to NOPSEMA template	Link
2	NOPSEMA Incident Report Form	Link
3	Marine Pollution Report (POLREP – AMSA)	Link
4	AMOSOC Service Contract	Link
5	Marine Pollution Report (POLREP – DoT)	Link
6a	OSRL Initial Notification Form	Link
6b	OSRL Mobilisation Activation Form	Link
7	RPS Response Oil Spill Trajectory Modelling Request	Link
8	Aerial Surveillance Observer Log	Link
9	Tracking buoy deployment instructions	Link

FORM 1 – RECORD OF INITIAL VERBAL NOTIFICATION TO NOPSEMA



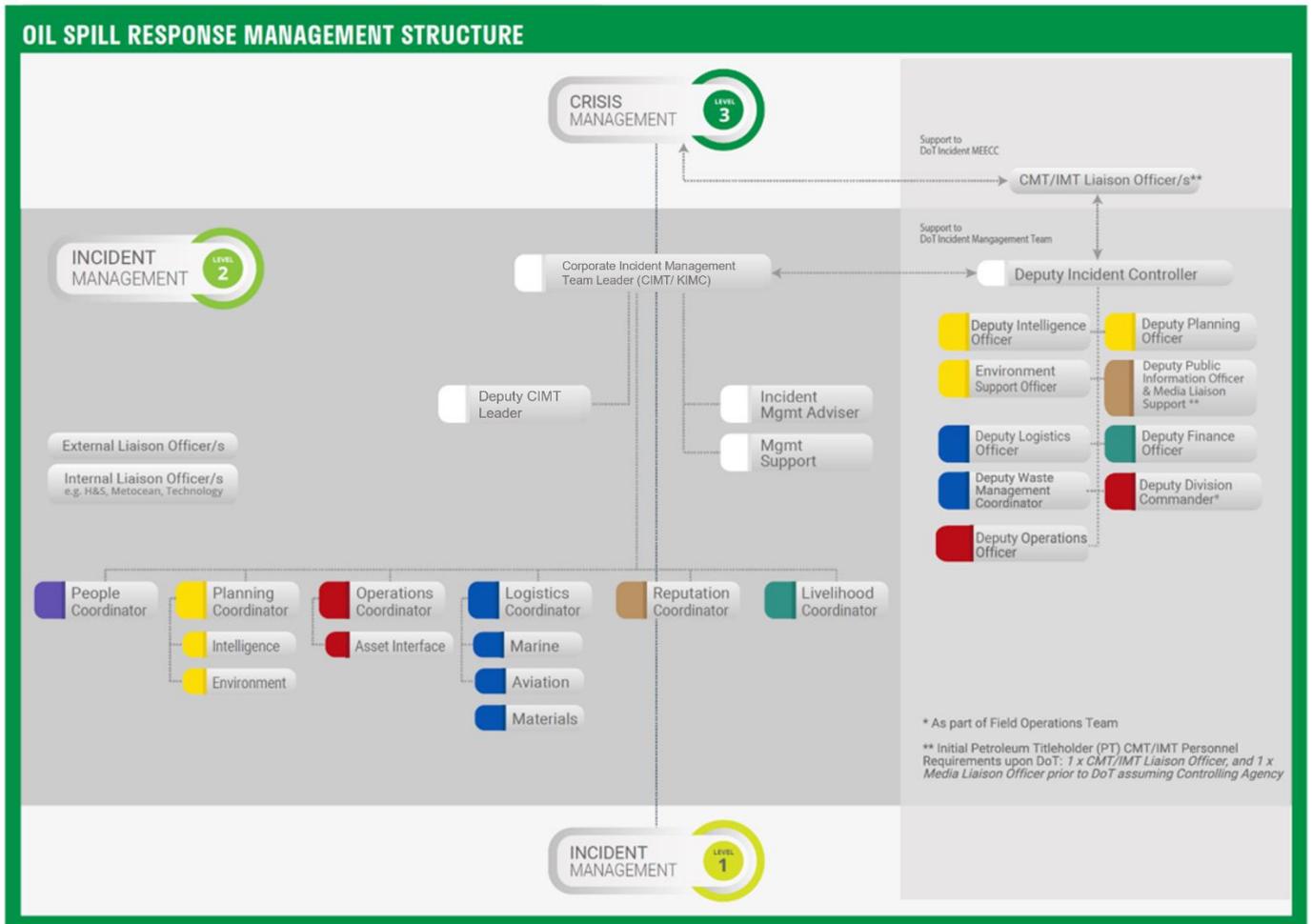
NOPSEMA phone: +61 1300 674 472		
Date of call		
Time of call		
Call made by		
Call made to		
Information to be provided to NOPSEMA:		
Date and time of incident/ time caller became aware of incident		
Details of incident	1. Location	
	2. Title	
	3. Source	<input type="checkbox"/> Platform
		<input type="checkbox"/> 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	submissions@nopsema.gov.au	
NOPTA	resources@nopta.gov.au	
DMIRS	petroleum.environment@dmirs.wa.gov.au	

Annex 3 – 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			

Annex 5 – Woodside Incident Management Structure

Woodside Incident Management Structure for Hydrocarbon Spill (including Woodside Liaison Officers Command Structure within DoT IMT if required).



Annex 6 – 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 ICC as soon as possible after the formal request has been made by the State Marine Pollution Coordinator (SMPC), and no later than 8am on the day following the request being formally made. For Woodside personnel designated to serve in DoT's Forward Operating Base (FOB), it is expected that they arrive at the FOB no later than 24 hours from the formal request being made by the SMPC.

Area	WEL Liaison Role	Personnel Sourced from ⁶ :	Key Duties	#
DoT Maritime Environmental Emergency Coordination Centre (MEECC)	CMT Liaison Officer	CIMT Leader Roster	<ul style="list-style-type: none"> • Provide a direct liaison between the CMT and the MEECC. • Facilitate effective communications and coordination between the CMT Leader and State Marine Pollution Coordinator (SMPC). • Offer advice to SMPC on matters pertaining to PT crisis management policies and procedures. 	1
DoT IMT Incident Control	WEL Deputy Incident Controller	CIMT Leader Roster	<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	Intelligence Support Officer/ Deputy Intelligence Officer	Intelligence Coordinator Roster	<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. 	1

⁶ 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/ KIMC roster arrangements, contact the WCC. During a prolonged response, additional personnel may be sourced through AMOSC Core Group via [AMOSC Service Contract](#)

Area	WEL Liaison Role	Personnel Sourced from ⁶ :	Key Duties	#
			<ul style="list-style-type: none"> 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. 	
DoT IMT Intelligence – Environment	Environment Support Officer	Environment Coordinator Roster	<ul style="list-style-type: none"> As part of the Intelligence Team, assist the Environment Coordinator in the performance of their duties in relation to the provision of environmental support into the planning process. Assist in the interpretation of the PT OPEP and relevant TRP plans. Facilitate in requesting, obtaining and interpreting environmental monitoring data originating from the PT IMT. Facilitate the provision of relevant environmental information and advice originating from the DoT IMT to the PT IMT. 	1
DoT IMT Planning-Plans/ Resources	Deputy Planning Officer	Planning Coordinator Roster	<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	Public Information Support and Media Liaison Officer/ Deputy Public Information Officer	Reputation Coordinator Roster	<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. 	1

Area	WEL Liaison Role	Personnel Sourced from ⁶ :	Key Duties	#
			<ul style="list-style-type: none"> 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. 	
DoT IMT Logistics	Deputy Logistic Officer	Logistics Coordinator Roster	<ul style="list-style-type: none"> As part of the Logistics Team, assist the Logistics Officer in the performance of their duties in relation to the provision of supplies to sustain the response effort. Facilitate the acquisition of appropriate supplies through the PTs existing OSRL, AMOSC and private contract arrangements. Collects Request Forms from DoT to action via PT IMT. <p>(Note this individual must have intimate knowledge of the relevant PT logistics processes and contracts)</p>	1
DoT IMT Finance-Accounts/ Financial Monitoring	Deputy Finance Officer	Livelihood Coordinator Roster	<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	Operations Coordinator Roster	<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. 	1

Area	WEL Liaison Role	Personnel Sourced from ⁶ :	Key Duties	#
			<ul style="list-style-type: none"> Identify efficiencies and assist to resolve potential conflicts around resource allocation and simultaneous operations of PT and DoT response efforts. 	
DoT IMT Operations – Waste Management	Facilities Support Officer/ Deputy Waste Management Coordinator	Logistics Materials Coordinator Roster	<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 On-Scene Commander/ Deputy Division Commander	CIMT Leader Roster	<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 Woodside personnel initially required in DoT IMT				11

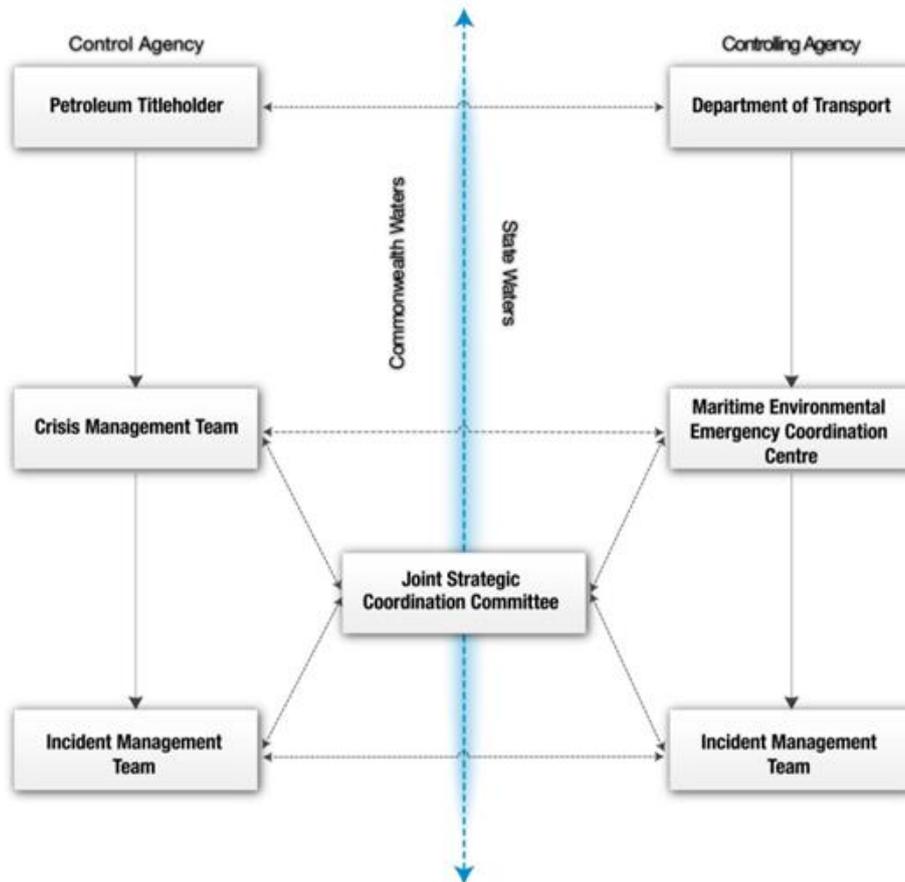
Annex 7 – DoT Liaison Officer Resources to Woodside

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	#
WEL CMT	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
WEL Reputation FST (Media Room)/ 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 B – Western Australia Department of Transport Incident Management Team Coordination

Control and Coordination IMT Structure with WA DoT



Note: DoT IMT contains an appropriate number of appropriately qualified persons from the Petroleum Titleholder in key areas commensurate with their level of introduced risk.

Appendix C – 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
KGP to Whitnell 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. ALARP Assessment for Resourcing Oil Spill Response Strategies

1 Source Control (Vessel)

1.1 Source Control via Vessel SOPEP – ALARP Assessment

Alternative, additional and improved options have been assessed against the base capability described in Section 10.4.1 of the Environment Plan 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 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.

1.1.1 Alternative control measures

Alternative Control Measures considered				
<i>Alternative, including potentially more effective and/or novel control measures are evaluated as replacements for an adopted control</i>				
Option considered	Environmental consideration	Feasibility	Approx. Cost	Implemented
No reasonably practical alternative control measures identified				N/A

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	Approx. Cost	Implemented
No reasonably practical additional control measures identified				N/A

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	Approx. Cost	Implemented
No reasonably practical improved control measures identified				N/A

1.2 Selected control measures

Following review of alternative, additional and improved control measures, the following controls were selected for implementation for the activity.

- Alternative
 - None selected
- Additional
 - None selected
- Improved
 - None selected

2 Source Control (Well Intervention)

Woodside has based its response planning on the worst-case credible scenarios (as described in the Stybarrow Well Plug and Abandonment Environment Plan). This includes the following selection of primary source control and well intervention techniques which would be conducted concurrently:

- ROV intervention
- debris clearance and/or removal
- capping stack
- relief well drilling.

2.1 ROV Intervention

Following confirmation of an emergency event, Woodside would mobilise inspection class ROVs to assess the status of the wellhead. The ROV available on the MODU can be deployed for this purpose within 48 hours. Work class ROVs for well intervention are also available through the existing frame agreements and are available for deployment within seven days (Table 2-1). It is not expected that any additional regulatory approvals would be required as inspection, maintenance and repair is within the scope of activities for the Stybarrow Operations Safety Case as well as the scope of activities for contracted 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 2-1: ROV timings

	Estimate ROV inspection duration for Stybarrow-7
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.

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 2-3 for implementing this response would be “no safety case revision required”. Timeframes for well intervention are detailed in Figure 2-2 and would be implemented concurrently to the actions required by the “no Safety Case” revision scenario detailed in Figure 2-3, therefore, the Safety Case scenario will have no impact on the delivery of the strategy.

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.

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 2-3 for implementing this response would be “no safety case revision required”. Timeframes for debris clearance and removal equipment deployment are detailed in Figure 2-2 and would be implemented concurrently to the actions required by the “No Safety Case” revision scenario detailed in Figure 2-3, therefore, the Safety Case scenario will have no impact on the delivery of the strategy.

2.3 Capping stack

The Woodside Source Control Emergency Response Procedure details the mobilisation and resource requirements for implementing this strategy. 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 at less than the WCCS, 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), vertical deployment of a capping stack with a heavy lift vessel with a 150 T crane capacity in shallower waters or 250 T crane in deeper waters could be feasible.

Woodside assumes that sourcing conventional capping stack deployment vessels would be per the Activity Source Control Emergency Response Plan. This plan has pre-identified vessel specifications for the capping stack deployment and Woodside monitors the availability and location of these vessels on a monthly basis. 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. The location of suitable vessels for capping stack deployment are monitored monthly. The supply arrangements and reliability to achieve the required mobilisation time will be revalidated prior to spud. 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.

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 Plan (SCERP)
- 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 2-2 would be implemented concurrently with the actions required for the Safety Case revision development scenarios detailed in Figure 2-3 and Table 2-3. To reduce uncertainty in regulatory approval timeframe, Woodside is collaborating with The Drilling Industry

Steering Committee (DISC) and a contracted ISV Vessel Operator to develop a generic Safety Case Revision that contemplates a capping stack deployment. This Safety Case Revision will be used to reduce uncertainty in permissioning timeframes in the event a capping stack deployment is required. Woodside will execute 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 2.5.

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 Stybarrow-7 is illustrated in Figure 2-1:

- Primary – review internal Woodside 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 APPEA 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.

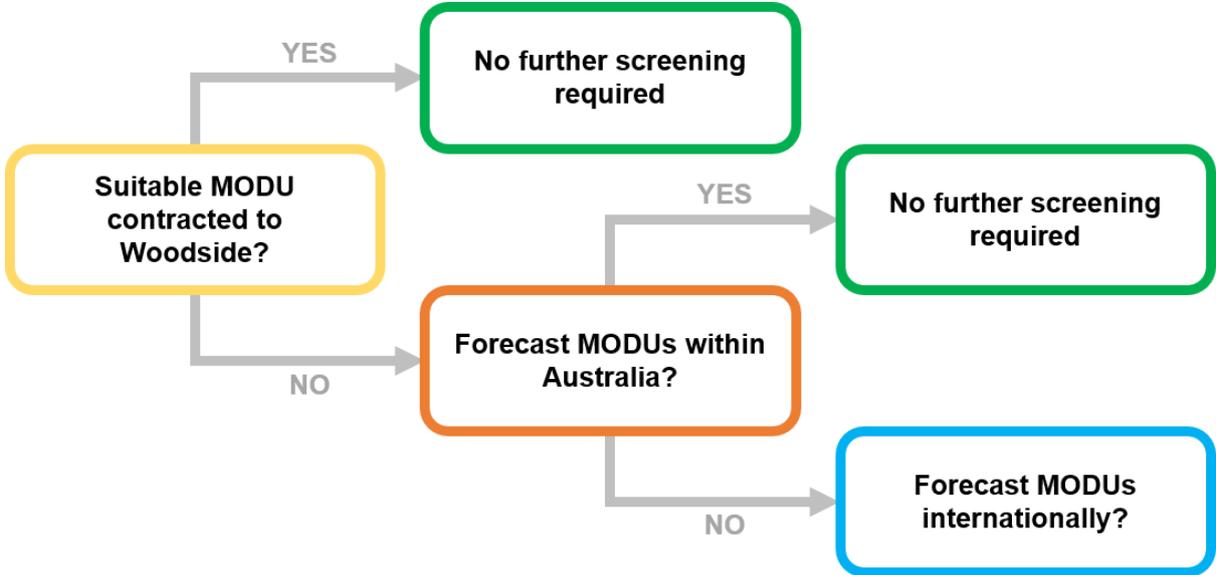


Figure 2-1: Stybarrow-7 process for sourcing relief well MODU

Screening of a relief well MODU from international waters is undertaken only if required, i.e. there is low confidence in local (Australian) availability. The capability, location and Australian Safety Case status is assessed for each Woodside contracted MODU. In the event the Woodside contracted MODUs are unsuitable, screening is extended to all MODUs operating in Australian Waters. The suitability and location of pre-identified relief well MODUs is tested again prior to the operation. Though the APPEA 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 rig activities of registered operators and rigs with approved safety cases, are tracked by Woodside on a monthly basis, with a two-year look ahead, 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 APPEA 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 10.4.1 of the Environment Plan.

2.4.1 Relief Well drilling timings

The duration of a blowout (from initiation to a successful kill) is assessed as 73 days for Stybarrow-7 well. 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 2-2. DP and moored MODUs are suitable for the Stybarrow-7 well. A moored MODU has been used as the basis for the analysis within this document.

To validate the effectiveness of the relief MODU supply arrangements through the APPEA 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 2-2: Relief well drilling timings

	Estimate Relief Well duration for Stybarrow-7 (days) – moored
Suspend operations and secure well (under APPEA MoU), source and contract MODU and mobilise to location. Concurrently secure regulatory approval.	21 days (MODU from within region)
	44 days (MODU from South-east Asia)
Drill well to intercept point (approx. 13.5 days)	13.5 days
Intercept and kill well (approx. 15.5 days).	15.5 days
	73.0 days

The following conditions and assumptions are applicable:

- A dynamically positioned MODU is not available.
- A pre-lay mooring spread is required to moor the rig over subsea infrastructure which would occur in parallel to MODU mobilisation.

Woodside has considered a broad range of alternate, additional, and improved options as outlined in Section 2.5.

Intersect and kill duration is estimated at 15.5 days. This is a moderately conservative estimate. During the intersect process, the relief well will be incrementally drilled and logged to accurately approach and locate the existing well bore. This will result in the highest probability of intersecting the well on the first attempt and thus will reduce the overall time to kill the well. During the Montara incident, it took five attempts to achieve a successful intersect.

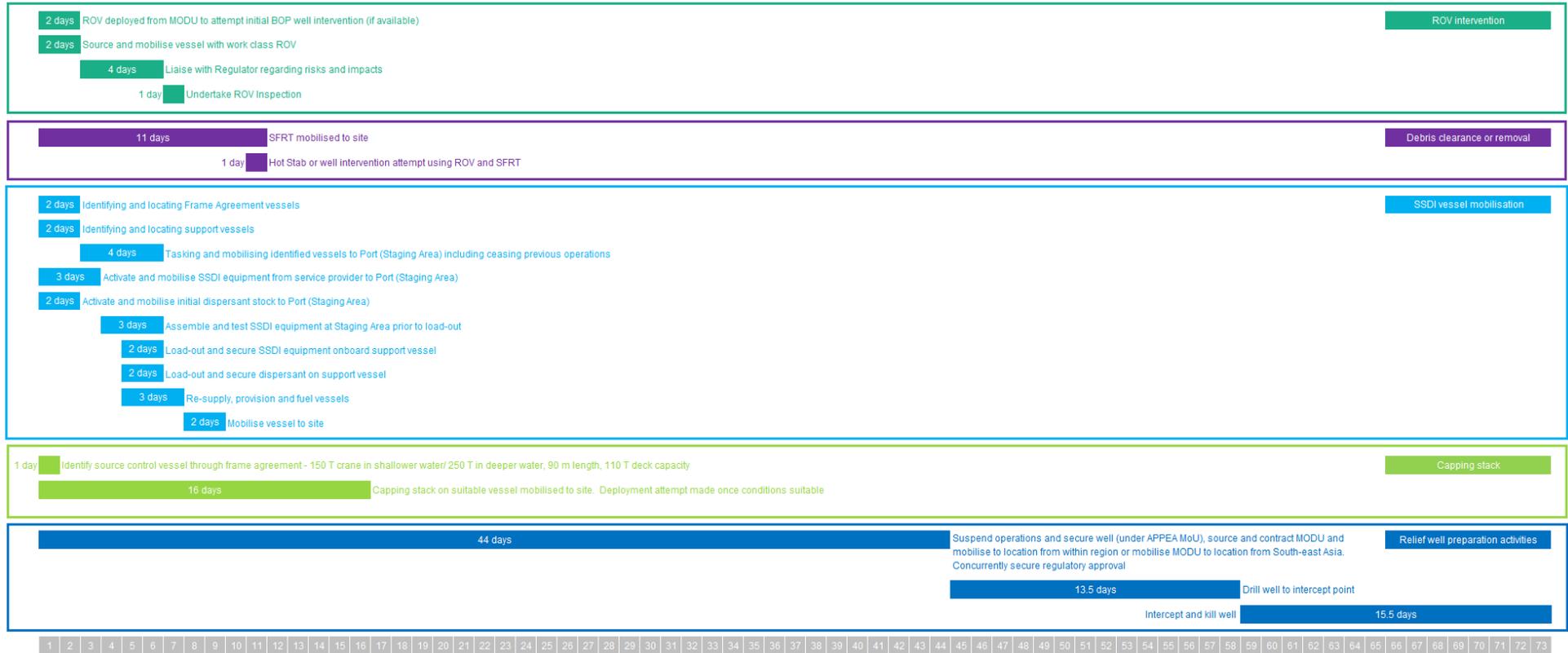


Figure 2-2: Source control and well intervention response strategy deployment timeframes for Stybarrow-7 well

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 10.4.1.

These include;

- Access to Safety and Risk discipline personnel with specialist knowledge.
- Monitoring internal and external rigs and vessel availability in the region and extended area through contracted arrangements on a monthly basis, with a two-year lookahead.
- Prioritisation of rigs/vessels with current or historical contracting arrangements. Woodside maintains records of previous contracting arrangements and companies. All current contracts for vessels and rigs are required to support Woodside in the event of an emergency.
- Leverage mutual aid arrangements such as the APPEA MOU for vessel and rig 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 2-3. The assumptions for each of the cases are detailed in subsequent Table 2-3.

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 Stybarrow-7, 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.

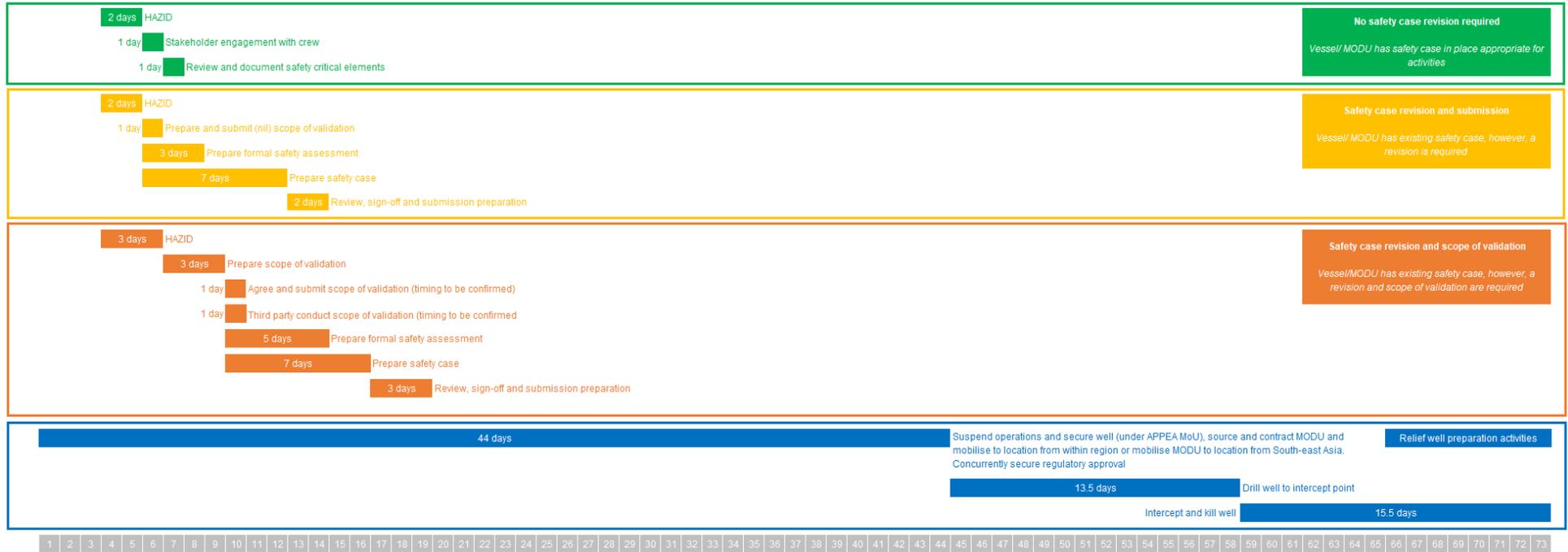


Figure 2-3: Timeline showing safety case revision timings alongside other relief well preparation activity timings for Stybarrow-7 well

Table 2-3: 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 SSDI 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.

2.5 Source Control – Control Measure Options Analysis

The assessments described in Sections 2.1, 2.2, 2.3 and 2.4 outline the primary and alternate approaches that Woodside would implement for source control. In Sections 2.6 and 2.7, Woodside has outlined the options considered against the activation/mobilisation (alternative, additional and improved options) and deployment (additional and improved options). This assessment 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 10.4.1 of the Environment Plan 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.

- 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.

2.5.1 Activation/Mobilisation Options considered

Alternative

- Standby MODU shared for all Woodside activities
- Standby MODU shared across APPEA MOU Titleholders

Additional

- Implement and maintain minimum standards for Safety Case development

Improved

- Monitor internal drilling programs for rig availability
- Monitor external activity for rig availability
- Monitor status of Registered Operators/ Approved Safety cases for rigs

2.5.2 Deployment Options considered

Additional

- Offset capping alternative to conventional capping stack deployment
- Dual vessel capping stack deployment
- Subsea Containment System alternative to capping stack deployment
- Pre-drilling top-holes
- Purchase and maintain mooring system
- Contract in place with WWCI and Oceaneering

Improved

- Maintaining relief well drilling supplies (mud, casing, etc).

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 10.4.1 of the Environment Plan 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.

2.6.1 Alternative control measures

Alternative Control Measures Considered					
<i>Alternative, including potentially more effective and/or novel control measures are evaluated as replacements for an adopted control</i>					
Option considered	Feasibility	Environmental benefits/impacts	Approximate cost	Assessment conclusions	Implemented
Standby MODU shared for all Woodside activities	A standby MODU shared across all Woodside activities is likely to provide a moderate environmental benefit as it may reduce the 21-day sourcing, contracting and mobilisation time by up to 10 days (to 11 days). This would reduce the volume and duration of release and may reduce impacts on receptors and sensitivities.	This option is not considered feasible for all Woodside activities as there are a large range of well depths, complexities, geologies and geophysical properties across all Woodside's operations. The large geographic area of Woodside activities also means that the MODU is unlikely to be in the correct location at the right time when required.	Even with costs shared across Woodside operations, the costs (approximately A\$219 m per annum, A\$1.95 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 APPEA MOU Titleholders	A standby MODU shared across all titleholders who are signatories to the APPEA MOU is likely to provide a minor environmental benefit as it may reduce the 21-day sourcing, contracting and mobilisation time by up to seven days (to 14 days). This would reduce the volume and duration of release and may reduce impacts on receptors and sensitivities.	This option is not considered feasible for 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

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	Feasibility	Environmental benefits/impacts	Approximate cost	Assessment conclusions	Implemented
Implement and maintain minimum standards for Safety Case development	Woodside's contingency planning consideration would be to source a rig from outside Australia with an existing Safety Case. This would require development and approval of a safety case revision for the rig and activities prior to commencing well kill operations.	This option is considered feasible and would require Woodside to develop minimum standards for safe operations for relevant Safety Case input along with maintaining key resources to support review of Safety Cases. Woodside would not be the operator for relief well drilling and would therefore not develop or submit the Safety Case revision. Woodside's role as Titleholder would be to provide minimum standard for safe operations that MODU operators would be required to meet and/or exceed.	Woodside has outlined control measures and performance standards regarding template Safety Case documentation and maintenance of resources and capability for expedited Safety Case review.	This option has been selected based on its feasibility, low cost and the potential environmental benefits it would provide.	Yes

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	Feasibility	Environmental benefits/impacts	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 that Woodside would be in a position to understand which other rigs might 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 APPEA MOU on rig sharing in the unlikely event this is required. Commercial and operational provisions do not allow Woodside 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 other drilling programs internally is that Woodside would be in a position to understand which other rigs might 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

2.7 Deployment – Control Measure Options Analysis

2.7.1 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, deployment of an offset capping deployment in the water depths at the Stybarrow-7 well (850 m) is not deemed feasible – maximum safe water depths are stated by OSRL to be 600 m. The water depth coupled with mobilisation lead times for both the cap and required vessels/support equipment makes this technique unfeasible.	<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. Water depth is also a key consideration as buoyancy modules have not been proven for use in these depths or with the expected worst-case gas blowout rates. <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. 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. 	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, mobilisation lead times for both a cap and required vessels and support equipment, would minimise any environmental benefit.	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. Furthermore, the longer length barges may need mooring assist to remain centred over the well. The capping stack would be handed off from a crane vessel to the anchor handler vessel (AHV) work wire outside of the exclusion zone. The AHV would then manoeuvre the barge into the plume to get the capping stack over the well. In this method, the barge would be in the plume, but the AHV and all personnel would be able to maintain a safe position outside of the gas zone. The capping stack would actually be lowered on the AHV work wire so a crane would not be required on the barge.	Due to there being minimal environmental benefits gained by the prolonged lead times needed to execute this technique, plus a potential increase in safety issues, any cost would be disproportionate to the benefits gained.	Given there is minimal environmental benefit and an increase in safety issues surrounding SIMOPS and deployment in shallow waters, this option would not provide an environmental or safety benefit.	No
Subsea Containment System alternative to capping stack deployment	While the use of a subsea containment system could reduce the quantity of hydrocarbon entering the marine environment, this is an unproven technology. Additionally, the system is unlikely to be feasibly deployed and activated for at least 90 days following a blowout due to equipment requirements and logistics. No environmental benefit is therefore predicted given the	The timing for mobilisation, deployment and activation of the subsea containment system is likely to be >90 days which is longer than the expected 71 days for 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

	release duration is 73 days before drilling of a relief well under the adopted control measure.				
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\$555,000 per day over the PAP based on 2-4 days of top-hole drilling (plus standby time) for the well as the worst-case scenario.	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 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 WWCI and Oceaneering	Woodside has an agreement in place with WWCI 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 mobilisation 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

2.7.2 Improved Control Measures

Improved Control Measures considered					
<i>Improved control measures are evaluated for improvements they could bring to the effectiveness of adopted control measures in terms of functionality, availability, reliability, survivability, independence and compatibility</i>					
Option considered	Environmental consideration	Feasibility	Approximate cost	Assessment conclusions	Implemented
Maintaining relief well drilling supplies	There is not predicted to be any reduction in relief well timing or spill duration from Woodside maintaining stocks of drilling supplies (mud, casing, cement, etc.)	It would be feasible to source some relief well drilling supplies such as casing but the actual composition of the cement and mud required will need to be specific to the well. This option is also not deemed necessary as the lead time for sourcing and mobilising these supplies is included in the 21 days for sourcing and mobilising a rig.	The capital cost of Woodside purchasing relevant drilling supplies is expected to be approximately A\$600,000 with additional costs for storage and ongoing costs for replenishment. These costs are considered disproportionate to the environmental benefit gained.	This option would not provide an environmental benefit.	No

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 activity.

- Alternative
 - None selected
- Additional

- Implement and maintain minimum standards for Safety Case development
- Contract in place with WWCI 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

3 Monitor and Evaluation (including Operational Monitoring)

This Section should be read in conjunction with Section 10.4.2 of the Environment Plan which is the capability planned for this activity.

3.1 Monitor and Evaluate – ALARP Assessment

Alternative, Additional and Improved options have been identified and assessed against the base capability described in Section 10.4.2 of the Environment Plan 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.

3.1.1 Alternative Control Measures

Alternative Control Measures considered					
<i>Alternative, 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

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
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 Woodside owned stocks in King Bay Support Base (KBSB) 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.	Woodside 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.	Aviation standards and guidelines ensure all aircraft crews are competent for their roles. Woodside maintains a pool of trained and competent aerial observers with various home base locations to be called upon at the time of an incident. Regular audits of oil spill response organisations ensure training and competency is maintained.	Cost for additional trained aerial observers would be A\$2,000 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

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
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 ICC roster to be called as soon as required. However initial information needs to be gathered by ICC 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	This option is not adopted as the minimal environmental benefit gained is disproportionate to the cost and complexity of its implementation.	No

Improved Control Measures considered					
Improved control measures are evaluated for improvements they could bring to the effectiveness of adopted control measures in terms of functionality, availability, reliability, survivability, independence and compatibility					
			of A\$50,000 for 24hr access plus an initial A\$5,000 per modelling run.		
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
Faster mobilisation time (for water quality monitoring).	Due to the restriction on accessing the spill location on Day one there is no environmental benefit in having vessels available from day one. The cost of having dedicated equipment and personnel is disproportionate to the environmental benefit. The availability of vessels and personnel meets the response need. Shortening the timeframes for vessel availability would require dedicated response vessels on standby in KBSB. The cost and organisational complexity of employing two dedicated response vessels (approximately \$15M/year per vessel) is considered disproportionate to the potential environmental benefit to be realised by adopting this delivery options.	Operations are not feasible on day 1 as the hydrocarbon will take time to surface, and volatility has potential to cause health concerns within the first 24 hours of the response.	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. Dedicated equipment and personnel, living locally and on short notice to mobilise. The cost would be approx. A\$1 m 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.	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

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

4 Subsea Dispersant Injection

This Section should be read in conjunction with Section 10.4.3 of the Environment Plan which is the capability planned for this activity.

4.1 Subsea Dispersant Injection – ALARP Assessment

Alternative, Additional and Improved options have been identified and assessed against the base capability described in Section 10.4.3 of the Environment Plan 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.

The scope of existing safety cases for Frame Agreement vessels includes all relevant activities for SSDI operations. Depending on the location and availability of vessels, Woodside expects the SSDI capability can be mobilised to site for deployment within 12 days. This may be able to be achieved faster if vessels are closer to appropriate staging areas and not already involved in other operations. The following steps are included within the indicative timeframe and many of these are expected to be concurrent activities, as shown in Figure 2-2.

4.1.1 Subsea Dispersant Injection timing

- Identifying and locating Frame Agreement vessels (1-2 days)
- Identifying and locating Support vessels (1-2 days)
- Tasking and mobilising identified vessels to Port (Staging Area) including ceasing previous operations (2-4 days)
- Activate and mobilise SSDI equipment from service provider to Port (Staging Area) (2-3 days)
- Activate and mobilise initial dispersant stock to Port (Staging Area) (1-2 days)
- Assemble and test SSDI equipment at Staging Area prior to load-out (2-3 days)
- Re-supply, provision and fuel vessels (1-2 days)
- Load-out and secure SSDI equipment onboard ISV (1-2 days)
- Load-out and secure Dispersant on Support Vessel (1-2 days)
- Contingency for unforeseen events (1 day)

4.1.2 Response Planning: Stybarrow-7 Loss of Well Containment (Credible Scenario-01)

Following a loss of well control it may take 2-5 days to complete a risk assessment, discuss and agree appropriate control measures with NOPSEMA (Safety, Environment and Well Integrity divisions), and monitor the operating environment within the Petroleum Safety Zone around a well or facilities. Subsea dispersant injection is unlikely to be deployed until approximately Day 12, subject to subsea ROV survey of the site and agreement of risk assessment and recommended control measures to ensure personnel safety.

Dispersant efficacy testing has not been undertaken for subsea conditions, but industry experience estimates a subsea amenability to dispersant of approximately 50-60% effectiveness. These results were determined in ideal laboratory conditions and represent the expected treatment of hydrocarbons that are contacted. Based on response planning assumptions outlined in Section 10.4.3, the subsea dispersant injection system (as part of the SFRT package) is able to deliver approx. 60-75 m³ per day on a continuous 24 hour/ 7 day basis.

For the purpose of capability demonstration below, Woodside has shown that once the SSDI system arrives and is able to be deployed safely, sufficient capability exists to commence and continue SSDI until the well is killed (approximately day 73).

Table 4-1: Response Planning – Subsea Dispersant Injection

Subsea Dispersant Injection (SSDI)		Day	Day	Day	Day	Day	Day	Day	Week	Week	Week	Month	Month	Month	Month
		1	2	3	4	5	6	7	2	3	4	2	3	4	5
	Oil Release Rate – m ³	143	143	143	143	143	143	143	1,001	1,001	1,001	4,004	4,004	0	0
A	Capability available - m ³														
A1	Predicted oil volume treated by SSDI (lower)	0	0	0	0	0	0	0	3,600	12,600	12,600	50,400	50,400	0	0
A2	Predicted oil volume treated by SSDI (upper)	0	0	0	0	0	4,500	4,500	31,500	31,500	31,500	126,000	126,000	0	0
A3	Dispersant application volume (lower)	0	0	0	0	0	0	0	120	420	420	1,680	1,680	0	0
A4	Dispersant application volume (upper)	0	0	0	0	0	75	75	525	525	525	2,100	2,100	0	0
B	Subsea release oil remaining - m ³														
B1	Predicted oil volume not treated (lower)	143	143	143	143	143	143	143	0	0	0	0	0	0	0
B2	Predicted oil volume not treated (upper)	143	143	143	143	143	0	0	0	0	0	0	0	0	0

A1 and A2 – the upper and lower volumes in m³ that subsea dispersant injection may be able to treat (based on response planning assumptions in Section 10.4.3 and volumes in A3 and A4). These are based on a 1:50 ratio for A1 and a 1:100 ratio for A2

A3 and A4 – the upper and lower volumes in m³ of the associated dispersant injection volumes for A1 and A2

B1 and B2 – the upper and lower volumes in m³ of the subsea oil that is not treated on each day, following predicted treatment outlined in A1 and A2 (oil released - predicted oil volume treated (R1-A1))

4.2 Subsea Dispersant Injection – Control Measure Options Analysis

4.2.1 Alternative control measures

Alternative Control Measures considered					
<i>Alternative, including potentially more effective and/or novel control measures are evaluated as replacements for an adopted control</i>					
Option considered	Environmental consideration	Feasibility	Approx. Cost	Assessment conclusions	Implemented
Dedicated, contracted ISV for SSDI mobilisation and deployment (based in Australia)	<p>Reducing the mobilisation and deployment time of the SSDI through vessel standby/pre-positioning is unlikely to result in a significant change in environmental benefit. Under current arrangements the SSDI system can be on location from approx. day 12 depending on ISV availability where a dedicated, contracted vessel may enable the SSDI system on location from day 10.</p> <p>Once deployed the SSDI will be utilised to increase entrainment of released oil and to ensure safe operations for surface deployment of SFRT and other surface response techniques.</p>	<p>A modified Construction vessel or vessels with suitable remote operated underwater vehicles (ROVs) is required to load, transport and deploy the SSDI system.</p> <p>The critical element in deployment of the SSDI is the availability of an appropriate ISV. Achieving a shorter mobilisation would require the vessel's work schedule to be permanently restricted so as to permit a quicker return to Exmouth, reducing the utilisation of the vessel, or the permanent retention of a dedicated ISV. Neither option is considered reasonably practicable.</p> <p>Acceleration is limited by availability of the SSDI system mobilisation and this control measure is not expected to reduce the estimated extent and magnitude of impact from a well release on receptor locations compared with the proposed mobilisation plan using pre-identified or vessels available through frame agreements.</p>	A dedicated vessel on standby in Exmouth, ready to load is estimated to cost A\$20 m per annum. This is considered cost-prohibitive for the PAP.	This response strategy is not considered as a primary response and this control measure is not adopted as the cost, complexity and feasibility is considered disproportionate to the minor environmental benefit that might be gained	No
Shared, contracted ISV for SSDI mobilisation and deployment (shared between Titleholders)	<p>Reducing the mobilisation and deployment time of the SSDI through vessel standby/pre-positioning is unlikely to result in a significant change in environmental benefit. Under current arrangements the SSDI system can be on location from approx. day 12 depending on ISV availability where a dedicated, contracted vessel may enable the SSDI system on location from day 10.</p> <p>Once deployed the SSDI will be utilised to increase entrainment of released oil and to ensure safe operations for surface deployment of SFRT and other surface response techniques.</p>	<p>A modified Construction vessel or vessels with suitable remote operated underwater vehicles (ROVs) is required to load, transport and deploy the SSDI system.</p> <p>The critical element in deployment of the SSDI is the availability of an appropriate ISV. Achieving a shorter mobilisation would require the vessel's work schedule to be permanently restricted so as to permit a quicker return to Exmouth, reducing the utilisation of the vessel, or the permanent retention of a dedicated ISV. Neither option is considered reasonably practicable.</p> <p>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.</p> <p>Additionally, acceleration is limited by availability of the SSDI system mobilisation and this control measure is not expected to reduce the estimated extent and magnitude of impact from a well release on receptor locations compared with the proposed mobilisation plan using pre-identified or vessels available through frame agreements.</p>	A dedicated vessel on standby in Exmouth, ready to load is estimated to cost A\$20 m per annum. As a shared cost across a range of titleholders, this may be approximately A\$2 m each. This is considered cost-prohibitive for the PAP.	This response strategy is not considered as a primary response and this control measure is not adopted as the cost, complexity and feasibility is considered disproportionate to the minor environmental benefit that might be gained by 1-2 days of additional subsea dispersant injection.	No

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	Approx. Cost	Assessment conclusions	Implemented
Pre-identifying/ contracting vessels through Frame Agreements for SSDI loading and operations	Ensuring the mobilisation and deployment time of the SSDI through vessel availability/ contracting strategy is likely to result in a moderate environmental benefit as using these arrangements, the SSDI will be on location from approximately Day 12.	<p>Achieving a shorter mobilisation would require the vessel being on standby with limited duties to permit a faster return to Exmouth and this is not considered reasonably practical.</p> <p>Woodside has established frame agreements with vessel providers and will track availability of similar vessels. These options are both considered reasonably practicable.</p>	Associated cost of implementation is minimal to the environmental benefit gained.	This control measure is adopted as the costs and complexity are not considered disproportionate	Yes

				to any environmental benefit that might be realised.	
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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	Approx. Cost	Assessment conclusions	Implemented
No reasonably practical improved control measures identified.					

4.3 Selected control measures

Following review of alternative, additional and improved control measures, the following controls were selected for implementation for the activity.

- Alternative
 - None selected
- Additional
 - Pre-identifying / contracting vessels through Frame Agreements for SSDI loading and operations
- Improved
 - None selected

5 Shoreline Protection

5.1 Shoreline Protection & Deflection – ALARP Assessment

Alternative, Additional and Improved options have been identified and assessed against the base capability described in 10.4.4 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.

5.2 Existing Capability – Shoreline Protection and Deflection

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/ restocking provisions, and other similar logistic and operational limitation that are beyond Woodside’s direct control.

5.3 Response Planning: Stybarrow-7 loss of well containment– Shoreline Protection and Deflection

Planning for shoreline protection is based upon identification of Response Protection Areas (RPAs) from deterministic modelling and the logistics associated with deploying protection at these locations. The response planning scenarios indicate that this would require effective mobilisation to priority shorelines and maintenance of protection until operational monitoring confirms that the locations were no longer at risk. Woodside has identified the RPAs from deterministic modelling results provided from specific scenarios.

The control measures selected provide capability to mobilise shoreline protection equipment by Day 2 (if required). Deterministic modelling for the first shoreline contact at response thresholds (>100 g/m²) for CS-01 is at Exmouth on Day 5 (26.1 m³). Deterministic modelling for the largest spread and volumes ashore predicts all other contact at feasible response thresholds in Months 2 to 3. There is no shoreline impact predicted at threshold for CS-02. The existing capability is, therefore, considered sufficient to mobilise and deploy protection at RPAs prior to hydrocarbon accumulation, guided by predictive modelling, direct observation/surveillance and remote sensing methods (OM01, OM02 and OM03) employed from the outset of a spill to track the oil and assess receptors at risk. This will then trigger the undertaking of pre-emptive assessments of sensitive receptors at risk (OM04) if required. OM04 would only be undertaken in liaison with WA DoT. Tactical response plans exist for many of the RPAs identified.

Table 5-1 below outlines the capability required (number of RPAs predicted to be impacted) against the capability available (number of shoreline protection and deflection operations that can be mobilised and deployed). As can be seen from the table below. Woodside’s capability exceeds the response planning need identified for shoreline protection and deflection operations.

Table 5-1: Response Planning – Shoreline Protection and Deflection

Shoreline Protection & Deflection (SPD)		Day	Week	Week	Week	Month	Month	Month	Month						
		1	2	3	4	5	6	7	2	3	4	2	3	4	5
	RPAs impacted by maximum accumulated volume – Stybarrow-7 (CS-01)	0	0	0	0	1	0	0	0	0	0	26	5	0	0
A	Capability Required (number of operations)														
A1	SPD operations required – based on resources-at-risk (lower)	0	0	0	0	1	0	0	0	0	0	26	5	0	0
A2	SPD operations required – based on resources-at-risk (upper)	0	0	0	0	2	0	0	0	0	0	52	10	0	0
B	Capability Available (operations per day)														
B1	SPD operations available – per day (lower)	0	1	1	2	2	4	6	70	70	70	330	330	330	330
B2	SPD operations available – per day (upper)	1	2	3	4	6	8	10	84	84	84	336	336	336	336
C	Capability Gap (operations per day)														
C1	SPD operations gap – per day (lower)	0	0	0	0	0	0	0	0	0	0	0	0	0	
C2	SPD operations gap – per day (upper)	0	0	0	0	0	0	0	0	0	0	0	0	0	

A1 and A2 – the upper and lower number of shoreline protection operations required based on the number of Response Protection Areas contacted at the maximum accumulated volume.

B1 and B2 – the upper and lower number of shoreline protection and deflection operations available (based on response planning assumptions in Section 10.4.5).

C1 and C2 – the gap between the upper and lower number of shoreline protection and deflection operations required in A1 compared to the operations available in B1 and B2

Pre-emptive mobilisation of equipment and personnel would commence as soon as practicable prior to oil contact. Additional resources would be mobilised depending on the scale of the event to increase the length or number of shorelines being protected.

A shoreline protection and deflection response would be launched and additional TRPs drafted only when operational monitoring (OM02 and OM03) and modelling (OM01) indicate that contact could occur at RPA(s) within 14 days. The outputs from the monitoring will inform the need for and/or direct any additional response techniques and, additionally, if/when the spill enters State Waters and control of the incident passes to WA DoT.

5.4 Shoreline Protection and Deflection – Control Measure Options Analysis

5.4.1 Alternative Control Measures

Alternative Control Measures Considered					
<i>Alternative, including potentially more effective and/or novel control measures are evaluated as replacements for an adopted control</i>					
Option considered	Environmental consideration	Feasibility	Approximate cost	Assessment conclusions	Implemented
Pre-position equipment at Response Protection Areas (RPAs)	Additional environmental benefit of having equipment prepositioned is considered minor. Equipment is currently available to protect RPAs and additional shorelines, within estimated minimum times until shoreline contact at RPAs, enabling mobilisation of the selected delivery options.	<p>The incremental environmental benefit associated with these delivery options is considered minor and unlikely to reduce the environmental consequence of a significant hydrocarbon release beyond the adopted delivery options. Considering the highly unlikely nature of a significant hydrocarbon release and the costs and organisational complexity associated with prepositioning and maintenance of equipment, the sacrifice is considered disproportionate to the limited environmental benefit that might be realised.</p> <p>Furthermore, these options would conflict with the mutual aid philosophy being adopted under the selected delivery options.</p> <p>The selected delivery options for shoreline protection and deflection meet the relevant objectives of this control measure and do not require prepositioned or additional equipment in Exmouth.</p>	Total cost to preposition protection/ deflection packages at each site of potential impact would be approx. A\$6,100 per package per day.	This option is not adopted as the existing capability meets the need.	No

5.4.2 Additional Control Measures

Additional Control Measures Considered					
<i>Additional control measures are evaluated in terms of them reducing an environmental impact or an environmental risk when added to the existing suite of control measures</i>					
Option considered	Environmental consideration	Feasibility	Approximate cost	Assessment conclusions	Implemented
Supplemented stockpiles of equipment in Exmouth to protect additional shorelines	<p>Additional equipment would increase the number of receptor areas that could be protected from hydrocarbon contact. However, current availability of personnel and equipment is capable of protecting up to 30 km of shoreline, commensurate with the scale and progressive nature of shoreline impact. Additional stocks would be made available from international sources if long term up scaling were necessary.</p> <p>A reduction in environmental consequence from a 'B' rating (serious long-term impacts) is unlikely to be realised as a result of having more equipment available locally.</p>	<p>The incremental environmental benefit associated with these delivery options is considered minor and unlikely to reduce the environmental consequence of a significant hydrocarbon release beyond the adopted delivery options. Considering the highly unlikely nature of a significant hydrocarbon release and the costs and organisational complexity associated with prepositioning and maintenance of equipment, the sacrifice is considered disproportionate to the limited environmental benefit that might be realised.</p> <p>Furthermore, these options would conflict with the mutual aid philosophy being adopted under the selected delivery options.</p> <p>The selected delivery options for shoreline protection and deflection meet the relevant objectives of this control measure and do not require prepositioned or additional equipment in Exmouth.</p>	Total cost for purchase supplemental protection and deflection equipment would be approx. A\$455,000 per package.	This option is not adopted as the existing capability meets the need.	No

Additional trained personnel	The level of training and competency of the response personnel ensures the shoreline protection and deflection operation is delivered with minimum secondary impact to the environment. Training additional personnel does not provide an increased environmental benefit.	Additional personnel required to sustain an extended response can be sourced through the Woodside People & Global Capability Surge Labour Requirement Plan . Additional personnel sourced from contracted OSRO's (OSRL/AMOSC) to manage other responders. Response personnel are trained and exercised regularly in shoreline response techniques and methods. All personnel involved in a response will receive a full operational/safety brief prior to commencing operations.	Additional Specialist Personnel would 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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5.4.3 Improved Control Measures

Improved Control Measures considered					
<i>Improved control measures are evaluated for improvements they could bring to the effectiveness of adopted control measures in terms of functionality, availability, reliability, survivability, independence and compatibility</i>					
Option considered	Environmental consideration	Feasibility	Approximate cost	Assessment conclusions	Implemented
Faster response/ mobilisation time	Given modelling does not predict any floating oil at offshore response threshold (>50 g/m ²) and initial shoreline contact at response threshold (>100 g/m ²) is predicted on Day 5, Woodside considers that there is sufficient time for deployment of protection and deflection operations prior to impact.	Response teams, trained personnel, contracted oil spill response service providers, government agencies and the associated mitigation equipment required to enact an initial protection and deflection response will be available for mobilisation within 24-48 hrs of activation. Additional equipment from existing stockpiles and oil spill response service providers can be on scene within days. Hydrocarbons are predicted to accumulate at response threshold (100 g/m ²) on Day 5 at Exmouth, therefore allowing enough time to re-locate existing equipment, personnel and other resources to the most appropriate areas.	The cost of establishing a local stockpile of new mitigation equipment (including protection and deflection boom) closer to the expected hydrocarbon stranding areas is not commensurate with the need.	This option is not adopted as the existing capability meets the need.	No

5.5 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 Shoreline Clean-Up

6.1 Shoreline Clean-up – ALARP Assessment

Alternative, Additional and Improved options have been identified and assessed against the base capability described in Section 10.4.5 of the Environment Plan 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 Existing Capability – Shoreline Clean-up

Woodside’s existing level of capability is based on internal and third-party resources that are available 24 hours per day, 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, re-fuelling/re-stocking provisions, and other similar logistic and operational limitation that are beyond Woodside’s direct control.

6.1.2 Response planning: Stybarrow-7 (CS-01) – Shoreline Clean-up

Woodside has assessed existing capability against the WCCS and has identified that the range of techniques provide an ongoing approach to shoreline clean-up at identified RPAs. Woodside’s capability can cover all required shoreline clean-up operations for the PAP.

Deterministic modelling for the first shoreline contact above feasible response thresholds (>100 g/m²) for CS-01 is at Exmouth on Day 5 (26.1 m³). Deterministic modelling for the largest volumes ashore predicts all other contact at feasible response thresholds in Months 2 to 4. The largest volumes predicted to accumulate ashore are at Ashburton on day 40 (225.6 m³) and Exmouth on day 58 (297.1 m³). There is no shoreline impact predicted at threshold for CS-02.

These figures have been combined into a single response planning need scenario that provides a worst-case scenario for planning purposes as outlined below. Given all other shoreline contact scenarios identified from deterministic modelling are longer time frames and lesser volumes, demonstration of capability against this need will ensure Woodside can meet requirements for any other outcome. Woodside is satisfied that the current capability is managing risks and impacts to ALARP.

In the event of a real spill, predictive modelling, direct observation/surveillance and remote sensing methods (OM01, OM02 and OM03) will be employed from the outset of a spill to track the oil real-time and assess receptors at risk of impact. This will then trigger the undertaking of pre-emptive assessments of sensitive receptors at risk (OM04) and shoreline assessments (OM05) to establish the extent and distribution of oiling and thus direct any shoreline clean-up operations. OM04 and OM05 would only be undertaken in liaison with WA DoT.

Due to the timeframe of predicted accumulation for shoreline clean-up, and deterministic modelling predicting ongoing stranding after this peak, this response may not be as time critical compared to other response techniques and the scale will depend on the success of other techniques preventing oiling occurring. Further, the potential scale and remoteness of a response coupled with the uncertainty of which locations will be affected precludes the stockpiling or repositioning of equipment specific to shorelines. The most significant constraint is accommodation and transport of personnel in the Dampier region to undertake clean-up operations and to manage wastes generated during the response effort. From previous assessment of facilities in the Dampier region, Woodside estimates that current accommodation can cater for a range of 500-700 personnel per day.

Woodside has identified several options which could be mobilised to achieve defined response objectives. Evaluation considers the benefit in terms of the time to respond and the scale of response made possible by each option. The evaluation of possible control measures is summarised in Section 6.2

Table 6-1: Response planning – shoreline clean-up

Shoreline Clean-up (Phase 2)		Day	Week	Week	Week	Month	Month	Month	Month							
		1	2	3	4	5	6	7	2	3	4	2	3	4	5	
	Shoreline accumulation (above 100g/m ²) - m ³	0	0	0	0	26	0	0	0	0	0	623	587	37	0	
	Oil remaining on shoreline following response operations - m ³	0	0	0	0	0	10	4	0	0	0	0	249	85	0	
A	Capability Required (number of operations)															
A1	Shoreline clean-up operations required (lower)	0	0	0	0	3	1	0	0	0	0	62	84	12	0	
A2	Shoreline clean-up operations required (upper)	0	0	0	0	4	1	1	0	0	0	125	167	24	0	
B	Capability Available (number of operations)															
B1	Shoreline clean-up operations available - Stage 2 - Manual (lower)	0	1	3	5	8	12	15	105	105	105	560	560	560	560	
B2	Shoreline clean-up operations available - Stage 2 - Manual (upper)	0	2	5	8	10	15	20	140	140	140	560	560	560	560	
C	Capability Gap															
C1	Shoreline clean-up operations gap (lower)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
C2	Shoreline clean-up operations gap (upper)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

A1 and A2 – the number of shoreline clean-up operations required based on the hydrocarbon volumes ashore above 100 g/m².

B1 and B2 – the upper and lower number of shoreline clean-up operations available (based on response planning assumptions in Section 10.4.5).

C1 and C2 – the gap between the upper and lower number of shoreline clean-up operations required in A1 and A2 compared to the operations available in B1 and B2.

6.2 Shoreline Clean-up – Control measure options analysis

6.2.1 Alternative Control Measures

Alternative Control Measures Considered					
<i>Alternative, including potentially more effective and/or novel control measures are evaluated as replacements for an adopted control</i>					
Option considered	Environmental consideration	Feasibility	Approximate cost	Assessment conclusions	Implemented
No reasonably practical alternative control measures identified.					

6.2.2 Additional Control Measures

Additional Control Measures Considered					
<i>Additional control measures are evaluated in terms of them reducing an environmental impact or an environmental risk when added to the existing suite of control measures</i>					
Option considered	Environmental consideration	Feasibility	Approximate cost	Assessment conclusions	Implemented
Additional trained personnel available	The level of training and competency of the response personnel ensures the shoreline clean-up operation is delivered with minimum secondary impact to the environment. Training additional personnel does not provide an increased environmental benefit.	Additional personnel required to sustain an extended response can be sourced through the Woodside People & Global Capability Surge Labour Requirement Plan . Additional personnel sourced from contracted OSROs (OSRL/AMOSC) to manage other responders Response personnel are trained and exercised regularly in shoreline response techniques and methods. All personnel involved in a response will receive a full operational/safety brief prior to commencing operations.	Additional Specialist Personnel would cost A\$2,000 per person per day.	This option is not adopted as the existing capability meets the need.	No
Additional trained personnel deployed	Maintaining a span of control of 200 competent personnel is deemed manageable and appropriate for this activity. Additional personnel conducting clean-up activities may be able to complete the clean-up in a shorter timeframe, but modelling predicts ongoing stranding of hydrocarbons over a period of weeks. Managing a smaller, targeted response is expected to achieve an environmental benefit through ensuring the shoreline clean-up response is suitable and scalable for the shoreline substrate and sensitivity type. This will ensure there is no increased impact from the shoreline clean-up through the presence of unnecessary personnel and equipment.	The figure of 200 personnel is broken down to include on 1-2 x Trained Supervisors managing 8-10 personnel/labour hire responders. This allows for multiple operational teams to operate along the extended shoreline at different locations. Typically, an additional 30-50% of the tactical workforce is required to support ongoing operations including On-Scene control, logistics, safety/medical/welfare and transport. Personnel on site will include members with the appropriate specialties to ensure an efficient shoreline clean-up. Additional personnel are available through existing contracts with oil spill response organisations, labour hire organisations and environmental panel contractors	Additional Specialist Personnel would cost A\$2,000 per person per day.	This option is not adopted as the existing capability meets the need.	No

6.2.3 Improved Control Measures

Improved Control Measures considered					
<i>Improved control measures are evaluated for improvements they could bring to the effectiveness of adopted control measures in terms of functionality, availability, reliability, survivability, independence and compatibility</i>					
Option considered	Environmental consideration	Feasibility	Approximate cost	Assessment conclusions	Implemented

<p>Faster response/ mobilisation time</p>	<p>Given modelling predicts initial shoreline contact at response threshold (>100 g/m²) is predicted on Day 5, Woodside considers that there is sufficient time for deployment of clean-up operations prior to impact.</p>	<p>Response teams, trained personnel, contracted oil spill response service providers, government agencies and the associated mitigation equipment required to enact an initial protection and deflection response will be available for mobilisation within 24-48 hrs of activation.</p> <p>Additional equipment from existing stockpiles and oil spill response service providers can be on scene within days.</p> <p>Hydrocarbons are predicted to accumulate at response threshold (100 g/m²) on Day 5 at Exmouth, therefore allowing enough time to re-locate existing equipment, personnel and other resources to the most appropriate areas.</p>	<p>The cost of establishing a local stockpile of new shoreline clean-up equipment closer to the expected hydrocarbon stranding areas is not commensurate with the need.</p>	<p>This option is not adopted as the existing capability meets the need.</p>	<p>No</p>
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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

7 Scientific Monitoring

Alternative, Additional and Improved options have been identified and assessed against the base capability described in Section 10.4.7 of the Environment Plan 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.

7.1 Existing Capability – Scientific Monitoring

Woodside’s existing level of capability is based on internal and third-party resources that are available 24 hours, 7 days per week. The capability presented below is displayed as ranges to incorporate operational factors such as weather, crew/vessel/aircraft/vehicle location and duties, survey or classification society inspection requirements, overflight/port/quarantine permits and inspections, crew/pilot duty and fatigue hours, re-fuelling/re-stocking provisions, and other similar logistic and operational limitations that are beyond Woodside’s direct control.

7.2 Scientific Monitoring – Control Measure Options Analysis

7.2.1 Alternative Control Measures

Alternative Control Measures considered					
<i>Alternative, including potentially more effective and/or novel control measures are evaluated as replacements for an adopted control</i>					
Ref	Control Measure Category	Option considered	Implemented	Environmental Consideration	Feasibility / Cost
SM01	System	Analytical laboratory facilities closer to the likely spill affected area	No	SM01 water quality monitoring requires water samples to be transported to National Association of Testing Authorities (NATA) rated laboratories in Perth or interstate. 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). The environmental consideration of having access to suitable laboratory facilities in Exmouth or 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).	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.
SM01	System	Dedicated contracted SMP vessel (exclusive to Woodside)	No	Would provide faster mobilisation time of scientific monitoring resources, environmental benefit associated with faster mobilisation time would be minor compared to selected options.	Chartering and equipping additional vessels on standby for scientific monitoring has been considered. The option is reasonably practicable but the sacrifice (charter costs and organisational complexity) is significant, particularly when compared with the anticipated availability of vessels and resources within in the required timeframes. The selected delivery provides capability to meet the scientific monitoring objectives, including collection of pre-emptive data where baseline knowledge gaps are identified for receptor locations where spill predictions of time to contact are >10 days. The effectiveness of this alternative control (weather dependency, availability and survivability) is rated as very low The cost and organisational complexity of employing a dedicated response vessel is considered disproportionate to the potential environmental benefit by adopting these delivery options.

7.2.2 Additional Control Measures

Additional Control Measures considered					
<i>Additional control measures are evaluated in terms of them reducing an environmental impact or an environmental risk when added to the existing suite of control measures</i>					
Ref	Control Measure Category	Option considered	Implemented	Environmental Consideration	Feasibility / Cost
SM01	System	Determine baseline data needs and provide implementation plan in the event of an unplanned hydrocarbon release	Yes	Address resourcing needs to collect post spill (pre-contact) baseline data as spill expands in the event of a loss of well containment from the PAP activities.	Woodside relies on existing environmental baseline for receptors which have predicted hydrocarbon contact (above environment threshold) <10 days and acquiring pre-emptive data in the event of a hydrocarbon spill from the PAP activities based on receptors predicted to have hydrocarbon contact >10 days. Ensure there is appropriate baseline for key receptors for all geographic locations that are potentially impacted <10 days of spill event, where practicable. Address resourcing needs to collect pre-emptive baseline as spill expands in the event of a loss of well control (LOWC) and a surface release of marine diesel from the activities.

7.2.3 Improved Control Measures

Improved Control Measures considered – No reasonably practicable improved Control Measures identified.

7.3 Selected Control Measures

Following review of alternative, additional and improved control measures as outlined above, the following controls were selected for implementation for the PAP.

- Alternative
 - None selected
- Additional
 - Determine baseline data needs and activate SMPs for any identified PBAs in the event of an unplanned hydrocarbon release
- Improved
 - None selected

7.4 Operational Plan

Key actions from the Scientific Monitoring Program Operational Plan for implementing the response are outlined in Table 7-1.

Table 7-1: Scientific monitoring program operational plan actions

Responsibility	Action
Activation	
CIMT Planning (ICC Planning – Environment Unit)	Mobilise SMP Lead/Manager and SMP Coordinator to the ICC Planning function.
CIMT Planning (CIMT Planning – Environment Unit) (SMP Lead/Manager and SMP Coordinator)	Constantly assess all outputs from OM01, OM02 and OM03 (Section 10.4.2 of the Environment Plan) to determine receptor locations and receptors at risk. Confirm sensitive receptors likely to be exposed to hydrocarbons, timeframes to specific receptor locations and which SMPs are triggered. Review baseline data for receptors at risk.
CIMT Planning (CIMT Planning – Environment Unit) (SMP Lead/Manager and SMP Coordinator)	SMP co-ordinator stands up the SMP contractor. Stands up subject matter experts, if required.
CIMT Planning (CIMT Planning – Environment Unit) (SMP Lead/Manager SMP Coordinator, SMP standby contractor SMP manager)	Establish if, and where, pre-contact baseline data acquisition is required. Determine practicable baseline acquisition program based on predicted timescales to contact and anticipated SMP mobilisation times. Determine scope for preliminary post-contact surveys during the Response Phase. Determine which SMP activities are required at each location based on the identified receptor sensitivities.
CIMT Planning (CIMT Planning – Environment Unit) (SMP Lead/Manager, SMP Coordinator, SMP	If response phase data acquisition is required, stand up the contractor SMP teams for data acquisition and instruct them to standby awaiting further details for mobilisation from the ICC.

Stybarrow Well Plug and Abandonment Environment Plan

Responsibility	Action
standby contractor SMP manager)	
CIMT Planning (CIMT Planning – Environment Unit) (SMP Lead/Manager, SMP Coordinator, SMP standby contactor SMP manager)	SMP contractor, SMP standby contractor to prepare the Field Implementation Plan. Prepare and obtain sign-off of the Response Phase SMP work plan and Field Implementation Plan. Update the IAP.
CIMT Planning (CIMT Planning – Environment Unit) (SMP Lead/Manager, SMP Coordinator SMP standby contactor SMP manager)	Liaise with ICC Logistics, and determine the status and availability of aircraft, vessels and road transportation available to transport survey personnel and equipment to point of departure. Engage with SMP standby contactor SMP Manager and ICC Logistics to establish mobilisation plan, secure logistics resources and establish ongoing logistical support operations, including: <ul style="list-style-type: none"> • Vessels, vehicles and other logistics resources • Vessel fit-out specifications (as • Detailed in the Scientific Monitoring Program Operational Plan • Equipment storage and pick-up locations • Personnel pick-up/airport departure locations • Ports of departure • Land based operational centres and forward operations bases Accommodation and food requirements.
CIMT Planning (CIMT Planning – Environment Unit) (SMP Lead/Manager, SMP Coordinator, SMP standby contactor (SMP manager)	Confirm communications procedures between Woodside SMP team, SMP contractor SMP Duty Manager, SMP Team Leads and Operations Coordinator (ICC).
Mobilisation	
CIMT Logistics	Engage vessels and vehicles and arrange fitting out as specified by the mobilisation Plan Confirm vessel departure windows and communicate with the SMP contractor SMP Duty Manager. Agree SMP mobilisation timeline and induction procedures with the Operations Coordinator (ICC).
CIMT Logistics	Coordinate with SMP contactor SMP Duty Manager to mobilise teams and equipment according to the logistics plan and Sector induction procedures.
SMP Survey Team Leads	SMP Survey Team Leader(s) coordinate on-ground/on-vessel mobilisations and support services with the Operations Coordinator (ICC).

7.5 ALARP and Acceptability Summary

ALARP and Acceptability Summary	
Scientific Monitoring	
ALARP Summary	All known reasonably practicable control measures have been adopted
	X Determine baseline data needs and activate SMPs for any identified PBAs in the event of an unplanned hydrocarbon release
	No reasonably practical additional, alternative, and/or improved control measure exists
<p>The resulting scientific monitoring capability has been assessed against the worst-case credible spill scenarios. The range of strategies provide an ongoing approach to monitoring operations to assess and evaluate the scale and extent of impacts.</p> <p>All known reasonably practicable control measures have been adopted with the cost and organisational complexity of these options determined to be Moderate and the overall delivery effectiveness considered Medium. The SMP's main objectives can be met, with the addition of one alternative control measures to provide further benefit.</p>	
Acceptability Summary	<ul style="list-style-type: none"> • The control measures selected for implementation manage the potential impacts and risks to ALARP. • In the event of a hydrocarbon spill for the PAP, the control measures selected, meet or exceed the requirements of Woodside Management System and industry best-practice. • Throughout the PAP, relevant Australian standards and codes of practice will be followed to evaluate the impacts from a loss of well containment. • The level of impact and risk to the environment has been considered with regard to the principles of Environmentally Sustainable Development (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 the worst-case credible case scenarios, and uncertainty has not been used as a reason for postponing control measures.
<p>On the basis from the impact assessment above and in Section 8 of the EP Woodside considers the adopted controls discussed manage the impacts and risks associated with implementing scientific monitoring activities to a level that is ALARP and acceptable.</p>	

8 Oiled Wildlife Response – ALARP Assessment

Alternative, Additional and Improved options have been identified and assessed against the base capability described in Section 10.4.8 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.

8.1 Existing Capability – Wildlife Response

Woodside’s exiting level of capability is based on internal and third-party resources that are available 24 hours per day, 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.

8.2 Oiled Wildlife Response – Control Measure Options Analysis

8.2.1 Alternative Control Measures

Alternative Control Measures Considered					
<i>Alternative, 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

8.2.2 Additional Control Measures

Additional Control Measures Considered					
<i>Additional control measures are evaluated in terms of them reducing an environmental impact or an environmental risk when added to the existing suite of control measures</i>					
Option considered	Environmental consideration	Feasibility	Approximate cost	Assessment conclusions	Implemented
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 threshold concentrations with offshore waters is expected on day 12 (CS-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 operational monitoring.</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. The potential environmental benefit of training additional personnel is expected to be low.	Current numbers meet the needs required and additional personnel are available through existing contracts with oil spill response organisations and environmental panel contractors. Additional equipment and facilities would be required to support ongoing response, depending on the scale of the event and the impact to wildlife. Materials for holding facilities, portable pools, enclosures and rehabilitation areas would be sourced as required.	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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8.2.3 Improved Control Measures

Improved Control Measures considered					
<i>Improved control measures are evaluated for improvements they could bring to the effectiveness of adopted control measures in terms of functionality, availability, reliability, survivability, independence and compatibility</i>					
Option considered	Environmental consideration	Feasibility	Approximate cost	Assessment conclusions	Implemented
Faster mobilisation time for wildlife response	Response time is limited by specialist personnel mobilisation time. Current timing is sufficient for expected first shoreline contact. This control measure provides increased effectiveness through faster mobilisation of specialists. However, no significant net environmental benefit is expected due to shoreline stranding times.	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.	Wildlife response packages to preposition at vulnerable sites identified through the deterministic modelling cost A\$700 per package per day. The cost of having dedicated equipment and personnel available to respond faster is considered disproportionate to the environmental benefit.	This option is not adopted as the existing capability meets the need.	No

8.3 Selected control measures

Following review of alternative, additional and improved control measures as outlined above, the following controls were selected for implementation for the PAP.

- Alternative
 - None selected
- Additional
 - None selected
- Improved
 - None selected

9 Waste Management

Alternative, Additional and Improved options have been identified and assessed against the base capability described in Section 10.4.10 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.

9.1 Existing Capability – Waste Management

Woodside’s exiting level of capability is based on internal and third-party resources that are available 24 hours per day, 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/restocking provisions, and other similar logistic and operational limitation that are beyond Woodside’s direct control.

9.2 Waste Management – Control Measure Options Analysis

9.2.1 Alternative Control Measures

Alternative Control Measures Considered					
<i>Alternative, 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.					

9.2.2 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

9.2.3 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 and transport will allow continuous response operations to occur.	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

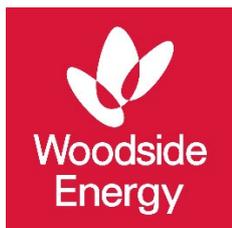
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9.3 Selected control measures

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

Appendix F. Relevant Persons Consultation



Appendix F – Stybarrow Plug and Abandonment Environment Plan

Date: July 2023

Revision: 0

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Table 1: Consultation Report with Relevant Persons or Organisations

Commonwealth and WA State Government Departments or Agencies – Marine		
Australian Border Force (ABF)		
<p>Woodside considers it has discharged its obligations under regulation 11A by providing consultation materials and conducting various forms of engagement as set out in Section 5.8 and below.</p> <p>Summary of information provided and record of consultation:</p> <ul style="list-style-type: none"> On 27 May 2022, Woodside emailed ABF advising of the proposed activity (Appendix F, reference 1.18) and provided a Consultation Information Sheet On 16 February 2023, Woodside emailed ABF advising of the proposed activity (Appendix F, reference 2.2) and provided a Consultation Information Sheet. On 10 March 2023, Woodside sent a reminder email to ABF advising of the proposed activity (Appendix F, reference 2.2.1) and provided a Consultation Information Sheet. 		
Summary of Feedback, Objection or Claim	Woodside Energy’s Assessment of Merits of Feedback, Objection or Claim and its Response	Environment Plan Controls
No feedback, objections or claims received despite follow up.	Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 11.6.4).	Woodside has addressed maritime security-related issues in Section 6 of this EP based on previous offshore activities. No additional measures or controls are required.
Australian Fisheries Management Authority (AFMA)		

Woodside considers it has discharged its obligations under regulation 11A by providing consultation materials and conducting various forms of engagement as set out in Section 5.8 and below.

Summary of information provided and record of consultation:

- On 27 May 2022, Woodside emailed AFMA advising of the proposed activity (Appendix F, reference 1.3) and provided a Consultation Information Sheet.
- On 1 June 2022, AFMA responded advising that it had no specific comment on the proposal and that it is important to consult with all fishers who have entitlements to fish within the proposed area, which could be done through the relevant fishing industry associations or directly with fishers who hold entitlements in the area. AFMA also provided contact details for fishery associations, as well as for obtaining individual contact details for licence holders.
- On 27 July 2022, Woodside responded and confirmed that it had provided information to the Western Deepwater Trawl Fishery as well as representative organisations and licence holders as per AFMA contact details.
- On 16 February 2023, Woodside emailed AFMA advising of the proposed activity (Appendix F, reference 2.19) and provided a Consultation Information Sheet.
- On 10 March 2023, Woodside sent a reminder email to AFMA advising of the proposed activity (Appendix F, reference 2.19.1) and provided a Consultation Information Sheet.
- On 27 March 2023, AFMA responded advising that it has no specific comment on the proposal and that it is important to consult with all fishers who have entitlements to fish within the proposed area, which can be done through the relevant fishing industry associations or directly with fishers who hold entitlements in the area. AFMA also provided contact details for fishery associations, as well as for obtaining individual contact details for licence holders.
- On 2 April 2023, Woodside responded and thanked AFMA for its feedback and confirmed that it had provided information to relevant fishery licence holders as well as representative organisations on behalf of Commonwealth fishery licence holders who have entitlements to fish within the proposed area.

Summary of Feedback, Objection or Claim	Woodside Energy’s Assessment of Merits of Feedback, Objection or Claim and its Response	Environment Plan Controls
<p>AFMA has requested Woodside consult with operators who have entitlements to fish within the proposed area.</p>	<p>Woodside has addressed AFMA’s feedback, including confirming that Woodside had provided information to relevant fishery licence holders as well as representative organisations on behalf of Commonwealth fishery licence holders who have entitlements to fish within the proposed area.</p> <p>Woodside has provided consultation information to AFMA, DAFF - Fisheries, CFA, ASBTIA, Tuna Australia and individual relevant licence holders.</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 11.6.4).</p>	<p>Woodside has assessed the potential for interaction with Commonwealth and State managed commercial fisheries in Section 4.8.2 of this EP.</p> <p>Woodside will provide notifications to AFMA, DAFF – Fisheries, CFA, DPIRD, WAFIC, and relevant Fishery Licence Holders that have the potential to be directly impacted by planned activities in the Operational Area (Western Deepwater Trawl Fishery) prior to the commencement and at the end of the activity, as referenced as P.S 1.4 in this EP.</p> <p>No additional measures or controls are required.</p>

Woodside considers it has discharged its obligations under regulation 11A by providing consultation materials and conducting various forms of engagement as set out in Section 5.8 and below.

Summary of information provided and record of consultation:

- On 27 May 2022, Woodside emailed the AHO advising of the proposed activity (Appendix F, reference 1.2) and provided a Consultation Information Sheet.
- On 16 February 2023, Woodside emailed the AHO advising of the proposed activity (Appendix F, reference 2.15) and provided a Consultation Information Sheet.
- On 17 February 2023, the AHO responded and acknowledged receipt of Woodside’s consultation email.
- On 15 March 2023, Woodside sent a reminder email to AHO advising of the proposed activity (Appendix F, reference 2.15.1) and provided a Consultation Information Sheet.
- On 15 March 2023, AHO responded to Woodside and acknowledged receipt of Woodside’s consultation email.

Summary of Feedback, Objection or Claim	Woodside Energy’s Assessment of Merits of Feedback, Objection or Claim and its Response	Environment Plan Controls
<p>AHO acknowledged receipt of consultation emails.</p> <p>Whilst feedback has been received, there were no objections or claims.</p>	<p>Woodside notes that AHO has acknowledged receipt of consultation information.</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 11.6.4).</p>	<p>Woodside will notify the AHO no less than four working weeks before operations commence, as referenced as PS 1.3 in this EP.</p> <p>No additional measures or controls are required.</p>

Woodside considers it has discharged its obligations under regulation 11A by providing consultation materials and conducting various forms of engagement as set out in Section 5.8 and below.

Summary of information provided and record of consultation:

- On 27 May 2022, Woodside emailed AMSA advising of the proposed activity (Appendix F, reference 1.2) and provided a Consultation Information Sheet.
- On 1 June 2022, AMSA responded to Woodside requesting that AHO is contacted no less than four weeks before operations, with details relevant to operations, in order for the AHO to promulgate the appropriate Notice to Mariners. AMSA further requested that the main vessel/s notify AMSA’s Joint Rescue Coordination Centre (JRCC) for promulgation of radio-navigation warnings 24-48 hours before operations commence. JRCC will require the vessel details (including name, call sign and Maritime Mobile Service Identity (MMSI)), satellite communications details (including INMARSAT-C and satellite telephone), area of operation, requested clearance from other vessels and need to be advised when operations start and end.
 - AMSA reminded Woodside of its obligations to comply with the International Rules for Preventing Collisions at Sea (COLREGs), in particular, the use of appropriate lights and shapes to reflect the nature of operations (e.g., restricted in the ability to manoeuvre). Vessels should also ensure their navigation status is set correctly in the ship’s AIS unit.
 - AMSA provided contact details for Woodside to obtain a vessel traffic plot showing Automatic Identification System (AIS) traffic data.
- On 27 July 2022, Woodside responded to AMSA advising it would:
 - Notify the AHO no less than four weeks before operations, with details relevant to the operations in order for the AHO to promulgate the appropriate Notice to Mariners.
 - Notify AMSA’s JRCC at least 24-48 hours before operations commence, in order to promulgate radio-navigation warnings.
 - Notify AHO and the JRCC in the event of changes to intended operations.
 Woodside also noted AMSA’s feedback on the exhibition of appropriate lights and shapes and confirmed it will:
 - Comply with the International Rules for Preventing Collisions at Sea.
 - Ensure vessel navigation status is set correctly in the ship’s AIS unit.
- On 16 February 2023, Woodside emailed AMSA advising of the proposed activity (Appendix F, reference 2.15) and provided a Consultation Information Sheet.
- On 15 March 2023, Woodside sent a reminder email to AMSA advising of the proposed activity (Appendix F, reference 2.15.1) and provided shipping lane figures.

Summary of Feedback, Objection or Claim	Woodside Energy’s Assessment of Merits of Feedback, Objection or Claim and its Response	Environment Plan Controls
<p>AMSA has provided feedback and requested that:</p> <ul style="list-style-type: none"> • AHO is contacted no less than four weeks before operations commence. • AMSA requested JRCC are notified at least 24-48 hours before operations commence for promulgation or radio navigation warnings. • AMSA reminded Woodside of compliance obligations with the International Rules for Preventing Collisions at Sea (COLREGs) and provided contact details to obtain a vessel traffic plot showing Automatic Identification System (AIS) traffic data. 	<p>Woodside will contact/notify:</p> <ul style="list-style-type: none"> • The AHO no less than 4 weeks before operations commence • AMSA’s JRCC at least 24-48 hours before operations commence • Provide updates to both the AHO and AMSA on any changes. <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 11.6.4).</p>	<p>Woodside notes previous AMSA feedback for regional activities and commits to notify AMSA’s JRCC at least 24–48 hours before operations commence for each survey, as referenced as P.S 1.6 in this EP.</p> <p>Woodside will notify the AHO no less than four working weeks before operations commence, as referenced as P.S 1.3 in this EP.</p> <p>Woodside considers the measures and controls in the EP are appropriate.</p>

<p>Woodside considers it has discharged its obligations under regulation 11A by providing consultation materials and conducting various forms of engagement as set out in Section 5.8 and below.</p> <p>Summary of information provided and record of consultation:</p> <ul style="list-style-type: none"> On 27 May 2022, Woodside emailed AMSA – Marine Pollution advising of the proposed activity (Appendix F, reference 1.25) and provided a Consultation Information Sheet. On 22 February 2023, Woodside emailed AMSA – Marine Pollution advising of the proposed activity (Appendix F, reference 2.70) and provided a copy of the Stybarrow P&A Oil Pollution First Strike Plan. On 8 May 2023, Woodside sent a reminder email about the proposed activity (Appendix F, reference 2.70.1) and provided a copy of the Stybarrow P&A Oil Pollution First Strike Plan. 		
Summary of Feedback, Objection or Claim	Woodside Energy’s Assessment of Merits of Feedback, Objection or Claim and its Response	Environment Plan Controls
<p>No feedback, objections or claims received despite follow up.</p>	<p>Woodside has provided AMSA – Marine Pollution with a copy of the Oil Pollution First Strike Plan Woodside and has addressed oil pollution planning and response at Appendix D.</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 11.6.4).</p>	<p>Woodside has addressed oil pollution planning and response at Appendix D.</p> <p>No additional measures or controls are required.</p>
Department of Climate Change, Energy, the Environment and Water Agriculture (DCCEEW) / Department of Agriculture, Fisheries and Forestry (DAFF) – Biosecurity and Fisheries (formerly DAWE)		
<p>Woodside considers it has discharged its obligations under regulation 11A by providing consultation materials and conducting various forms of engagement as set out in Section 5.8 and below.</p> <p>Summary of information provided and record of consultation:</p> <ul style="list-style-type: none"> On 27 May 2022, Woodside emailed DCCEEW / DAFF advising of the proposed activity (Appendix F, reference 1.10) and provided a Consultation Information Sheet. On 16 February 2023, Woodside emailed DCCEEW / DAFF advising of the proposed activity (Appendix F, reference 2.21) and provided a Consultation Information Sheet. On 10 March 2023, Woodside sent a reminder email to DCCEEW / DAFF advising of the proposed activity (Appendix F, reference 2.21.1) and provided a Consultation Information Sheet. 		
Summary of Feedback, Objection or Claim	Woodside Energy’s Assessment of Merits of Feedback, Objection or Claim and its Response	Environment Plan Controls

<p>No feedback, objections or claims received despite follow up.</p>	<p>Woodside has provided consultation information to AFMA, DAFF - Fisheries, CFA, ASBTIA, Tuna Australia and individual relevant licence holders.</p> <p>Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 11.6.4).</p>	<p>The Environment Plan demonstrates that the proposed activities are outside the boundaries of a proclaimed Commonwealth Marine Park and identifies that there are no credible impacts to the values of any Commonwealth Marine Parks as a result of planned activities (Section 4.8). While impacts to Commonwealth Marine Parks are possible in the event of an unplanned hydrocarbon spill, Woodside considers it adopts appropriate controls to prevent a hydrocarbon spill and controls to respond in the highly unlikely event of a hydrocarbon spill, as demonstrated in Section 8.2 and Section 8.3.</p> <p>The Environment Plan demonstrates that there are no known underwater heritage sites or shipwrecks within the Petroleum Activities Area and identifies that there are no credible impacts to the values of any underwater heritage or shipwrecks as a result of planned activities (Section 4.78.1). While impacts to underwater heritage sites or shipwrecks 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 8.2 and Section 8.3.</p> <p>Vessels are required to comply with the Australian Biosecurity Act 2015, specifically the Australian Ballast Water Management Requirements (as defined under the Biosecurity Act 2015) (aligned with the International Convention for the Control and Management of Ships' Ballast Water and Sediments) to prevent introducing IMS. Vessels will be assessed and managed to prevent the introduction of invasive marine species in accordance with Woodside's Invasive Marine Species Management Plan (see Section 8.5).</p> <p>Woodside has assessed the potential for interaction with Commonwealth and State</p>
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		<p>managed commercial fisheries in Section 4.8.2 of this EP.</p> <p>Woodside will provide notifications to AFMA, DAFF – Fisheries, CFA, DPIRD, WAFIC, and relevant Fishery Licence Holders that have the potential to be directly impacted by planned activities in the Operational Area (Western Deepwater Trawl Fishery) prior to the commencement and at the end of the activity, as referenced as P.S 1.4 in this EP.</p> <p>No additional measures or controls are required.</p>
Department of Foreign Affairs and Trade (DFAT)		

Woodside considers it has discharged its obligations under regulation 11A by providing consultation materials and conducting various forms of engagement as set out in Section 5.8 and below.

Summary of information provided and record of consultation:

Woodside considers it has discharged its obligations under regulation 11A by providing consultation materials and conducting various forms of engagement as set out in **Section 5.8** and below.

Summary of information provided and record of consultation:

- On 15 March 2023, Woodside emailed DFAT advising of the proposed activity (Appendix F, reference 2.68) and provided a Consultation Information Sheet. Woodside specifically sought DFAT's input to the proposed activities in relation to:
 - Management of foreign vessels.
 - Confirmation as to whether there are any specific persons or organisations that Woodside should contact whose functions, interests or activities may be affected by the proposed activities in foreign countries.
 - Implications for oil spill planning and response in international waters.
 - Noted previous advice from DFAT on a separate EP in relation to oil spill response planning in international waters and requested confirmation that Woodside's proposed notifications meet DFAT's requirements.
- On 31 March 2023, Woodside emailed DFAT following up of the proposed activity (Appendix F, reference 2.68.1) and to request any feedback. Woodside reiterated its specific requests for DFAT's input from its initial email on 15 March 2023.
- On 19 April 2023, Woodside emailed DFAT following up of the proposed activity (Appendix F, reference 2.68.2) and to request any feedback and DFAT's specific input to Woodside's proposed activities described in its 15 March 2023 email.
- On 1 May 2023, Woodside had a phone call with DFAT to follow up on the proposed activity and request any feedback.
- On 1 May 2023, Woodside followed up the phone call with an email thanking DFAT for its time and:
 - provided information regarding consultation requirements under the OPGGS Regulations.
 - noted the potential implications for oil spill planning and response in international waters or impacts to the interests of foreign countries from unplanned activities.
 - requested advice on the best contact at DFAT to provide feedback on Woodside's consultation and provided a copy of previously provided information.
- On 1 May 2023, DFAT responded thanking Woodside for its email and provided contact details for the correct persons within DFAT to provide feedback.
- On 1 May 2023, DFAT responded thanking Woodside for its email and:
 - noted that the activities will be conducted in Australian waters and environmental management is therefore a matter for Australian domestic regulators.
 - requested Woodside submits its plans to NOPSEMA in accordance with the relevant regulations and that NOPSEMA can contact the relevant part of DFAT should this be necessary.
- On 10 May 2023, Woodside emailed DFAT to thank it for its feedback and:
 - Noted DFAT's advice that:
 - environmental management for these EPs is a matter for Australian domestic regulators;
 - Woodside should submit its plans to NOPSEMA in accordance with the relevant regulations; and
 - NOPSEMA can contact the relevant part of DFAT should this be necessary.
 - Confirmed that:

- Woodside would engage NOPSEMA with respect to DFAT's advice.
 - planned activities proposed under the proposed EP would be conducted in Australian waters.
- Woodside clarified that in the highly unlikely event of a hydrocarbon spill, modelling has indicated that the spill may traverse international waters, including a potential for hydrocarbons to accumulate on Indonesian shorelines. Therefore, these EPs may require international consultation and oil spill response requirements, prompting DFAT's functions interests or activities.
- Woodside offered a meeting with DFAT to discuss the proposed activities and Woodside's request for DFAT's input and feedback.
- Woodside reiterated its specific requests for DFAT's input from its 15 March 2023 email.
- On 10 May 2023, DFAT responded:
 - confirming it was happy to meet with Woodside and provided possible dates.
 - Noted it recognises that Woodside would like to consult with DFAT, and it would do its best to incorporate the relevant parts of the department.
 - Noted the proposed notification requirements set out in Woodside's email which included notifying AMSA and Western Australian departments as soon as possible and notifying other government departments as soon as practical after that. DFAT agreed that AMSA is the most appropriate point of contact and AMSA quickly notifies DFAT when there are maritime incidents that may have an international dimension.
- On 11 May 2023, Woodside thanked DFAT by email for the previous response and asked DFAT to nominate a preferred time for a video call to further discussions.
- On 12 May 2023, DFAT emailed Woodside proposing meeting arrangements.
- On 12 May 2023, Woodside emailed DFAT confirming meeting arrangements.
- On 24 May 2023, Woodside had a meeting with DFAT.
 - Woodside explained the change in consultation requirements for consultation on the environment that may be affected (EMBA) by planned or unplanned activities the subject of the EP and explained the EMBA which predicts that in the unlikely event of a hydrocarbon spill, the spill may traverse international waters and slick may wash up on the shoreline in Indonesia.
 - DFAT advised it would normally consider the maritime boundaries and sovereign rights within those areas and noted there are conventions on oil spill, but generally that will lead to another Department that has responsibility, for example NOPSEMA or AMSA.
 - DFAT noted there is a bilateral desk which manages Australia's relationship with Indonesia, which would work with the Embassy in Indonesia. DFAT noted it is very happy with AMSA being the contact point and agency for oil spill.
 - DFAT advised it would want to manage any sensitivities around engagement with the countries directly.
 - DFAT advised it would:
 - Check relevant treaties to confirm lead agencies.
 - Confirm Woodside's proposed notification requirements are appropriate.
 - Provide an after-hours contact within DFAT that can provide notification internally very quickly. Noted there is a single entry point into DFAT and that part of DFAT can send information internally to assess.
 - Woodside provided an overview of the proposed activities.
 - DFAT queried what time period Woodside's hydrocarbon spill modelling covers.
 - Woodside advised it works out what the worst-case scenario is if oil is free flowing, so it assumes there is no response and then models a minimum of 100 runs based on different weather patterns throughout the year which would impact where the oil would go.
- On 30 May 2023, DFAT emailed Woodside thanking it for the meeting and:

- Advised it had reviewed the treaties to which Australia is party and which relate to oil spills and oil spill response and confirmed that AMSA is the correct contact point.
- Advised AMSA would normally contact DFAT when a maritime incident involves another country.
- Advised that should Woodside wish to contact DFAT in an emergency, it can email the Global Watch Office (globalwatchoffice@dfat.gov.au) which is monitored 24/7 and can contact the relevant part of DFAT for a response.
- Provided contact information for DFAT agencies in Timor-Leste and Indonesia.
- On 2 June 2023, Woodside responded thanking DFAT for its confirmation and providing the contact details for relevant officials, which Woodside would reach out to directly if necessary, as part of EP preparation.
- On 15 June 2023, Woodside emailed the DFAT agency contacts provided and:
 - provided a Consultation Information Sheet for the proposed activities.
 - advised the proposed activities could potentially have an environmental consequence beyond Australia’s jurisdiction, in the highly unlikely event of a hydrocarbon release.
 - noted the Australian Government is signatory to international agreements with both Timor Leste and Indonesia, which address matters relating to oil spill preparedness and response, reflecting the shared commitment to managing the risks associated with petroleum activities and protecting the marine environment in the region.
 - outlined the notifications Woodside plans to include in the EP in the event a hydrocarbon spill occurred that is likely to traverse international waters.
 - requested any further feedback from DFAT.
- On 16 June 2023, Woodside emailed an additional DFAT representative following receipt of an out of office.

Summary of Feedback, Objection or Claim	Woodside Energy’s Assessment of Merits of Feedback, Objection or Claim and its Response	Environment Plan Controls
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<p>Woodside had a meeting with DFAT, which advised:</p> <ul style="list-style-type: none"> • it is happy with AMSA being the contact point and agency for oil spill. • it would want to manage any sensitivities around engagement with the countries directly. • It would check relevant treaties to confirm lead agencies. • provide an after-hours contact within DFAT that can provide notification internally very quickly. • as the activities will be conducted in Australian waters, environmental management is therefore a matter for Australian domestic regulators. • provided a DFAT contact in an emergency. • provided contact information for DFAT agencies in Timor-Leste and Indonesia. 	<p>Woodside has addressed DFAT's feedback, including; confirming that in the event of a hydrocarbon spill that is likely to traverse international waters, Woodside will notify the following government agencies as referenced in the OSPRMA (Appendix E):</p> <ul style="list-style-type: none"> • Verbally notify AMSA and Western Australian departments responsible. Woodside will follow up its AMSA notification by way of an online report via AMSA's web site. • other relevant government departments as soon as practicable. These notifications include DFAT via sea.law@dfat.gov.au and globalwatchoffice@dfat.gov.au. <p>Woodside has provided consultation information to DFAT agency contacts.</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 7.6).</p>	<p>Woodside notes the Australian Government is signatory to international agreements with both Timor Leste and Indonesia, which address matters relating to oil spill preparedness and response.</p> <p>In the event of a hydrocarbon spill that is likely to traverse international waters, Woodside will notify the following government agencies as referenced in the Oil Pollution First Strike Plan (Appendix D):</p> <ul style="list-style-type: none"> • Verbally notify AMSA and Western Australian departments responsible. Woodside will follow up its AMSA notification by way of an online report via AMSA's web site. • other relevant government departments as soon as practicable. These notifications include DFAT via sea.law@dfat.gov.au and globalwatchoffice@dfat.gov.au. <p>Woodside considers the measures and controls in the EP are appropriate.</p>
Department of Defence (DoD)		
<p>Woodside considers it has discharged its obligations under regulation 11A by providing consultation materials and conducting various forms of engagement as set out in Section 5.8 and below.</p> <p>Summary of information provided and record of consultation:</p> <ul style="list-style-type: none"> • On 27 May 2022, Woodside emailed DoD advising of the proposed activity (Appendix F, reference 1.11) and provided a Consultation Information Sheet. • On 16 February 2023, Woodside emailed DoD advising of the proposed activity (Appendix F, reference 2.16) and provided a Consultation Information Sheet. • On 8 March 2023, Woodside emailed DoD following up on the proposed activity and provided a Defence map (Appendix F, reference 2.16.1) 		
Summary of Feedback, Objection or Claim	Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response	Environment Plan Controls

<p>No feedback, objections or claims received despite follow up.</p>	<p>Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 11.6.4).</p>	<p>Woodside notes DoD feedback for previous regional activities and commits to:</p> <ul style="list-style-type: none"> ○ providing DoD activity notification five weeks prior to commencement (PS 1.5) and AHO four weeks prior to commencement (P.S 1.3). ○ engaging Airservices Australia if the restricted airspace is activated. ○ confirming restricted air space status with DoD as part of the commencement of activity notification. <p>No additional measures or controls are required.</p>
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Department of Primary Industries and Regional Development (DPIRD)

Woodside considers it has discharged its obligations under regulation 11A by providing consultation materials and conducting various forms of engagement as set out in Section 5.8 and below.

Summary of information provided and record of consultation:

- On 27 May 2022, Woodside emailed DPIRD advising of the proposed activity (Appendix F, reference 1.12) and provided a Consultation Information Sheet.
- On 16 February 2023, Woodside emailed DPIRD advising of the proposed activity (Appendix F, reference 2.20) and provided a Consultation Information Sheet.
- On 10 March 2023, Woodside sent a reminder email to DPIRD advising of the proposed activity (Appendix F, reference 2.20.1) and provided a Consultation Information Sheet.

<p>Summary of Feedback, Objection or Claim</p>	<p>Woodside Energy’s Assessment of Merits of Feedback, Objection or Claim and its Response</p>	<p>Environment Plan Controls</p>
<p>No feedback, objections or claims received despite follow up.</p>	<p>Woodside has provided consultation information to DPIRD, WAFIC, and individual relevant licence holders.</p> <p>Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 11.6.4).</p>	<p>Woodside has assessed the potential for interaction with Commonwealth and State managed commercial fisheries in Section 4.8.2 of this EP.</p> <p>Woodside will provide notifications to AFMA, DAFF – Fisheries, CFA, DPIRD, WAFIC, and relevant Fishery Licence Holders that have the potential to be directly impacted by planned activities in the Operational Area (Western Deepwater Trawl Fishery) prior to the commencement and at the end of the activity, as referenced as P.S 1.4 in this EP.</p> <p>No additional measures or controls are required.</p>

Department of Transport (DoT)

Woodside considers it has discharged its obligations under regulation 11A by providing consultation materials and conducting various forms of engagement as set out in Section 5.8 and below.

Summary of information provided and record of consultation:

- On 27 May 2022, Woodside emailed DoT advising of the proposed activity (Appendix F, reference 1.7) and provided a Consultation Information Sheet.
- On 7 June 2022, DoT responded to Woodside and provided advice on consultation if there was a risk that a spill could impact State waters from the proposed activity.
- On 27 July 2022, Woodside responded to DoT confirming that it acknowledged DoT’s consultation requirements (Appendix 6 of the Department of Transport Offshore Petroleum Industry Guidance Note – Marine Oil Pollution: Response and Consultation Arrangements, July 2020) and would provide a copy of the OPEP (Appendix D) for consultation.
- On 22 February 2023, Woodside emailed DoT advising of the proposed activity (Appendix F, reference 2.72) and provided a copy of the Stybarrow P&A Oil Pollution First Strike Plan.
- On 4 April 2023, DoT responded to Woodside seeking further clarification on the Stybarrow P&A Oil Pollution First Strike Plan. DoT:
 - Requested the OPEP
 - Asked if there was any modelling on the use of subsea dispersant and if there was any potential for subsea dispersant or dispersed oil to enter into State waters
 - Asked if there is a potential for oil to enter State waters, what Scientific Monitoring Plans would be activated.
- On 24 April 2023, Woodside responded to DoT’s request for further information as follows:
 - Provided a full copy of the OPEP.
 - Advised no modelling has been undertaken. Subsea dispersant modelling may be undertaken to inform discussions with regulatory bodies and/or relevant persons/organisations who could be affected by a dispersant response.
 - Confirmed Woodside maintains a suite of 10 Scientific Monitoring Program (SMP) plans.
- On 18 May 2023, DOT responded to Woodside advising it had no further comments

Summary of Feedback, Objection or Claim	Woodside Energy’s Assessment of Merits of Feedback, Objection or Claim and its Response	Environment Plan Controls
<p>The DoT provided feedback, including:</p> <ul style="list-style-type: none"> • Providing advice on consultation if there was a risk that a spill could impact State waters from the proposed activity. • Requested the OPEP • Queried if there was any modelling on the use of subsea dispersant and if there was any potential for subsea dispersant or dispersed oil to enter into State waters • Queried if there is a potential for oil to enter State waters, what Scientific Monitoring Plans would be activated. 	<p>Woodside has addressed the DoT’s feedback, including:</p> <ul style="list-style-type: none"> • Confirming that if there is a risk of a spill impacting State waters, DoT will be consulted. • Provided a full copy of the OPEP. • Advised no modelling has been undertaken. Subsea dispersant modelling may be undertaken to inform discussions with regulatory bodies and/or relevant persons/organisations who could be affected by a dispersant response. • Confirmed Woodside maintains a suite of 10 SMP plans. <p>Woodside has addressed oil pollution planning and response at Appendix D.</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 11.6.4).</p>	<p>Woodside will provide DoT with a copy of the accepted Oil Pollution First Strike Plan, as referenced in the OSPRMA (Appendix D).</p> <p>Woodside will consult DoT if there is a spill impacting State water from the proposed activity, as referenced in the OSPRMA (Appendix D).</p> <p>Woodside considers the measures and controls in the EP are appropriate.</p>

Woodside considers it has discharged its obligations under regulation 11A by providing consultation materials and conducting various forms of engagement as set out in Section 5.8 and below.

Summary of information provided and record of consultation:

- On 16 February 2023, Woodside emailed DPLH advising of the proposed activity (Appendix F, reference 2.22 and 1.X) and provided a Consultation Information Sheet.
- On 23 February DPLH emailed Woodside to advise the subsea petroleum licences are situated within Commonwealth waters beyond the State's control and no formal response was necessary.
- On 16 March 2023 DPLH emailed Woodside and advised it had no comment/feedback to provide on proposed activities at these sites.
- On 18 March 2023 Woodside responded and thanked DPLH for its advice.

Summary of Feedback, Objection or Claim	Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response	Environment Plan Controls
<p>The DPLH advised it had no comment to provide on proposed activities.</p> <p>Whilst feedback has been received, there were no objections or claims.</p>	<p>Woodside notes the DPLH's advice that it has no comment to provide on proposed activities.</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 supply its Management of Change and Revision process (see Section 11.6.4).</p>	<p>The Environment Plan demonstrates that there are no known underwater heritage sites or shipwrecks within the Petroleum Activities Area and identifies that there are no credible impacts to the values of any underwater heritage or shipwrecks as a result of planned activities (Section 4.9.2). While impacts to underwater heritage sites or shipwrecks 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 8.2 and Section 8.3</p> <p>No additional measures or controls are required.</p>

Pilbara Ports Authority

Woodside considers it has discharged its obligations under regulation 11A by providing consultation materials and conducting various forms of engagement as set out in Section 5.8 and below.

Summary of information provided and record of consultation:

- On 1 June 2023, Woodside emailed Pilbara Ports Authority advising of the proposed activity (Appendix F, reference 2.76) and provided a Consultation Information Sheet.
- On 23 June 2023, Woodside emailed Pilbara Ports Authority following up on feedback with respect to the proposed activity (Appendix F, reference 2.76.1) and provided a Consultation Information Sheet.

Summary of Feedback, Objection or Claim	Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response	Environment Plan Controls
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<p>No feedback, objections or claims received despite follow up.</p>	<p>Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 11.6.4).</p>	<p>Woodside has addressed oil pollution planning and response at Appendix D.</p> <p>No additional measures or controls are required.</p>
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Commonwealth and WA State Government Departments or Agencies – Environment

Director of National Parks (DNP)

Woodside considers it has discharged its obligations under regulation 11A by providing consultation materials and conducting various forms of engagement as set out in Section 5.8 and below.

Summary of information provided and record of consultation:

- On 27 May 2022, Woodside emailed DNP advising of the proposed activity (Appendix F, reference 1.4) and provided a Consultation Information Sheet.
- On 26 July 2022, DNP responded to Woodside requesting further information in relation to:
 - The removal of the H4 flowline and the potential release of 14 m³ (approximately 88 barrels) into the marine environment. DNP noted the Information is to contain dispersal modelling, chemical makeup of the hydrocarbons, risk to marine park natural values (noting species below) and mitigations.
 - The assessment undertaken to guide decisions to remove or leave equipment in situ including, but not limited, environmental risks / benefits analysis.
 - DNP also requested or noted:
 - Proposed activities may directly affect the values present in the marine parks and should be factored into the environment plan.
 - Proposed activities should be undertaken with the utmost care and an absolute avoidance of unplanned impacts upon the environment now and into the future given the proximity of the Operational Area to the Ningaloo Coast World Heritage Area.
 - The environment plan should demonstrate best practice in choice of activities, such as leaving equipment in situ, and mitigating the activity's impact upon the environment.
 - Biologically important areas (BIAs) are present or nearby to the Operational Area.
 - Key Ecological Features (KEF) are present or nearby to the Operational Area, which are identified values of the Gascoyne and Ningaloo Marine Parks and activities that could affect these features should be factored into risk assessments.
 - There may also be cultural values present providing advice on consultation with Indigenous peoples and representative organisations where sea country could be affected by the proposed activities.
 - Their Marine Compliance Duty Officer is to be advised within 24 hours in the event that a marine pollution event is likely to impact on a marine park and further, it may request daily or weekly Situation Reports, depending on the scale and severity of the pollution incident.
 - DNP also provided guidance on resource materials to assist in the development of the environmental plan with respect to assessing Australian marine parks and their representativeness, including:
 - The North-west Marine Parks Network Management Plan 2018 (management plan)
 - The Australian Marine Parks Science Atlas
- On 28 July 2022, Woodside responded to DNP and provided the following information:
 - The H4 flowline was blocked during production following a sand screen failure in 2010. The contents of the flowline are production fluids (oil, gas formation water), sand and hydrates. The flowline is proposed to be unblocked and fully recovered. Methods to achieve this are in development with industry specialists. It committed to providing the DNP with an assessment of potential marine impacts and mitigation measures when the Oil Pollution Emergency Plan (OPEP) is complete.
 - Woodside also provided a summary of the decommissioning assessment options and criteria, and high-level outcomes.
 - Woodside also confirmed:
 - DNP's expectations and contact details for consultation in the event of an incident that was likely to impact a marine park had been included in the environmental plan.
 - Potential impacts to marine park values had been assessed in developing the environment plan.
 - An assessment of planned activities, including leaving equipment in situ, and mitigating the activity's impact upon the environment had been included in the environment plan.
 - BIAs had been assessed in the environment plan.
 - KEFs had been assessed in the environment plan.
 - Information had been provided to the Yamatji Marlpa Aboriginal Corporation on behalf of the Nganhurra Thanardi Garrbu Aboriginal Corporation as part of consultation activities.
 - Woodside acknowledged references provided by DNP to support development of the environment plan, these being:
 - The North-west Marine Parks Network Management Plan 2018 (management plan)
 - The Australian Marine Parks Science Atlas.
- On 28 July 2022, DNP emailed Woodside, noting that the matters raised by DNP will be captured in the EP and that Woodside will provide an update in regards to the OPEP when its available.
 - DNP also requested a copy of the draft EP, or parts that relate to the assessment of decommissioning options.
- On 29 July 2022, Woodside emailed DNP and advised that it is unable to provide more fulsome details of the options assessment in advance of the EP being finalised.

- Woodside suggested the alternative of providing DNP with relevant references when the EP is finalised and has been submitted to NOPSEMA, allowing DNP information in order to provide informed feedback.
- Woodside confirmed that future feedback from DNP would be reviewed by Woodside and included in the final EP for assessment and acceptance by NOPSEMA.
- On 29 July 2022, DNP responded to Woodside and advised that this was no problem and to advise when the EPs are available via NOPSEMA.
- On 26 August 2022, Woodside emailed DNP to advise that the H4 Flowline removal activity has been removed from the scope of activities for the Stybarrow P&A Environment Plan and will now be included in the Stybarrow Decommissioning and Field Management Environment Plan (EP).
 - Woodside advised that the Decommissioning and Field Management EP is currently under assessment and it would let DNP know when the information is updated in the EP and available for review, as well as ensure DNP's feedback provided to date is carried over to the EP.
- On 16 February 2023, Woodside emailed DNP advising of the proposed activity considering potential risks to Australian Marine Parks (AMP) (Appendix F, reference 2.23), and provided a Consultation Information Sheet.
- On 10 March 2023, Woodside sent a reminder email to DNP advising of the proposed activity (Appendix F, reference 2.23.1) and provided a Consultation Information Sheet.
- On 21 April 2023, the DNP responded, thanked Woodside for the opportunity to comment.
 - The DNP confirmed that the planned activities do not overlap any AMPs and there are no authorisation requirements from the DNP.
 - Requested that the buffer from turtle nesting beaches is increased from 12 km in the information sheet to 20 km, to support greater consistency with the 'Recovery Plan for Marine Turtles in Australia'.
 - The DNP noted it has worked closely with NOPSEMA to develop and publish a guidance note and included link to the online document.
 - The DNP noted that the EP should:
 - identify and manage all impacts and risks on Australian marine park values (including ecosystem values) to an acceptable level and consider all options to avoid or reduce them to as low as reasonably practicable.
 - clearly demonstrate that the activity will not be inconsistent with the management plan.
 - The DNP also noted:
 - the North-west Marine Parks Network Management Plan 2018 (management plan) came into effect on 1 July 2018 and provides further information on values for Gascoyne Marine Park, which is the nearest to the proposed activity.
 - Australian marine park values are broadly defined into four categories: natural (including ecosystems), cultural, heritage and socio-economic. Information on the values for the marine parks is also located on the Australian Marine Parks Science Atlas.
 - The DNP asked to be made aware of incidences which occur within a marine park or are likely to impact on a marine park as soon as possible.
 - The DNP requested notification to be provided to the 24-hour Marine Compliance Duty Officer and should include:
 - titleholder details
 - time and location of the incident (including name of marine park likely to be effected)
 - proposed response arrangements as per the Oil Pollution Emergency Plan (e.g. dispersant, containment, etc.)
 - confirmation of providing access to relevant monitoring and evaluation reports when available; and
 - contact details for the response coordinator.
 - The DNP noted it may request daily or weekly Situation Reports, depending on the scale and severity of the pollution incident.
- On 4 May 2023, Woodside responded to the DNP thanking it for its response, including:
 - confirmation that planned activities do not overlap any AMPs, and as such there are no approvals required from DNP;
 - noted that the nearest marine turtle nesting site is approximately 39 km from the Operational Areas, which exceeds the 20 km buffer set by the National Light Pollution Guidelines (NLPG).
 - confirmed that Woodside has increased the buffer from turtle nesting beaches to 20 km as part of its controls for the proposed EP.

Summary of Feedback, Objection or Claim	Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response	Environment Plan Controls
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<p>DNP provided the following feedback:</p> <ul style="list-style-type: none"> • requested further information on flowline and potential release during the proposed activity. • requested further information on assessment undertaken to guide decisions to remove or leave equipment <i>in situ</i> including, but not limited, environmental risks / benefits analysis. • noted there may be cultural values present requiring consultation with Indigenous peoples and representative organisations where sea country could be affected by the proposed activities. • requested that the buffer from turtle nesting beaches is increased from 12 km to 20 km, to support greater consistency with the 'Recovery Plan for Marine Turtles in Australia'. • confirmed that planned activities do not overlap any AMPS and there are no authorisation requirements from the DNP. • asked to be made aware of incidences which occur within a marine park or are likely to impact on a marine park as soon as possible. • requested notification to be provided to the 24 hour Marine Compliance Duty Officer. • requested that the buffer from turtle nesting beaches is increased from 12 km in the information sheet to 20 km, to support greater consistency with the 'Recovery Plan for Marine Turtles in Australia'. 	<p>Woodside has addressed the DNP's feedback, including:</p> <ul style="list-style-type: none"> • providing additional information regarding the flowline, including that the flowline is proposed to be unblocked and fully recovered. • providing a summary of the decommissioning assessment options and criteria, and high-level outcomes. • advised that information had been provided to the Yamatji Marlpa Aboriginal Corporation (YMAC) on behalf of the Nganhurra Thanardi Garrbu Aboriginal Corporation as part of consultation activities. • confirmed that Woodside has increased the buffer from turtle nesting beaches to 20 km for the proposed EP. • confirmed that planned activities and the Operational Area for this EP do not overlap any AMPs; • noted DNP's advice that it had no objections or claims with respect to the proposed activity; and • confirmed that Woodside will contact the DNP if details regarding the activity change and result in an overlap with or new impact to a marine park, or for emergency responses. • noted that the nearest marine turtle nesting site is approximately 39 km from the Operational Areas, which exceeds the 20 km buffer set by the National Light Pollution Guidelines (NLPG). • confirmed that Woodside has increased the buffer from turtle nesting beaches to 20 km as part of its controls for the proposed EP. <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 11.6.4).</p>	<p>Woodside has increased the buffer from turtle nesting beaches to 20 km for the proposed EP.</p> <p>The Environment Plan demonstrates that the proposed activities are outside the boundaries of a proclaimed Commonwealth Marine Park and identifies that there are no credible impacts to the values of any Commonwealth Marine Parks as a result of planned activities (Section 4.8). While impacts to Commonwealth Marine Parks are possible in the event of an unplanned hydrocarbon spill, Woodside considers it adopts appropriate controls to prevent a hydrocarbon spill and controls to respond in the highly unlikely event of a hydrocarbon spill, as demonstrated in Section 8.2 and Section 8.3.</p> <p>This EP demonstrates how Woodside will identify and managed 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 (Section 9.1).</p> <p>Woodside will ensure DNP is made aware of any incidences within a marine park for the activity, as per the commitment in the Oil Pollution First Strike Plan (Appendix D).</p> <p>Woodside considers the measures and controls in the EP are appropriate.</p>
<p>Ningaloo Coast World Heritage Advisory Committee (NCWHAC)</p>		

Woodside considers it has discharged its obligations under regulation 11A by providing consultation materials and conducting various forms of engagement as set out in Section 5.8 and below.

Summary of information provided and record of consultation:

- On 27 May 2022, Woodside emailed NCWHAC advising of the proposed activity (Appendix F, reference 1.20) and provided a Consultation Information Sheet.
- On 16 February 2023, Woodside emailed NCWHAC advising of the proposed activity considering potential risks to Australian marine Parks (Appendix F, reference 2.13), and provided a Consultation Information Sheet.
- On 10 March 2023, Woodside sent a reminder email to NCWHAC advising of the proposed activity (Appendix F, reference 2.13.1) and provided a Consultation Information Sheet.
- On 15 April 2023. NCWHAC responded to Woodside via NOPSEMA noting additional potential impacts to the outstanding universal value (OUV) within and adjacent to NCHWA. NCWHAC:
 - Noted concerns related to towing of equipment through the NCWHAC
 - Requested that known migratory periods informed measures to avoid migratory times and routes
 - Requested further information on routes taken to transport materials. Currently no indication of how the removed equipment will be taken away, including the size of the vessel; total number of journeys necessary for the removal; and time of year the vessel will be taking this route.
 - Requested a review other infrastructure left in situ near the site to understand cumulative impacts from infrastructure left in situ.
 - Noted concerns with new advice in relation to the unplanned loss of buoyancy of Stybarrow - (noting industry issues with maintaining RTM buoyancy across several current offshore projects). Requesting NOPSEMA review the adequacy of industry post-production maintenance and removal for all current and future environment plans.
 - Requiring further clarification on noise emissions from the proposed activity.
 - Noted traversing of the NCWHAC increases the likelihood of the introduction of Invasive Marine Species. Requesting NOPSEMA review information on the equipment being exempt from IMS management measures and apply the highest possible IMS mitigation.
- On 6 June 2023, Woodside responded to the NCWHAC regarding its comments raised with respect to the proposed decommissioning of the Stybarrow field. With respect to the proposed activity, Woodside advised:
 - It has considered the potential impacts associated with an unplanned loss of hydrocarbons to the marine environment due to vessel collision and will implement appropriate controls to mitigate against an unplanned release of hydrocarbons.
 - Woodside has determined that an unplanned loss of hydrocarbons represents a moderate current risk rating that is unlikely to result in potential impact greater than localized, minor and temporary disruption to a small proportion of the population and no impact on critical habitat or activity.
 - The proposed activities are outside the boundaries of the NCWHA and there are no credible direct impacts to the values of the NCWHA.
 - There are no current activities planned that would require vessels to transit directly through the Ningaloo Marine Park.
 - Collisions with migratory species from vessel collision are unlikely to occur on the basis that during infrastructure removal activities vessels will operate at slow speeds, and whilst transiting between the OA and port, vessels will implement controls aligned to industry best practice and legislative requirements including compliance with requirements under the EPBC Act.
 - There is no planned vessel transit route through the Ningaloo Marine Park or Exmouth Gulf.
 - A CSV will be the primary vessel used to remove equipment from the field.
 - Woodside has considered the potential impacts from noise emissions in the EP and has assessed each control against its ALARP process to identify controls that when implemented are considered to manage the impacts on marine fauna to ALARP.

Summary of Feedback, Objection or Claim	Woodside Energy’s Assessment of Merits of Feedback, Objection or Claim and its Response	Environment Plan Controls
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<p>The NCHWAC provided feedback with respect to the proposed activity. It noted potential impacts to the OUVs within and adjacent to the NCHWA from:</p> <ul style="list-style-type: none"> • Oil spill / other discharges • Collisions • Cumulative impacts • Noise • Invasive marine species • Atmospheric emissions 	<p>Woodside has addressed the NCWHAC's feedback, including advising:</p> <ul style="list-style-type: none"> • It has considered the potential impacts associated with an unplanned loss of hydrocarbons to the marine environment due to vessel collision and will implement appropriate controls to mitigate against an unplanned release of hydrocarbons. • Woodside has determined that an unplanned loss of hydrocarbons represents a moderate current risk rating that is unlikely to result in potential impact greater than localized, minor and temporary disruption to a small proportion of the population and no impact on critical habitat or activity. • The proposed activities are outside the boundaries of the NCWHA and there are no credible direct impacts to the values of the NCWHA. • There are no current activities planned that would require vessels to transit directly through the Ningaloo Marine Park. • Collisions with migratory species from vessel collision are unlikely to occur on the basis that during infrastructure removal activities vessels will operator at slow speeds, and whilst transiting between the OA and port, vessels will implement controls aligned to industry best practice and legislative requirements including compliance with requirements under the EPBC Act. <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 11.6.4).</p>	<p>The Environment Plan demonstrates that the proposed activities are outside the boundaries of the Ningaloo Marine Park and identifies that there are no credible impacts to the values of the Ningaloo Marine Park (Section 4.8). While impacts to the Ningaloo Marine Park 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 8.2 and Section 8.3.</p> <p>No additional measures or controls are required.</p>
<p>Department of Biodiversity, Conservation and Attractions (DBCA)</p>		

Woodside considers it has discharged its obligations under regulation 11A by providing consultation materials and conducting various forms of engagement as set out in Section 5.8 and below.

Summary of information provided and record of consultation:

- On 27 May 2022, Woodside emailed DBCA advising of the proposed activity (Appendix F, reference 1.5) and provided a Consultation Information Sheet.
- On 2 June 2022, DBCA responded to Woodside advising it had no comments in relation to its responsibilities under the *Conservation and Land Management Act 1984* and *Biodiversity Conservation Act 2016* based on the information provided by Woodside.
- On 27 July 2022, Woodside responded to DBCA acknowledging its advice.
- On 16 February 2023, Woodside emailed DBCA advising of the proposed activity (Appendix F, reference 2.24) and provided a Consultation Information Sheet.
- On 10 March 2023, Woodside emailed DBCA advising of the proposed activity (Appendix F, reference 2.24.1) and provided a Consultation Information Sheet.
- On 16 March 2023, DBCA responded, noting it had provided feedback previously on proposed activities. DBCA had several comments specific to the activities proposed in the information sheet:
 - There appear to be inconsistencies between the location of the recovery area in State waters and the proposed mitigation measure to “maintain a 12 km buffer from turtle nesting beaches”. Serrurier Island and Bessieres islands, which have records of nesting turtles, occur less than 12 km from the proposed recovery area. To mitigate this risk to threatened fauna, DBCA recommends limiting activities in proximity to turtle nesting beaches to times outside of turtle nesting and hatchling season.
 - DBCA also requests that all tow routes proposed avoid CALM Act waters (i.e. Murion Islands Marine Management Area) where possible to minimise the risk of impacts on the ecological and social values within this area.
 - Should Woodside have any additional information in relation to its monitoring or oil spill response preparedness for these decommissioning activities for DBCA’s information, this would be welcome.
 - Woodside should be aware that any activities requiring access to reserves managed by DBCA under the CALM Act or requiring the taking / disturbance of threatened fauna listed under the BC Act in State waters may require additional approvals under this legislation, and early consultation with DBCA is recommended.
- On 1 June 2023, Woodside responded to DBCA advising:
 - Infrastructure including the Griffin RTM and Stybarrow DTM is planned to be recovered on title at the Griffin and Stybarrow fields respectively, which will be managed under separate EPs.
 - Noted DBCA’s feedback on undertaking activities in proximity to ecologically sensitive receptors including marine parks and other reserves managed by DBCA under the CALM Act.
 - Advised in accordance with Regulation 12(3) and 13(3) of the Environment Regulations 2009 of the OPGGS Act, Woodside’s EPs describe the existing environment that may be affected by the activity during planned and unplanned activities. When describing the existing environment Woodside includes details of the particular values and sensitivities of the environment within and in proximity to operational areas and the EMBA for impact assessment and risk evaluation.
 - Noted the EMBA for the proposed EP do not overlap the Bessieres Island Nature Reserve or Serrurier Island Nature Reserve.

Summary of Feedback, Objection or Claim	Woodside Energy’s Assessment of Merits of Feedback, Objection or Claim and its Response	Environment Plan Controls
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<p>DBCA advised that it had previously provided feedback on proposed activities and noted inconsistencies of location of recovery area and proposed mitigation measures. It recommends limiting activities in proximity to turtle nesting beaches to outside hatchling season and requests all tow routes avoid CALM Act waters.</p>	<p>Woodside has addressed DBCA's feedback, including:</p> <ul style="list-style-type: none"> • Infrastructure including the Griffin RTM and Stybarrow DTM is planned to be recovered on title at the Griffin and Stybarrow fields respectively, which will be managed under separate EPs. • Noted DBCA's feedback on undertaking activities in proximity to ecologically sensitive receptors including marine parks and other reserves managed by DBCA under the CALM Act. • Advised in accordance with Regulation 12(3) and 13(3) of the Environment Regulations 2009 of the OPGGS Act, Woodside's EPs describe the existing environment that may be affected by the activity during planned and unplanned activities. When describing the existing environment Woodside includes details of the particular values and sensitivities of the environment within and in proximity to operational areas and the EMBA for impact assessment and risk evaluation. • Noted the EMBA for the proposed EP do not overlap the Bessieres Island Nature Reserve or Serrurier Island Nature Reserve. <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 11.7).</p>	<p>The Environment Plan 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). 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 8.2 and Section 8.3</p> <p>No additional measures or controls are required.</p>
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Commonwealth and State Government Departments or Agencies – Industry

Department of Industry, Science and Resources (DISR)

Woodside considers it has discharged its obligations under regulation 11A by providing consultation materials and conducting various forms of engagement as set out in Section 5.8 and below.

Summary of information provided and record of consultation:

- On 27 May 2022, Woodside emailed DISR advising of the proposed activity (Appendix F, reference 1.13) and provided a Consultation Information Sheet.
- On 16 February 2023, Woodside emailed DISR advising of the proposed activity (Appendix F, reference 2.2) and provided a Consultation Information Sheet.
- On 10 March 2023, Woodside sent a reminder email to DISR advising of the proposed activity (Appendix F, reference 2.2.1) and provided a Consultation Information Sheet.
- On 4 May 2023, Woodside had a meeting with DISR to provide an update on the status of the RTM (as at end April) and to provide a decommissioning overview of upcoming Woodside activities, including the activities proposed under this EP. No feedback was received from DISR.

Summary of Feedback, Objection or Claim	Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response	Environment Plan Controls
<p>Woodside had a meeting with DISR which included an overview of proposed activities for decommissioning the Griffin Field, including the activities proposed under this EP. No feedback, objections or claims received despite follow up.</p>	<p>Woodside notes that no feedback was provided from DISR with respect to the proposed activities.</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 11.6.4).</p>	<p>No additional measures or controls are required.</p>

Department of Mines, Industry Regulation and Safety (DMIRS)

Summary of information provided and record of consultation:

- On 27 May 2022, Woodside emailed DMIRS advising of the proposed activity (Appendix F, reference 1.6) and provided a Consultation Information Sheet.
- On 22 June 2022, DMIRS responded to Woodside advising they did not require further information at this stage. DMIRS noted that proposed activities would be assessed under the Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2009 and regulated by the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA). DMIRS requested pre-start and cessation of activity notifications and provided advice on consultation in the event that an incident could potentially impact on any land or water under State jurisdiction.
- On 27 July 2022, Woodside responded to DMIRS and provided the following feedback:
 - Noted DMIRS' acknowledgement that proposed activities fell under Commonwealth jurisdiction.
 - Noted that DMIRS did not require further information at this stage.
 - Confirmed that DMIRS would be notified prior to and upon activity completion.
 - Noted DMIRS' consultation expectations in the event that an incident could potentially impact on any land or water under State jurisdiction.
- On 16 February 2023, Woodside emailed DMIRS advising of the proposed activity (Appendix F, reference 2.2) and provided a Consultation Information Sheet.
- On 10 March 2023, Woodside sent a reminder email to DMIRS advising of the proposed activity (Appendix F, reference 2.2.1) and provided Consultation Information a Consultation Information Sheet.

Summary of Feedback, Objection or Claim	Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response	Environment Plan Controls
DMIRS requested notifications for both the start and conclusion of activities and provided advice on consultation in the event of an incident.	Woodside has addressed DMIRS's feedback including confirming that it will provide notifications to DMIRS prior to the commencement and at the end of the activity, as referenced at Section 11.7.2.2 of this EP. 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 11.6.4).	Woodside will provide notifications to DMIRS prior to the commencement and at the end of the activity, as referenced as referenced at Section 11.7.2.2 of this EP. Woodside considers the measures and controls in the EP are appropriate.

Commonwealth Commercial fisheries and representative bodies

North West Slope Trawl Fishery

Woodside considers it has discharged its obligations under regulation 11A by providing consultation materials and conducting various forms of engagement as set out in Section 5.8 and below.

Summary of information provided and record of consultation:

- On 17 February 2023, Woodside emailed licence holders advising of the proposed activity (Appendix F, reference 2.3) and provided a Consultation Information Sheet.
- On 10 March 2023, Woodside sent a reminder email to licence holders advising of the proposed activity (Appendix F, reference 2.3.1) and provided a Consultation Information Sheet.

Summary of Feedback, Objection or Claim	Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response	Environment Plan Controls
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<p>No feedback, objections or claims received despite follow up.</p>	<p>Woodside has provided consultation information to AFMA, DAFF - Fisheries, CFA, ASBTIA, Tuna Australia and individual relevant licence holders.</p> <p>Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 11.6.4).</p>	<p>Woodside has assessed the potential for interaction with Commonwealth and State managed commercial fisheries in Section 4.8.2 of this EP.</p> <p>Woodside will provide notifications to AFMA, DAFF – Fisheries, CFA, DPIRD, WAFIC, and relevant Fishery Licence Holders that have the potential to be directly impacted by planned activities in the Operational Area (Western Deepwater Trawl Fishery) prior to the commencement and at the end of the activity, as referenced as P.S 1.4 in this EP.</p> <p>No additional measures or controls are required.</p>
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Western Deepwater Trawl Fishery

Woodside considers it has discharged its obligations under regulation 11A by providing consultation materials and conducting various forms of engagement as set out in Section 5.8 and below.

Summary of information provided and record of consultation:

- On 27 May 2022, Woodside emailed licence holders advising of the proposed activity (Appendix F, reference 1.17) and provided a Consultation Information Sheet.
- On 17 February 2023, Woodside emailed licence holders advising of the proposed activity (Appendix F, reference 2.3) and provided a Consultation Information Sheet.
- On 10 March 2023, Woodside sent a reminder email to licence holders advising of the proposed activity (Appendix F, reference 2.3.1) and provided a Consultation Information Sheet.

<p>Summary of Feedback, Objection or Claim</p>	<p>Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response</p>	<p>Environment Plan Controls</p>
<p>No feedback, objections or claims received despite follow up.</p>	<p>Woodside has provided consultation information to AFMA, DAFF - Fisheries, CFA, ASBTIA, Tuna Australia and individual relevant licence holders.</p> <p>Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 11.6.4).</p>	<p>Woodside has assessed the potential for interaction with Commonwealth and State managed commercial fisheries in Section 4.8.2 of this EP.</p> <p>Woodside will provide notifications to AFMA, DAFF – Fisheries, CFA, DPIRD, WAFIC, and relevant Fishery Licence Holders that have the potential to be directly impacted by planned activities in the Operational Area (Western Deepwater Trawl Fishery) prior to the commencement and at the end of the activity, as referenced as P.S 1.4 in this EP.</p> <p>No additional measures or controls are required.</p>

Western Tuna and Billfish Fishery

Woodside considers it has discharged its obligations under regulation 11A by providing consultation materials and conducting various forms of engagement as set out in Section 5.8 and below.

Summary of information provided and record of consultation:

- On 17 February 2023, Woodside emailed licence holders advising of the proposed activity (Appendix F, reference 2.3) and provided a Consultation Information Sheet.
- On 10 March 2023, Woodside sent a reminder email to licence holders advising of the proposed activity (Appendix F, reference 2.3.1) and provided a Consultation Information Sheet.

Summary of Feedback, Objection or Claim	Woodside Energy’s Assessment of Merits of Feedback, Objection or Claim and its Response	Environment Plan Controls
No feedback, objections or claims received despite follow up.	<p>Woodside has provided consultation information to AFMA, DAFF - Fisheries, CFA, ASBTIA, Tuna Australia and individual relevant licence holders.</p> <p>Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 11.6.4).</p>	<p>Woodside has assessed the potential for interaction with Commonwealth and State managed commercial fisheries in Section 4.8.2 of this EP.</p> <p>Woodside will provide notifications to AFMA, DAFF – Fisheries, CFA, DPIRD, WAFIC, and relevant Fishery Licence Holders that have the potential to be directly impacted by planned activities in the Operational Area (Western Deepwater Trawl Fishery) prior to the commencement and at the end of the activity, as referenced as P.S 1.4 in this EP.</p> <p>No additional measures or controls are required.</p>

Commonwealth Fisheries Association (CFA)

Woodside considers it has discharged its obligations under regulation 11A by providing consultation materials and conducting various forms of engagement as set out in Section 5.8 and below.

Summary of information provided and record of consultation:

- On 27 May 2022, Woodside emailed CFA advising of the proposed activity (Appendix F, reference 1.19) and provided a Consultation Information Sheet.
- On 16 February 2023, Woodside emailed the CFA advising of the proposed activity (Appendix F, reference 2.17) and provided a Consultation Information Sheet.
- On 10 March 2023, Woodside sent a reminder email to CFA advising of the proposed activity (Appendix F, reference 2.17.1) and provided a Consultation Information Sheet.

Summary of Feedback, Objection or Claim	Woodside Energy’s Assessment of Merits of Feedback, Objection or Claim and its Response	Environment Plan Controls
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<p>No feedback, objections or claims received despite follow up.</p>	<p>Woodside has provided consultation information to AFMA, DAFF - Fisheries, CFA, ASBTIA, Tuna Australia and individual relevant licence holders.</p> <p>Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 11.6.4).</p>	<p>Woodside has assessed the potential for interaction with Commonwealth and State managed commercial fisheries in Section 4.8.2 of this EP.</p> <p>Woodside will provide notifications to AFMA, DAFF – Fisheries, CFA, DPIRD, WAFIC, and relevant Fishery Licence Holders that have the potential to be directly impacted by planned activities in the Operational Area (Western Deepwater Trawl Fishery) prior to the commencement and at the end of the activity, as referenced as P.S 1.4 in this EP.</p> <p>No additional measures or controls are required.</p>
<p>Tuna Australia</p>		

Woodside considers it has discharged its obligations under regulation 11A by providing consultation materials and conducting various forms of engagement as set out in Section 5.8 and below.

Summary of information provided and record of consultation:

- On 17 June 2022, Tuna Australia provided the following feedback on the proposed activity:
 - Tuna Australia is putting together a consultation submission on the Stybarrow decommissioning environmental plans.
 - Tuna Australia sought additional time beyond the consultation closing date to provide feedback on proposed activities as it was still waiting on feedback from members holding Statutory Fishing Rights in the Western Tuna Billfish Fishery (WTBF).
- On 1 July 2022, Tuna Australia emailed Woodside:
 - provided background information on the fishery, including target species and historical locations for fishing activity.
 - noted that there had been no recent fishing effort at the Stybarrow location.
 - advised that several of its members were pursuing joint venture fishing arrangements with the Australian government to work these fishing grounds.
 - advised it was assisting a fisher to access WTBF licences and quota to commence fishing activities from Exmouth from the start of the 2023 season, with potential for spatial conflict arising from Woodside's planned activities.
 - drew Woodside's attention to the importance of the Leeuwin current as an important fauna distribution feature, including the target species of the WTBF.
 - In addition, Tuna Australia made the following claims/requests:
 - It is not evident from the risk management plan that these impacts have been considered or mitigated to an extent that would not impact tuna quality. We would like to see more specific mitigation detail regarding this in the relevant risk assessments.
 - A nuance of longline fishing is that the gear is set to drift with the currents and weather influences. Fishers have very little control over the distance and direction of the drift until they haul the gear. The risk management plans speak in general terms about cautionary areas, exclusion zones and notices to mariners. We would like to understand how Woodside contracted vessels in these areas can deconflict themselves from drifting longline gear should it enter the Operational Area
 - The risk assessments are silent on potential impacts on the electrical and acoustic interferences that may be generated by machinery or vessels used in these activities. This may impact on fishing vessel instrumentation, navigation systems and fish detecting equipment. Is there likely to be any undue acoustic or frequency disturbances produced by these proposed activities?
 - For the activities identified in these proposals, we would like to be reassured that these are done in the most expeditious timeframe and with utmost regard to the marine environment to maintain the integrity of the marine resource and impacts on other lawful users.
 - Tuna Australia provided an invoice for professional services fees for the consultation activity undertaken.
- On 29 July 2022, Woodside responded to Tuna Australia and:
 - acknowledged the feedback provided by Tuna Australia on behalf of its members on current and potential future fishing activities.
 - provided additional information on expected marine discharges and seabed disturbances, as well as expected impacts resulting from items proposed to be left *in situ*.
 - provided additional information on the administration of and access to the safety exclusion zones and precautionary areas, as well as opportunities to establish on-water communications protocols to ensure the safety of all marine users.
 - advised that acoustic impacts will be limited to vessel noise and noises associated with cutting activities at the seabed.
 - confirmed it planned to undertake proposed activities in accordance with the Environment Plan and as expeditiously as possible.
 - provided further detail on activities and the completion date associated with the progressive decommissioning of the Stybarrow Field.
- On 16 February 2023, Woodside emailed Tuna Australia advising of the proposed activity (Appendix F, reference 2.18) and provided a Consultation Information Sheet.
- On 10 March 2023, Woodside sent a reminder email to Tuna Australia advising of the proposed activity (Appendix F, reference 2.18.1) and provided a Consultation Information Sheet.
- On 15 March 2023 Tuna Australia responded and provided a position statement for consideration prior to consultation taking place, and:
 - An overview of Tuna Australia's functions, interests and activities as well as the organisation's company objectives.
 - The geographic areas that Tuna Australia represents by membership Statutory Fishing Rights

- A recommendation that project proponents also engage with the Australian Southern Bluefin Tuna Industry Association for any proposals in the Southern Bluefin Tuna fishing area.
 - The position that Tuna Australia considers itself a 'relevant person' consistent with NOPSEMA guidelines.
 - Tuna Australia requested:
 - Tuna Australia be contacted when any proposed activity has the potential to impact vessel navigation, fishing activities, and/or the conservation of fish resources consistent with the Offshore Petroleum and Greenhouse Gas Storage Act 2006.
 - A map from proponents of the proposed activity to determine if its member interests may be affected on a case-by-case basis.
 - Where potential effects exist, there is a need for a service agreement. Tuna Australia advised it can no longer coordinate consultation with offshore energy activities on behalf of our members without a service agreement in place. Tuna Australia requests proponents execute our services agreement and provide information in a written succinct manner including estimated boundaries for extent of planned activity impacts (i.e. artificial light, noise, discharges etc) as well as activities within the operational area. This advice will be distributed to members and non-members holding SFRs in the Eastern (114 concession holders) and Western (61 concession holders) Tuna and Billfish Fisheries for comment. Information provided would be relevant to tuna and billfish fisheries in the area that may affect vessel navigation, fishing activities, and/or the conservation of fish resources based on the planned aspects of the activity, and proposed control measures to manage impacts.
 - Tuna Australia noted that it wishes to engage constructively with project proponents for all situations where there is potential for conflict with vessel navigation, access to fishing area and/or gear, and the biology of target fish and baitfish. Advice provided can change annually due to the dynamic nature of our fisheries.
 - Tuna Australia encouraged companies requiring advice from our sector to enter into a consultation services agreement with Tuna Australia to support their applications. Noting that Tuna Australia may be able to provide information on vessel navigation, fishing activities and/or the conservation of fish resources that may be affected that is not publicly available and will be an important input to environmental impact and risk assessment processes.
- On 26 May 2023, Woodside had a phone call with the Tuna Australia CEO and explained that Woodside would like to discuss a path forward following receipt of Tuna Australia's Position Statement across its EP activities, including the activities proposed under this EP.
 - Noted Tuna Australia's correspondence to NOPSEMA and copied to Woodside dated 17 May 2023, with respect to unrelated EPs.
 - Noted Tuna Australia's previous EP consultation feedback that Woodside had responded to with respect to unrelated EPs.
 - Reiterated that Woodside does not expect Tuna Australia to provide a consultation report for each of its EPs and are concerned about this potential misalignment on expectations.
 - Tuna Australia advised it would like to discuss a way forward as woodside suggested and requested Woodside call Tuna on 30 May 2023, which Woodside committed to.
 - On 2 June 2023, Woodside called Tuna Australia to follow up on its phone call on 26 May 2023.
 - Woodside left a message requesting a call back and the opportunity to meet with Tuna Australia to discuss Woodside's portfolio of environment plan activities.
 - Woodside requested the opportunity to discuss options to consult with Tuna Australia and potentially lessen the burden on Tuna Australia for providing feedback on Woodside's EPs.
 - Woodside offered the opportunity to take Tuna Australia through the entire EP portfolio, inclusive of decommissioning, so Tuna Australia could better assess the volume of activities.
 - Woodside reiterated that there was no expectation for Tuna Australia to provide a consultation report on each individual EP, and potentially there is an opportunity for Woodside and Tuna Australia to work together on a more strategic approach.
 - On 20 June 2023, Woodside had a meeting with Tuna Australia and:
 - Discussed Tuna Australia's position statement, and in particular its reference to activities that have the potential to impact vessel navigation, fishing activities, and/or the conservation of fish resources.
 - Provided an overview of Woodside's activities and changes to consultation requirements following recent case law.
 - Tuna Australia agreed to provide more detail on how it would distribute consultation materials to its membership/licence holders and the format of any report arising from the data collected.
 - Woodside committed to review TA's Service Agreement.
 - On 26 June 2023, Woodside emailed Tuna Australia thanking it for the 20 June 2023 meeting. Woodside:
 - Noted the clarity Tuna Australia's position statement provided with respect to being contacted when the proposed activity has the potential to impact vessel navigation, fishing activities, and/or the conservation of fish resources.

- Noted that Woodside had provided a description of its activities and how recent case law and NOPSEMA guidance had resulted in Woodside undertaking consultation on the widest potential EMBA, which is a significantly greater area than any planned activity and any activity within an Operational Area.
- Noted Tuna Australia's agreement to provide more detail on how Tuna Australia will distribute consultation materials to its members/licence holders and the format of any report.

Summary of Feedback, Objection or Claim	Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response	Environment Plan Controls
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Tuna Australia noted:

- Several members were pursuing joint venture fishing arrangements to work these fishing grounds.
- Importance of the Leeuwin current as an important fauna distribution feature, including the target species of the WTBF.
- It is not evident that the impacts have been considered or mitigated to an extent that would not impact tuna quality. More specific mitigation detail required.
- Requested information on how contracted vessels in these areas can deconflict themselves from drifting longline gear should it enter the Operational Area.
- Risk assessments are silent on potential impacts on the electrical and acoustic interferences that may be generated by machinery or vessels used in these activities
- Sought reassurance activities would be done in the most expeditious timeframe and with utmost regard to the marine environment

Tuna Australia responded, providing Woodside their position statement for engaging with energy companies seeking consultation advice from stakeholders on environmental plans and project proposals.

The position statement requests that where there is the potential for the proposed activity to impact Tuna Australia's functions, interests or activities or that of its members, there is a need for a service agreement to be executed.

Woodside has:

- provided additional information on expected marine discharges and seabed disturbances, as well as expected impacts resulting from items proposed to be left *in situ*.
- provided additional information on the administration of and access to the safety exclusion zones and precautionary areas, as well as opportunities to establish on-water communications protocols to ensure the safety of all marine users.
- advised that acoustic impacts will be limited to MODU and vessel noise and noises associated with activities at the seabed.
- confirmed it planned to undertake proposed activities in accordance with the Environment Plan and as expeditiously as possible.
- provided further detail on activities and the completion date associated with the progressive decommissioning of the Stybarrow Field.

Woodside has addressed Tuna Australia's feedback, including advising that EP controls are in place to limit to the duration of activities, and minimise the temporary exclusion zone.

Woodside noted that:

- routine marine discharges would be managed according to legislative and regulatory requirements.
- discharges are expected to rapidly disperse soon after release given the offshore location and water depth.
- seabed disturbance associated with the activity will be temporary and localised to the activity areas
- there are no other acoustic sources that will be used for the activity other than MODU, project vessels and temporary subsea equipment used for plugging and abandoning the wells.

The fishery management area for the Western Tuna and Billfish Fishery, which Tuna Australia represents, overlaps both the Operational Area and EMBA. However, there is considered to be no potential for interaction within these areas as:

- no recent fishing effort has occurred within or nearby to the Operational Area.
- Fishery Status Report 2022 indicates current fishing effort is concentrated between Carnarvon and Albany and occurred within the EMBA in the last five years (2016–2021) (Patterson et al., 2022).
- Woodside acknowledges previous feedback received from Tuna Australia with respect to separate EPs. Woodside confirms that it conducts impact and risk assessments for its activities in order to identify and manage environmental impacts and risks, which includes potential interaction with recreational and commercial fishers.
- To manage potential interactions, Woodside has the following controls in place with regard to the Petroleum Activities Program (PAP) of this EP:
 - MODU and Vessels adhere to regulatory requirements for navigational safety.
 - Notification to AHO of activities and movements to allow generation of navigation warnings (Maritime Safety Information Notifications (MSIN) and Notice to Mariners (NTM) (including AUSCOAST warnings where relevant)).

Woodside has assessed the potential for interaction with Commonwealth and State managed commercial fisheries in **Section 4.8.2** of this EP.

Woodside will provide notifications to AFMA, DAFF – Fisheries, CFA, DPIRD, WAFIC, and relevant Fishery Licence Holders that have the potential to be directly impacted by planned activities in the Operational Area (Western Deepwater Trawl Fishery) prior to the commencement and at the end of the activity, as referenced as **P.S 1.4** in this EP.

Woodside has consulted Tuna Australia in the course of preparing this EP. Woodside has assessed the claims or objections raised by Tuna Australia. No additional measures or controls have been put in place.

Woodside considers the measures and controls described within this EP address the potential impact from the proposed activities on Tuna Australia's functions, interests or activities.

	<ul style="list-style-type: none"> • Establishment of temporary exclusion zones by relevant vessels which are communicated to marine users. • Vessels comply with regulatory requirements for the prevention of vessel collisions and safety and emergency arrangements. • Woodside also notes the following in relation to the points raised in Tuna Australia's feedback: <ul style="list-style-type: none"> • Routine marine vessel and MODU discharges will be managed in accordance with legislative and regulatory requirements (e.g. marine orders) • Any localised impacts to water quality, sediment quality and marine fish are likely to be intermittent and highlight localised and not expected to impact any commercial fisheries in the area. • Seabed disturbance will managed by limiting the area of seabed disturbance to only that required to undertake the activity, and avoiding unnecessary seabed disturbance • Acoustic emissions from vessels in field will be managed by complying with regulatory requirements (e.g. EPBC Regulations 2000 – Part 8 Division 8.1). <p>Woodside has provided consultation information to AFMA, CFA, ASBTIA, Tuna Australia and individual relevant licence holders.</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 11.6.4).</p>	
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Northern Prawn Fishery

Woodside considers it has discharged its obligations under regulation 11A by providing consultation materials and conducting various forms of engagement as set out in Section 5.8 and below.

Summary of information provided and record of consultation:

- On 1 June 2023, Woodside sent an email to Northern Prawn fishery licence holders advising of the proposed activity (Appendix F, reference 3.3) and provided a Consultation Information Sheet.
- On 23 June 2023, Woodside sent a follow up email to Northern Prawn fishery licence holders advising of the proposed activity (Appendix F, reference 3.3.1) and provided a Consultation Information Sheet.

Summary of Feedback, Objection or Claim	Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response	Environment Plan Controls
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<p>No feedback, objections or claims received despite follow up.</p>	<p>Woodside has provided consultation information to AFMA, DAFF - Fisheries, CFA, ASBTIA, Tuna Australia and individual relevant licence holders.</p> <p>Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 11.6.4).</p>	<p>Woodside has assessed the potential for interaction with Commonwealth and State managed commercial fisheries in Section 4.8.2 of this EP.</p> <p>Woodside will provide notifications to AFMA, DAFF – Fisheries, CFA, DPIRD, WAFIC, and relevant Fishery Licence Holders that have the potential to be directly impacted by planned activities in the Operational Area (Western Deepwater Trawl Fishery) prior to the commencement and at the end of the activity, as referenced as P.S 1.4 in this EP.</p> <p>No additional measures or controls are required.</p>
<p>Northern Prawn Fishery Industry Pty Ltd</p>		
<p>Woodside considers it has discharged its obligations under regulation 11A by providing consultation materials and conducting various forms of engagement as set out in Section 5.8 and below.</p> <p>Summary of information provided and record of consultation:</p> <ul style="list-style-type: none"> On 1 June 2023, Woodside sent an email to Northern Prawn fishery licence holders advising of the proposed activity (Appendix F, reference 3.3) and provided a Consultation Information Sheet. On 23 June 2023, Woodside sent a follow up email to Northern Prawn fishery licence holders advising of the proposed activity (Appendix F, reference 3.3.1) and provided a Consultation Information Sheet. 		
<p>Summary of Feedback, Objection or Claim</p>	<p>Woodside Energy’s Assessment of Merits of Feedback, Objection or Claim and its Response</p>	<p>Environment Plan Controls</p>
<p>No feedback, objections or claims received despite follow up.</p>	<p>Woodside has provided consultation information to AFMA, DAFF - Fisheries, CFA, ASBTIA, Tuna Australia and individual relevant licence holders.</p> <p>Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 11.6.4).</p>	<p>Woodside has assessed the potential for interaction with Commonwealth and State managed commercial fisheries in Section 4.8.2 of this EP.</p> <p>Woodside will provide notifications to AFMA, DAFF – Fisheries, CFA, DPIRD, WAFIC, and relevant Fishery Licence Holders that have the potential to be directly impacted by planned activities in the Operational Area (Western Deepwater Trawl Fishery) prior to the commencement and at the end of the activity, as referenced as P.S 1.4 in this EP.</p> <p>No additional measures or controls are required.</p>
<p>State Commercial fisheries and representative bodies</p>		
<p>Exmouth Gulf Prawn Managed Fishery</p>		

Woodside considers it has discharged its obligations under regulation 11A by providing consultation materials and conducting various forms of engagement as set out in Section 5.8 and below.

Summary of information provided and record of consultation:

- On 17 February 2023, Woodside sent a letter to Exmouth Gulf Prawn Managed Fishery advising of the proposed activity (Appendix F, reference 2.33) and provided a website link to Consultation Information.
- On 8 March 2023, Woodside sent a reminder letter to Exmouth Gulf Prawn Managed Fishery advising of the proposed activity (Appendix F, reference 2.10) and provided a website link to Consultation Information.

Summary of Feedback, Objection or Claim	Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response	Environment Plan Controls
No feedback, objections or claims received despite follow up.	<p>Woodside has provided consultation information to DPIRD, WAFIC, and individual relevant licence holders.</p> <p>Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 11.6.4).</p>	<p>Woodside has assessed the potential for interaction with Commonwealth and State managed commercial fisheries in Section 4.8.2 of this EP.</p> <p>Woodside will provide notifications to AFMA, DAFF – Fisheries, CFA, DPIRD, WAFIC, and relevant Fishery Licence Holders that have the potential to be directly impacted by planned activities in the Operational Area (Western Deepwater Trawl Fishery) prior to the commencement and at the end of the activity, as referenced as P.S 1.4 in this EP.</p> <p>No additional measures or controls are required.</p>

Gascoyne Demersal Scalefish Fishery

Woodside considers it has discharged its obligations under regulation 11A by providing consultation materials and conducting various forms of engagement as set out in Section 5.8 and below.

Summary of information provided and record of consultation:

- On 17 February 2023, Woodside sent a letter to Gascoyne Demersal Scalefish Fishery advising of the proposed activity (Appendix F, reference 2.33) and provided a website link to Consultation Information.
- On 8 March 2023, Woodside sent a reminder letter to Gascoyne Demersal Scalefish Fishery advising of the proposed activity (Appendix F, reference 2.10) and provided a website link to Consultation Information.

Summary of Feedback, Objection or Claim	Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response	Environment Plan Controls
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<p>No feedback, objections or claims received despite follow up.</p>	<p>Woodside has provided consultation information to DPIRD, WAFIC, and individual relevant licence holders.</p> <p>Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 11.6.4).</p>	<p>Woodside has assessed the potential for interaction with Commonwealth and State managed commercial fisheries in Section 4.8.2 of this EP.</p> <p>Woodside will provide notifications to AFMA, DAFF – Fisheries, CFA, DPIRD, WAFIC, and relevant Fishery Licence Holders that have the potential to be directly impacted by planned activities in the Operational Area (Western Deepwater Trawl Fishery) prior to the commencement and at the end of the activity, as referenced as P.S 1.4 in this EP.</p> <p>No additional measures or controls are required.</p>
<p>Mackerel Managed Fishery (Areas 2 and 3)</p>		
<p>Woodside considers it has discharged its obligations under regulation 11A by providing consultation materials and conducting various forms of engagement as set out in Section 5.8 and below.</p> <p>Summary of information provided and record of consultation:</p> <ul style="list-style-type: none"> On 17 February 2023, Woodside sent a letter to licence holders advising of the proposed activity (Appendix F, reference 2.33) and provided a website link to Consultation Information. On 8 March 2023, Woodside sent a reminder letter to licence holders advising of the Appendix F, reference 2.10) and provided a website link to Consultation Information. 		
<p>Summary of Feedback, Objection or Claim</p>	<p>Woodside Energy’s Assessment of Merits of Feedback, Objection or Claim and its Response</p>	<p>Environment Plan Controls</p>
<p>No feedback, objections or claims received despite follow up.</p>	<p>Woodside has provided consultation information to DPIRD, WAFIC, and individual relevant licence holders.</p> <p>Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 11.6.4).</p>	<p>Woodside has assessed the potential for interaction with Commonwealth and State managed commercial fisheries in Section 4.8.2 of this EP.</p> <p>Woodside will provide notifications to AFMA, DAFF – Fisheries, CFA, DPIRD, WAFIC, and relevant Fishery Licence Holders that have the potential to be directly impacted by planned activities in the Operational Area (Western Deepwater Trawl Fishery) prior to the commencement and at the end of the activity, as referenced as P.S 1.4 in this EP.</p> <p>No additional measures or controls are required.</p>
<p>Marine Aquarium Fish Managed Fishery</p>		

Woodside considers it has discharged its obligations under regulation 11A by providing consultation materials and conducting various forms of engagement as set out in Section 5.8 and below.

Summary of information provided and record of consultation:

- On 17 February 2023, Woodside sent a letter to Marine Aquarium Fish Managed Fishery advising of the proposed activity (Appendix F, reference 2.33) and provided a website link to Consultation Information.
- On 8 March 2023, Woodside sent a reminder letter to Marine Aquarium Fish Managed Fishery advising of the proposed activity (Appendix F, reference 2.10) and provided a website link to Consultation Information.

Summary of Feedback, Objection or Claim	Woodside Energy’s Assessment of Merits of Feedback, Objection or Claim and its Response	Environment Plan Controls
No feedback, objections or claims received despite follow up.	<p>Woodside has provided consultation information to DPIRD, WAFIC, and individual relevant licence holders.</p> <p>Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 11.6.4).</p>	<p>Woodside has assessed the potential for interaction with Commonwealth and State managed commercial fisheries in Section 4.8.2 of this EP.</p> <p>Woodside will provide notifications to AFMA, DAFF – Fisheries, CFA, DPIRD, WAFIC, and relevant Fishery Licence Holders that have the potential to be directly impacted by planned activities in the Operational Area (Western Deepwater Trawl Fishery) prior to the commencement and at the end of the activity, as referenced as P.S 1.4 in this EP.</p> <p>No additional measures or controls are required.</p>

Nickol Bay Prawn Managed Fishery

Woodside considers it has discharged its obligations under regulation 11A by providing consultation materials and conducting various forms of engagement as set out in Section 5.8 and below.

Summary of information provided and record of consultation:

- On 17 February 2023, Woodside sent a letter to Nickol Bay Prawn Managed Fishery advising of the proposed activity (Appendix F, reference 2.33 and provided a website link to Consultation Information.
- On 8 March 2023, Woodside sent a reminder letter to Nickol Bay Prawn Managed Fishery advising of the proposed activity (Appendix F, reference 2.10 and provided a website link to Consultation Information.

Summary of Feedback, Objection or Claim	Woodside Energy’s Assessment of Merits of Feedback, Objection or Claim and its Response	Environment Plan Controls
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<p>No feedback, objections or claims received despite follow up.</p>	<p>Woodside has provided consultation information to DPIRD, WAFIC, and individual relevant licence holders.</p> <p>Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 11.6.4).</p>	<p>Woodside has assessed the potential for interaction with Commonwealth and State managed commercial fisheries in Section 4.8.2 of this EP.</p> <p>Woodside will provide notifications to AFMA, DAFF – Fisheries, CFA, DPIRD, WAFIC, and relevant Fishery Licence Holders that have the potential to be directly impacted by planned activities in the Operational Area (Western Deepwater Trawl Fishery) prior to the commencement and at the end of the activity, as referenced as P.S 1.4 in this EP.</p> <p>No additional measures or controls are required.</p>
<p>Onslow Prawn Managed Fishery</p>		
<p>Woodside considers it has discharged its obligations under regulation 11A by providing consultation materials and conducting various forms of engagement as set out in Section 5.8 and below.</p> <p>Summary of information provided and record of consultation:</p> <ul style="list-style-type: none"> On 17 February 2023, Woodside sent a letter to Onslow Prawn Managed Fishery advising of the proposed activity (Appendix F, reference 2.33) and provided a website link to Consultation Information. On 8 March 2023, Woodside sent a reminder letter to Onslow Prawn Managed Fishery advising of the proposed activity (Appendix F, reference 2.10) and provided a website link to Consultation Information. 		
<p>Summary of Feedback, Objection or Claim</p>	<p>Woodside Energy’s Assessment of Merits of Feedback, Objection or Claim and its Response</p>	<p>Environment Plan Controls</p>
<p>No feedback, objections or claims received despite follow up.</p>	<p>Woodside has provided consultation information to DPIRD, WAFIC, and individual relevant licence holders.</p> <p>Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 11.6.4).</p>	<p>Woodside has assessed the potential for interaction with Commonwealth and State managed commercial fisheries in Section 4.8.2 of this EP.</p> <p>Woodside will provide notifications to AFMA, DAFF – Fisheries, CFA, DPIRD, WAFIC, and relevant Fishery Licence Holders that have the potential to be directly impacted by planned activities in the Operational Area (Western Deepwater Trawl Fishery) prior to the commencement and at the end of the activity, as referenced as P.S 1.4 in this EP.</p> <p>No additional measures or controls are required.</p>
<p>Pilbara Crab Managed Fishery</p>		

Woodside considers it has discharged its obligations under regulation 11A by providing consultation materials and conducting various forms of engagement as set out in Section 5.8 and below.

Summary of information provided and record of consultation:

- On 17 February 2023, Woodside sent a letter to Pilbara Crab Managed Fishery advising of the proposed activity (Appendix F, reference 2.33) and provided a website link to Consultation Information.
- On 8 March 2023, Woodside sent a reminder letter to Pilbara Crab Managed Fishery advising of the proposed activity (Appendix F, reference 2.10) and provided a website link to Consultation Information.

Summary of Feedback, Objection or Claim	Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response	Environment Plan Controls
No feedback, objections or claims received despite follow up.	<p>Woodside has provided consultation information to DPIRD, WAFIC, and individual relevant licence holders.</p> <p>Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 11.6.4).</p>	<p>Woodside has assessed the potential for interaction with Commonwealth and State managed commercial fisheries in Section 4.8.2 of this EP.</p> <p>Woodside will provide notifications to AFMA, DAFF – Fisheries, CFA, DPIRD, WAFIC, and relevant Fishery Licence Holders that have the potential to be directly impacted by planned activities in the Operational Area (Western Deepwater Trawl Fishery) prior to the commencement and at the end of the activity, as referenced as P.S 1.4 in this EP.</p> <p>No additional measures or controls are required.</p>

Pilbara Line Fishery

Woodside considers it has discharged its obligations under regulation 11A by providing consultation materials and conducting various forms of engagement as set out in Section 5.8 and below.

Summary of information provided and record of consultation:

- On 17 February 2023, Woodside sent a letter to Pilbara Line Fishery advising of the proposed activity (Appendix F, reference 2.33) and provided a website link to Consultation Information.
- On 8 March 2023, Woodside sent a reminder letter to Pilbara Line Fishery advising of the proposed activity (Appendix F, reference 2.10) and provided a website link to Consultation Information.

Summary of Feedback, Objection or Claim	Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response	Environment Plan Controls
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<p>No feedback, objections or claims received despite follow up.</p>	<p>Woodside has provided consultation information to DPIRD, WAFIC, and individual relevant licence holders.</p> <p>Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 11.6.4).</p>	<p>Woodside has assessed the potential for interaction with Commonwealth and State managed commercial fisheries in Section 4.8.2 of this EP.</p> <p>Woodside will provide notifications to AFMA, DAFF – Fisheries, CFA, DPIRD, WAFIC, and relevant Fishery Licence Holders that have the potential to be directly impacted by planned activities in the Operational Area (Western Deepwater Trawl Fishery) prior to the commencement and at the end of the activity, as referenced as P.S 1.4 in this EP.</p> <p>No additional measures or controls are required.</p>
<p>Pilbara Trap Fishery</p>		
<p>Woodside considers it has discharged its obligations under regulation 11A by providing consultation materials and conducting various forms of engagement as set out in Section 5.8 and below.</p> <p>Summary of information provided and record of consultation:</p> <ul style="list-style-type: none"> On 17 February 2023, Woodside sent a letter to Pilbara Trap Fishery advising of the proposed activity (Appendix F, reference 2.33) and provided a website link to Consultation Information. On 8 March 2023, Woodside sent a reminder letter to Pilbara Line Fishery advising of the proposed activity (Appendix F, reference 2.10) and provided a website link to Consultation Information. 		
<p>Summary of Feedback, Objection or Claim</p>	<p>Woodside Energy’s Assessment of Merits of Feedback, Objection or Claim and its Response</p>	<p>Environment Plan Controls</p>
<p>No feedback, objections or claims received despite follow up.</p>	<p>Woodside has provided consultation information to DPIRD, WAFIC, and individual relevant licence holders.</p> <p>Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 11.6.4).</p>	<p>Woodside has assessed the potential for interaction with Commonwealth and State managed commercial fisheries in Section 4.8.2 of this EP.</p> <p>Woodside will provide notifications to AFMA, DAFF – Fisheries, CFA, DPIRD, WAFIC, and relevant Fishery Licence Holders that have the potential to be directly impacted by planned activities in the Operational Area (Western Deepwater Trawl Fishery) prior to the commencement and at the end of the activity, as referenced as P.S 1.4 in this EP.</p> <p>No additional measures or controls are required.</p>
<p>Pilbara Trawl Fishery</p>		

Woodside considers it has discharged its obligations under regulation 11A by providing consultation materials and conducting various forms of engagement as set out in Section 5.8 and below.

Summary of information provided and record of consultation:

- On 17 February 2023, Woodside sent a letter to Pilbara Trawl Fishery advising of the proposed activity (Appendix F, reference 2.33) and provided a website link to Consultation Information.
- On 8 March 2023, Woodside sent a reminder letter to Pilbara Line Fishery advising of the proposed activity (Appendix F, reference 2.10) and provided a website link to Consultation Information.

Summary of Feedback, Objection or Claim	Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response	Environment Plan Controls
No feedback, objections or claims received despite follow up.	<p>Woodside has provided consultation information to DPIRD, WAFIC, and individual relevant licence holders.</p> <p>Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 11.6.4).</p>	<p>Woodside has assessed the potential for interaction with Commonwealth and State managed commercial fisheries in Section 4.8.2 of this EP.</p> <p>Woodside will provide notifications to AFMA, DAFF – Fisheries, CFA, DPIRD, WAFIC, and relevant Fishery Licence Holders that have the potential to be directly impacted by planned activities in the Operational Area (Western Deepwater Trawl Fishery) prior to the commencement and at the end of the activity, as referenced as P.S 1.4 in this EP.</p> <p>No additional measures or controls are required.</p>

Shark Bay Crab Managed Fishery

Woodside considers it has discharged its obligations under regulation 11A by providing consultation materials and conducting various forms of engagement as set out in Section 5.8 and below.

Summary of information provided and record of consultation:

- On 17 February 2023, Woodside sent a letter to Shark Bay Crab Managed Fishery advising of the proposed activity (Appendix F, reference 2.33) and provided a website link to Consultation Information.
- On 8 March 2023, Woodside sent a reminder letter to Shark Bay Crab Managed Fishery advising of the proposed activity (Appendix F, reference 2.10) and provided a website link to Consultation Information.

Summary of Feedback, Objection or Claim	Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response	Environment Plan Controls
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<p>No feedback, objections or claims received despite follow up.</p>	<p>Woodside has provided consultation information to DPIRD, WAFIC, and individual relevant licence holders.</p> <p>Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 11.6.4).</p>	<p>Woodside has assessed the potential for interaction with Commonwealth and State managed commercial fisheries in Section 4.8.2 of this EP.</p> <p>Woodside will provide notifications to AFMA, DAFF – Fisheries, CFA, DPIRD, WAFIC, and relevant Fishery Licence Holders that have the potential to be directly impacted by planned activities in the Operational Area (Western Deepwater Trawl Fishery) prior to the commencement and at the end of the activity, as referenced as P.S 1.4 in this EP.</p> <p>No additional measures or controls are required.</p>
<p>Shark Bay Prawn Managed Fishery</p>		
<p>Woodside considers it has discharged its obligations under regulation 11A by providing consultation materials and conducting various forms of engagement as set out in Section 5.8 and below.</p> <p>Summary of information provided and record of consultation:</p> <ul style="list-style-type: none"> On 17 February 2023, Woodside sent a letter to Shark Bay Prawn Managed Fishery advising of the proposed activity (Appendix F, reference 2.33) and provided a website link to Consultation Information. On 8 March 2023, Woodside sent a reminder letter to Shark Bay Prawn Managed Fishery advising of the proposed activity (Appendix F, reference 2.10) and provided a website link to Consultation Information. 		
<p>Summary of Feedback, Objection or Claim</p>	<p>Woodside Energy’s Assessment of Merits of Feedback, Objection or Claim and its Response</p>	<p>Environment Plan Controls</p>
<p>No feedback, objections or claims received despite follow up.</p>	<p>Woodside has provided consultation information to DPIRD, WAFIC, and individual relevant licence holders.</p> <p>Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 11.6.4).</p>	<p>Woodside has assessed the potential for interaction with Commonwealth and State managed commercial fisheries in Section 4.8.2 of this EP.</p> <p>Woodside will provide notifications to AFMA, DAFF – Fisheries, CFA, DPIRD, WAFIC, and relevant Fishery Licence Holders that have the potential to be directly impacted by planned activities in the Operational Area (Western Deepwater Trawl Fishery) prior to the commencement and at the end of the activity, as referenced as P.S 1.4 in this EP.</p> <p>No additional measures or controls are required.</p>
<p>Shark Bay Scallop Managed Fishery</p>		

Woodside considers it has discharged its obligations under regulation 11A by providing consultation materials and conducting various forms of engagement as set out in Section 5.8 and below.

Summary of information provided and record of consultation:

- On 17 February 2023, Woodside sent a letter to Shark Bay Scallop Managed Fishery advising of the proposed activity (Appendix F, reference 2.33) and provided a website link to Consultation Information.
- On 8 March 2023, Woodside sent a reminder letter to Shark Bay Scallop Managed Fishery advising of the proposed activity (Appendix F, reference 2.10) and provided a website link to Consultation Information.

Summary of Feedback, Objection or Claim	Woodside Energy’s Assessment of Merits of Feedback, Objection or Claim and its Response	Environment Plan Controls
No feedback, objections or claims received despite follow up.	<p>Woodside has provided consultation information to DPIRD, WAFIC, and individual relevant licence holders.</p> <p>Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 11.6.4).</p>	<p>Woodside has assessed the potential for interaction with Commonwealth and State managed commercial fisheries in Section 4.8.2 of this EP.</p> <p>Woodside will provide notifications to AFMA, DAFF – Fisheries, CFA, DPIRD, WAFIC, and relevant Fishery Licence Holders that have the potential to be directly impacted by planned activities in the Operational Area (Western Deepwater Trawl Fishery) prior to the commencement and at the end of the activity, as referenced as P.S 1.4 in this EP.</p> <p>No additional measures or controls are required.</p>

West Coast Deep Sea Crustacean Managed Fishery

Woodside considers it has discharged its obligations under regulation 11A by providing consultation materials and conducting various forms of engagement as set out in Section 5.8 and below.

Summary of information provided and record of consultation:

- On 17 February 2023, Woodside sent a letter to West Coast Deep Sea Crustacean Managed Fishery advising of the proposed activity (Appendix F, reference 2.33) and provided a website link to Consultation Information.
- On 8 March 2023, Woodside sent a reminder letter to West Coast Deep Sea Crustacean Managed Fishery advising of the proposed activity (Appendix F, reference 2.10) and provided a website link to Consultation Information.

Summary of Feedback, Objection or Claim	Woodside Energy’s Assessment of Merits of Feedback, Objection or Claim and its Response	Environment Plan Controls

<p>No feedback, objections or claims received despite follow up.</p>	<p>Woodside has provided consultation information to DPIRD, WAFIC, and individual relevant licence holders.</p> <p>Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 11.6.4).</p>	<p>Woodside has assessed the potential for interaction with Commonwealth and State managed commercial fisheries in Section 4.8.2 of this EP.</p> <p>Woodside will provide notifications to AFMA, DAFF – Fisheries, CFA, DPIRD, WAFIC, and relevant Fishery Licence Holders that have the potential to be directly impacted by planned activities in the Operational Area (Western Deepwater Trawl Fishery) prior to the commencement and at the end of the activity, as referenced as P.S 1.4 in this EP.</p> <p>No additional measures or controls are required.</p>
<p>West Coast Rock Lobster Managed Fishery</p>		
<p>Woodside considers it has discharged its obligations under regulation 11A by providing consultation materials and conducting various forms of engagement as set out in Section 5.8 and below.</p> <p>Summary of information provided and record of consultation:</p> <ul style="list-style-type: none"> On 17 February 2023, Woodside sent a letter to West Coast Rock Lobster Managed Fishery advising of the proposed activity (Appendix F, reference 2.33) and provided a website link to Consultation Information. On 8 March 2023, Woodside sent a reminder letter to West Coast Rock Lobster Managed Fishery advising of the proposed activity (Appendix F, reference 2.10) and provided a website link to Consultation Information. 		
<p>Summary of Feedback, Objection or Claim</p>	<p>Woodside Energy’s Assessment of Merits of Feedback, Objection or Claim and its Response</p>	<p>Environment Plan Controls</p>
<p>No feedback, objections or claims received despite follow up.</p>	<p>Woodside has provided consultation information to DPIRD, WAFIC, and individual relevant licence holders.</p> <p>Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 11.6.4).</p>	<p>Woodside has assessed the potential for interaction with Commonwealth and State managed commercial fisheries in Section 4.8.2 of this EP.</p> <p>Woodside will provide notifications to AFMA, DAFF – Fisheries, CFA, DPIRD, WAFIC, and relevant Fishery Licence Holders that have the potential to be directly impacted by planned activities in the Operational Area (Western Deepwater Trawl Fishery) prior to the commencement and at the end of the activity, as referenced as P.S 1.4 in this EP.</p> <p>No additional measures or controls are required.</p>
<p>Western Australian Sea Cucumber Fishery</p>		

Woodside considers it has discharged its obligations under regulation 11A by providing consultation materials and conducting various forms of engagement as set out in Section 5.8 and below.

Summary of information provided and record of consultation:

- On 17 February 2023, Woodside sent a letter to Western Australian Sea Cucumber Fishery advising of the proposed activity (Appendix F, reference 2.33) and provided a website link to Consultation Information.
- On 8 March 2023, Woodside sent a reminder letter to Western Australian Sea Cucumber Fishery advising of the proposed activity (Appendix F, reference 2.10) and provided a website link to Consultation Information.

Summary of Feedback, Objection or Claim	Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response	Environment Plan Controls
No feedback, objections or claims received despite follow up.	<p>Woodside has provided consultation information to DPIRD, WAFIC, and individual relevant licence holders.</p> <p>Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 11.6.4).</p>	<p>Woodside has assessed the potential for interaction with Commonwealth and State managed commercial fisheries in Section 4.8.2 of this EP.</p> <p>Woodside will provide notifications to AFMA, DAFF – Fisheries, CFA, DPIRD, WAFIC, and relevant Fishery Licence Holders that have the potential to be directly impacted by planned activities in the Operational Area (Western Deepwater Trawl Fishery) prior to the commencement and at the end of the activity, as referenced as P.S 1.4 in this EP.</p> <p>No additional measures or controls are required.</p>

Specimen Shell Managed Fishery

Woodside considers it has discharged its obligations under regulation 11A by providing consultation materials and conducting various forms of engagement as set out in Section 5.8 and below.

Summary of information provided and record of consultation:

- On 9 June 2023, Woodside emailed Specimen Shell Managed Fishery advising of the proposed activity (Appendix F, reference 3.5) and provided a Consultation Information Sheet.
- On 26 June 2023, Woodside sent a reminder email to Specimen Shell Managed Fishery advising of the proposed activity (Appendix F, reference 3.5.1) and provided a Consultation Information Sheet.

Summary of Feedback, Objection or Claim	Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response	Environment Plan Controls
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<p>No feedback, objections or claims received despite follow up.</p>	<p>Woodside has provided consultation information to DPIRD, WAFIC, and individual relevant licence holders.</p> <p>Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 11.6.4).</p>	<p>Woodside has assessed the potential for interaction with Commonwealth and State managed commercial fisheries in Section 4.8.2 of this EP.</p> <p>Woodside will provide notifications to AFMA, DAFF – Fisheries, CFA, DPIRD, WAFIC, and relevant Fishery Licence Holders that have the potential to be directly impacted by planned activities in the Operational Area (Western Deepwater Trawl Fishery) prior to the commencement and at the end of the activity, as referenced as P.S 1.4 in this EP.</p> <p>No additional measures or controls are required.</p>
<p>Exmouth Gulf Prawn Fishery</p>		
<p>Woodside considers it has discharged its obligations under regulation 11A by providing consultation materials and conducting various forms of engagement as set out in Section 5.8 and below.</p> <p>Summary of information provided and record of consultation:</p> <ul style="list-style-type: none"> On 17 February 2023, Woodside sent a letter to Exmouth Gulf Prawn Fishery advising of the proposed activity (Appendix F, reference 2.33) and provided a website link to Consultation Information. On 8 March 2023, Woodside sent a reminder letter to Exmouth Gulf Prawn Fishery advising of the proposed activity (Appendix F, reference 2.10) and provided a website link to Consultation Information. 		
<p>Summary of Feedback, Objection or Claim</p>	<p>Woodside Energy’s Assessment of Merits of Feedback, Objection or Claim and its Response</p>	<p>Environment Plan Controls</p>
<p>No feedback, objections or claims received despite follow up.</p>	<p>Woodside has provided consultation information to DPIRD, WAFIC, and individual relevant licence holders.</p> <p>Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 11.6.4).</p>	<p>Woodside has assessed the potential for interaction with Commonwealth and State managed commercial fisheries in Section 4.8.2 of this EP.</p> <p>Woodside will provide notifications to AFMA, DAFF – Fisheries, CFA, DPIRD, WAFIC, and relevant Fishery Licence Holders that have the potential to be directly impacted by planned activities in the Operational Area (Western Deepwater Trawl Fishery) prior to the commencement and at the end of the activity, as referenced as P.S 1.4 in this EP.</p> <p>No additional measures or controls are required.</p>
<p>Western Australian Fishing Industry Council (WAFIC)</p>		

Woodside considers it has discharged its obligations under regulation 11A by providing consultation materials and conducting various forms of engagement as set out in Section 5.8 and below.

Summary of information provided and record of consultation:

- On 27 May 2022, Woodside emailed WAFIC advising of the proposed activity (Appendix F, reference 1.8) and provided a Consultation Information Sheet.
- On 4 July 2022, WAFIC responded to Woodside advising its support for the P&A of 10 production/injection wells and the removal of the H4 flexible production flowline. WAFIC sought responses to the following questions and requests:
 - What material is contained in the suction gravity bases for the riser holdbacks and water injection manifold?
 - What does it mean to have riser bases 4m in diameter and 7m high left *in situ*?
 - Provide further detail of the assessment.
- On 28 July 2022, Woodside responded to WAFIC and:
 - acknowledged WAFIC’s feedback on the P&A activities for the 10 production/injection wells and the removal of the H4 flexible production flowline.
 - provided details on the composition of the suction gravity bases.
 - confirmed that recent ROV footage showed that approximately 0.75 m of the suction gravity bases was protruding from the seabed.
 - provided a summary of the decommissioning assessment options and criteria, and high-level outcomes.
 - Woodside also advised that since consultation material was provided to stakeholders, a historical exploration wellhead (Eskdale-1) within the field has been identified and added to the leave in situ scope. Woodside also provided details on the dimensions and composition of the wellhead, including previous unsuccessful efforts to remove the wellhead in 2003 when the well was plugged and abandoned.
- On 29 August 2022, WAFIC emailed Woodside thanking it for the updated information and:
 - Advised that WAFIC objects to the suction gravity bases or the disconnectable turret mooring and/or any equipment that has an epoxy-based paint remaining in situ.
 - Requested Woodside also provide details as to why the Eskdale-1 will remain in situ.
- On 16 February 2023, Woodside emailed WAFIC advising of the proposed activity (Appendix F, reference 2.14) and provided a Consultation Information Sheet.
- On 10 March 2023, Woodside sent a reminder email to WAFIC advising of the proposed activity (Appendix F, reference 2.14.1) and provided a Consultation Information Sheet.
- On 5 May 2023, Woodside had a phone call with WAFIC to follow up on a number of EPs, including the activities proposed under this EP, and to request any further feedback. Woodside committed to providing WAFIC with a consolidated email outlining all the EPs Woodside is currently consulting WAFIC on for ease of feedback.
- On 5 May 2023, Woodside sent an email to WAFIC providing the status of feedback on a number of EPs, including the activities proposed under this EP. Woodside advised it would soon be submitting the EP for assessment and requested any further feedback.
- On 19 May 2023, Woodside had a phone call with WAFIC to follow up on a number of EPs, including the activities proposed under this EP and to request any feedback.
- On 20 June 2023, Woodside emailed WAFIC advising the fisheries it had assessed as having a potential for interaction in the Operational Area and EMBA for a number of EPs, including the activities proposed under this EP, in line with its consultation approach for unplanned events. Woodside re-provided the Consultation Information Sheet and followed up on any further feedback with respect to the proposed EP.
- On 27 June 2023, Woodside emailed WAFIC providing a response to feedback on a separate EP and followed up on feedback with respect to the activities proposed under this EP.

Summary of Feedback, Objection or Claim	Woodside Energy’s Assessment of Merits of Feedback, Objection or Claim and its Response	Environment Plan Controls
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<p>WAFIC advised its support for the P&A of 10 production/injection wells and the removal of the H4 flexible production flowline.</p> <p>WAFIC requested further information on material contained in the suction gravity bases for the riser holdbacks and water injection manifold.</p> <p>WAFIC requested further information on the assessment.</p> <p>Whilst feedback has been received, there were no objections or claims.</p>	<p>Woodside has responded to WAFIC's feedback, including:</p> <ul style="list-style-type: none"> • acknowledging WAFIC's feedback on the P&A activities for the 10 production/injection wells and the removal of the H4 flexible production flowline. • provided details on the composition of the suction gravity bases. • confirmed that recent ROV footage showed that approximately 0.75 m of the suction gravity bases was protruding from the seabed. • provided a summary of the decommissioning assessment options and criteria, and high-level outcomes. <p>Woodside also advised WAFIC that historical exploration wellhead (Eskdale-1) within the field had been identified and added to the leave <i>in situ</i> scope.</p> <p>Woodside has provided consultation information to DPIRD, WAFIC, and individual relevant licence holders.</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 11.6.4).</p>	<p>Woodside has assessed the potential for interaction with Commonwealth and State managed commercial fisheries in Section 4.8.2 of this EP.</p> <p>Woodside will provide notifications to AFMA, DAFF – Fisheries, CFA, DPIRD, WAFIC, and relevant Fishery Licence Holders that have the potential to be directly impacted by planned activities in the Operational Area (Western Deepwater Trawl Fishery) prior to the commencement and at the end of the activity, as referenced as P.S 1.4 in this EP.</p> <p>Woodside considers the measures and controls described within this EP address the potential impact from the proposed activities on WAFIC's functions, interests or activities.</p> <p>No additional measures or controls are required.</p>
<p>Western Rock Lobster Council</p>		

Woodside considers it has discharged its obligations under regulation 11A by providing consultation materials and conducting various forms of engagement as set out in Section 5.8 and below.

Summary of information provided and record of consultation:

- On 16 February 2023, Woodside emailed the Western Rock Lobster Council advising of the proposed activity and provided a Consultation Information Sheet.
- On 27 February 2023, the Western Rock Lobster Council responded to Woodside on another matter and requested consultation information and feedback dates for Woodside's relevant projects to help ensure they are communicating with the relevant fisheries in a timely manner.
- On 1 March 2023, Woodside provided a copy of the Consultation Information Sheet for the proposed activities for member and/or the Western Rock Lobster Council's feedback. Woodside advised it had also provided Western Rock Lobster Fishery licence holders with consultation information directly.
- On 14 March 2023, Woodside sent a follow up email to the Western Rock Lobster Council.
- On 20 March 2023, Western Rock Lobster responded, thanking Woodside for their email and requested an extension of 2 weeks on the feedback dates.
- On 30 March 2023, Woodside responded confirming the requested extension to provide feedback.
- On 12 April 2023, Woodside emailed the Western Rock Lobster Council to follow up on feedback relating to the proposed activity.
- On 10 May 2023, Woodside had a phone call with the Western Rock Lobster Council to follow up on feedback relating to a number of EPs, including the activities proposed under this EP. Woodside referred to its email dated 12 April 2023 which referenced the EPs Woodside had provided consultation information to the Western Rock Lobster Council for. The Western Rock Lobster Council advised it would come back to Woodside the same day if it had any feedback.
- On 11 May 2023, Western Rock Lobster Council emailed Woodside to advise it didn't have any comments on the EPs, including the activities proposed under this EP.
- On 11 May 2023, Woodside responded to thank the Western Rock Lobster Council for its response and confirmed Woodside will continue to engage the Western Rock Lobster Council with respect to applicable EPs.

Summary of Feedback, Objection or Claim	Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response	Environment Plan Controls
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<p>Western Rock Lobster Council emailed Woodside to request a map of all the activities Woodside is undertaking that it's relevant to and if there are timeframes in relation to each activity. Western Rock Lobster council confirmed it didn't have any comments on the proposed activities.</p> <p>Whilst feedback has been received, there were no objections or claims.</p>	<p>Western Rock Lobster confirmed it didn't have any comments on the proposed activities.</p> <p>Woodside has provided consultation information to DPIRD, WAFIC, the Western Rock Lobster Council and individual relevant licence holders.</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 11.6.4).</p>	<p>Woodside has assessed the potential for interaction with Commonwealth and State managed commercial fisheries in Section 4.8.2 of this EP.</p> <p>Woodside will provide notifications to AFMA, DAFF – Fisheries, CFA, DPIRD, WAFIC, and relevant Fishery Licence Holders that have the potential to be directly impacted by planned activities in the Operational Area (Western Deepwater Trawl Fishery) prior to the commencement and at the end of the activity, as referenced as P.S 1.4 in this EP.</p> <p>Woodside considers the measures and controls described within this EP address the potential impact from the proposed activities on Western Rock Lobster Council's functions, interests or activities.</p> <p>No additional measures or controls are required.</p>
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Recreational marine users and representative bodies

Exmouth Recreational Marine Users

Woodside considers it has discharged its obligations under regulation 11A by providing consultation materials and conducting various forms of engagement as set out in Section 5.8 and below.

Summary of information provided and record of consultation:

- On 27 May 2022, Woodside emailed Exmouth Recreational Marine Users advising of the proposed activity (Appendix F, reference 1.9 and reference 1.9.1) and provided a Consultation Information Sheet.
- On 31 May 2022, an Exmouth Recreational Marine User responded requesting that the proposed activity did not commence until after GAMEX tournament was conducted in March each year.
- On 28 July 2022, Woodside responded advising that there were no plans to be in the field in March 2023. Woodside committed to maintaining contact as planning progressed for mutual activities.
- On 17 February 2023, Woodside emailed Exmouth Recreational Marine Users advising of the proposed activity (Appendix F, reference 2.9) and provided a Consultation Information Sheet.
- On 10 March 2023, Woodside sent a reminder email to Exmouth Recreational Marine Users advising of the proposed activity (Appendix F, reference 2.9.1) and provided a Consultation Information Sheet.

<p>Summary of Feedback, Objection or Claim</p>	<p>Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response</p>	<p>Environment Plan Controls</p>
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<p>No feedback was received from Exmouth Recreational Marine Users, with the exception of one licence holders which requested that the proposed activity did not commence until after GAMEX tournament was conducted in March each year.</p>	<p>Woodside notes that no feedback has been received from Exmouth Recreational Marine Users, with the exception of once licence holder. Woodside addressed their feedback by confirming there were no plans to be in the field in March 2023.</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 11.6.4).</p> <p>Woodside has provided consultation information to Recfishwest, Marine Tourism Association of WA, WA Game Fishing Association and individual recreational marine users.</p>	<p>Woodside considers the measures and controls described within this EP address the potential impact from the proposed activities on Exmouth Recreational Marine Users' functions, interests or activities.</p> <p>No additional measures or controls are required.</p>
Gascoyne Recreational Marine Users		
<p>Woodside considers it has discharged its obligations under regulation 11A by providing consultation materials and conducting various forms of engagement as set out in Section 5.8 and below.</p> <p>Summary of information provided and record of consultation:</p> <ul style="list-style-type: none"> On 17 February 2023, Woodside sent a letter to Gascoyne Recreational Marine Users advising of the proposed activity (Appendix F, reference 2.34, reference 2.34.1, reference 2.35.2 and reference 2.35.3) and provided a Consultation Information Sheet. On 8 March 2023, Woodside sent a letter to Gascoyne Recreational Marine Users advising of the proposed activity (Appendix F, reference 2.34.1 and reference 2.34.1.1) and provided a Consultation Information Sheet. 		
Summary of Feedback, Objection or Claim	Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response	Environment Plan Controls
<p>No feedback, objections or claims received despite follow up.</p>	<p>Woodside has provided consultation information to Recfishwest, Marine Tourism Association of WA, WA Game Fishing Association and individual recreational marine users.</p> <p>Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 11.6.4).</p>	<p>No additional measures or controls are required.</p>
Karratha Recreational Marine Users		
<p>Woodside considers it has discharged its obligations under regulation 11A by providing consultation materials and conducting various forms of engagement as set out in Section 5.8 and below.</p> <p>Summary of information provided and record of consultation:</p> <ul style="list-style-type: none"> On 17 February 2023, Woodside sent a letter to Karratha Recreational Marine Users advising of the proposed activity (Appendix F, reference 2.9) and provided a Consultation Information Sheet. On 10 March 2023, Woodside sent a reminder email to Karratha Recreational Marine Users advising of the proposed activity (Appendix F, reference 2.9.1) and provided a Consultation Information Sheet. On 15 March 2023, Woodside sent a reminder email to King Bay Game Fishing Club advising of the proposed activity (Appendix F, reference 2.9.2) and provided a Consultation Information Sheet. 		
Summary of Feedback, Objection or Claim	Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response	Environment Plan Controls

No feedback, objections or claims received despite follow up.	Woodside has provided consultation information to Recfishwest, Marine Tourism Association of WA, WA Game Fishing Association and individual recreational marine users. Woodside engages in ongoing consultation with stakeholders throughout the life of an EP. Should feedback be received, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 11.6.4).	No additional measures or controls are required.
Pilbara / Kimberley Recreational Marine Users		
Woodside considers it has discharged its obligations under regulation 11A by providing consultation materials and conducting various forms of engagement as set out in Section 5.8 and below. Summary of information provided and record of consultation: <ul style="list-style-type: none"> On 16/17 February 2023, Woodside sent a letter to Pilbara / Kimberley Recreational Marine Users advising of the proposed activity (Appendix F, reference 2.34 and reference 2.34.1) and provided a Consultation Information Sheet. On 8 March 2023, Woodside sent a letter to Pilbara / Kimberley Recreational Marine Users advising of the proposed activity (Appendix F, reference 2.34.1 and reference 2.34.1.1) and provided a Consultation Information Sheet. 		
Summary of Feedback, Objection or Claim	Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response	Environment Plan Controls
No feedback, objections or claims received despite follow up.	Woodside has provided consultation information to Recfishwest, Marine Tourism Association of WA, WA Game Fishing Association and individual recreational marine users. Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 11.6.4).	No additional measures or controls are required.
West Coast Recreational Marine Users		
Woodside considers it has discharged its obligations under regulation 11A by providing consultation materials and conducting various forms of engagement as set out in Section 5.8 and below. Summary of information provided and record of consultation: <ul style="list-style-type: none"> On 1 June 2023, Woodside sent a letter to West Coast Recreational Marine Users advising of the proposed activity (Appendix F, reference 3.4) and provided a Consultation Information Sheet. On 23 June 2023, Woodside sent a reminder email to West Coast Recreational Marine Users advising of the proposed activity (Appendix F, reference 3.4.1) and provided a Consultation Information Sheet. 		
Summary of Feedback, Objection or Claim	Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response	Environment Plan Controls
No feedback, objections or claims received despite follow up.	Woodside has provided consultation information to Recfishwest, Marine Tourism Association of WA, WA Game Fishing Association and individual recreational marine users. Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 11.6.4).	No additional measures or controls are required.
South West Recreational Marine Users		

Woodside considers it has discharged its obligations under regulation 11A by providing consultation materials and conducting various forms of engagement as set out in Section 5.8 and below.

Summary of information provided and record of consultation:

- On 1 June 2023, Woodside sent a letter to South West Recreational Marine Users advising of the proposed activity (Appendix F, reference 3.4) and provided a Consultation Information Sheet.
- On 26 June 2023, Woodside sent a reminder email to South West Recreational Marine Users advising of the proposed activity (Appendix F, reference 3.4.1) and provided a Consultation Information Sheet.

Summary of Feedback, Objection or Claim	Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response	Environment Plan Controls
No feedback, objections or claims received despite follow up.	<p>Woodside has provided consultation information to Recfishwest, Marine Tourism Association of WA, WA Game Fishing Association and individual recreational marine users.</p> <p>Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 11.6.4).</p>	No additional measures or controls are required.
Recfishwest		

Woodside considers it has discharged its obligations under regulation 11A by providing consultation materials and conducting various forms of engagement as set out in Section 5.8 and below.

Summary of information provided and record of consultation:

- On 27 May 2022, Woodside emailed Recfishwest advising of the proposed activity (Appendix F, reference 1.14) and provided a Consultation Information Sheet.
- On 17 June 2022, Recfishwest responded to Woodside and provided the following information:
 - Recfishwest is the peak body representing the interests of the estimated 740,000 recreational fishers in Western Australia. Recfishwest are a not-for-profit community-based organisation that endeavours to ensure high quality recreational fishing experiences are maintained and enjoyed for all in the community.
 - Recreational fishing is an integral part of the Pilbara lifestyle. The region's unique coastline includes some of Australia's prime fishing locations and includes an array of offshore islands, coral reef systems and offshore habitats, providing ample recreational fishing opportunities which hold a plethora of high valued species making it a key driver of visitation to the region, attracting visitors from around the state and country.
 - Recfishwest places the highest priority on preserving the marine environment and safeguarding the future of our recreational fishing experiences, which are reliant on healthy habitats and abundant fish stocks. While the planned activities stated in these environmental plans are located a fair distance from shore, the field is still actively fished by members of the recreational fishing community.

Recfishwest provided further feedback as follows:

 - Acknowledged the previous correspondence which advises recreational fishers to observe a 500 m safety exclusion zone around the wells and a 1,500 m radius around the Operational Area for the duration of the activity.
 - Noted it was promising to see that some structures will be left *in situ*, as the assessment concluded that leaving these items in the water was a better outcome for the environment, as it will avoid the damage caused by their removal and these structures not containing any plastics or known marine contaminants.
 - In review of the work planned in the environmental plans for stakeholder consultation, Recfishwest do not object to the steps taken to address concerns that the recreational fishing sector might have.
 - Additionally, Recfishwest would like to be consulted on any upcoming offshore exploration activities, irrespective of the distance from shore and that all charts are updated, so recreational fishers can locate the areas.
- On 27 July 2022, Woodside responded to Recfishwest acknowledging Recfishwest's advocacy role on behalf of recreational fishers in Western Australia. Woodside also:
 - acknowledged the social importance to regional communities of recreational fishing.
 - acknowledged the potential presence of recreational fishers at the activity location.
 - noted feedback from Recfishwest on exclusion zones.
 - noted feedback on Woodside's assessment for leaving some structures *in situ*.
 - noted that Recfishwest does not object to planned activities.
 - advised it will continue to keep Recfishwest informed of planned activities and that nautical charts are maintained.
- On 16 February 2023, Woodside emailed Recfishwest advising of the proposed activity (Appendix F, reference 2.2) and a provided a Consultation Information Sheet.
- On 2 March 2023 Recfishwest responded by email acknowledging Woodside's update on the proposed decommissioning of Griffin and Stybarrow fields.
 - Recfishwest referred to advice previously provided on the importance of recreational fishing to the Gascoyne region and that areas around both fields are actively fished by the recreational fishing community, especially the grounds between Serrurier and Bessieres Islands.
 - Recfishwest noted that the proposed activities timing and that existing and new exclusion/cautionary zones will be in place during this period.
 - Recfishwest advised it had reviewed the consultation information sheets and had no concerns regarding the proposed activities.
 - Recfishwest requested to be kept informed as activities progress so that it may advise recreational fishers as required.
- On 24 March 2023 Woodside emailed Recfishwest noting its feedback on the activity update and for previous consultation activities. Woodside advised it would keep Recfishwest advised as activities are progressed.

Summary of Feedback, Objection or Claim	Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response	Environment Plan Controls
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<p>Recfishwest provided feedback including:</p> <ul style="list-style-type: none"> • Advised it was promising to see that some structures will be left <i>in situ</i>, as the assessment concluded this was a better outcome for the environment, • Acknowledged exclusion zones to be observed for the duration of the activity. • Advised it had no objection to the steps taken to address concerns that the recreational fishing sector might have. • Requested to be consulted on any upcoming offshore exploration activities, irrespective of the distance from shore and that all charts are updated, so recreational fishers can locate the areas. • Noted the importance of recreational fishing to the Gascoyne region especially the grounds between Serrurier and Bessieres Islands. • Advised it had no concerns regarding the proposed activities. • Requested to be kept informed as activities progress so that it may advise recreational fishers as required. 	<p>Woodside has addressed Recfishwest's feedback, including:</p> <ul style="list-style-type: none"> • acknowledged the social importance to regional communities of recreational fishing. • acknowledged the potential presence of recreational fishers at the activity location. • noted feedback from Recfishwest on exclusion zones. • noted feedback on Woodside's assessment for leaving some structures <i>in situ</i>. • noted that Recfishwest does not object to planned activities. • advised it will continue to keep Recfishwest informed of planned activities and that nautical charts are maintained. • Confirmed Woodside will provide notifications to Recfishwest prior to the commencement and at the end of the activity, as referenced as PS 1.4 in this EP. <p>Woodside has provided consultation information to Recfishwest, Marine Tourism Association of WA, WA Game Fishing Association and individual recreational marine users.</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 11.6.4).</p>	<p>Woodside will provide notifications to Recfishwest prior to the commencement and at the end of the activity, as referenced as PS 1.4 in this EP.</p> <p>Woodside considers the measures and controls described within this EP address the potential impact from the proposed activities on Recfishwest's functions, interests or activities.</p>
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Marine Tourism Association of WA (MTWA)

Woodside considers it has discharged its obligations under regulation 11A by providing consultation materials and conducting various forms of engagement as set out in Section 5.8 and below.

Summary of information provided and record of consultation:

- On 27 May 2022, Woodside emailed MTWA advising of the proposed activity (Appendix F, reference 1.15) and provided a Consultation Information Sheet.
- On 16 February 2023, Woodside emailed MTWA advising of the proposed activity (Appendix F, reference 2.2) and provided a Consultation Information Sheet.
- On 10 March 2023, Woodside sent a reminder email to MTWA advising of the proposed activity (Appendix F, reference 2.2.1) and provided a Consultation Information Sheet.

Summary of Feedback, Objection or Claim	Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response	Environment Plan Controls
<p>No feedback, objections or claims received despite follow up.</p>	<p>Woodside has provided consultation information to Recfishwest, Marine Tourism Association of WA, WA Game Fishing Association and individual recreational marine users.</p> <p>Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 11.6.4).</p>	<p>No additional measures or controls are required.</p>

WA Game Fishing Association

Woodside considers it has discharged its obligations under regulation 11A by providing consultation materials and conducting various forms of engagement as set out in Section 5.8 and below.

Summary of information provided and record of consultation:

- On 27 May 2022, Woodside emailed WA Game Fishing Association advising of the proposed activity (Appendix F, reference 1.23) and provided a Consultation Information Sheet.
- On 16 February 2023, Woodside emailed WA Game Fishing Association advising of the proposed activity (Appendix F, reference 2.2) and provided a Consultation Information Sheet.
- On 10 March 2023, Woodside sent a reminder email to WA Game Fishing Association advising of the proposed activity (Appendix F, reference 2.2.1) and provided a Consultation Information Sheet.

Summary of Feedback, Objection or Claim	Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response	Environment Plan Controls
No feedback, objections or claims received despite follow up.	<p>Woodside has provided consultation information to Recfishwest, Marine Tourism Association of WA, WA Game Fishing Association and individual recreational marine users.</p> <p>Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 11.6.4).</p>	No additional measures or controls are required.

Titleholders and Operators

BP Developments Australia

Woodside considers it has discharged its obligations under regulation 11A by providing consultation materials and conducting various forms of engagement as set out in Section 5.8 and below.

Summary of information provided and record of consultation:

- On 17 February 2023, Woodside emailed BP Developments Australia advising of the proposed activity (Appendix F, reference 2.4) and provided a Consultation Information Sheet.
- On 10 March 2023, Woodside sent a reminder email to BP Developments Australia advising of the proposed activity (Appendix F, reference 2.4.1) and provided a Consultation Information Sheet.

Summary of Feedback, Objection or Claim	Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response	Environment Plan Controls
No feedback, objections or claims received despite follow up.	<p>BHP Petroleum became a member of the Woodside group of companies on the completion of the merger between Woodside Energy Group Ltd and the petroleum business of BHP Group Limited on 1 June 2022. As a result of the merger, the BHP Petroleum permit areas that the Combined EMBA previously overlapped are now under ownership of the merged Woodside Energy.</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 11.6.4).</p>	No additional measures or controls are required.

Carnarvon Energy

Woodside considers it has discharged its obligations under regulation 11A by providing consultation materials and conducting various forms of engagement as set out in Section 5.8 and below.

Summary of information provided and record of consultation:

- On 17 February 2023, Woodside emailed Carnarvon Energy advising of the proposed activity (Appendix F, reference 2.4) and provided a Consultation Information Sheet.
- On 10 March 2023, Woodside sent a reminder email to Carnarvon Energy advising of the proposed activity (Appendix F, reference 2.4.1) and provided a Consultation Information Sheet.

Summary of Feedback, Objection or Claim	Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response	Environment Plan Controls
No feedback, objections or claims received despite follow up.	Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 11.6.4).	No additional measures or controls are required.
Chevron Australia/ Osaka Gas Gorgon/ Tokyo Gas Gorgon/ JERA Gorgon		
<p>Woodside considers it has discharged its obligations under regulation 11A by providing consultation materials and conducting various forms of engagement as set out in Section 5.8 and below.</p> <p>Summary of information provided and record of consultation:</p> <ul style="list-style-type: none"> On 17 February 2023, Woodside emailed Chevron advising of the proposed activity (Appendix F, reference 2.4) and provided a Consultation Information Sheet. On 10 March 2023, Woodside sent a reminder email to Chevron advising of the proposed activity (Appendix F, reference 2.4.1) and provided a Consultation Information Sheet. On 22 March 2023, Chevron responded, thanking Woodside for the consultation information, advising that they are actively reviewing the information (expected completion by mid-April), and requesting GIS shape files for the EP. On 3 April 2023, Woodside responded, thanking Chevron for the feedback and provided the GIS shape files for the EP as requested. On 26 April 2023, Woodside emailed Chevron Australia following up on feedback with respect to the proposed activity. On 1 June 2023, Woodside emailed Chevron Australia following up on feedback with respect to the proposed activity. On 16 June 2023, Chevron responded advising there was no impact identified for activities proposed under this EP. Chevron requested that if the work plan is executed during the cyclone season, that Woodside provides cyclone anchor configuration, as well as mooring design, site specific geophysical and geotechnical data, anchor analysis, risk mitigations to inform Chevron Australia of the potential risks to our assets within the affected leases. On 30 June 2023, Woodside responded thanking Chevron for its feedback that there was no impact identified for proposed activities under this EP and confirming there was no planned mooring. 		
Summary of Feedback, Objection or Claim	Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response	Environment Plan Controls
<p>Chevron requested GIS shape files for the proposed activities and advised there was no impact identified for activities proposed under this EP.</p> <p>Whilst feedback has been received, there were no objections or claims.</p>	<p>Woodside has addressed Chevron's feedback by providing requested GIS shape files and noting its feedback that there was no impact identified for activities proposed under this EP.</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 11.6).</p>	<p>Woodside has consulted Chevron in the course of preparing this EP. Woodside has assessed the claims or objections raised by Chevron. No additional measures or controls have been put in place.</p> <p>Woodside considers the measures and controls described within this EP address the potential impact from the proposed activities on Chevron's functions, interests or activities.</p>
Eni Australia		

Woodside considers it has discharged its obligations under regulation 11A by providing consultation materials and conducting various forms of engagement as set out in Section 5.8 and below.

Summary of information provided and record of consultation:

- On 17 February 2023, Woodside emailed Eni Australia advising of the proposed activity (Appendix F, reference 2.4) and provided a Consultation Information Sheet.
- On 10 March 2023, Woodside sent a reminder email to Eni Australia advising of the proposed activity (Appendix F, reference 2.4.1) and provided a Consultation Information Sheet.

Summary of Feedback, Objection or Claim	Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response	Environment Plan Controls
No feedback, objections or claims received despite follow up.	Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 11.6.4).	No additional measures or controls are required.

Finder Energy

Woodside considers it has discharged its obligations under regulation 11A by providing consultation materials and conducting various forms of engagement as set out in Section 5.8 and below.

Summary of information provided and record of consultation:

- On 17 February 2023, Woodside emailed Finder Energy advising of the proposed activity (Appendix F, reference 2.4) and provided a Consultation Information Sheet.
- On 10 March 2023, Woodside sent a reminder email to Finder Energy advising of the proposed activity (Appendix F, reference 2.4.1) and provided a Consultation Information Sheet.

Summary of Feedback, Objection or Claim	Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response	Environment Plan Controls
No feedback, objections or claims received despite follow up.	Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 11.6.4).	No additional measures or controls are required.

Jadestone Energy

Woodside considers it has discharged its obligations under regulation 11A by providing consultation materials and conducting various forms of engagement as set out in Section 5.8 and below.

Summary of information provided and record of consultation:

- On 17 February 2023, Woodside emailed Jadestone Energy advising of the proposed activity (Appendix F, reference 2.4) and provided a Consultation Information Sheet.
- On 10 March 2023, Woodside sent a reminder email to Jadestone Energy advising of the proposed activity (Appendix F, reference 2.4.1) and provided a Consultation Information Sheet.

Summary of Feedback, Objection or Claim	Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response	Environment Plan Controls
No feedback, objections or claims received despite follow up.	Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 11.6.4).	No additional measures or controls are required.

JX Nippon

Woodside considers it has discharged its obligations under regulation 11A by providing consultation materials and conducting various forms of engagement as set out in Section 5.8 and below.

Summary of information provided and record of consultation:

- On 17 February 2023, Woodside emailed JX Nippon advising of the proposed activity (Appendix F, reference 2.4) and provided a Consultation Information Sheet.
- On 23 February 2023, Woodside emailed JX Nippon to an additional representative advising of the proposed activity and provided a Consultation Information Sheet.
- On 24 February 2023, Woodside had an email exchange with JX Nippon regarding additional company contacts and forwarded the Woodside correspondence of 17 February 2023.
- On 28 February 2023, Woodside emailed JX Nippon Oil & Gas Exploration Corporation to thank it for passing on the consultation information to the correct contact and advised it has updated its stakeholder distribution list.
- On 10 March 2023, Woodside emailed JX Nippon following up of the proposed activity (Appendix F, reference 2.4.1) provided a Consultation Information Sheet and to request any feedback.

Summary of Feedback, Objection or Claim	Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response	Environment Plan Controls
No feedback, objections or claims received despite follow up.	Woodside notes JX Nippon acknowledged receipt of the consultation information. 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 11.6.4).	No additional measures or controls are required.

KUFPEC

Woodside considers it has discharged its obligations under regulation 11A by providing consultation materials and conducting various forms of engagement as set out in Section 5.8 and below.

Summary of information provided and record of consultation:

- On 17 February 2023, Woodside emailed KUFPEC advising of the proposed activity (Appendix F, reference 2.4) and provided a Consultation Information Sheet.
- On 10 March 2023, Woodside sent a reminder email to KUFPEC advising of the proposed activity (Appendix F, reference 2.4.1) and provided a Consultation Information Sheet.

Summary of Feedback, Objection or Claim	Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response	Environment Plan Controls
No feedback, objections or claims received despite follow up.	Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 11.6.4).	No additional measures or controls are required.

Exxon Mobil Australia Resources Company

Woodside considers it has discharged its obligations under regulation 11A by providing consultation materials and conducting various forms of engagement as set out in Section 5.8 and below.

Summary of information provided and record of consultation:

- On 17 February 2023, Woodside emailed ExxonMobil advising of the proposed activity (Appendix F, reference 2.4) and provided a Consultation Information Sheet.
- On 10 March 2023, Woodside sent a reminder email to ExxonMobil advising of the proposed activity (Appendix F, reference 2.4.1) and provided a Consultation Information Sheet.

Summary of Feedback, Objection or Claim	Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response	Environment Plan Controls
No feedback, objections or claims received despite follow up.	Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 11.6.4).	No additional measures or controls are required.
Santos NA Energy Holdings / Santos Ltd / Santos WA Northwest / Santos Offshore / Santos WA Southwest / Santos (BOL) / Santos WA PVG		
<p>Woodside considers it has discharged its obligations under regulation 11A by providing consultation materials and conducting various forms of engagement as set out in Section 5.8 and below.</p> <p>Summary of information provided and record of consultation:</p> <ul style="list-style-type: none"> On 17 February 2023, Woodside emailed Santos advising of the proposed activity (Appendix F, reference 2.4) and provided a Consultation Information Sheet. On 10 March 2023, Woodside sent a reminder email to Santos advising of the proposed activity (Appendix F, reference 2.4.1) and provided a Consultation Information Sheet. 		
Summary of Feedback, Objection or Claim	Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response	Environment Plan Controls
No feedback, objections or claims received despite follow up.	Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 11.6.4).	No additional measures or controls are required.
OMV Australia / Sapura OMV Upstream		
<p>Woodside considers it has discharged its obligations under regulation 11A by providing consultation materials and conducting various forms of engagement as set out in Section 5.8 and below.</p> <p>Summary of information provided and record of consultation:</p> <ul style="list-style-type: none"> On 17 February 2023, Woodside emailed Sapura OMV advising of the proposed activity (Appendix F, reference 2.4) and provided a Consultation Information Sheet. On 10 March 2023, Woodside sent a reminder email to Sapura OMV advising of the proposed activity (Appendix F, reference 2.4.1) and provided a Consultation Information Sheet. 		
Summary of Feedback, Objection or Claim	Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response	Environment Plan Controls
No feedback, objections or claims received despite follow up.	Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 11.6.4).	No additional measures or controls are required.
TGS - NOPEC		
<p>Woodside considers it has discharged its obligations under regulation 11A by providing consultation materials and conducting various forms of engagement as set out in Section 5.8 and below.</p> <p>Summary of information provided and record of consultation:</p> <ul style="list-style-type: none"> On 17 February 2023, Woodside emailed TGS advising of the proposed activity (Appendix F, reference 2.4) and provided a Consultation Information Sheet. On 10 March 2023, Woodside sent a reminder email to TGS advising of the proposed activity (Appendix F, reference 2.4.1) and provided a Consultation Information Sheet. 		
Summary of Feedback, Objection or Claim	Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response	Environment Plan Controls

No feedback, objections or claims received despite follow up.	Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 11.6.4).	No additional measures or controls are required.
Vermillion Energy		
Woodside considers it has discharged its obligations under regulation 11A by providing consultation materials and conducting various forms of engagement as set out in Section 5.8 and below. Summary of information provided and record of consultation:		
<ul style="list-style-type: none"> On 17 February 2023, Woodside emailed Vermillion Energy advising of the proposed activity (Appendix F, reference 2.4) and provided a Consultation Information Sheet. On 10 March 2023, Woodside sent a reminder email to Vermillion Energy advising of the proposed activity (Appendix F, reference 2.4.1) and provided a Consultation Information Sheet. 		
Summary of Feedback, Objection or Claim	Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response	Environment Plan Controls
No feedback, objections or claims received despite follow up.	Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 11.6.4).	No additional measures or controls are required.
Western Gas		
Woodside considers it has discharged its obligations under regulation 11A by providing consultation materials and conducting various forms of engagement as set out in Section 5.8 and below. Summary of information provided and record of consultation:		
<ul style="list-style-type: none"> On 17 February 2023, Woodside emailed Western Gas advising of the proposed activity (Appendix F, reference 2.4) and provided a Consultation Information Sheet. On 10 March 2023, Woodside sent a reminder email to Western Gas advising of the proposed activity (Appendix F, reference 2.4.1) and provided a Consultation Information Sheet. 		
Summary of Feedback, Objection or Claim	Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response	Environment Plan Controls
No feedback, objections or claims received despite follow up.	Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 11.6.4).	No additional measures or controls are required.
Shell Australia		
Woodside considers it has discharged its obligations under regulation 11A by providing consultation materials and conducting various forms of engagement as set out in Section 5.8 and below. Summary of information provided and record of consultation:		
<ul style="list-style-type: none"> On 1 June 2023, Woodside emailed Shell Australia advising of the proposed activity (Appendix F, reference 3.2) and provided a Consultation Information Sheet. On 23 June 2023, Woodside sent a reminder email to Shell Australia advising of the proposed activity (Appendix F, reference 3.2.1) and provided a Consultation Information Sheet. 		
Summary of Feedback, Objection or Claim	Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response	Environment Plan Controls

No feedback, objections or claims received despite follow up.	Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 11.6.4).	No additional measures or controls are required.
INPEX Alpha Ltd		
Woodside considers it has discharged its obligations under regulation 11A by providing consultation materials and conducting various forms of engagement as set out in Section 5.8 and below. Summary of information provided and record of consultation:		
<ul style="list-style-type: none"> On 1 June 2023, Woodside emailed INPEX advising of the proposed activity (Appendix F, reference 3.2) and provided a Consultation Information Sheet. On 23 June 2023, Woodside sent a reminder email to INPEX advising of the proposed activity (Appendix F, reference 3.2.1) and provided a Consultation Information Sheet. 		
Summary of Feedback, Objection or Claim	Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response	Environment Plan Controls
No feedback, objections or claims received despite follow up.	Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 11.6.4).	No additional measures or controls are required.
PE Wheatstone		
Woodside considers it has discharged its obligations under regulation 11A by providing consultation materials and conducting various forms of engagement as set out in Section 5.8 and below. Summary of information provided and record of consultation:		
<ul style="list-style-type: none"> On 1 June 2023, Woodside emailed PE Wheatstone advising of the proposed activity (Appendix F, reference 3.2) and provided a Consultation Information Sheet. On 1 June 2023, PE Wheatstone responded to Woodside advising it acknowledged the change to the activity scope and it had no concerns regarding the proposed activity. On 8 June 2023, Woodside responded to PE Wheatstone acknowledging receipt of feedback that there are no concerns with this activity. 		
Summary of Feedback, Objection or Claim	Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response	Environment Plan Controls
PE Wheatstone responded to Woodside advising it acknowledged the change to the activity scope and it had no concerns regarding the proposed activity.	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 11.6.4).	No additional measures or controls are required.
Kyushu Electric Wheatstone		
Woodside considers it has discharged its obligations under regulation 11A by providing consultation materials and conducting various forms of engagement as set out in Section 5.8 and below. Summary of information provided and record of consultation:		
<ul style="list-style-type: none"> On 1 June 2023, Woodside emailed Kyushu Electric Wheatstone advising of the proposed activity (Appendix F, reference 3.2) and provided a Consultation Information Sheet. On 23 June 2023, Woodside sent a reminder email to Kyushu Electric Wheatstone advising of the proposed activity (Appendix F, reference 3.2.1) and provided a Consultation Information Sheet. 		

Summary of Feedback, Objection or Claim	Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response	Environment Plan Controls
No feedback, objections or claims received despite follow up.	Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 11.6.4).	No additional measures or controls are required.
Fugro Exploration		
<p>Woodside considers it has discharged its obligations under regulation 11A by providing consultation materials and conducting various forms of engagement as set out in Section 5.8 and below.</p> <p>Summary of information provided and record of consultation:</p> <ul style="list-style-type: none"> On 1 June 2023, Woodside emailed Fugro Exploration advising of the proposed activity (Appendix F, reference 3.2) and provided a Consultation Information Sheet. On 23 June 2023, Woodside sent a reminder email to Fugro Exploration advising of the proposed activity (Appendix F, reference 3.2.1) and provided a Consultation Information Sheet. 		
Summary of Feedback, Objection or Claim	Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response	Environment Plan Controls
No feedback, objections or claims received despite follow up.	Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 11.6.4).	No additional measures or controls are required.
Australian Gas Infrastructure (AGI) Tubriogi Pty Limited		
<p>Woodside considers it has discharged its obligations under regulation 11A by providing consultation materials and conducting various forms of engagement as set out in Section 5.8 and below.</p> <p>Summary of information provided and record of consultation:</p> <ul style="list-style-type: none"> On 1 June 2023, Woodside emailed Australian Gas Infrastructure advising of the proposed activity (Appendix F, reference 3.2) and provided a Consultation Information Sheet. On 23 June 2023, Woodside sent a reminder email to Australian Gas Infrastructure advising of the proposed activity (Appendix F, reference 3.2.1) and provided a Consultation Information Sheet. 		
Summary of Feedback, Objection or Claim	Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response	Environment Plan Controls
No feedback, objections or claims received despite follow up.	Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 11.6.4).	No additional measures or controls are required.
Bounty Oil and Gas NL		
<p>Woodside considers it has discharged its obligations under regulation 11A by providing consultation materials and conducting various forms of engagement as set out in Section 5.8 and below.</p> <p>Summary of information provided and record of consultation:</p> <ul style="list-style-type: none"> On 1 June 2023, Woodside emailed Bounty Oil advising of the proposed activity (Appendix F, reference 3.2) and provided a Consultation Information Sheet. On 23 June 2023, Woodside sent a reminder email to Bounty Oil advising of the proposed activity (Appendix F, reference 3.2.1) and provided a Consultation Information Sheet. 		

Summary of Feedback, Objection or Claim	Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response	Environment Plan Controls
No feedback, objections or claims received despite follow up.	Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 11.6.4).	No additional measures or controls are required.
Coastal Oil and Gas		
<p>Woodside considers it has discharged its obligations under regulation 11A by providing consultation materials and conducting various forms of engagement as set out in Section 5.8 and below.</p> <p>Summary of information provided and record of consultation:</p> <ul style="list-style-type: none"> On 1 June 2023, Woodside emailed Coastal Oil and Gas advising of the proposed activity (Appendix F, reference 3.2) and provided a Consultation Information Sheet. On 23 June 2023, Woodside sent a reminder email to Coastal Oil and Gas advising of the proposed activity (Appendix F, reference 3.2.1) and provided a Consultation Information Sheet. 		
Summary of Feedback, Objection or Claim	Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response	Environment Plan Controls
No feedback, objections or claims received despite follow up.	Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 11.6.4).	No additional measures or controls are required.
Buru Energy Limited		
<p>Woodside considers it has discharged its obligations under regulation 11A by providing consultation materials and conducting various forms of engagement as set out in Section 5.8 and below.</p> <p>Summary of information provided and record of consultation:</p> <ul style="list-style-type: none"> On 1 June 2023, Woodside emailed Buru Energy advising of the proposed activity (Appendix F, reference 3.2) and provided a Consultation Information Sheet. On 23 June 2023, Woodside sent a reminder email to Buru Energy advising of the proposed activity (Appendix F, reference 3.2.1) and provided a Consultation Information Sheet. 		
Summary of Feedback, Objection or Claim	Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response	Environment Plan Controls
No feedback, objections or claims received despite follow up.	Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 11.6.4).	No additional measures or controls are required.
Energy Resources Limited		
<p>Woodside considers it has discharged its obligations under regulation 11A by providing consultation materials and conducting various forms of engagement as set out in Section 5.8 and below.</p> <p>Summary of information provided and record of consultation:</p> <ul style="list-style-type: none"> On 1 June 2023, Woodside emailed Energy Resources advising of the proposed activity (Appendix F, reference 3.2) and provided a Consultation Information Sheet. On 23 June 2023, Woodside sent a reminder email to Energy Resources advising of the proposed activity (Appendix F, reference 3.2.1) and provided a Consultation Information Sheet. 		

Summary of Feedback, Objection or Claim	Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response	Environment Plan Controls
No feedback, objections or claims received despite follow up.	Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 11.6.4).	No additional measures or controls are required.
Key Petroleum (Australia) Pty Ltd / Key Midwest Pty Ltd		
<p>Woodside considers it has discharged its obligations under regulation 11A by providing consultation materials and conducting various forms of engagement as set out in Section 5.8 and below.</p> <p>Summary of information provided and record of consultation:</p> <ul style="list-style-type: none"> On 1 June 2023, Woodside emailed Key Petroleum advising of the proposed activity (Appendix F, reference 3.2) and provided a Consultation Information Sheet. On 23 June 2023, Woodside sent a reminder email to Key Petroleum advising of the proposed activity (Appendix F, reference 3.2.1) and provided a Consultation Information Sheet. 		
Summary of Feedback, Objection or Claim	Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response	Environment Plan Controls
No feedback, objections or claims received despite follow up.	Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 11.6.4).	No additional measures or controls are required.
PetroChina International Investment (Australia) Pty Ltd		
<p>Woodside considers it has discharged its obligations under regulation 11A by providing consultation materials and conducting various forms of engagement as set out in Section 5.8 and below.</p> <p>Summary of information provided and record of consultation:</p> <ul style="list-style-type: none"> On 1 June 2023, Woodside emailed PetroChina advising of the proposed activity (Appendix F, reference 3.2) and provided a Consultation Information Sheet. On 23 June 2023, Woodside sent a reminder email to PetroChina advising of the proposed activity (Appendix F, reference 3.2.1) and provided a Consultation Information Sheet. 		
Summary of Feedback, Objection or Claim	Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response	Environment Plan Controls
No feedback, objections or claims received despite follow up.	Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 11.6.4).	No additional measures or controls are required.
Origin Energy West Pty Ltd		
<p>Woodside considers it has discharged its obligations under regulation 11A by providing consultation materials and conducting various forms of engagement as set out in Section 5.8 and below.</p> <p>Summary of information provided and record of consultation:</p> <ul style="list-style-type: none"> On 1 June 2023, Woodside emailed Origin Energy advising of the proposed activity (Appendix F, reference 3.2) and provided a Consultation Information Sheet. On 23 June 2023, Woodside sent a reminder email to Origin Energy advising of the proposed activity (Appendix F, reference 3.2) and provided a Consultation Information Sheet. 		

Summary of Feedback, Objection or Claim	Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response	Environment Plan Controls
No feedback, objections or claims received despite follow up.	Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 11.6.4).	No additional measures or controls are required.
Beagle No 1 Pty Ltd		
<p>Woodside considers it has discharged its obligations under regulation 11A by providing consultation materials and conducting various forms of engagement as set out in Section 5.8 and below.</p> <p>Summary of information provided and record of consultation:</p> <ul style="list-style-type: none"> On 1 June 2023, Woodside emailed Beagle No 1 Pty Ltd advising of the proposed activity (Appendix F, reference 3.2) and provided a Consultation Information Sheet. On 23 June 2023, Woodside sent a reminder email to Beagle No 1 Pty Ltd advising of the proposed activity (Appendix F, reference 3.2.1) and provided a Consultation Information Sheet. 		
Summary of Feedback, Objection or Claim	Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response	Environment Plan Controls
No feedback, objections or claims received despite follow up.	Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 11.6.4).	No additional measures or controls are required.
KATO Amulet Pty Ltd / KATO NWS Pty Ltd / KATO Corowa / KATO Energy (WA) Pty Ltd		
<p>Woodside considers it has discharged its obligations under regulation 11A by providing consultation materials and conducting various forms of engagement as set out in Section 5.8 and below.</p> <p>Summary of information provided and record of consultation:</p> <ul style="list-style-type: none"> On 1 June 2023, Woodside emailed Kato advising of the proposed activity (Appendix F, reference 3.2) and provided a Consultation Information Sheet. On 23 June 2023, Woodside sent a reminder email to Kato advising of the proposed activity (Appendix F, reference 3.2.1) and provided a Consultation Information Sheet. 		
Summary of Feedback, Objection or Claim	Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response	Environment Plan Controls
No feedback, objections or claims received despite follow up.	Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 11.6.4).	No additional measures or controls are required.
Peak Industry Representative bodies		
APPEA		

Woodside considers it has discharged its obligations under regulation 11A by providing consultation materials and conducting various forms of engagement as set out in Section 5.8 and below.

Summary of information provided and record of consultation:

- On 27 May 2022, Woodside emailed APPEA advising of the proposed activity (Appendix F, reference 1.16) and provided a Consultation Information Sheet.
- On 17 February 2023, Woodside emailed APPEA advising of the proposed activity (Appendix F, reference 2.2) and provided a Consultation Information Sheet.
- On 10 March 2023, Woodside sent a reminder email to APPEA advising of the proposed activity (Appendix F, reference 2.2.1) and provided a Consultation Information Sheet.

Summary of Feedback, Objection or Claim	Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response	Environment Plan Controls
No feedback, objections or claims received despite follow up.	Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 11.6.4).	No additional measures or controls are required.

Traditional Custodians

Balangarra Aboriginal Corporation (BAC)

Woodside considers it has discharged its obligations under regulation 11A by providing consultation materials and conducting various forms of engagement as set out in Section 5.8 and below.

Summary of information provided and record of consultation:

- On 23 February 2023, Woodside emailed BAC advising of the proposed activity (Appendix F, reference 2.36) and provided a Consultation Information Sheet.
- On 08 March 2023, Woodside called BAC and sent a follow up email to confirm whether BAC may have interests impacted by proposed activities.
- On 06 April 2023, Woodside phoned BAC to advise Woodside would be visiting East Kimberley 11 April 2023 and asked if they would like to meet.
- On 11 April 2023, Woodside personnel drove to Wyndham to visit BAC office, however the office was unattended and closed.
- On 13 April 2023, Woodside emailed BAC advising they had visited the BAC office and offered to re-visit or set up a video meeting.
- On 28 April 2023, Woodside called BAC and sent a follow up email asking if BAC would like a meeting to discuss proposed activities.
- On 15 May 2023 Woodside called BAC and left message offering to meet in person, via video link or over the phone.

Summary of Feedback, Objection or Claim	Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response	Environment Plan Controls
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<p>BAC has not responded to any Woodside communications despite follow up, provided feedback, objections to date or claims in response to the information provided since consultation began in February 2023.</p>	<p>Woodside demonstrated reasonable effort to engage in two-way dialogue. BAC has had ample opportunity to participate in consultation.</p> <p>Consultation with BAC has not identified any other groups or individuals relevant to communally held functions, activities or interests.</p> <p>No material issues or concerns related to the proposed activity were raised during consultation to date. Woodside invited further feedback in accordance with Woodside's approach to ongoing consultation (see Section 11.7).</p> <p>Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted (including any relevant new information on cultural values), it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 11.6.4).</p>	<p>As no response was provided by BAC, Woodside is not in a position to assess the merits of any objection or claim about the adverse impact of the PAP or to provide a response.</p> <p>As identified in Section 11.7 of this EP, Woodside will continue to consult BAC following acceptance of the EP, as requirement by the implementation strategy as set out regulation 14(9) of the Environment Regulations.</p>
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Bardi and Jawi Niimidiman Aboriginal Corporation (BJNAC)

Woodside considers it has discharged its obligations under regulation 11A by providing consultation materials and conducting various forms of engagement as set out in Section 5.8 and below.

Summary of information provided and record of consultation:

- On 24 February 2023, Woodside emailed BJNAC advising of the proposed activity (Appendix F, reference 2.55) and provided a Consultation Information Sheet.
- On 8 March 2023, Woodside phoned BJNAC and sent a follow up email to confirm whether BJNAC may have interests impacted by proposed activities (Appendix F, reference 2.57.1).
- On 5 April 2023, Woodside left a voicemail for BJNAC and sent a follow up reminder email to confirm whether BJNAC may have interests impacted by proposed activities.
- On 14 April 2023, BJNAC sent an email to Woodside advising it is interested in collaborative engagement, however, requires 28 days to develop a resourcing protocol for consultation and objects to any progression of EPs in the meantime.
- On 7 June 2023, Woodside emailed BJNAC inviting them to a community information drop-in session. The email offered separate meeting if desired, and requested the invitation be passed on to members and any other individuals.

Summary of Feedback, Objection or Claim	Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response	Environment Plan Controls
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<p>In consultation in the course of preparing the EP since 24 February, Bardi and Jawi Niimidiman has not provided feedback on this matter, although they note they object to Woodside progressing matters with the PBC as well as making a submissions to NOPSEMA for EP's until they can provide Woodside with a resourcing protocol. The resourcing protocol is to be settled and will enable ongoing consultation following acceptance of the EP, as requirement by the implementation strategy as set out regulation 14(9) of the Environment Regulations.</p>	<p>Woodside demonstrated reasonable effort to engage in two-way dialogue. Bardi and Jawi Niimidiman has had opportunity to participate in consultation and Woodside is committing to resourcing , Bardi and Jawi Niimidiman as part of ongoing consultation as required by the implementation strategy as set out regulation 14(9) of the Environment Regulations.</p> <p>Consultation with Bardi and Jawi Niimidiman has not identified any other groups or individuals relevant to communally held functions, activities or interests.</p> <p>No material issues or concerns related to the proposed activity were raised during consultation to date. Woodside invited further feedback in accordance with Woodside's approach to ongoing consultation (see Section 11.7).</p> <p>Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted (including any relevant new information on cultural values), it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 11.6).</p>	<p>As no response was provided by Bardi and Jawi Niimidiman, Woodside is not in a position to assess the merits of any objection or claim about the adverse impact of the PAP or to provide a response.</p> <p>As identified in Section 11.7 of this EP, Woodside will continue to consult Bardi and Jawi Niimidiman following acceptance of the EP, as requirement by the implementation strategy as set out regulation 14(9) of the Environment Regulations.</p>
<p>Bundi Yamatji Aboriginal Corporation (BYAC)</p>		
<p>Woodside considers it has discharged its obligations under regulation 11A by providing consultation materials and conducting various forms of engagement as set out in Section 5.8 and below.</p> <p>Summary of information provided and record of consultation:</p> <ul style="list-style-type: none"> On 17 March 2023 Woodside emailed BYAC advising of the proposed activity (Appendix F, reference 2.38) and provided a Consultation Information Sheet. On 30 March 2023 Woodside called BYAC and sent a follow up email to confirm whether BYAC may have interests impacted by proposed activities (Appendix F, reference 2.38.1). On 2 April 2023 Woodside sent a follow up email to ensure correspondence had been received activities (Appendix F, reference 2.38.2). On 4 April 2023 BYAC responded to Woodside advising that the activities are not directly within the Yamatji Nation ILUA area therefore there is no specific requirements for direct consultation with BYAC however there is the possibility that migrating marine life that are part of the life inhabiting or traversing through the SCIPA area (Hutt River coastline to the Abrolhos Houtman Islands) may be impacted by the proposed activity. BYAC advised over the next two years it will be undertaking a Sea Country Indigenous Protected Areas (SCIPA) project to develop a Management Plan for the area. One of the tasks of this project will be to investigate the Yamatji sea connections and this will help determine how such impacts may affect Yamatji cultural heritage values BYAC said they would pass on contact details to their Project Coordinator for further consultation opportunities in the future. 		
<p>Summary of Feedback, Objection or Claim</p>	<p>Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response</p>	<p>Environment Plan Controls</p>

<p>BYAC advised that marine life migrating through the SCIPA area of Hutt River coastline to the Abrolhos Houtman Islands may be impacted by the proposed activity. BYAC are undertaking a project to investigate the Yamatji sea connections and determine how proposed activities may affect Yamatji cultural heritage values.</p> <p>BYAC advised it would like to be kept informed of progress in relation to proposed activities.</p>	<p>Woodside has been in a two-way dialogue with BYAC regarding this proposed activity.</p> <p>Consultation with BYAC has not identified any other groups or individuals relevant to communally held functions, activities or interests</p> <p>No material issues or concerns related to the proposed activity were raised during consultation to date. Woodside invited further feedback in accordance with Woodside's approach to ongoing two-way consultation (see Section 11.7).</p> <p>Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted (including any relevant new information on cultural values), it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 11.6).</p>	<p>Woodside considers the measures and controls described in the EP address BYAC's functions, interests or activities.</p> <p>No additional measures or controls are required.</p>
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Buurabalayji Thalanyji Aboriginal Corporation (BTAC)

Woodside considers it has discharged its obligations under regulation 11A by providing consultation materials and conducting various forms of engagement as set out in Section 5.8 and below.

Summary of information provided and record of consultation:

- On 9 February 2023, Woodside emailed BTAC to follow up on previous correspondence on another EP and to let BTAC know that there would be further notification about activities to do with this EP that Woodside would like to discuss.
- On 13 February 2023, BTAC phoned Woodside to discuss consultation about EP's after being notified of another EP. Woodside said they would like to meet to establish a relationship with BTAC and discuss Woodside's activities and BTAC's aspirations. Woodside said they would be guided by BTAC as to how and when to meet and noted that Woodside would be sending information on this EP very soon.
- On 22 February 2023 Woodside emailed BTAC advising of the proposed activity (Appendix F, reference 2.39) and provided a Consultation Information Sheet. The email requested information on the interests that BTAC and its members may have within the EMBA, information on how BTAC would like to engage, and requested that BTAC provide information to members as required.
- On 22 February 2023, Woodside emailed RRF Australia (support organisation for BTAC) confirming that BTAC requested the email about activities be forwarded to them.
- On 23 February 2023, RRF Australia (support organisation for BTAC) emailed Woodside acknowledging email and informing they would provide advice to BTAC within the requested timeframe.
- On 13 March 2023, BTAC emailed Woodside asking it to confirm if there is a revised submission date in relation to the proposed activities.
- On 17 March 2023, Woodside emailed BTAC suggesting a forward plan for consultation on all EPs that Woodside has notified BTAC about:
 - Woodside will formalise the matters outlined in its correspondence by including in each of the Environment Plans statements along the following lines:
 - BTAC for and on behalf of Thalanyji has interests and values in the EMBA's and is concerned about the possible impact on these interests and values, including to Sea Country, arising from Woodside's proposed activities.
 - BTAC, with support from Woodside and through the provision of independent expertise, will on an ongoing basis:
 - i. convey to Woodside the nature of Thalanyji's interests and values, noting that BTAC would like to conduct work to articulate those values in a manner that Woodside understands.
 - ii. provide information to Woodside about how those interests and values intersect with the EMBA's and how that should be managed.
 - Woodside will engage in ongoing consultation with BTAC for the purposes of ongoing monitoring, management and emergency response associated with environmental risk.
 - Woodside and BTAC will work under an adaptive management approach as the understanding of each other's values and interests, activities, needs and aspirations grow during the course of ongoing consultation. This means that Woodside's Environment Plans may be updated from time to time so they accurately reflect environmental risk as they relate to BTAC's interests and values, and the management measures that Woodside and BTAC will put in place to avoid and otherwise mitigate and manage environmental risk.
 - BTAC can at any time can make direct representations to the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA) about the nature of BTAC's interests and how they may be affected by Woodside's activities.
- On 30 March 2023, Woodside spoke with BTAC to follow up on correspondence described above. BTAC indicated that they desire a consultation agreement and intend to provide correspondence accordingly.
- On 17 April 2023, Woodside spoke with BTAC by telephone. The BTAC representative stated that they were aware that there were archaeological sites identified on nearshore islands and a cultural obligation to care for the environmental values of sea country. The BTAC representative stated there was in principle agreement to submission of current EPs while continuing to negotiate the collaboration agreement for support for rangers and support for recording of cultural values.
- On 18 April 2023, BTAC emailed a response regarding Woodside's consultation activities:
 - BTAC agreed that subject to formalising arrangements, BTAC agrees in principle for Woodside to include the statements described in our letter dated 17 March.
 - BTAC proposed that a Collaboration Agreement would be an appropriate mechanism to provide ongoing feedback to Woodside regarding its activities.
 - BTAC invited Woodside to a board meeting to discuss Scarborough activities and other short, medium and longer term activities, discuss BTAC's strategic plan and details of a collaboration agreement.
- On 19 April 2023, Woodside emailed to accept an invitation from BTAC to attend their forthcoming board meeting and requesting half a day of the board's time, preferably before the first week of May.
- On 28 April 2023, Woodside emailed BTAC to follow up in relation to BTAC's proposed collaboration agreement and discussed Environment Plans for other activities.

- On 4 May 2023, Woodside called BTAC. It was discussed that:
 - Woodside would be sending BTAC more EPs (for other activities) for consultation
 - Woodside is working on draft key terms/principles for the collaboration agreement for BTAC's consideration
 - A meeting between Woodside and the BTAC board may be possible in June
 - Woodside intended to submit EPs (including this proposed activity) soon
- On 4 May 2023, BTAC emailed Woodside to continue discussion regarding a potential future meeting between Woodside and the BTAC board to discuss activities on Thalanyji Country, activities for which BTAC's ongoing consultation is sought, the collaboration agreement and other items not related to this proposed activity.
- On 19 May 2023, Woodside phoned BTAC to inform them of some unrelated EP's to be notified and to talk about meeting BTAC to discuss this EP along with other EP's.
- On 19 May 2023, BTAC emailed Woodside about another EP, and to confirm that Woodside will prepare an overview presentation for BTAC on all existing and proposed EP's, including this EP.
- On 24 May 2023, Woodside emailed BTAC in relation to another EP and to confirm they will cover all EP's including this EP in a presentation to BTAC.

Ongoing Relationship Building

- Woodside is continuing to pursue an ongoing two-way relationship with BTAC including the development of a Collaboration Agreement focused on future opportunities to work together and working towards a meeting with the BTAC board

Summary of Feedback, Objection or Claim	Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response	Environment Plan Controls
<p>Woodside commenced consultation with BTAC on 22 February 2023.</p> <p>Through consultation relevant to the activity, BTAC has:</p> <ul style="list-style-type: none"> • Stated that their interests include archaeological sites identified on nearshore islands • Have a cultural obligation to care for the environmental values of sea country. • Requested Woodside supports BTAC in obtaining technical advice relating to the proposed activity which was sent to BTAC. • Expressed desire to be involved in local emergency response capability. <p>Woodside has responded to these items accordingly and engaged in a two-way dialogue with BTAC about working together in the future.</p>	<p>Woodside has been in a two-way dialogue with BTAC regarding this proposed activity since 22 February 2023. Consultation with BTAC has not identified any other groups or individuals relevant to communally held functions, activities or interests.</p> <p>No material issues or concerns related to the proposed activity were raised during consultation to date. Woodside invited further feedback in accordance with Woodside's approach to ongoing two-way consultation (see Section 11.7). This will be facilitated via the Collaboration Agreement that Woodside and BTAC are committed to working towards.</p> <p>Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted (including any relevant new information on cultural values), it will be assessed and, where appropriate, Woodside will apply its Management of Change</p>	<p>Woodside considers the measures and controls described within this EP address the potential impact from the proposed activities on BTAC's functions, interests or activities.</p> <p>Based on the engagement to date, no additional controls have been identified.</p>

Woodside considers it has discharged its obligations under regulation 11A by providing consultation materials and conducting various forms of engagement as set out in Section 5.8 and below.

Summary of information provided and record of consultation:

- On 23 February 2023, Woodside emailed (DAC) advising of the proposed activity (Appendix F, reference 2.40) and provided a Consultation Information Sheet.
- On 8 March 2023 Woodside sent a follow up reminder email to confirm whether DAC may have interests impacted by proposed activities (Appendix F, reference 2.40.1).
- On 5 April 2023 Woodside emailed DAC to advise a Woodside personnel was visiting West Kimberley and able to visit Derby if they would like to meet.
- On 5 April 2023 Woodside was advised (in person) that KLC legal would respond on behalf of DAC.
- On 8 June 2023, Woodside emailed Dambimangari inviting them to a community information drop-in session. The email offered separate meeting if desired, and requested the invitation be passed on to members and any other individuals

Summary of Feedback, Objection or Claim	Woodside Energy’s Assessment of Merits of Feedback, Objection or Claim and its Response	Environment Plan Controls
<p>DAC has not responded to any Woodside communications despite follow up, provided feedback, objections to date or claims in response to the information provided since consultation began in February 2023.</p>	<p>Woodside demonstrated reasonable effort to engage in two-way dialogue. DAC has had ample opportunity to participate in consultation.</p> <p>Consultation with DAC has not identified any other groups or individuals relevant to communally held functions, activities or interests.</p> <p>No material issues or concerns related to the proposed activity were raised during consultation to date. Woodside invited further feedback in accordance with Woodside’s approach to ongoing consultation (see Section 11.7).</p> <p>Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted (including any relevant new information on cultural values), it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 11.6.4).</p>	<p>As no response was provided by DAC, Woodside is not in a position to assess the merits of any objection or claim about the adverse impact of the PAP or to provide a response.</p> <p>As identified in Section 11.7 of this EP, Woodside will continue to consult DAC following acceptance of the EP, as requirement by the implementation strategy as set out regulation 14(9) of the Environment Regulations.</p>

Gogolanyngor Aboriginal Corporation (GAC)

Woodside considers it has discharged its obligations under regulation 11A by providing consultation materials and conducting various forms of engagement as set out in Section 5.8 and below.

Summary of information provided and record of consultation:

- On 28 February 2023, Woodside emailed Kimberley Land Council advising of the proposed activity (Appendix F, reference 2.41) and provided a Consultation Information Sheet.
- On 28 February 2023, Kimberley Land Council advised it had passed Woodside’s information to the relevant contact person at GAC.
- On 8 March 2023, Woodside emailed KLC following up on the proposed activity and whether there were any initial concerns.
- On 4 April 2023, Kimberley Land Council phoned Woodside with contact details for GAC and asked for Woodside to contact GAC directly.
- On 5 April, Woodside phoned GAC’s chairperson to ask if they had any questions Woodside could assist with.
- On 6 April 2023 a Woodside representative spoke with the relevant contact person at GAC about the proposed activity. The GAC representative had no questions or concerns and stated their surprise at being consulted now with the projects being so far away.
- On 13 April 2023, Woodside emailed GAC’s chairperson proposing a meeting date and confirming that Woodside is meeting one of the directors of GAC to discuss further questions.
- On 14 April 2023, GAC’s chairperson acknowledged the email.
- On 24 April 2023, Woodside emailed GAC’s chairperson requesting to meet any time between 1 March to 4 April 2023.
- On 26 April 2023, GAC’s chairperson emailed Woodside confirming availability on 1 May 2023.
- On 26 April 2023, Woodside emailed GAC’s chairperson confirming their availability.
- On 1 May 2023, a Woodside representative met with GAC chairperson in Broome and discussed the Stybarrow activities and EMBA, so the chairperson could speak to the activities at the GAC directors and members meeting on 2 May 2023.
- On 2 May 2023, a Woodside representative was invited into the GAC’s Board meeting, Woodside explained the activities and information sheet relating to this EP, the Board had copies of the information sheets. The Board had no questions or concerns, Woodside requested that they take time to discuss the activity and if any questions or concerns arose to pass them on to Woodside.
- On 3 May 2023, GAC’s chairperson phoned Woodside to inform that he was drafting a letter to say there are no concerns or queries about this activity.
- On 3 May 2023, GAC sent a letter acknowledging this activity and noting if they had further questions, they would contact Woodside.
- On 15 May 2023, GAC’s chairperson emailed Woodside that there is no interest in the EMBA for this activity.
- On 7 June 2023, Woodside emailed GAC inviting them to a community information drop-in session. The email offered separate meeting if desired, and requested the invitation be passed on to members and any other individuals.
- On 12 June 2023, GAC Chairperson and his mother dropped in at the community information session and re-iterated they had no concerns with this EP.

Summary of Feedback, Objection or Claim	Woodside Energy’s Assessment of Merits of Feedback, Objection or Claim and its Response	Environment Plan Controls
<p>GAC responded and had no questions or concerns and stated they had no interest in the Pyxis drilling and installation EMBA nor Stybarrow plug and abandonment EMBA</p> <p><u>Feedback</u> has been received, there were no objections or claims.</p>	<p>Woodside has been in a two-way dialogue with GAC regarding this proposed activity.</p> <p>Consultation with GAC has not identified any other groups or individuals relevant to communally held functions, activities or interests</p> <p>No material issues or concerns related to the proposed activity were raised during consultation to date. Woodside invited further feedback in accordance with Woodside’s approach to ongoing two-way consultation (see Section 11.7).</p> <p>Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted (including any relevant new information on cultural values), it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 11.6).</p>	<p>Woodside considers the measures and controls described in the EP address GAC’s functions, interests or activities.</p> <p>No additional measures or controls are required.</p>

Woodside considers it has discharged its obligations under regulation 11A by providing consultation materials and conducting various forms of engagement as set out in Section 5.8 and below.

Summary of information provided and record of consultation:

- On 23 February 2023, Woodside telephoned and emailed MG Corporation advising of the proposed activity (Appendix F, reference 2.42) and provided a Consultation Information Sheet.
- On 24 February 2023, MG Corporation emailed Woodside and advised it would forward Woodside’s information to the relevant person.
- On 8 March 11 2023, Woodside sent a follow up email to MG Corporation advising of the proposed activity (Appendix F, reference 2.42.1) and provided a Consultation Information Sheet.
- On 11 April 2023, a Woodside representative met with the MG Corporation Exec Chair and agreed to a further meeting on 12 April 2023 as the CEO wished to discuss new energy opportunities. Woodside also forwarded the CEO directly the information on the proposed activity that had been sent previously to the MG Corporation contact.
- On 12 April 2023, MG Corporation telephoned and cancelled the scheduled meeting due to another unexpected meeting and said they would call to re-schedule
- On 13 April 2023, MG Corporation acknowledged receipt of the information and advised it would respond following review of that information.
- On 24 April 2023, Woodside emailed MG Corporation to inquire if they could meet to discuss the activities
- On 15 May 2023, Woodside telephone and emailed MG Corporation to follow up and seek a meeting.
- On 7 June 2023, Woodside emailed MG Corporation inviting them to community information drop-in sessions and requesting they inform members or any others who may want to understand Woodside activities relating to this and other EP’s.

Summary of Feedback, Objection or Claim	Woodside Energy’s Assessment of Merits of Feedback, Objection or Claim and its Response	Environment Plan Controls
<p>In consultation in the course of preparing the EP since February 2023, MG Corporation has not provided feedback, objections or claims in response to the information provided.</p>	<p>Woodside has been in a two-way dialogue with MG Corporation regarding this proposed activity.</p> <p>Consultation with MG Corporation has not identified any other groups or individuals relevant to communally held functions, activities or interests.</p> <p>No material issues or concerns related to the proposed activity were raised during consultation to date. Woodside invited further feedback in accordance with Woodside’s approach to ongoing two-way consultation (see Section 11.7).</p> <p>Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted (including any relevant new information on cultural values), it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 11.6).</p>	<p>Woodside considers the measures and controls described in the EP address MG Corporation’s functions, interests or activities.</p> <p>No additional measures or controls are required.</p> <p>As identified in Section 11.7 of this EP, Woodside will continue to consult YAC following acceptance of the EP, as required by the implementation strategy and set out in Regulation 14(9) of the Environment Regulations.</p>

Karajarri Traditional Lands Association (KTLA)

Woodside considers it has discharged its obligations under regulation 11A by providing consultation materials and conducting various forms of engagement as set out in Section 5.8 and below.

Summary of information provided and record of consultation:

- On 24 February 2023, Woodside emailed KTLA advising of the proposed activity (Appendix F, reference 2.35) and provided a simplified Consultation Information Sheet (including a link to the detailed information sheet on Woodside’s website) as well as a summary overview fact sheet. The email followed on from previous correspondence on other activities and requested KTLA to inform Woodside if there is anything else that could be done to facilitate consultation
- On 24 March 2023, Woodside sent a follow up email to KTLA in relation to the proposed activity and seeking feedback, offering in person discussions at any time suitable to the organisation (Appendix F, reference 2.35.1).
- On 18 April 2023, Woodside emailed KTLA following up on the information sent through in relation to the proposed activity and seeking feedback, again offering discussion at any suitable time including travelling to their office in person if desired.
- On 19 April 2023, Woodside attempted to contact KTLA via the Karajarri Traditional Lands Association Facebook page.
- On 19 April 2023, Woodside emailed KTLA to follow up on a phone call (earlier on 19 April; 2023) and proposed a face-to-face meeting on 1 May 2023. No response has been received.
- On 28 April 2023, Woodside emailed KTLA including the email chain demonstrating efforts to engage and notifying KTLA that the next step is for the EP for the proposed activity to be submitted to NOPSEMA for technical assessment. It stated that the EP submission is imminent and requested any priority feedback as a priority to reflect in this submission, noting that feedback is also welcome over the life of the EP.
- On 2 May 2023, Woodside representative visited the KTLA Kimberley office and met with Jordan Alai, KTLA project manager to discuss the information provided 24 February, KTLA Legal representative joined the meeting. KTLA said the legal representative would draft Woodside a letter requesting funds to enable them to hold a meeting and seek external advice.
- On 7 June 2023, Woodside emailed KTLA inviting them to community information drop-in sessions and requesting they inform members or any others who may want to understand Woodside activities relating to this and other EP’s.

Summary of Feedback, Objection or Claim	Woodside Energy’s Assessment of Merits of Feedback, Objection or Claim and its Response	Environment Plan Controls
<p>In consultation in the course of preparing the EP since February 2023, KTLA has not provided feedback, objections or claims in response to the information provided.</p>	<p>Woodside has been in a two-way dialogue with KTLA regarding this proposed activity.</p> <p>Consultation with KTLA has not identified any other groups or individuals relevant to communally held functions, activities or interests.</p> <p>No material issues or concerns related to the proposed activity were raised during consultation to date. Woodside invited further feedback in accordance with Woodside’s approach to ongoing two-way consultation (see Section 11.7).</p> <p>Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted (including any relevant new information on cultural values), it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 11.6).</p>	<p>Woodside considers the measures and controls described in the EP address KTLA’s functions, interests or activities.</p> <p>No additional measures or controls are required.</p> <p>As identified in Section 11.7 of this EP, Woodside will continue to consult KTLA following acceptance of the EP, as required by the implementation strategy and set out in Regulation 14(9) of the Environment Regulations.</p>

Woodside considers it has discharged its obligations under regulation 11A by providing consultation materials and conducting various forms of engagement as set out in Section 5.8 and below.

Summary of information provided and record of consultation:

- On 24 February 2023, Woodside emailed KAC advising of the proposed activity (Appendix F, reference 2.43) and provided a Consultation Information Sheet. Woodside also asked if anything further could be done to facilitate consultation
- On 24 March 2023, Woodside emailed the KAC following up on the proposed activity (Appendix F, reference 2.43.1) and to request any feedback.
- On 18 April 2023, Woodside emailed the KAC, to seek guidance whether KAC would like to arrange a meeting for Woodside to clarify any question that may have (Appendix F, reference 2.43.2) and requested an estimate KAC’s preferred meeting date(s) at its earliest convenience. An offer of an online or in-person meeting was made.
- On 28 April 2023, Woodside emailed KAC including the email chain and a copy of the Summary Information Sheet demonstrating efforts to engage and notifying that the next step is for the EP for the proposed activity to be submitted to NOPSEMA for technical assessment. It stated that the EP submission is imminent and requested any priority feedback as a priority to reflect in this submission, noting that feedback is also welcome over the life of the EP.
- On 2 May 2023 Woodside phone KAC and left a message for a return call to discuss EP.
- On 3 May 2023 Woodside phoned KAC and left a message for a return call to discuss EP.
- On 9 May 2023, Woodside called into the South Hedland Office of KAC to meet with the CEO. The CEO was unavailable, Woodside left contact details and proposed meeting times.
- On 10 May 2023, Woodside phoned KAC CEO and asked for meeting whilst still in South Hedland. CEO had a full calendar and no time to meet however would try to respond as soon as time permitted.

Summary of Feedback, Objection or Claim	Woodside Energy’s Assessment of Merits of Feedback, Objection or Claim and its Response	Environment Plan Controls
<p>Kariyarra Aboriginal Corporation has not responded to any of Woodside’s communications despite follow up, or provided feedback, objections to date or claims in response to the information provided since consultation began in February 2023.</p>	<p>Woodside demonstrated reasonable effort to engage in two-way dialogue. Kariyarra Aboriginal Corporation has had ample opportunity to participate in consultation.</p> <p>Consultation with Kariyarra Aboriginal Corporation has not identified any other groups or individuals relevant to communally held functions, activities or interests.</p> <p>No material issues or concerns related to the proposed activity were raised during consultation to date. Woodside invited further feedback in accordance with Woodside’s approach to ongoing consultation (see Section 11.7).</p> <p>Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted (including any relevant new information on cultural values), it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 11.6).</p>	<p>As no response was provided by Kariyarra Aboriginal Corporation, Woodside is not in a position to assess the merits of any objection or claim about the adverse impact of the PAP or to provide a response.</p> <p>As identified in Section 11.7 of this EP, Woodside will continue to consult Kariyarra following acceptance of the EP, as requirement by the implementation strategy as set out regulation 14(9) of the Environment Regulations.</p>

Karri Karrak Aboriginal Corporation (KKAC)

Woodside considers it has discharged its obligations under regulation 11A by providing consultation materials and conducting various forms of engagement as set out in Section 5.8 and below.

Summary of information provided and record of consultation:

- On 17 March 2023, Woodside emailed KKAC advising of the proposed activity (Appendix F, reference 2.44) and provided a Consultation Information Sheet.
- On 21 March 2023, KKAC responded, noting that Woodside’s consultation information related to the Pilbara. The Karri Karrack region is in South West Australia.
- On 22 March 2023 Woodside responded and advised that recent changes in regulations regarding consultation on project activity required Woodside to consult a broader range of organisations.
- On 22 March 2023 KKAC responded, advising information would be passed on to KKAC Directors.

Summary of Feedback, Objection or Claim	Woodside Energy’s Assessment of Merits of Feedback, Objection or Claim and its Response	Environment Plan Controls
<p>KKAC responded and advised information would be passed on to KKAC Directors.</p> <p>Whilst feedback has not been received, there were no objections or claims.</p>	<p>Woodside demonstrated reasonable effort to engage in two-way dialogue. KKAC has had ample opportunity to participate in consultation.</p> <p>Consultation with KKAC has not identified any other groups or individuals relevant to communally held functions, activities or interests.</p> <p>No material issues or concerns related to the proposed activity were raised during consultation to date. Woodside invited further feedback in accordance with Woodside’s approach to ongoing consultation (see Section 11.7).</p> <p>Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted (including any relevant new information on cultural values), it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 11.6).</p>	<p>As no response was provided by KKAC, Woodside is not in a position to assess the merits of any objection or claim about the adverse impact of the PAP or to provide a response.</p> <p>As identified in Section 11.7 of this EP, Woodside will continue to consult KKAC following acceptance of the EP, as requirement by the implementation strategy as set out regulation 14(9) of the Environment Regulations.</p>

Malgana Aboriginal Corporation (MAC)

Woodside considers it has discharged its obligations under regulation 11A by providing consultation materials and conducting various forms of engagement as set out in Section 5.8 and below.

Summary of information provided and record of consultation:

- Between 17 February 2023 and 17 March 2023 the date this EP was notified, Woodside and Malgana had been settling a meeting time to discuss other EP's.
- On 17 March, emailed Malgana advising of the proposed activity (Appendix F, reference 2.45) and provided a simplified Consultation Information Sheet (including a link to the detailed information sheet on Woodside's website) as well as a summary overview fact sheet
- On 19 March 2023, Woodside emailed Malgana to propose an alternate date for the meeting so that required project personnel would be available.
- On 22 March 2023, Malgana emailed Woodside to agree the proposed date and coordinate arrangements for the meeting.
- On 23 March 2023, Woodside emailed Malgana to confirm arrangements for the meeting
- On 4 April 2023, Woodside met with Malgana Aboriginal Corporation (Malgana) representatives at a pre-arranged meeting in Perth. Hard copy Consultation Information Sheets and simplified Information Sheets were provided at the meeting:
 - Woodside described the Environment Plan framework, referring to the Offshore Petroleum and Greenhouse Gas Storage Act (Environment) Regulations, NOPSEMA's role as regulator and general contents of Environment Plans.
 - Malgana asked what arrangements are in place for earthquake tremors, Woodside responded that facilities and equipment are designed to withstand seismic activity which could be expected
 - Woodside encouraged Malgana to raise anything which they feel is missing in the information provided during the meeting, or any issues or concerns.
 - Malgana stated that the Shark Bay environment is unique and has the largest living organism in the world. It also contains stromatolites and microbial mats which are among the oldest living organisms in the world. Stochastic modelling of the worst case credible spill scenario for the petroleum activity indicates that these receptors would not be contacted.
 - Woodside displayed a map of activities open for feedback to be discussed in the meeting and provided a list of other upcoming activities which will be open for consultation in 2023.
 - Malgana expressed that they are very interested in genuine relationship and partnership building with long term structure. Woodside responded that it is very open to this and look forward to working together.
 - Woodside described how EMBA's are prepared and their relevance to consultation
 - Malgana stated that they believe there are flaws in modelling related to Shark Bay hydrodynamics. Woodside responded that nearshore processes may not be very accurate in the model, but its plan for spill response in Shark Bay regardless.
 - Woodside described the proposed activity
 - Malgana asked whether there would be any opportunities for work in the region arising from the activity, Woodside responded that no work local to the Shark Bay area but Woodside C&P will follow up and discuss Malgana representation in Woodside's register of Indigenous businesses
 - Malgana asked whether any equipment is left behind generally with decommissioning, Woodside reiterated that equipment may be left behind where it can be demonstrated that there is a better environmental outcome by doing so, giving examples of buried mattresses and anchors.
 - Woodside described planned and unplanned environmental risks and impacts in accordance with tables provided in the Information Sheets for the activities, emphasising that unplanned risks are not expected to occur and are unlikely.
 - Malgana asked for further detail on Woodside's management of invasive marine species, which was provided
 - The EMBA for the proposed activity was shown and explained
 - Woodside provided personal contact details for further feedback
 - Woodside provided NOPSEMA contact details, should Malgana desire to provide feedback directly to the regulator.
- On 20 April 2023, Malgana emailed Woodside with a list of discussion points from the meeting early in April and the following list of actions for Woodside:
 - Malgana thanked Woodside for the consultation meeting, noting that the Board enjoyed the informative and detailed information provided
 - Malgana thanked Woodside for its proactive response to ensure Malgana country is sufficiently protected and ready in case of unplanned events
 - Malgana noted discussion points from the meeting:

- Agreement that an ongoing partnership should be formed
 - Emphasised the sensitivity and importance of Shark Bay culturally and environmentally
 - Indicated concerns regarding hydrodynamic modelling and reflection of flow into the bay
 - Discussion on how feedback helps Woodside improve Environment Plans
- Malgana requested:
 - Woodside to clarify how hydrodynamics of Shark Bay are resolved in modelling
 - Provision of Malgana rangers with training and equipment for incident response
 - A Shark Bay response team with emergency response plans and exercises
 - A communication strategy for emergencies
 - Information on how Woodside can support Malgana rangers and people
 - A timeframe for a follow up meeting to discuss these points
 - Guidance on the format of desired feedback.
- On 18 May 2023, Woodside emailed Malgana:
 - Woodside thanked Malgana for the consultation meeting and its correspondence of 20 April 2023, and their careful consideration of the matters presented.
 - Woodside acknowledged that Malgana has interests in the EMBA and noted that we want to ensure impacts are as minimal as reasonably practicable.
 - A high level overview of presented topics was provided.
 - Woodside provided responses to the requests made in Malgana correspondence of 20 April 2023:
 - Woodside’s hydrocarbon spill modelling is provided by specialist consultants using global best practice techniques and software. Woodside has requested further information from the consultants on how Shark Bay hydrodynamics are resolved in the model and will communicate to Malgana once received
 - Woodside is investigating options for Indigenous Ranger hydrocarbon spill response training and capability. Woodside intends to work on this collaboratively with spill response agencies, Traditional Owners and industry
 - Existing emergency response arrangements that help protect the environment would trigger notification of Traditional Owners and other relevant stakeholders based on the spill’s trajectory at the time of the spill
 - Woodside proposed another meeting to discuss opportunities for rangers and Indigenous people, noting that Woodside will contact Malgana by phone to arrange details
 - Woodside is able to receive feedback in any format of Malgana’s choice. Woodside offered to provide resources to Malgana to obtain expert advice on proposed activities for which Malgana is a relevant person, beyond that which has already been received in the course of preparing the EP. A suggested list of experienced and reputable industry environmental consultants was provided.
 - Woodside notified that the feedback and the letter will be included in Environment Plans that will be submitted to NOPSEMA.
 - Woodside provided responses to questions noted from the meeting that were not related to the proposed activity.
 - Woodside notified that the feedback and the letter will be included in Environment Plans that will be submitted to NOPSEMA

Summary of Feedback, Objection or Claim	Woodside Energy’s Assessment of Merits of Feedback, Objection or Claim and its Response	Environment Plan Controls
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<p>During face-to-face engagement, Malgana requested further information on topics related to this proposed activity which was responded to during the meeting:</p> <ul style="list-style-type: none"> • Spill response arrangements • Equipment left behind following decommissioning • Invasive Marine Species risk <p>Malgana Aboriginal Corporation indicated that they have particular interest in sea grasses, stromatolites and microbial mats.</p> <p>The Malgana Aboriginal Corporation expressed a desire for ongoing engagement and partnership.</p>	<p>No material issues or concerns related to the proposed activity were raised during consultation to date. Woodside invited further feedback in accordance with Woodside's approach to ongoing consultation.</p> <p>Malgana has had reasonable opportunity to engage in consultation.</p> <p>Consultation has not identified any other groups or individuals relevant to communally held functions, activities or interests.</p> <p>Environmental sensitivities that Malgana noted as having particular interest within Shark Bay are not predicted to be impacted by the worst-case credible scenario, as shown in Table 6-31.</p> <p>Woodside engages in ongoing consultation throughout the life of an EP. 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 (refer to Section 7.13).</p>	<p>Woodside considers the measures and controls in the EP address Malgana Aboriginal Corporations' functions, interests or activities.</p> <p>Based on the engagement to date, no additional controls have been identified.</p> <p>As identified in Section 11.7 of this EP, Woodside will continue to consult Malgana Aboriginal Corporation following acceptance of the EP, as requirement by the implementation strategy as set out regulation 14(9) of the Environment Regulations.</p>
<p>Murujuga Aboriginal Corporation (MAC)</p>		

Woodside considers it has discharged its obligations under regulation 11A by providing consultation materials and conducting various forms of engagement as set out in Section 5.8 and below.

Summary of information provided and record of consultation:

- On 24 February 2023, Woodside emailed MAC advising of the proposed activity (Appendix F, reference 2.67) and provided a Consultation Information Sheet.
- On 7 March, Woodside spoke with MAC to follow up on the material provided.
- On 30 March, Woodside again spoke with MAC to follow up on the material provided.
- On 3 April MAC emailed Woodside asking for a list of outstanding issues that Woodside would like to progress.
- On 5 April 2023 Woodside responded to MAC via email with a list of open topics, which included the request for feedback on the proposed activity. Woodside requested advice from MAC on:
 - How the activity could impact cultural values
 - If MAC proposes anything to be included in the EP prior to submission
 - If MAC would like a meeting to discuss the activity
 - Whether MAC does not intend to provide advice prior to EP submission.
- On 12 April, Woodside telephoned MAC regarding several topics including feedback on the proposed activity. MAC responded that their Board of Directors were meeting soon, and that Woodside could expect to hear from MAC with a plan on how to progress consultation on EP's.
- On 5 June MAC invited Woodside to attend a meeting of the Circle of Elders on 22 June 2023.
- On 22 June 2023, Woodside met with MAC Board and Circle of Elders and presented the Environment Plan slide pack covering Decommissioning Eps:
 - Woodside project team described the Stybarrow decommissioning activity by reference to the slides including maps of location, Infrastructure to be removed and the process required to plug the well by inserting concrete and removing steel infrastructure.
 - Woodside described the planned impacts and respective controls of the above activity including: the presence of vessels, seabed disturbance, underwater noise, discharge from vessels, emissions to air and external lighting.
 - MAC asked whether any of the proposed activities are close to Pluto/Murujuga.
 - Woodside advised the activities proposed under this EP are closer to Exmouth.
 - MAC queried what condition this infrastructure is in.
 - Woodside advised that it runs large maintenance campaigns to look after all the infrastructure.
 - MAC queried whether there were any opportunities for MAC in decommissioning.
 - Woodside advised that for decommissioning assets off Murujuga, it would look to find opportunities for local and Traditional Custodians.
 - MAC queried whether there were opportunities for Murujuga Commercial Limited (MCL) in decommissioning.
 - Woodside advised it always looks for an intersection of MCL's areas of interest and Woodside's opportunities and would look to find ways to build long-term relationships between MAC relevant businesses and contractors.
 - MAC queried how long the removed decommissioned metal would be around for.
 - Woodside explained, only as long as it takes to fill a ship or truck and then it is sent to a recycling facility and that it is recycling around 3,500 tonnes.

Summary of Feedback, Objection or Claim	Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response	Environment Plan Controls
<p>During face-to-face engagement on 22 June 2023, MAC asked:</p> <ul style="list-style-type: none"> • Whether any activities were close to Pluto/Murujuga. • How old Woodside's assets are. • What conditions infrastructure is in. <p>Woodside responded to queries within the meeting.</p> <p>No further feedback has been received.</p>	<p>Woodside has continued to engage MAC on the proposed activity. No material issues or concerns related to the proposed activity were raised during consultation to date. Woodside invited further feedback in accordance with Woodside's approach to ongoing consultation (see Section 11.7).</p> <p>MAC as had a reasonable opportunity to participate in consultation.</p> <p>Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted (including any relevant new information on cultural values), it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 11.6).</p>	<p>Woodside considers the measures and controls described within this EP address the potential impact from the proposed activities on MAC's functions, interests or activities.</p>
<p>Mayala Inninalang Aboriginal Corporation (MIAC)</p>		
<p>Woodside considers it has discharged its obligations under regulation 11A by providing consultation materials and conducting various forms of engagement as set out in Section 5.8 and below.</p> <p>Summary of information provided and record of consultation:</p> <p>Kimberley Land Council (KLC) is the nominated Representative of MIAC.</p> <ul style="list-style-type: none"> • On 28 February 2023, Woodside emailed MIAC via KLC advising of the proposed activity (Appendix F, reference 2.46) and provided a Consultation Information Sheet. • On 28 February 2023, KLC emailed to advise it had passed Woodside's information to the relevant contact person at MIAC. • On 8 March 2023, Woodside emailed MIAC via KLC to ask whether there were any initial concerns and whether MIAC members would like to speak to Woodside or provide feedback on the activity (Appendix F, reference 2.46.1). • On 5 April 2023, Woodside sent a follow up email to KLC as nominated contact person to confirm whether MIAC may have interests impacted by the proposed activities. • On 6 April 2023, KLC responded to Woodside to advise the email regarding the proposed activity had been sent to the relevant contact person at MIAC. • On 8 June 2023, Woodside emailed KLC as the nominated focal point for MIAC to advise MIAC of community information drop-in sessions to be held in several Kimberley towns to discuss Woodside planned activities. Woodside requested details be passed on to members or anyone who would like to understand the activities. 		
Summary of Feedback, Objection or Claim	Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response	Environment Plan Controls

<p>MIAC has not responded to any of Woodside's communications despite follow up, or provided feedback, objections to date or claims in response to the information provided since consultation began in February 2023.</p>	<p>Woodside demonstrated reasonable effort to engage in two-way dialogue. MIAC has had ample opportunity to participate in consultation.</p> <p>Consultation with MIAC has not identified any other groups or individuals relevant to communally held functions, activities or interests.</p> <p>No material issues or concerns related to the proposed activity were raised during consultation to date. Woodside invited further feedback in accordance with Woodside's approach to ongoing consultation (see Section 11.7).</p> <p>Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted (including any relevant new information on cultural values), it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 11.6).</p>	<p>As no response was provided by Kariyarra Aboriginal Corporation, Woodside is not in a position to assess the merits of any objection or claim about the adverse impact of the PAP or to provide a response.</p> <p>As identified in Section 11.7 of this EP, Woodside will continue to consult following acceptance of the EP, as requirement by the implementation strategy as set out regulation 14(9) of the Environment Regulations.</p>
<p>Nanda Aboriginal Corporation (NAC)</p>		

Woodside considers it has discharged its obligations under regulation 11A by providing consultation materials and conducting various forms of engagement as set out in Section 5.8 and below.

Summary of information provided and record of consultation:

- On 17 March 2023, Woodside emailed YMAC to discuss meeting arrangements with NAC and provided a Consultation Information Sheet (Appendix F, reference 2.47).
- On 19 March Nanda/YMAC emailed Woodside to apologise for delay in response and suggest a date of 19 April 2023, to meet with the Nanda Board
- On 23 March 2023, Woodside emailed NAC/YMAC to accept the proposed date and time.
- Between 29 March and 5 April NAC/YMAC and Woodside exchanged emails in relation to logistics for the proposed meeting.
- On 19 April 2023, Woodside met with directors and other representatives from Nanda Aboriginal Corporation at a pre-arranged meeting in Geraldton. Hard copy Consultation Information Sheets and simplified Information Sheets were provided at the meeting:
 - Woodside provided background on Woodside and explained the geographical location of the proposed activity relevant to Nanda
 - Woodside described the Environment Plan framework, referring to the Offshore Petroleum and Greenhouse Gas Storage Act (Environment) Regulations, NOPSEMA’s role as regulator and general contents of Environment Plans.
 - Nanda asked whether Woodside has ever had an oil spill. Woodside said that we have had small spills but nothing that had lasting impact, and while worst case spills will be discussed today we have not had anything close to this scale happen before.
 - Nanda asked whether everything we put in the water will be removed, Woodside responded that this is correct except for instances where removing it would cause worse environmental damage such as buried anchors.
 - Nanda asked whether our activities are resistant to cyclones, Woodside responded that while some of our assets would continue operating the execution activities such as seabed intervention and pipelay would be moved away and made safe.
 - Nanda asked about control measures to avoid impacts to migratory whales, Woodside described control measures intended to be in place for the activity.
 - Nanda asked for detail on oil spill response particularly shoreline impact, Woodside described hydrocarbon spill preparedness, emergency planning and the various response techniques.
 - Woodside provided an overview of the proposed activity and the need for decommissioning
 - Nanda asked about intended EP submission timeframes, Woodside responded with the proposed timing
 - The planned and unplanned environmental risks and impacts of the proposed activity were described, in accordance with the Information Sheet
 - The EMBA for the activity was shown and described
 - Woodside asked whether there were any further questions or concerns with the activity, none were received
 - Woodside provided personal contact details for further feedback.
- On 18 May 2023, Woodside emailed Nanda with the following:
 - Woodside thanked Nanda for the consultation meeting and their careful consideration of the matters presented
 - Woodside acknowledged and respects that Nanda have interests in the EMBA and noted that we want to ensure impacts are as minimal as reasonably practicable.
 - A high-level overview of presented topics was provided.
 - Woodside notified that the feedback and the letter will be included in Environment Plans that will be submitted to NOPSEMA.
 - Woodside provided responses to questions noted from the meeting that were not related to the proposed activity.

Summary of Feedback, Objection or Claim	Woodside Energy’s Assessment of Merits of Feedback, Objection or Claim and its Response	Environment Plan Controls
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<p>During face-to-face engagement, Nanda requested further information on topics related to this proposed activity which was responded to during the meeting:</p> <ul style="list-style-type: none"> • Decommissioning • Hydrocarbon spill response, potential shoreline impact and emergency planning • Impacts to whales • Spill response arrangements 	<p>Woodside continues to engage Nanda in relation to feedback following the 19 April 2023 Board meeting.</p> <p>No material issues or concerns related to the proposed activity were raised during consultation to date. Woodside invited further feedback in accordance with Woodside's approach to ongoing consultation.</p> <p>Interests that Nanda raised in the consultation meeting, namely decommissioning, hydrocarbon spill risk and preparedness and impacts to whales are valid environmental aspects.</p> <p>Consultation has not identified any other groups or individuals relevant to communally held functions, activities or interests</p> <p>Nanda has had a reasonable opportunity to participate in consultation</p> <p>Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted (including any relevant new information on cultural values), it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 11.6.4).</p>	<p>Woodside considers the measures and controls in the EP address Nanda Aboriginal Corporations' functions, interests or activities.</p> <p>Based on the engagement to date, no additional controls have been identified.</p> <p>As identified in Section 11.7 of this EP, Woodside will continue to consult following acceptance of the EP, as requirement by the implementation strategy as set out regulation 14(9) of the Environment Regulations.</p>
<p>Nganhurra Thanardi Garrbu Aboriginal Corporation (NTGAC)</p>		

Woodside considers it has discharged its obligations under regulation 11A by providing consultation materials and conducting various forms of engagement as set out in Section 5.8 and below.

Summary of information provided and record of consultation:

- On 16 February 2023 Woodside met with the NTGAC Board in a pre-arranged meeting to discuss a number of proposed activities, including the proposed activity. Consultation Information Sheets and Simplified Information Sheets were provided in the meeting.
 - Woodside described the Environment Plan framework, referring to the Offshore Petroleum and Greenhouse Gas Storage Act (Environment) Regulations, NOPSEMA's role as regulator and general contents of Environment Plans.
 - Woodside encouraged NTGAC to raise anything which they feel is missing in the information provided during the meeting.
 - Woodside displayed a map of activities open for feedback to be discussed in the meeting and provided a list of other upcoming activities which will be open for consultation in 2023.
 - Woodside explained the proposed activity by points of difference from another decommissioning activity already discussed, including the plugging and abandonment of wells and how it is undertaken
 - YMAC asked about risk to marine parks, Woodside responded that there are no planned activities in marine parks or the Exmouth Gulf
 - NTGAC asked whether other vessels could interfere with the activity, Woodside responded that an exclusion zone will be in place
 - NTGAC asked whether activities could be undertaken outside whale shark season. Woodside responded that this is not planned but noted that impacts to whale sharks are not expected
 - YMAC asked whether Woodside has had any incidents with similar activities before, Woodside responded that it has decommissioned the Balnaves field before with no material incidents
 - Woodside explained the planned and unplanned environmental risks and impacts in accordance with the Information Sheet
 - Woodside explained how spill risk is assessed and the EMBA for the proposed activity
 - YMAC asked how crude oil could be released from the wells. Woodside responded that multiple barriers are always in place between the reservoir and the environment, and these would have to fail to allow it to escape. Some wells do not flow anymore due to low pressure
 - Woodside stated that there is significant work and consultation coming up, and it hope to spend more time with NTGAC to understand expectations and desire of how Woodside can work with NTGAC.
 - YMAC expressed that they are being inundated with requests for consultation from oil and gas operators, and are working internally on processes and priorities for consultation.
 - Woodside welcomed the transparency and discussion on capacity.
 - NTGAC expressed that consulting on these types of activities is not viewed as wasting time, but consultation which gives nothing back to the community is not a priority. They are interested in partnership programs and on-country engagements.
 - Woodside stated that while all the big companies will have deadlines and need to get feedback to meet legal requirements, Woodside desires it to be a jointly held process and that if NTGAC desires any support or assistance to please request it.
 - Woodside provided personal contact details for further feedback.
 - Woodside provided NOPSEMA contact details should NTGAC desire to provide feedback directly to the regulator.
- On 21 February 2023, NTGAC/YMAC emailed Woodside to seek clarification of the attendee names at the 16 February 2023 Board meeting.
- On 21 February 2023, Woodside emailed NTGAC/YMAC the attendee names at the 16 February 2023 Board meeting and provided a copy of the presentation pack. Woodside followed up on request for any further feedback on the proposed activity.

- On 21 February 2023, Woodside emailed NTGAC via YMAC advising of the proposed activity (Appendix F, reference 2.48) and provided a simplified Consultation Information Sheet (including a link to the detailed information sheet on Woodside’s website) as well as a summary overview fact sheet.
- On 22 February 2023, NTGAC/YMAC emailed Woodside to thank Woodside for sending the relevant information.
- Between 22-23 February 2023, NTGAC/YMAC and Woodside exchanged emails about additional resourcing so NTGAC could obtain independent expertise on a different activity but not for the proposed activities in this EP.
- On 22 March 2023, Woodside emailed NTGAC/YMAC to follow up on any feedback on the proposed activities.
- On 28 March 2023, NTGAC/YMAC followed up with Woodside on a Woodside action arising from the 16 February meeting to supply photos and diagrams in relation to the different activity.
- On 31 March 2023, Woodside emailed NTGAC/YMAC to follow up with the relevant photos and diagrams requested, noting contact details, and welcoming any further feedback. Woodside thanked NTGAC for their work to date and requested that NTGAC reach out for any assistance.
- On 1 June 2023, Woodside emailed NTGAC/YMAC to ask if any further assistance or information was required on Woodside matters.
- On 7 June 2023, NTGAC/YMAC emailed Woodside to apologise for delayed response and to advise that the Board are currently busy, the request for information will be followed up
- On 19 June 2023, Woodside emailed NTGAC/YMAC to inform that they were sending information on an unrelated EP and to ask whether NTGAC required any consultations on any matters.
- On 19 June 2023, NTGAC/YMAC emailed Woodside to request a consultation workshop for Woodside activities.
- On 19 June 2023, Woodside emailed NTGAC/YMAC to request a one-day meeting at a time and locations suitable to the Board.
- On 20 June 2023, Woodside emailed NTGA/YMAC to confirm information of an unrelated EP and to agree to a funding request and confirm awaiting meeting details.
- On 20 June 2023, NTGAC/YMAC emailed Woodside to acknowledge they will look at the Board’s availability for one day meeting.
- On 21 June 2023, NTGAC/YMAC emailed Woodside to acknowledge they will look at booking a full day’s workshop and that they would like all EP activities to be covered.
- On 21 June 2023, Woodside emailed NTGAC/YMAC noting workshop and agreeing to assist with planning arrangements.

Summary of Feedback, Objection or Claim	Woodside Energy’s Assessment of Merits of Feedback, Objection or Claim and its Response	Environment Plan Controls
<p>During face-to-face engagement, the NTGAC requested further information on topics related to this proposed activity which was responded to during the meeting:</p> <ul style="list-style-type: none"> • Risk to marine parks • Protections for whale sharks • Woodside history of incidents with similar activities • Hydrocarbon spill risk <p>The NTGAC expressed a desire for ongoing engagement and partnership.</p>	<p>Woodside continues to engage NTGAC via YMAC in relation to feedback following the 16 February 2023 Board meeting.</p> <p>No material issues or concerns related to the proposed activity were raised during consultation to date. Woodside invited further feedback in accordance with Woodside’s approach to ongoing consultation.</p> <p>NTGAC has had a reasonable opportunity to participate in consultation.</p> <p>Consultation with NTGAC has not identified any other groups or individuals relevant to communally held functions, activities or interests</p> <p>Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted (including any relevant new information on cultural values), it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 11.6.4).</p>	<p>Woodside considers the measures and controls in the EP addressed NTGAC’s functions, interests or activities.</p> <p>Based on the engagement to date, no additional controls have been identified</p> <p>As identified in Section 11.7 of this EP, Woodside will continue to consult following acceptance of the EP, as requirement by the implementation strategy as set out regulation 14(9) of the Environment Regulations.</p>
<p>Ngarluma Aboriginal Corporation (NAC)</p>		

Woodside considers it has discharged its obligations under regulation 11A by providing consultation materials and conducting various forms of engagement as set out in Section 5.8 and below.

Summary of information provided and record of consultation:

- On 24 February 2023 Woodside emailed NAC advising of the proposed activity (Appendix F, reference 2.50) and provided a Consultation Information Sheet. Woodside noted it is seeking NAC's feedback as soon as possible on the proposed activity. Woodside made clear it was prepared to consult in the manner and location preferred by NAC and resource the meeting appropriately
- On 24 February 2023, NAC emailed Woodside:
 - NAC acknowledged receipt of Woodside's emails and that it was yet to attend to the emails and would do so following the w/c 27 February 2023.
- On 9 March 2023, Woodside emailed NAC and left a phone message to follow up on the email received 24 February 2023. Woodside advised it was seeking opportunity for Woodside to present to the NAC board with an EP overview and if there has been any progress in terms of securing a preferred day and timeslot.
- On 9 March 2023, NAC emailed Woodside to advise that the contact at NAC was unavailable to meet on 30 March 2023.
- On 9 March 2023, Woodside emailed NAC:
 - Woodside noted that during a previous meeting, NAC had advised its next board meeting would be held on 29 and 30 March and that Woodside would be potentially assigned time on the agenda to present to the NAC Board on either one of those days.
 - Woodside advised that this is an important opportunity to ensure that NAC board have the opportunity to provide feedback on the Environmental Plans and if they have interests in the environment that may be affected (EMBA).
 - Woodside welcomed the suggestion of alternative days/times or ways that it can provide an overview to NAC the board.
- On 10 March 2023, NAC emailed Woodside to advise that its March Board Meeting was full with overflows from January and February and at this stage would need to leave the environmental plan consultation until the April meeting.
- On 14 March 2023, Woodside emailed NAC to request the dates for the April board meeting and to confirm what time Woodside might be allocated to present at NAC's earliest convenience.
- On 14 March 2023, NAC emailed Woodside to advise that the Board meeting was tentatively set for 29th April at that stage. NAC advised this needs to be confirmed with its Board before it can commit to a time or date.
- Between 12-17 April, NAC and Woodside exchanged emails with Woodside seeking confirmation of the April board date and whether Woodside would have time on the agenda.
- On 17 April, Woodside emailed NAC noting there had been no confirmation of an April meeting and seeking advice on whether NAC have feedback in relation to the proposed activities. The email explained that Woodside's plan to submit the EP and was seeking pre-submission feedback, noting that feedback could be provided for the life of the EP. Woodside sought an email supporting the approach and also looked forward to meeting in future
- On 20 April 2023, NAC emailed Woodside noting that the next board meeting would be 26 April 2023 and asking if Woodside still would like to attend.
- On 20 April 2023, NAC emailed Woodside requesting any documentation for the board meeting packs.
- On 20 April 2023, Woodside emailed NAC confirming that Woodside would appreciate time to present at the board meeting.
- On 20 April 2023, NAC emailed Woodside acknowledging receipt of the materials and asked questions of an unrelated EP. NAC stated that it is supportive of decommissioning activities.
- On 21 April 2023, NAC emailed to advise that there was no time for Woodside on the April agenda, but time would be set aside in May, with a tentative date of 17 May 2023.
- On 21 April 2023, Woodside thanked NAC for their response.
- On 26 April 2023, Woodside emailed NAC additional information unrelated to this EP and re-iterating that they would like to meet to talk about activity in further detail.
- On 28 April 2023, Woodside emailed NAC advising that the next step was for the EP to be submitted but no feedback had been received to date. The email stated that before Woodside submits, Woodside sought to understand whether there were any issues or concerns with the proposed activities that needed to be reflected in the EP.

- On 10 May 2023, NAC replied to Woodside stating that they were supportive of the submission of the EP and looked forward to ongoing consultation.
- On 12 May 2023, NAC emailed Woodside to notify that Woodside had been allocated a one hour window in the NAC Board Meeting on 17 May 2023.
- On 17 May 2023, Woodside presented to the NAC Board of Directors in Karratha:
 - Woodside opened the meeting with introductions.
 - Woodside thanked the Ngarluma Aboriginal Corporation (NAC) for inviting Woodside Energy to speak with them and provided Acknowledgement of Country.
 - Woodside talked through the agenda and reasons for consultation.
 - Woodside introduced the regulations it needed to comply with and the role of NOPSEMA.
 - Woodside explained that many of its activities could impact Ngarluma Country in the highly unlikely event of an oil spill, and some activities like Scarborough could have a more direct impact.
 - Woodside referred to an example EMBA and described how it is comprised of many replicates of a single spill.
 - Woodside explained that it is consulting with many people up and down the coastline including multiple Aboriginal Corporations.
 - Woodside proposed what consultation outcomes it would like to meet with NAC, including understanding:
 - How the activities could impact cultural values, functions, interests, or activities
 - Whether protecting the environment is enough to protect these things
 - What NAC's concerns are about the proposed activities and what NAC thinks we should do about it
 - If there's anything NAC would like included in EPs.
 - Woodside noted that feedback would be welcomed throughout the life of all Environment Plans.
 - Woodside provided a high-level overview of the activity
 - Woodside described the proposed Stybarrow activities, including plugging and abandoning the wells, removing subsea equipment. Woodside will seek a deviation to leave buried equipment in place.
 - NAC asked, how long the equipment had been there, Woodside responded that it commenced in 2006 and there's not enough oil left to operate it. NAC asked whether the infrastructure could be left to attract fish, Woodside responded that while some of the Griffin buoys were successfully repurposed as artificial reef near Exmouth, unless it is buried all equipment is now being removed.
 - Woodside asked if there was any further feedback or questions about this activity, none were received.

Summary of Feedback, Objection or Claim	Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response	Environment Plan Controls
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<p>NAC has not provided objections or claims in response to the information provided since consultation commenced in February 2023.</p> <p>NAC has confirmed receipt of materials on more than one occasion, and there has been ample opportunity for two-way dialogue. NAC has stated that they are supportive of the decommissioning activity.</p> <p>During face-to-face meetings with the NAC Board asked a few questions that were responded to by Woodside in the meeting:</p> <ul style="list-style-type: none"> • Length of time the asset had been there. • Whether equipment left in place would impact the environment. • Whether fishing could take place on the equipment. 	<p>NAC has had a reasonable opportunity to participate in and has participated in two-way dialogue on the proposed activity. Woodside continues to engage NAC on the proposed activity.</p> <p>Consultation with NAC has not identified any other groups or individuals relevant to communally held functions, activities or interests.</p> <p>No material issues or concerns related to the proposed activity were raised during consultation to date. Woodside invited further feedback in accordance with Woodside's approach to ongoing consultation (see Section 10.4.5).</p> <p>Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted (including any relevant new information on cultural values), it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 11.6.4).</p>	<p>Woodside considers the measures and controls in the EP address NAC's functions, interests, or activities.</p> <p>Based on the engagement to date, no additional controls have been identified.</p> <p>As identified in Section 11.7 of this EP, Woodside will continue to consult following acceptance of the EP, as requirement by the implementation strategy as set out regulation 14(9) of the Environment Regulations.</p>
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Nimanburr Aboriginal Corporation (NAC)

Woodside considers it has discharged its obligations under regulation 11A by providing consultation materials and conducting various forms of engagement as set out in Section 5.8 and below.

Summary of information provided and record of consultation:

Kimberley Land Council (KLC) is the nominated representative of NAC.

- On 28 February 2023, Woodside emailed NAC/KLC advising of the proposed activity (Appendix F, reference 2.51) and provided a Consultation Information Sheet.
- On 28 February 2023, KLC advised it had passed Woodside's information to the relevant contact person at NAC.
- On 8 March 2023, Woodside sent a follow up email to NAC/KLC with information sheets (Appendix F, reference 2.51.1).
- On 4 April 2023, Kimberley Land Council telephoned and provided Woodside with contact for NAC, for Woodside to contact NAC directly.
- On 5 April 2023, Woodside sent a follow up email to NAC/KLC to confirm whether NAC may have interests impacted by proposed activities and to offer to meet in Broome the following day.
- On 3 May 2023, Woodside met with two NAC members and agreed to drive to meet NAC director at the NAC Dampier Peninsula block.
- On 5 May 2023, Woodside drove to meet NAC director, on country up the Dampier Peninsula and provided hard copies of the Pyxis drilling and subsea installation and Stybarrow plug and abandonment fact sheets and provided an overview of both activities.
- On 10 May 2023, Woodside called NAC director, asking if he had any questions or concerns for both EMBA's. No concerns were raised.
- On 11 May 2023, NAC/KLC emailed Woodside to request a meeting and presentation at their next Board meeting.
- On 8 June 2023, Woodside emailed NAC inviting them to a community information drop-in session. The email offered separate meeting if desired, and requested the invitation be passed on to members and any other individuals.

Summary of Feedback, Objection or Claim	Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response	Environment Plan Controls
<p>In consultation in the course of preparing the EP since February 2023, NAC has not provided feedback, objections or claims in response to the information provided.</p>	<p>Woodside demonstrated reasonable effort to engage in two-way dialogue. NAC has had a reasonable opportunity to participate in consultation.</p> <p>Consultation with NAC has not identified any other groups or individuals relevant to communally held functions, activities or interests. No material issues or concerns related to the proposed activity were raised during consultation to date. Woodside invited further feedback in accordance with Woodside's approach to ongoing consultation (see Section 11.7).</p> <p>Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted (including any relevant new information on cultural values), it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 11.6).</p>	<p>Woodside considers the measures and controls in the EP address NAC's functions, interests or activities.</p> <p>No additional measures or controls are required.</p> <p>As identified in Section 11.7 of this EP, Woodside will continue to consult following acceptance of the EP, as requirement by the implementation strategy as set out regulation 14(9) of the Environment Regulations.</p>
<p>Nyul Nyul PBC Aboriginal Corporation (NNAC)</p>		

Woodside considers it has discharged its obligations under regulation 11A by providing consultation materials and conducting various forms of engagement as set out in Section 5.8 and below.

Summary of information provided and record of consultation:

Kimberley Land Council is the nominated representative of NNAC.

- On 28 February 2023, Woodside emailed NNAC/KLC advising of the proposed activity (Appendix F, reference 2.52) and provided a Consultation Information Sheet.
- On 28 February 2023, KLC advised it had passed Woodside's information to the relevant contact person at NNAC.
- On 4 April 2023, KLC phoned and provided Woodside with NNAC contact details for Woodside to contact Nyul Nyul directly.
- On 5 April 2023, Woodside sent a follow up email to confirm whether NNAC may have interests impacted by proposed activities and to request to meet whilst currently in Broome.
- On 5 April 2023, NNAC nominated contact person emailed Woodside that they had forwarded Woodside email to chairperson and other directors and asked that they set up a meeting.
- On 5 April 2023, Woodside emailed asking if any of NNAC directors resided in Broome and offered to drive up the Dampier Peninsula on 6 April to meet NNAC directors and members.
- On 6 April 2023, NNAC nominated contact person emailed Woodside with contact for a Broome based director.
- On 11 April – 13 April 2023, Woodside called NNAC director based in Broome four times seeking a meeting, phone rang out on all calls.
- On 26 April 2023, Woodside called NNAC nominated contact, however the phone was disconnected
- On 26 April 2023, Woodside emailed nominated NNAC contact, however received message advising contact email in box was full and could not be delivered.
- On 26 April 2023, Woodside called NNAC Broome based director advising Woodside would be visiting West Kimberley 1 - 5 May 2023 and wanted to meet. Director explained it would be best to meet with all directors and they would try and coordinate meeting. Woodside advised they were happy to drive to Beagle Bay for meeting if most directors resided in Beagle Bay.
- On 2 May 2023, Woodside called NNAC director for details on directors meeting but was advised they were unable to coordinate a directors meeting.
- On 10 May 2023, Woodside called Beagle Bay Community office twice with no answer.
- On 15 May 2023, Woodside called Beagle Bay Community office, with no answer.
- On 25 May 2023, Woodside phoned Nyul Nyul to seek a meeting time, Nyul Nyul invited Woodside to a meeting on 14 June 2023 to speak to Directors and members. Woodside accepted the invitation.
- On 14 June 2023, Woodside travelled to Beagle Bay to a pre-arranged meeting with Nyul Nyul at their invitation. On arrival Woodside were told the agenda was full and were informed they may be placed on a Board meeting Agenda in August.

Summary of Feedback, Objection or Claim	Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response	Environment Plan Controls
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<p>In consultation in the course of preparing the EP since February 2023, NNAC has not provided feedback, objections or claims in response to the information provided.</p>	<p>Woodside demonstrated reasonable effort to engage in two-way dialogue. NNAC has had a reasonable opportunity to participate in consultation.</p> <p>Consultation with NNAC has not identified any other groups or individuals relevant to communally held functions, activities or interests. No material issues or concerns related to the proposed activity were raised during consultation to date. Woodside invited further feedback in accordance with Woodside's approach to ongoing consultation (see Section 11.7).</p> <p>Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted (including any relevant new information on cultural values), it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 11.6).</p>	<p>Woodside considers the measures and controls in the EP address NNAC's functions, interests or activities.</p> <p>No additional measures or controls are required.</p> <p>As identified in Section 11.7 of this EP, Woodside will continue to consult following acceptance of the EP, as requirement by the implementation strategy as set out regulation 14(9) of the Environment Regulations.</p>
<p>Nyangumarta Karajarri Aboriginal Corporation (NKAC)</p>		
<p>The Nyangumarta Karajarri Aboriginal Corporation's nominated contact representative as listed under the Office of the Registrar of Indigenous Corporations, and the General Report 2021 published 25/5/22 is the Kimberley Land Council with listed email address. Woodside therefore directs correspondence through this channel in accordance with NKAC preference.</p> <p>Woodside considers it has discharged its obligations under regulation 11A by providing consultation materials and conducting various forms of engagement as set out in Section 5.8 and below.</p> <p>Summary of information provided and record of consultation:</p> <ul style="list-style-type: none"> • On 24 February 2023, Woodside emailed NKAC advising of the proposed activity (Appendix F, reference 2.53) and provided a simplified Consultation Information Sheet (including a link to the detailed information sheet on Woodside's website) as well as a summary overview fact sheet. The email followed on from previous correspondence on other activities and requested NKAC to inform Woodside if there is anything else that could be done to facilitate consultation • On 24 February 2023, KLC advised via phone that the information had been forwarded to NKAC directors for their consideration. • On 24 March 2023, Woodside emailed NKAC/KLC following up on the information sent through in relation to the proposed activity and seeking feedback. offering in person discussions at any time suitable to the organisation (Appendix F, reference 2.53.1). • On 24 March 2023, Woodside emailed KLC thanking them for their assistance. • On 18 April 2023, Woodside emailed KLC/NKAC following up on the information sent through in relation to the proposed activity and seeking feedback, noting that Woodside had not been contacted by directors yet. • On 18 April 2023, the KLC representative advised that their duties as contact person had been discharged and it is up to directors to manage consultation from here, and they will be considering our communication. • On 28 April 2023, Woodside emailed KLC/NKAC including the email chain demonstrating efforts to engage and notifying that the next step is for the EP for the proposed activity to be submitted to NOPSEMA for technical assessment. It stated that the EP submission is imminent and requested any priority feedback as a priority to reflect in this submission, noting that feedback is also welcome over the life of the EP. • 		
<p>Summary of Feedback, Objection or Claim</p>	<p>Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response</p>	<p>Environment Plan Controls</p>

<p>In consultation in the course of preparing the EP since February 2023, NKAC has not provided feedback, objections or claims in response to the information provided.</p>	<p>Woodside demonstrated reasonable effort to engage in two-way dialogue. NKAC has had a reasonable opportunity to participate in consultation.</p> <p>Consultation with NKAC has not identified any other groups or individuals relevant to communally held functions, activities or interests. No material issues or concerns related to the proposed activity were raised during consultation to date. Woodside invited further feedback in accordance with Woodside's approach to ongoing consultation (see Section 11.7).</p> <p>Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted (including any relevant new information on cultural values), it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 11.6).</p>	<p>Woodside considers the measures and controls in the EP address NKAC's functions, interests or activities.</p> <p>No additional measures or controls are required.</p> <p>As identified in Section 11.7 of this EP, Woodside will continue to consult following acceptance of the EP, as requirement by the implementation strategy as set out regulation 14(9) of the Environment Regulations.</p>
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Nyangumarta Warrarn Aboriginal Corporation (NWAC)

Woodside considers it has discharged its obligations under regulation 11A by providing consultation materials and conducting various forms of engagement as set out in Section 5.8 and below.

Summary of information provided and record of consultation:

- On 24 February 2023, Woodside emailed NWAC advising of the proposed activity (Appendix F, reference 2.54) and provided a simplified Consultation Information Sheet (including a link to the detailed information sheet on Woodside's website) as well as a summary overview fact sheet. The email followed on from previous correspondence on other activities and requested NWAC to inform Woodside if there is anything else that could be done to facilitate consultation.
- On 24 March 2023, Woodside emailed NWAC following up on previous emails and seeking to make further contact. The email requested NWAC to inform Woodside if there is anything else that could be done to facilitate consultation.
- On 18 April 2023, Woodside left a voice mail with and emailed Yamatji Marlpa Aboriginal Corporation (YMAC), asking whether they have an alternate contact for NWAC. No response was received.
- On 28 April 2023, Woodside emailed NWAC including the email chain demonstrating efforts to engage and notifying that the next step is for the EP for the proposed activity to be submitted to NOPSEMA for technical assessment. It stated that the EP submission is imminent and requested any priority feedback as a priority to reflect in this submission, noting that feedback is also welcome over the life of the EP.

Summary of Feedback, Objection or Claim	Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response	Environment Plan Controls
<p>In consultation in the course of preparing the EP since February 2023, NWAC has not provided feedback, objections or claims in response to the information provided.</p>	<p>Woodside demonstrated reasonable effort to engage in two-way dialogue. NWAC has had a reasonable opportunity to participate in consultation.</p> <p>Consultation with NWAC has not identified any other groups or individuals relevant to communally held functions, activities or interests. No material issues or concerns related to the proposed activity were raised during consultation to date. Woodside invited further feedback in accordance with Woodside's approach to ongoing consultation (see Section 11.7).</p> <p>Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted (including any relevant new information on cultural values), it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 11.6).</p>	<p>Woodside considers the measures and controls in the EP address NWAC's functions, interests or activities.</p> <p>No additional measures or controls are required.</p> <p>As identified in Section 11.7 of this EP, Woodside will continue to consult following acceptance of the EP, as requirement by the implementation strategy as set out regulation 14(9) of the Environment Regulations.</p>

Robe River Kuruma Aboriginal Corporation (RRKAC)

Woodside considers it has discharged its obligations under regulation 11A by providing consultation materials and conducting various forms of engagement as set out in Section 5.8 and below.

Summary of information provided and record of consultation:

- On 24 February 2023, Woodside emailed RRKAC advising of the proposed activity (Appendix F, reference 2.66) and provided a Consultation Information Sheet and to confirm an already proposed February 2023 meeting. Woodside noted it is seeking RRKAC’s feedback as soon as possible on the proposed activity.
- On 9 March 2023, RRKAC responded and advised that the interests of Robe River Kuruma people are best served through the joint Heritage Advisory Committee that is required under Yaburara Mardudhunera and Kuruma Marthudunera Indigenous Land Use Agreement. RRKAC included Wirrawandi AC into the email as they are required to facilitate the Committee.
- Between 15-17 March 2023, Woodside exchanged email correspondence with RRKAC (and WAC) in relation to establishing a meeting with the joint Heritage Advisory Committee. The meeting was confirmed for 31 March 2023.
- On 31 March 2023, Woodside met with the Robe River Kuruma and Wirrawandi Joint Heritage Advisory Committee (HAC) in Karratha:
 - Woodside described the Environment Plan framework, referring to the Offshore Petroleum and Greenhouse Gas Storage Act (Environment) Regulations, NOPSEMA’s role as regulator and general contents of Environment Plans.
 - Woodside encouraged HAC to raise anything which they feel is missing in the information provided during the meeting, or any issues or concerns.
 - Woodside displayed a map of activities open for feedback to be discussed in the meeting and provided a list of other upcoming activities which will be open for consultation in 2023.
 - Woodside gave an overview of the need for decommissioning and how it generally involves removing infrastructure from the environment when it’s no longer needed, unless there is a better environmental outcome from leaving it in place.
 - Woodside explained the proposed activity and how wells are plugged and abandoned.
 - Woodside explained planned and unplanned environmental risks and impacts for decommissioning activities, noting that the worst-case consequence for the activity is a diesel spill from a vessel collision. Woodside gave an overview of emergency spill response planning.
 - RRKAC asked what happens to steel when it is removed, Woodside responded that is recycled where possible
 - RRKAC raised that mangroves are an environmental concern in event of a spill, Woodside responded that mangroves are identified as high sensitivity in existing plans for spill response
 - Woodside provided personal contact details for further feedback.
 - Woodside provided NOPSEMA contact details, should WAC desire to provide feedback directly to the regulator.
- On 3 May 2023, Woodside emailed a letter to RRKAC:
 - Woodside thanked the HAC for the meeting, their careful consideration of the matters and feedback provided.
 - Woodside acknowledged that the RRKAC have interests in the EMBA and noted that we want to ensure impacts are as minimal as reasonably practicable.
 - A high-level overview of presented topics was provided.
 - Woodside provided responses to questions noted from the meeting that were not related to the proposed activity.
 - Woodside notified that the feedback and the letter will be included in Environment Plans that will be submitted to NOPSEMA.
 - Woodside provided responses to questions noted from the meeting that were not related to the proposed activity.

Summary of Feedback, Objection or Claim	Woodside Energy’s Assessment of Merits of Feedback, Objection or Claim and its Response	Environment Plan Controls
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<p>During face-to-face engagement, the HAC requested further information on topics related to this proposed activity which was responded to during the meeting:</p> <p>Decommissioning waste</p> <p>Protection of mangroves</p> <p>The HAC expressed a desire for ongoing engagement and partnership.</p> <p>The HAC raised feedback and request for further information on the Scarborough project more broadly which will be provided as part of ongoing engagement.</p>	<p>RRKAC and the HAC have engaged in two-way dialogue with Woodside and Woodside continues to engage RRKAC in relation to the proposed activity.</p> <p>No material issues or concerns related to the proposed activity were raised during consultation to date. Woodside invited further feedback in accordance with Woodside's approach to ongoing consultation (see Section 11.7).</p> <p>Consultation with RRKAC and the HAC has not identified any further groups or individuals relevant to communally held functions, activities or interests</p> <p>Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted (including any relevant new information on cultural values), it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 11.6.4).</p>	<p>Woodside considers the measures and controls in the EP addressed RRKAC's and the HAC's functions, interests or activities.</p> <p>No additional measures or controls are required.</p> <p>As identified in Section 11.7 of this EP, Woodside will continue to consult following acceptance of the EP, as requirement by the implementation strategy as set out regulation 14(9) of the Environment Regulations.</p>
<p>Wanparta Aboriginal Corporation (WAC)</p>		
<p>Woodside considers it has discharged its obligations under regulation 11A by providing consultation materials and conducting various forms of engagement as set out in Section 5.8 and below.</p> <p>Summary of information provided and record of consultation:</p> <ul style="list-style-type: none"> On 24 February 2023, Woodside emailed the Wanparta contact person asking for feedback on the information already provided regarding Scarborough activities and providing additional information on other decommissioning and drilling activities and requesting feedback. Woodside again requested information on the interests that Wanparta and its members may have within the EMBA, information on how Wanparta would like to engage, and requested that Wanparta provide information to other individuals as required. Woodside also asked if anything further could be done to facilitate consultation. (Appendix F, reference 2.56). On 2 March 2023, Wanparta emailed Woodside to state that all information had been received and passed to directors for comment On 24 March 2023, Woodside emailed Wanparta asking whether the Directors have any questions or have advised whether they wish to discuss further. An offer of phone discussion, online or in person meeting was made On 27 March 2023, Wanparta contacted Woodside via email to clarify that the directors had not provided any questions or feedback. On 18 April 2023, Woodside emailed Wanparta following up on previous emails and seeking to make further contact, asking for advice on how Wanparta would like to engage On 28 April 2023, Woodside emailed Wanparta including the email chain demonstrating efforts to engage and notifying that the next step is for the EP for the proposed activity to be submitted to NOPSEMA for technical assessment. It stated that the EP submission is imminent and requested any priority feedback as a priority to reflect in this submission, noting that feedback is also welcome over the life of the EP. 		
<p>Summary of Feedback, Objection or Claim</p>	<p>Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response</p>	<p>Environment Plan Controls</p>

<p>Wanparta has not provided feedback, objections to date or claims in response to the information provided since consultation commenced in February 2023. Wanparta has confirmed receipt of materials and there has been ample opportunity for two way dialogue</p>	<p>Woodside has demonstrated reasonable effort to engage in two way dialogue. Wanparta has had a reasonable opportunity to participate in consultation.</p> <p>Consultation with Wanparta has not identified any other groups or individuals relevant to communally held functions, activities or interests</p> <p>No material issues or concerns related to the proposed activity were raised during consultation to date. Woodside invited further feedback in accordance with Woodside's approach to ongoing consultation (see Section 11.7).</p> <p>Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted (including any relevant new information on cultural values), it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 11.6.4).</p>	<p>Woodside considers the measures and controls in the EP address the Wanparta Aboriginal Corporation's functions, interests or activities.</p> <p>Based on the engagement to date, no additional controls have been identified.</p> <p>As identified in Section 11.7 of this EP, Woodside will continue to consult following acceptance of the EP, as requirement by the implementation strategy as set out regulation 14(9) of the Environment Regulations.</p>
<p>Wilinggin Aboriginal Corporation (WAC)</p>		
<p>Woodside considers it has discharged its obligations under regulation 11A by providing consultation materials and conducting various forms of engagement as set out in Section 5.8 and below.</p> <p>Summary of information provided and record of consultation:</p> <ul style="list-style-type: none"> On 24 February 2023, Woodside emailed WAC advising of the proposed activity (Appendix F, reference 2.57) and provided a Consultation Information Sheet. On 8 March 2023, Woodside sent a follow up email to enquire whether there were any concerns with the information and if WAC would like to meet to discuss the activity (Appendix F, reference 2.57.1). On 9 March 2023, WAC acknowledged by phone to receiving information sent on 24 February 2023. On 5 April 2023, Woodside spoke with newly appointed GM for WAC, who advised that KLC will respond on behalf of WAC, DAC and Wunambal Gaambera (WGAC) and suggested the response was about to occur. On 8 June 2023, Woodside emailed WAC to forward an invite to WWAC to a community information drop-in session. The email requested the invitation be passed on to members and any other individuals. 		
<p>Summary of Feedback, Objection or Claim</p>	<p>Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response</p>	<p>Environment Plan Controls</p>
<p>WAC has not provided feedback, objections to date or claims in response to the information provided since consultation commenced in February 2023. WAC has confirmed receipt of materials and there has been ample opportunity for two way dialogue</p>	<p>Woodside has demonstrated reasonable effort to engage in two way dialogue. WAC has had a reasonable opportunity to participate in consultation.</p> <p>Consultation with WAC has not identified any other groups or individuals relevant to communally held functions, activities or interests</p> <p>No material issues or concerns related to the proposed activity were raised during consultation to date. Woodside invited further feedback in accordance with Woodside's approach to ongoing consultation (see Section 11.7).</p> <p>Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted (including any relevant new information on cultural values), it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 11.6.4).</p>	<p>Woodside considers the measures and controls in the EP address the WAC functions, interests or activities.</p> <p>Based on the engagement to date, no additional controls have been identified.</p> <p>As identified in Section 11.7 of this EP, Woodside will continue to consult following acceptance of the EP, as requirement by the implementation strategy as set out regulation 14(9) of the Environment Regulations.</p>
<p>Wirrawandi Aboriginal Corporation (WAC)</p>		

Woodside considers it has discharged its obligations under regulation 11A by providing consultation materials and conducting various forms of engagement as set out in Section 5.8 and below.

Summary of information provided and record of consultation:

- On 24 February 2023, Woodside emailed WAC advising of the proposed activity (Appendix F, reference 2.58) and provided a Consultation Information Sheet. Woodside noted it is seeking WAC's feedback as soon as possible on the proposed activity.
 - Woodside also requested confirmation of the opportunity to meet with the WAC Board when they were next due to meet in Perth in March.
- On 24 February 2023, WAC emailed Woodside acknowledging receipt of EP information and advising that a meeting was yet to be finalised and that further details and associated costs would be discussed once the meeting had been confirmed.
- On 7 March 2023, WAC emailed Woodside to advise a draft agenda has been set and Woodside has been allotted Thursday 23 March 2023 for presentation.
- On 7 March 2023, Woodside emailed WAC welcoming this opportunity and advised it was looking forward to receiving further information in relation to timing and location.
- On 7 March 2023, Woodside emailed WAC following up on the 23rd March meeting date.
- On 8 March 2023, Woodside phoned WAC and agreed to proceed with the meeting.
- On 9 March 2023, Robe River Kuruma Aboriginal Corporation (RRKAC) emailed Woodside (and copied in CEO of WAC) advising that it had discussed the proposed activity with the Robe River Kuruma Heritage Advisory Committee and they had recommended that the interests of Robe River Kuruma people are best served through the joint Heritage Advisory Committee that is required under Yaburara Mardudhunera and Kuruma Marthudunera Indigenous Land Use Agreement. RRKAC also suggested that WAC is required to facilitate this Committee and noted there is an emerging need to deal with other proponent matters, so there is an opportunity to link the engagement from a meeting efficiency perspective. Since the separate meeting with WAC had already been arranged, Woodside decided to proceed with both meetings.
- On 15 March 2023, Woodside emailed WAC requesting details to prepare for meeting with WAC Board and Elders on 23 March 2023 in Perth.
- On 15 March 2023, WAC emailed Woodside:
 - WAC advised the 23 March 2023 meeting has been scheduled and arranged.
 - WAC advised that as discussed previously the intention is to present to WAC Directors and Elders on information requiring WAC feedback.
 - Woodside has continued to engage WAC on the proposed activity and in relation to presenting at the upcoming Board and Elders meeting.
- On 16 March 2023, WAC emailed Woodside regarding the Joint Heritage Advisory Group meeting on 31 March 2023 confirming conference room booking in Karratha.
- On 17 March 2023, Woodside emailed WAC advising it was looking forward to connecting and would ensure relevant representation to provide the suite of EP information overviews, and that they would cover the broader community activity for awareness as requested.
- On 17 March 2023, Woodside emailed WAC referring to possible funding arrangements and suggesting a future conversation.
- On 17 March 2023, WAC emailed Woodside suggesting a meeting date in Perth on 29 March 2023.
- On 20 March 2023, Woodside emailed WAC confirming meeting arrangement for 29 March 2023.
- On 23 March 2023, Woodside presented to a meeting of the WAC Board and Elders in Perth:
 - Woodside described the Environment Plan framework, referring to the Offshore Petroleum and Greenhouse Gas Storage Act (Environment) Regulations, NOPSEMA's role as regulator and general contents of Environment Plans.
 - Woodside encouraged WAC to raise anything which they feel is missing in the information provided during the meeting, or any issues or concerns.
 - Woodside displayed a map of activities open for feedback to be discussed in the meeting and provided a list of other upcoming activities which will be open for consultation in 2023.
 - Woodside provided an overview of the proposed activity
 - WAC asked about underwater drones (ROVs) and how often they are used, Woodside responded that they are used very often and safer than using divers
 - WAC asked how much planning for decommissioning is done in early phases of the project, Woodside responded that for these older facilities there wasn't much but it's a requirement now that it is planned from the start
 - Woodside described planned and unplanned environmental risks and impacts in accordance with tables provided in the Information Sheets for the activities, emphasising that unplanned risks are not expected to occur and are unlikely.
 - WAC asked how spills are prevented and how hydrocarbons can be contained following a spill. Woodside explained preventative and mitigative controls, emergency preparedness and various spill response techniques
 - WAC asked whether Woodside has had any major spills, Woodside responded that there has not been any major spills with impacts beyond the near field

- WAC stated that this kind of information sharing is important, and that Woodside’s time is appreciated. WAC asked whether this type of information is broadly available to the community, Woodside responded that there are a number of open community sessions available in the region where it could be discussed [referring to ongoing quarterly heritage update meetings that WAC are invited to].
- WAC indicated that since they are engaging with a number of energy industry operators they will consider the information provided and discuss internally before any further response.
- Woodside provided personal contact details for further feedback.
- Woodside provided NOPSEMA contact details, should WAC desire to provide feedback directly to the regulator.
- On 24 March, Woodside responded thanking WAC for the meeting and proposed a venue and time for the next meeting.
- On 24 March 2023, WAC responded thanking Woodside for the meeting and accepted the invite for the next meeting.
- On 24 March 2023, Woodside responded thanking WAC for its email.
- On 3 May 2023, Woodside emailed WAC with a summary of the information presented at the meeting on 23 March 2023 in Perth and actions for Woodside to follow up:
 - Woodside thanked WAC for the meeting and their careful consideration of the matters
 - Woodside acknowledged that WAC has interests in the EMBA and noted that Woodside want to ensure impacts are as minimal as reasonably practicable
 - A high-level overview of presented topics was provided
 - Woodside provided responses to matters raised during the meeting.
 - Woodside noted that feedback from WAC will be included in Environment Plans that will be submitted to NOPSEMA.
- On 3 May 2023 Woodside emailed a letter to WAC regarding the meeting with the joint Robe River Kuruma and Wirrawandi Joint Heritage Advisory Committee (HAC) on 31 March:
 - Woodside thanked the HAC for the meeting, their careful consideration of the matters and feedback provided.
 - Woodside acknowledged that the RRKAC have interests in the EMBA and noted that we want to ensure impacts are as minimal as reasonably practicable.
 - A high-level overview of presented topics was provided.
 - Woodside provided responses to questions noted from the meeting that were not related to the proposed activity.
 - Woodside notified that the feedback and the letter will be included in Environment Plans that will be submitted to NOPSEMA.
 - Woodside provided responses to questions noted from the meeting that were not related to the proposed activity.

Summary of Feedback, Objection or Claim	Woodside Energy’s Assessment of Merits of Feedback, Objection or Claim and its Response	Environment Plan Controls
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<p>During face-to-face engagement with the WAC board and directors and circle of elders, WAC requested further information on topics related to this proposed activity which was responded to during the meeting:</p> <ul style="list-style-type: none"> • The use of ROVs • Spill prevention and response • Historical Woodside hydrocarbon spills • WAC expressed a desire for ongoing engagement and partnership. <p>WAC raised feedback and request for further information on the Scarborough project more broadly which will be provided as part of ongoing engagement.</p>	<p>Woodside has continued to engage WAC on the proposed activity.</p> <p>WAC has had a reasonable opportunity to participate in consultation</p> <p>Consultation with WAC has not identified any other groups or individuals relevant to communally held functions, activities or interests</p> <p>No material issues or concerns related to the proposed activity were raised during consultation to date. Woodside invited further feedback in accordance with Woodside's approach to ongoing consultation (see Section 11.7).</p> <p>Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted (including any relevant new information on cultural values), it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 11.6.4).</p>	<p>Woodside considers the measures and controls in the EP address WAC's functions, interests or activities.</p> <p>Based on the engagement to date, no additional controls are required.</p> <p>As identified in Section 11.7 of this EP, Woodside will continue to consult following acceptance of the EP, as requirement by the implementation strategy as set out regulation 14(9) of the Environment Regulations.</p>
<p>Wanjina-Wunggurr (Native Title) Aboriginal Corporation (WWAC)</p>		
<p>Woodside considers it has discharged its obligations under regulation 11A by providing consultation materials and conducting various forms of engagement as set out in Section 5.8 and below.</p> <p>Summary of information provided and record of consultation:</p> <ul style="list-style-type: none"> • On 28 February 2023, Woodside emailed Kimberley Land Council advising of the proposed activity (Appendix F, reference 2.59) and provided a Consultation Information Sheet. • On 28 February 2023, Kimberley Land Council advised it had passed Woodside's information to the relevant contact person at WWAC. • On 4 April 2023, Kimberley Land Council advised Woodside (in person) they would remain as the nominated contact person for WWAC • On 5 April 2023, Woodside sent a follow up email to KLC as the nominated WWAC contact person to confirm whether WWAC may have interests impacted by proposed activities (Appendix F, reference 2.59.1). • On 6 April 2023, Kimberley Land Council responded to Woodside to advise the email regarding the proposed activity had been sent to the relevant contact person at WWAC. • On 8 June 2023, Woodside emailed KLC as the nominated focal point for WWAC to forward an invite to WWAC to a community information drop-in session. The email requested the invitation be passed on to members and any other individuals. 		
<p>Summary of Feedback, Objection or Claim</p>	<p>Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response</p>	<p>Environment Plan Controls</p>

<p>WWAC has not provided feedback, objections to date or claims in response to the information provided since consultation commenced in February 2023. KLC on behalf of WWAC has confirmed receipt of materials and there has been ample opportunity for two way dialogue</p>	<p>Woodside has demonstrated reasonable effort to engage in two way dialogue. WWAC has had a reasonable opportunity to participate in consultation.</p> <p>Consultation with WWAC has not identified any other groups or individuals relevant to communally held functions, activities or interests</p> <p>No material issues or concerns related to the proposed activity were raised during consultation to date. Woodside invited further feedback in accordance with Woodside's approach to ongoing consultation (see Section 11.7).</p> <p>Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted (including any relevant new information on cultural values), it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 11.6.4).</p>	<p>Woodside considers the measures and controls in the EP address the WWAC functions, interests or activities.</p> <p>Based on the engagement to date, no additional controls have been identified.</p> <p>As identified in Section 11.7 of this EP, Woodside will continue to consult following acceptance of the EP, as requirement by the implementation strategy as set out regulation 14(9) of the Environment Regulations.</p>
<p>Wunambal Gaambera Aboriginal Corporation (WGAC)</p>		
<p>Woodside considers it has discharged its obligations under regulation 11A by providing consultation materials and conducting various forms of engagement as set out in Section 5.8 and below.</p> <p>Summary of information provided and record of consultation:</p> <ul style="list-style-type: none"> On 28 February 2023, Woodside emailed WGAC advising of the proposed activity (Appendix F, reference 2.60) and provided a Consultation Information Sheet and to confirm an already proposed February 2023 meeting. Woodside noted it is seeking RRKAC's feedback as soon as possible on the proposed activity. On 28 February 2023, Kimberley Land Council advised it had passed Woodside's information to the relevant contact person at WAC. On 8 March 2023, Woodside sent a follow up email to WGAC about the information sent earlier and to enquire whether WGAC had any queries or concerns (Appendix F, reference 2.60.1) On 7 April 2023, Woodside was advised in person that KLC legal would respond on behalf of WGAC, DAC and Wilinggin Aboriginal Corporation. On 8 June 2023, Woodside emailed KLC as the nominated focal to forward an invite to WGAC to a community information drop-in session. The email requested the invitation be passed on to members and any other individuals. 		
<p>Summary of Feedback, Objection or Claim</p>	<p>Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response</p>	<p>Environment Plan Controls</p>
<p>WGAC has not provided feedback, objections to date or claims in response to the information provided since consultation commenced in February 2023. KLC on behalf of WGAC has confirmed receipt of materials and there has been ample opportunity for two way dialogue</p>	<p>Woodside has demonstrated reasonable effort to engage in two way dialogue. WGAC has had a reasonable opportunity to participate in consultation.</p> <p>Consultation with WGAC has not identified any other groups or individuals relevant to communally held functions, activities or interests</p> <p>No material issues or concerns related to the proposed activity were raised during consultation to date. Woodside invited further feedback in accordance with Woodside's approach to ongoing consultation (see Section 11.7).</p> <p>Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted (including any relevant new information on cultural values), it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 11.6.4).</p>	<p>Woodside considers the measures and controls in the EP address the WGAC functions, interests or activities.</p> <p>Based on the engagement to date, no additional controls have been identified.</p> <p>As identified in Section 11.7 of this EP, Woodside will continue to consult following acceptance of the EP, as requirement by the implementation strategy as set out regulation 14(9) of the Environment Regulations.</p>

Yawuru Native Title Holders Aboriginal Corporation (Yawuru)		
<p>Woodside considers it has discharged its obligations under regulation 11A by providing consultation materials and conducting various forms of engagement as set out in Section 5.8 and below.</p> <p>Summary of information provided and record of consultation:</p> <ul style="list-style-type: none"> On 23 February 2023, Woodside emailed Yawuru Native Title Holders Aboriginal Corporation regarding the proposed activity (Appendix F, Section 2.62). On 23 February 2023, Yawuru Native Title Holders emailed Woodside acknowledging receipt of email. On 23 February 2023, Woodside emailed Yawuru Native Title Holders thanking them for their email. On 4 April 2023, Yawuru Native Title Holders emailed Woodside proposing to meet on 4 April 2023 at their office. On 4 April, Woodside met with Yawuru's Manager Native Title & Environmental Services and discussed the fact sheets for this matter which Yawuru had received. The Manager said they did not need to understand anything further but would check with other Yawuru personnel. On 13 April 2023, Woodside emailed Yawuru Native Title Holders thanking them for meeting with Woodside and confirming Yawuru Native Title Holders had no comments on the proposed activity. Woodside informed Yawuru Native Title Holders that Woodside's Carbon team would get in touch with them regarding other activities. On 15 April 2023, Yawuru Native Title Holders emailed Woodside confirming they do not need to engage further with Woodside on their activities in this EP this year. On 17 April 2023, Woodside emailed Yawuru Native Title Holders, thanking them for their email and requested confirmation that Yawuru Native Title Holders do not need to be engaged further in relation to the proposed drilling activity. <p>On 7 June 2023, Woodside emailed Yawuru Native Title Holders inviting them to a community information drop-in session. The email offered separate meeting if desired, and requested the invitation be passed on to members and any other individuals.</p>		
Summary of Feedback, Objection or Claim	Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response	Environment Plan Controls
<p>Yawuru responded and advised there is no need to further engage on activities in Exmouth on this EP in 2023.</p> <p>Whilst feedback has been received, there were no objections or claims.</p>	<p>Woodside has demonstrated reasonable effort to engage in two-way dialogue. Yawuru has had a reasonable opportunity to participate in consultation.</p> <p>Consultation with Yawuru has not identified any other groups or individuals relevant to communally held functions, activities or interests</p> <p>No material issues or concerns related to the proposed activity were raised during consultation to date. Woodside invited further feedback in accordance with Woodside's approach to ongoing consultation (see Section 11.7).</p> <p>Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted (including any relevant new information on cultural values), it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 11.6.4).</p>	<p>Woodside considers the measures and controls in the EP address Yawuru functions, interests or activities.</p> <p>No additional measures or controls are required.</p>
Yindjibarndi Aboriginal Corporation (YAC)		
<p>Woodside considers it has discharged its obligations under regulation 11A by providing consultation materials and conducting various forms of engagement as set out in Section 5.8 and below.</p> <p>Summary of information provided and record of consultation:</p> <ul style="list-style-type: none"> On 24 February 2023, Woodside emailed YAC advising of the proposed activity (Appendix F, reference 2.63) and provided a Consultation Information Sheet. On 26 February 2023, Yindjibarndi emailed Woodside to advise that Yindjibarndi will not be providing any comment on the proposed activity and noted it respected the traditional owners whose land and sea lies adjacent to, and within the precinct of, the projects, and will leave any comment and advice to be provided by them. On 28 February 2023, Woodside emailed Yindjibarndi noting Yindjibarndi's response. 		

Summary of Feedback, Objection or Claim	Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response	Environment Plan Controls
<p>Yindjibarndi has provided a response and advised that it will not be providing any comment on the proposed activity.</p> <p>Yinjibarndi expressed that they would prefer that traditional owner groups with land and sea adjacent to and within the present of the projects provide comment.</p>	<p>Woodside has demonstrated reasonable effort to engage in two-way dialogue. Yindjibarndi has had a reasonable opportunity to participate in consultation.</p> <p>Consultation with Yindjibarndi has not identified any other groups or individuals relevant to communally held functions, activities or interests</p> <p>No material issues or concerns related to the proposed activity were raised during consultation to date. Woodside invited further feedback in accordance with Woodside's approach to ongoing consultation (see Section 11.7).</p> <p>Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted (including any relevant new information on cultural values), it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 11.6.4).</p>	<p>Woodside considers the measures and controls in the EP address Yindjibarndi functions, interests or activities.</p> <p>No additional measures or controls are required.</p>
<p>Yinggarda Aboriginal Corporation (YAC)</p>		

Woodside considers it has discharged its obligations under regulation 11A by providing consultation materials and conducting various forms of engagement as set out in Section 5.8 and below.

Summary of information provided and record of consultation:

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 regards to their native title rights. No native title has been recognised over the EMBA, 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.

- On 22 February 2023, Woodside emailed YAC via YMAC advising of the proposed activity (Appendix F, reference 2.64) and provided a Consultation Information Sheet. Woodside noted it is seeking YAC's feedback as soon as possible on the proposed activity. Woodside stated that it would be grateful to meet with YAC at the earliest convenience at location of YAC's preference, providing budget and resources).
- On 24 February 2023, Woodside followed up with YAC/YMAC via phone call. YAC/YMAC advised it would send an email on 24 February to discuss an invitation for Woodside to meet with YAC.
- On 20 March 2023, Woodside emailed YAC/YMAC to follow up the discussed invitation for a face-to-face meeting with its Board of Directors and offering a phone discussion if YAC had any questions on the activities in the meantime (Appendix F, reference 2.64.1).
- On 23 March 2023, YAC/YMAC emailed Woodside and proposed a meeting on 3 May 2023 in Carnarvon and provided an estimate of its proposed costs. The invitation was accepted and arrangements made for a pre-meeting with YMAC to coordinate details.
- On 23 March 2023, Woodside email YAC/YMAC confirming the meeting on 3 May 2023 stating that preference is to meet face to face to help develop relationship.
- On 23 March 2023, the YMAC lawyer emailed to arrange a pre-meet conversation on 31 April.
- On 24 March 2023, Woodside emailed to confirm the pre-meet conversation.
- On 30 March 2023, YAC/YMAC emailed Woodside from apologising that they were no longer available to meet.
- ON 30 March 2023, Woodside emailed YAC/YMAC to acknowledge their unavailability and to give the name of a new focal point.
- On 27 April 2023, Woodside emailed the YMAC lawyer to confirm timing and location for the face-to-face meeting on 3 May but the email bounced back requesting correspondence be forwarded to an alternate contact in YMAC
- On 27 April 2023, Woodside forwarded the email seeking to confirm time and location for the planned meeting to the alternate contact in YMAC
- On 27 April 2023, YMAC emailed and phoned Woodside, confirming that they no longer represented YAC and that the meeting on 3 May was cancelled. Gumala Aboriginal Corporation is now representing YAC and YMAC is in the process of hand over, including correspondence with Woodside.
- On 27 April 2023, Woodside acknowledged YMAC email re Gumala Aboriginal Corporation transition to new service provider.
- On 28 April 2023, Woodside attempted to call Gumula Aboriginal Corporation and left a voicemail to establish connection
- On 28 April 2023, Woodside emailed Gumula Aboriginal Corporation to establish contact and inform them of the prior context. Woodside stated that it is still interested in meeting with the YAC board if they are interested.
- On 8 May 2023, Woodside phoned Gumula Aboriginal Corporation to follow up the email, explaining that it was seeking to consult YAC on the proposed activity and noted that a planned meeting had been cancelled. Gumula Aboriginal Corporation indicated that the email address previously contacted was correct and indicated that it would call back. No return call was received.
- On 1 June 2023, Woodside emailed and phoned Gumula Aboriginal Corporation to speak with someone about consulting YAC on EP's. Reception said they would have a member of the governance team call back.
- On 15 June 2023, Gumula Aboriginal Corporation emailed Woodside proposing attendance at a YAC Board meeting on 6 July for one hour to discuss EP's not relevant to this matter.

Summary of Feedback, Objection or Claim	Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response	Environment Plan Controls
<p>In consultation in the course of preparing the EP since February 2023, YAC has not provided feedback, objections or claims in response to the information provided.</p> <p>YAC invited Woodside to discuss the proposed activity with its Board of Directors, which has since been rescheduled due to change of support services.</p>	<p>Woodside has demonstrated reasonable effort to engage in two-way dialogue. YAC has had a reasonable opportunity to participate in consultation.</p> <p>Consultation with YAC has not identified any other groups or individuals relevant to communally held functions, activities or interests</p> <p>No material issues or concerns related to the proposed activity were raised during consultation to date. Woodside invited further feedback in accordance with Woodside's approach to ongoing consultation (see Section 11.7).</p> <p>Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted (including any relevant new information on cultural values), it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 11.6.4).</p>	<p>Woodside considers the measures and controls in the EP address the YAC functions, interests or activities.</p> <p>Based on the engagement to date, no additional controls have been identified.</p> <p>As identified in Section 11.7 of this EP, Woodside will continue to consult following acceptance of the EP, as requirement by the implementation strategy as set out regulation 14(9) of the Environment Regulations.</p>
<p>Yued Aboriginal Corporation (Yued)</p>		
<p>Woodside considers it has discharged its obligations under regulation 11A by providing consultation materials and conducting various forms of engagement as set out in Section 5.8 and below.</p> <p>Summary of information provided and record of consultation:</p> <ul style="list-style-type: none"> • On 17 March 2023 Woodside emailed Yued advising of the proposed activity (Appendix F, reference 2.65) and provided a Consultation Information Sheet. • On 20 March Woodside emailed Yued seeking a meeting to discuss activity. • On 20 March 2023 Yued responded and confirmed that consultation information had been sent to the CEO. • On 20 March 2023 Woodside emailed Yued confirming email had also been sent to CEO. • On 28 March Yued emailed Woodside confirming happy to meet and suggested a meeting date of 5 April 2023. • On 3 April Woodside phoned and emailed Yued to confirm an initial discussion about activity and requesting details of date, venue and time. • On 4 April 2023, Yued emailed Woodside to confirm a teams meeting on 5 April 2023. • On 19 April 2023, Woodside emailed Yued with outcomes of a meeting on 5 April 2023, noting the following: <ul style="list-style-type: none"> ○ Woodside is seeking comment on cultural values that should be considered in Woodside EP's. ○ Noting that Woodside would prefer to meet face-to-face. ○ What values Yued may wish to include in EP. ○ That there will be opportunity for feedback/input for Yued throughout the EP process. • Between 5 May and 20 June, Yued and Woodside emailed to secure a further meeting date to be confirmed. 		
<p>Summary of Feedback, Objection or Claim</p>	<p>Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response</p>	<p>Environment Plan Controls</p>

<p>In consultation in the course of preparing the EP since March 2023, Yued has not provided feedback, objections or claims in response to the information provided.</p>	<p>Woodside has demonstrated reasonable effort to engage in two-way dialogue. Yued has had a reasonable opportunity to participate in consultation.</p> <p>Consultation with Yued has not identified any other groups or individuals relevant to communally held functions, activities or interests</p> <p>No material issues or concerns related to the proposed activity were raised during consultation to date. Woodside invited further feedback in accordance with Woodside's approach to ongoing consultation (see Section 11.7).</p> <p>Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted (including any relevant new information on cultural values), it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 11.6.4).</p>	<p>Woodside considers the measures and controls in the EP address the Yued functions, interests or activities.</p> <p>Based on the engagement to date, no additional controls have been identified.</p> <p>As identified in Section 11.7 of this EP, Woodside will continue to consult following acceptance of the EP, as requirement by the implementation strategy as set out regulation 14(9) of the Environment Regulations.</p>
<p>Native Title Representative Bodies</p>		
<p>Yamatji Marlpa Aboriginal Corporation (YMAC)</p>		
<p>Woodside considers it has discharged its obligations under regulation 11A by providing consultation materials and conducting various forms of engagement as set out in Section 5.8 and below.</p> <p>Summary of information provided and record of consultation:</p> <ul style="list-style-type: none"> • On 21 February 2023, Woodside emailed YMAC advising of the proposed activity (Appendix F, reference 2.49) and provided a Consultation Information Sheet. • On 13 March 2023, Woodside emailed YMAC as to whether YMAC considers itself a 'relevant person' under subregulation 11 A (1) of the Environment Regulations for the purposes of consultation on EPs and, if so, whether that relevance is limited to a facilitation function in its capacity as a representative of Traditional Owner groups/corporations that overlap or adjacent to the environment that may be affected (EMBA) of a particular activity. • On 15 March 2023, Woodside emailed YMAC to request a response as to whether YMAC considers itself a 'relevant person' under relevant sections of the Environment Regulations. • On 20 March 2023, YMAC replied to confirm that in its view it is a 'relevant person' under subregulation 11 A (1) of the Environment Regulations for the purposes of consultation on EPs only in relation to its facilitation and coordination function as a Native Title Representative Body under applicable federal legislation. YMAC does not intend to provide substantive comment on the content of EPs. • On 20 March 2023, Woodside emailed YMAC to thank it for its reply and to advise that that this assessment would be included in Woodside's EPs. • On 20 March 2023, YMAC emailed Woodside confirming that it is appropriate to use the assessment in the EPs. 		
<p>Summary of Feedback, Objection or Claim</p>	<p>Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response</p>	<p>Environment Plan Controls</p>

<p>YMAC has provided feedback that in its view it is a 'relevant person' under subregulation 11 A (1) of the Environment Regulations for the purposes of consultation on EPs only in relation to its facilitation and coordination function as a Native Title Representative Body under applicable federal legislation, and does not intend to provide substantive comment on the content of EPs.</p> <p>Whilst feedback has been received, there were no objections or claims.</p>	<p>YMAC is the Native Title Representative Body for the Yamatji and Pilbara regions of Western Australia. As such, they are not a Prescribed or Registered Native Title Body Corporate representing the cultural rights of a Traditional Custodian Community but exist to assist native title claimants and holders.</p> <p>YMAC is identified in the North-west Marine Parks Network Management Plan 2018 (DNP, 2018) as the Native Title Representative Body, noting no marine parks overlap the Operational Area.</p> <p>Woodside has approached YMAC to confirm the best approach to confirm additional cultural values (if any) within the Operational Area.</p> <p>Woodside has consulted with YMAC in relation to its facilitation and coordination function as a Native Title Representative Body under applicable federal legislation, and it has responded that it does not intend to provide substantive comment on the content of EPs</p> <p>YMAC has had reasonable opportunity to participate in consultation.</p> <p>Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted (including any relevant new information on cultural values), it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 11.6.4).</p>	<p>As YMAC has indicated that it does not intend to provide substantive comment on the content of EPs, no further controls are required.</p> <p>Woodside considers the measures and controls described within this EP address the potential impact from the proposed activities on YMAC's functions, interests or activities.</p> <p>Based on the engagement to date, no additional controls have been identified.</p>
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Kimberley Land Council (KLC)

Woodside considers it has discharged its obligations under regulation 11A by providing consultation materials and conducting various forms of engagement as set out in Section 5.8 and below.

Summary of information provided and record of consultation:

- On 16 February Woodside emailed KLC advising of the proposed activity (Appendix F, reference 2.37).
- On 23 February, Woodside emailed KLC with further information and providing consultation information sheet
- Woodside has been engaging with KLC on behalf of its represented groups as described in relevant sections above

Summary of Feedback, Objection or Claim	Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response	Environment Plan Controls
<p>In consultation in the course of preparing the EP since 23 February, the KLC has not provided feedback, objections or claims to date in response to the information provided.</p>	<p>KLC is the Native Title Representative Body for the Kimberley regions of Western Australia. As such, they are not a Prescribed or Registered Native Title Body Corporate representing the cultural rights of a Traditional Custodian Community but exist to assist native title claimants and holders.</p> <p>Woodside has consulted with KLC in relation to its facilitation and coordination function as a Native Title Representative Body under applicable federal legislation.</p> <p>Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted (including any relevant new information on cultural values), it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.6).</p>	<p>Based on the engagement to date, no additional controls have been identified.</p>

Historical cultural heritage groups or organisations

Western Australian Museum

Woodside considers it has discharged its obligations under regulation 11A by providing consultation materials and conducting various forms of engagement as set out in Section 5.8 and below.

Summary of information provided and record of consultation:

- On 16 February 2023, Woodside emailed the Western Australian Museum advising of the proposed activity (Appendix F, reference 2.22) and provided a Consultation Information Sheet.
- On 24 February 2023, WA Museum responded, thanking Woodside for their email and confirmed it had no feedback for the proposed EP.
- On 9 March 2023, Woodside responded, thanking WA Museum for their response.

Summary of Feedback, Objection or Claim	Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response	Environment Plan Controls
<p>The Western Australian Museum advised it had no feedback with respect to the proposed activities.</p> <p>Whilst feedback has been received, there were no objections or claims.</p>	<p>The Western Australian Museum confirmed it has no feedback for the proposed activity.</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 11.6.4).</p>	<p>The Environment Plan demonstrates that there are no known underwater heritage sites or shipwrecks within the Petroleum Activities Area and identifies that there are no credible impacts to the values of any underwater heritage or shipwrecks as a result of planned activities (Section 4.8.1). While impacts to underwater heritage sites or shipwrecks 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 8.2 and Section 8.3. No additional measures or controls are required.</p>

Local government and community representative groups or organisations

Shire of Carnarvon

Woodside considers it has discharged its obligations under regulation 11A by providing consultation materials and conducting various forms of engagement as set out in Section 5.8 and below.

Summary of information provided and record of consultation:

- On 16 February 2023, Woodside emailed Shire of Carnarvon advising of the proposed activity (Appendix F, reference 2.5) and provided a Consultation Information Sheet.
- On 10 March 2023, Woodside sent a reminder email to Shire of Carnarvon advising of the proposed activity (Appendix F, reference 2.5.1) and provided a Consultation Information Sheet.
- On 3 May 2023, Woodside had a meeting with the Shire of Carnarvon (SoC) on a separate EP and provided an overview of activities proposed under this EP.
 - The SoC noted that they were struggling to see how the Shire may be impacted by Woodside's activities that it has been receiving consultation information for. Noted that the Town of Coral Bay is within the Shire of Carnarvon which is closer to Woodside's activities, but this is still quite a distance.
 - Noted that the townsite of Coral Bay may be more directly within Woodside's area of potential impact and is very reliant on the environment. Noted that there are fisheries based in Carnarvon going out to Shark Bay which are an important part of the economy and lifestyle.
 - Woodside thanked the SoC for its advice around engagement and agreed that the meeting was a good opportunity to establish a relationship with the SoC and determine the best method to engage moving forward.
 - Woodside explained recent changes to consultation and the expansive area titleholders are now required to consult on, referred to as the EMBA.
 - Woodside explained that the EMBA for each EP is determined based on the largest spatial extent where unplanned events could potentially have an environmental consequence. Explained that for each of the EPs Woodside would be discussing with the SoC, the EMBA is determined by the unlikely event of a hydrocarbon release.
 - Woodside explained that the SoC has the opportunity to provide feedback on each of Woodside's proposed activities that it would be providing an overview of.
 - Woodside provided an overview of the proposed activities, including:
 - Provided an overview of Woodside's approach to decommissioning.
 - Advised there are three oil fields being decommissioned in a similar area and showed a map - Griffin, Stybarrow and Griffin.
 - Explained that the production facilities have already been removed.
 - Noted that the Nganhuura RTM is over 2000 tonnes - will be lifted out of the water onto a barge and taken to Henderson to dismantle and recycle.
 - Flowlines on the seabed - hydrocarbons removed already so no risk of oil spill.
 - The EMBA is a diesel spill is from the vessel - that's the scenario we model for.
 - Explained the mooring system in Griffin.
 - The SoC noted that in the event of a spill, it would be good to understand where the Shire sits as part of the response to protect its habitats.
 - Woodside explained it has oil spill response plans in place specific to the EP which it provides to DoT and AMSA for feedback as the response agencies.
 - The SoC thanked Woodside for the overview of activities and advised it would consider the information within the context of the Shire's interests in the environment and its link to its economy.
 - The SoC queried whether WE had consulted the Shire of Shark Bay and Yinggarda on the PLA08 activity.
 - Woodside confirmed it had engaged the Shire of Shark Bay and Yinggarda for PLA08.
 - The SoC noted that the risk profiles of Carnarvon compared to the townsite of Coral Bay are different and noted that Coral Bay is geographically close to Exmouth. SoC requested additional clarity on the contact points for Coral Bay for each of the activities.
- On 5 May 2023, Woodside sent an email to the Shire of Carnarvon thanking the Shire for the 3 May 2023 meeting and provided a consolidated email with all proposed activities Woodside is consulting the Shire on, including the activities proposed under this EP. Woodside confirmed it is looking into the likelihood of contact along Coral Bay for each of the EPs and committed to providing this additional information.
- On 29 May 2023, the Shire of Carnarvon responded and:
 - thanked Woodside for providing the consultation information.
 - noted that it appreciated being kept informed and felt that the meeting was useful in allowing the Shire to better understand the potential risks for areas within the Shire and the mitigations measures in place.
 - requested that should risks to the Shire change for these projects or new risks emerge for these or other projects, it would appreciate being advised.
 - advised it had no further comment.
- On 29 May 2023, Woodside responded and:
 - Thanked the Shire for its feedback with respect to a number of EPs, including the activities proposed under this EP.

- Noted the Shire's advice that:
 - it would like to be updated if risks to the Shire change for these projects or new risks emerge for these or other projects.
 - the Shire has no further comments.
- Noted that at the 3 May 2023 meeting, Woodside committed to providing the Shire with the likelihood of contact along Coral Bay for each of the above EPs. Woodside:
 - explained the EMBA being determined by the highly unlikely event of a hydrocarbon release from activities within the scope of the EP.
 - explained that when Woodside models the EMBA for a hydrocarbon spill, we consider both the environmental and visual amenity risk. The outputs identify which areas of the marine environment could be exposed to hydrocarbons at levels exceeding certain threshold concentrations in the unlikely event of a spill.
 - summarised the probabilities of surface, shoreline and in-water hydrocarbon contact at Coral Bay for a number of EPs, including the activities proposed under this EP.
- On 29 May 2023, the Shire of Carnarvon responded and thanked Woodside for the information. The Shire suggested that Woodside brief their Local Emergency Management Committee as most of the risk is only in the event of an emergency and established contact with the committee.
- On 8 June 2023, Woodside responded to Shire of Carnarvon and welcomed the opportunity to meet with the Local Emergency Management Committee requesting availability and offering to co-ordinate for Woodside.

Summary of Feedback, Objection or Claim	Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response	Environment Plan Controls
<p>Woodside had a meeting with the Shire of Carnarvon, where the Shire provided feedback that:</p> <ul style="list-style-type: none"> ● they were struggling to see how the Shire may be impacted by Woodside's activities that it has been receiving consultation information for. ● undertook to give the Council an update and if they have further input, they would reach out to Woodside. ● requested Woodside send an email with the full list of EPs it had consulted the Shire on, so they had it in one place, including this EP. ● requested Woodside provide the contact points for Coral Bay for each of the environment plans discussed, including the activities proposed under this EP. <p>requested Woodside brief the Shire's LEMC.</p>	<p>Woodside has addressed the Shire of Carnarvon's feedback, including:</p> <ul style="list-style-type: none"> ● providing additional information on the proposed activities. ● provided a consolidated email with all EPs Woodside was consulting the Shire on, including the activities proposed under this EP. ● providing the Shire with the contact points to Coral Bay for each of the EPs, including the activities proposed under this EP. ● agreed to a meeting with the Shire's LEMC to provide an oil spill briefing. <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 11.6.4).</p>	<p>Woodside considers the measures and controls described within this EP address the potential impact from the proposed activities on the Shire of Carnarvon's functions, interests or activities.</p> <p>No additional measures or controls are required.</p>
Shire of Exmouth		

<p>Woodside considers it has discharged its obligations under regulation 11A by providing consultation materials and conducting various forms of engagement as set out in Section 5.8 and below.</p> <p>Summary of information provided and record of consultation:</p> <ul style="list-style-type: none"> On 27 May 2022, Woodside emailed Shire of Exmouth advising of the proposed activity (Appendix F, reference 1.21) and provided a Consultation Information Sheet. On 17 February 2023, Woodside emailed Shire of Exmouth advising of the proposed activity (Appendix F, reference 2.28) and provided a Consultation Information Sheet. On 10 March 2023, Woodside sent a reminder email to Shire of Exmouth advising of the proposed activity (Appendix F, reference 2.28.1) and provided a Consultation Information Sheet. 		
Summary of Feedback, Objection or Claim	Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response	Environment Plan Controls
No feedback, objections or claims received despite follow up.	Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 11.6.4).	No additional measures or controls are required.
Shire of Ashburton		
<p>Woodside considers it has discharged its obligations under regulation 11A by providing consultation materials and conducting various forms of engagement as set out in Section 5.8 and below.</p> <p>Summary of information provided and record of consultation:</p> <ul style="list-style-type: none"> On 17 February 2023, Woodside emailed Shire of Ashburton advising of the proposed activity (Appendix F, reference 2.29) and provided a Consultation Information Sheet. On 2 March 2023, Woodside met with Shire of Ashburton and discussed Environment Plans and consultation including the activities proposed under this EP. No concerns or questions were raised about the proposed activity. On 8 May 2023, Woodside attended an Onslow Community Information Night hosted by the Shire of Ashburton and presented on decommissioning activities. There were no questions raised about the proposed activity. 		
Summary of Feedback, Objection or Claim	Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response	Environment Plan Controls
The Shire of Ashburton met with Woodside and attended a presentation on decommissioning activities. No concerns or questions were raised about the proposed activity.	Woodside notes that no objections or claims were raised about the proposed activity by the Shire. 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 11.6.4).	Woodside considers the measures and controls described within this EP address the potential impact from the proposed activities on Shire of Ashburton's functions, interests or activities. No additional measures or controls are required.
City of Karratha		

<p>Woodside considers it has discharged its obligations under regulation 11A by providing consultation materials and conducting various forms of engagement as set out in Section 5.8 and below.</p> <p>Summary of information provided and record of consultation:</p> <ul style="list-style-type: none"> On 17 February 2023, Woodside emailed City of Karratha advising of the proposed activity (Appendix F, reference 2.71) and provided a Consultation Information Sheet. On 8 March 2023, Woodside sent a reminder email to City of Karratha advising of the proposed activity (Appendix F, reference 2.71.1) and provided a Consultation Information Sheet. On 3 April 2023, City of Karratha responded to Woodside and advised that the City of Karratha didn't have any significant concerns in relation to the proposed activity. 		
Summary of Feedback, Objection or Claim	Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response	Environment Plan Controls
The City of Karratha advised it didn't have any significant concerns in relation to the proposed activity.	<p>Woodside notes the City of Karratha's advice that it doesn't have any significant concerns in relation to the proposed activity.</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 11.6.4).</p>	<p>Woodside considers the measures and controls described within this EP address the potential impact from the proposed activities on City of Karratha's functions, interests or activities.</p> <p>No additional measures or controls are required.</p>
Town of Port Hedland		
<p>Woodside considers it has discharged its obligations under regulation 11A by providing consultation materials and conducting various forms of engagement as set out in Section 5.8 and below.</p> <p>Summary of information provided and record of consultation:</p> <ul style="list-style-type: none"> On 16 February 2023, Woodside emailed Town of Port Hedland advising of the proposed activity (Appendix F, reference 2.6) and provided a Consultation Information Sheet. On 10 March 2023, Woodside sent a reminder email to Town of Port Hedland advising of the proposed activity (Appendix F, reference 2.6.1) and provided a Consultation Information Sheet. 		
Summary of Feedback, Objection or Claim	Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response	Environment Plan Controls
No feedback, objections or claims received despite follow up.	<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 11.6.4).</p>	No additional measures or controls are required.
Shire of Wyndham-East Kimberley		
<p>Woodside considers it has discharged its obligations under regulation 11A by providing consultation materials and conducting various forms of engagement as set out in Section 5.8 and below.</p> <p>Summary of information provided and record of consultation:</p> <ul style="list-style-type: none"> On 1 June 2023, Woodside emailed Shire of Wyndham-East Kimberley advising of the proposed activity (Appendix F, reference 3.1) and provided a Consultation Information Sheet. On 23 June 2023, Woodside sent a reminder email to the Shire advising of the proposed activity (Appendix F, reference 3.1.1) and provided a Consultation Information Sheet. 		
Summary of Feedback, Objection or Claim	Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response	Environment Plan Controls

No feedback, objections or claims received despite follow up.	Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 11.6.4).	No additional measures or controls are required.
Shire of Derby/West Kimberley		
Woodside considers it has discharged its obligations under regulation 11A by providing consultation materials and conducting various forms of engagement as set out in Section 5.8 and below. Summary of information provided and record of consultation:		
<ul style="list-style-type: none"> On 1 June 2023, Woodside emailed Shire of Derby/West Kimberley advising of the proposed activity (Appendix F, reference 3.1) and provided a Consultation Information Sheet. On 20 June 2023, the Shire of Derby / West Kimberley responded to advise it had no specific feedback regarding this proposed activity. The Shire sought advice about a spill that may impact the Shire's Local Emergency Management Arrangements. On 27 June 2023, Woodside responded to the Shire of Derby / West Kimberley acknowledging the Shire had no specific feedback. Woodside also sought further clarification on the request/query regarding oil spill arrangements. On 27 June 2023, the Shire of Derby / West Kimberley responded to advise the Shire expects to be notified in the unlikely event of a petroleum oil spill to reach the coastline. On 3 July 2023, Woodside responded to advise that in line with Woodside's Oil Pollution Strike Plan, in the event a hydrocarbon release was to enter the Shire's area of responsibility Woodside would contact the Shire regarding response arrangements. 		
Summary of Feedback, Objection or Claim	Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response	Environment Plan Controls
The Shire advised it had no specific feedback on proposed activities but sought further clarification on oil spill arrangements.	Woodside notes the Shire's advice it has no specific feedback on the proposed activities. Woodside advised the Shire that it would be advised of response arrangements in the event of a hydrocarbon release. 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 11.6.4).	Woodside considers the measures and controls described within this EP address the potential impact from the proposed activities on the Shire of Derby/West Kimberley's functions, interests or activities. No additional measures or controls are required.
Shire of East Pilbara		
Woodside considers it has discharged its obligations under regulation 11A by providing consultation materials and conducting various forms of engagement as set out in Section 5.8 and below. Summary of information provided and record of consultation:		
<ul style="list-style-type: none"> On 1 June 2023, Woodside emailed Shire of East Pilbara advising of the proposed activity (Appendix F, reference 3.1) and provided a Consultation Information Sheet. On 23 June 2023, Woodside sent a reminder email to the Shire advising of the proposed activity (Appendix F, reference 3.1.1) and provided a Consultation Information Sheet. 		
Summary of Feedback, Objection or Claim	Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response	Environment Plan Controls
No feedback, objections or claims received despite follow up.	Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 11.6.4).	No additional measures or controls are required.

Shire of Broome		
<p>Woodside considers it has discharged its obligations under regulation 11A by providing consultation materials and conducting various forms of engagement as set out in Section 5.8 and below.</p> <p>Summary of information provided and record of consultation:</p> <ul style="list-style-type: none"> On 1 June 2023, Woodside emailed Shire of Broome advising of the proposed activity (Appendix F, reference 3.1) and provided a Consultation Information Sheet. On 23 June 2023, Woodside sent a reminder email to the Shire advising of the proposed activity (Appendix F, reference 3.1.1) and provided a Consultation Information Sheet. 		
Summary of Feedback, Objection or Claim	Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response	Environment Plan Controls
No feedback, objections or claims received despite follow up.	Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 11.6.4).	No additional measures or controls are required.
Shire of Shark Bay		
<p>Woodside considers it has discharged its obligations under regulation 11A by providing consultation materials and conducting various forms of engagement as set out in Section 5.8 and below.</p> <p>Summary of information provided and record of consultation:</p> <ul style="list-style-type: none"> On 1 June 2023, Woodside emailed Shire of Shark Bay advising of the proposed activity (Appendix F, reference 3.1) and provided a Consultation Information Sheet. On 23 June 2023, Woodside sent a reminder email to the Shire advising of the proposed activity (Appendix F, reference 3.1.1) and provided a Consultation Information Sheet. 		
Summary of Feedback, Objection or Claim	Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response	Environment Plan Controls
No feedback, objections or claims received despite follow up.	Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 11.6.4).	No additional measures or controls are required.
City of Greater Geraldton		
<p>Woodside considers it has discharged its obligations under regulation 11A by providing consultation materials and conducting various forms of engagement as set out in Section 5.8 and below.</p> <p>Summary of information provided and record of consultation:</p> <ul style="list-style-type: none"> On 1 June 2023, Woodside emailed City of Greater Geraldton advising of the proposed activity (Appendix F, reference 3.1) and provided a Consultation Information Sheet. On 23 June 2023, Woodside sent a reminder email to the Shire advising of the proposed activity (Appendix F, reference 3.1.1) and provided a Consultation Information Sheet. 		
Summary of Feedback, Objection or Claim	Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response	Environment Plan Controls
No feedback, objections or claims received despite follow up.	Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 11.6.4).	No additional measures or controls are required.
Shire of Augusta Margaret River		

<p>Woodside considers it has discharged its obligations under regulation 11A by providing consultation materials and conducting various forms of engagement as set out in Section 5.8 and below.</p> <p>Summary of information provided and record of consultation:</p> <ul style="list-style-type: none"> On 1 June 2023, Woodside emailed Shire of Augusta Margaret River advising of the proposed activity (Appendix F, reference 3.1) and provided a Consultation Information Sheet. On 23 June 2023, Woodside sent a reminder email to the Shire advising of the proposed activity (Appendix F, reference 3.1.1) and provided a Consultation Information Sheet. 		
Summary of Feedback, Objection or Claim	Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response	Environment Plan Controls
No feedback, objections or claims received despite follow up.	Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 11.6.4).	No additional measures or controls are required.
Shire of Chapman Valley		
<p>Woodside considers it has discharged its obligations under regulation 11A by providing consultation materials and conducting various forms of engagement as set out in Section 5.8 and below.</p> <p>Summary of information provided and record of consultation:</p> <ul style="list-style-type: none"> On 1 June 2023, Woodside emailed Shire of Chapman Valley advising of the proposed activity (Appendix F, reference 3.1) and provided a Consultation Information Sheet. On 23 June 2023, Woodside sent a reminder email to the Shire advising of the proposed activity (Appendix F, reference 3.1.1) and provided a Consultation Information Sheet. 		
Summary of Feedback, Objection or Claim	Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response	Environment Plan Controls
No feedback, objections or claims received despite follow up.	Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 11.6.4).	No additional measures or controls are required.
Shire of Dandaragan		
<p>Woodside considers it has discharged its obligations under regulation 11A by providing consultation materials and conducting various forms of engagement as set out in Section 5.8 and below.</p> <p>Summary of information provided and record of consultation:</p> <ul style="list-style-type: none"> On 1 June 2023, Woodside emailed Shire of Dandaragan advising of the proposed activity (Appendix F, reference 3.1) and provided a Consultation Information Sheet. On 23 June 2023, Woodside sent a reminder email to the Shire advising of the proposed activity (Appendix F, reference 3.1.1) and provided a Consultation Information Sheet. 		
Summary of Feedback, Objection or Claim	Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response	Environment Plan Controls
No feedback, objections or claims received despite follow up.	Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 11.6.4).	No additional measures or controls are required.
Shire of Gingin		

Woodside considers it has discharged its obligations under regulation 11A by providing consultation materials and conducting various forms of engagement as set out in Section 5.8 and below.

Summary of information provided and record of consultation:

- On 1 June 2023, Woodside emailed Shire of Gingin advising of the proposed activity (Appendix F, reference 3.1) and provided a Consultation Information Sheet.
- On 23 June 2023, Woodside sent a reminder email to the Shire advising of the proposed activity (Appendix F, reference 3.1.1) and provided a Consultation Information Sheet.

Summary of Feedback, Objection or Claim	Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response	Environment Plan Controls
No feedback, objections or claims received despite follow up.	Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 11.6.4).	No additional measures or controls are required.

Shire of Northampton

Woodside considers it has discharged its obligations under regulation 11A by providing consultation materials and conducting various forms of engagement as set out in Section 5.8 and below.

Summary of information provided and record of consultation:

- On 1 June 2023, Woodside emailed Shire of Northampton advising of the proposed activity (Appendix F, reference 3.1) and provided a Consultation Information Sheet.
- On 23 June 2023, Woodside sent a reminder email to the Shire advising of the proposed activity (Appendix F, reference 3.1.1) and provided a Consultation Information Sheet.

Summary of Feedback, Objection or Claim	Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response	Environment Plan Controls
No feedback, objections or claims received despite follow up.	Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 11.6.4).	No additional measures or controls are required.

Exmouth Community Liaison Group

- Base Marine
- Bgahwan Marine
- Cape Conservation Group Inc.
- DBCA
- Department of Defence
- Department of Transport
- Exmouth Bus Charter
- Exmouth Chamber of Commerce and Industry
- Exmouth District High School
- Exmouth Freight and Logistics
- Exmouth Game Fishing Club
- Exmouth Tackle and Camping Supplies
- Exmouth Visitors Centre
- Exmouth Volunteer Marine Rescue
- Fat Marine
- Gascoyne Development Commission
- Gun Marine Services
- Ningaloo Lodge
- Offshore Unlimited
- Shire of Exmouth
- BHP Petroleum
- Santos
- Community Member

Woodside considers it has discharged its obligations under regulation 11A by providing consultation materials and conducting various forms of engagement as set out in Section 5.8 and below.

Summary of information provided and record of consultation:

- On 7 April 2022, Woodside/BHP attended the Exmouth Community Liaison Group meeting and provided an update on the proposed activity.
- On 27 May 2022, Woodside emailed the Exmouth Community Liaison Group advising of the proposed activity (Appendix F, reference 1.22) and provided a Consultation Information Sheet.
- On 21 September 2022, Woodside attended the Exmouth Community Liaison Group meeting and provided an update on the proposed activity.
- On 16 February 2023, Woodside emailed the Exmouth Community Liaison Group advising of the proposed activity (Appendix F, reference 2.25) and provided a Consultation Information Sheet.
- On 10 March 2023, Woodside sent a reminder email to the Exmouth Community Liaison Group advising of the proposed activity (Appendix F, reference 2.25.1) and provided a Consultation Information Sheet.

Summary of Feedback, Objection or Claim	Woodside Energy’s Assessment of Merits of Feedback, Objection or Claim and its Response	Environment Plan Controls
No feedback, objections or claims received despite follow up.	Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 11.6.4).	No additional measures or controls are required.

Karratha Community Liaison Group (KCLG)

- WA Police
- Karratha Health Care
- Development WA
- Ngarluma Yindjibarndi Foundation Ltd (NYFL)
- Department of Education
- Pilbara Ports Authority
- Regional Development Australia
- Pilbara Development Commission
- Dampier Community Association
- City of Karratha
- Karratha & Districts Chamber of Commerce and Industry
- Horizon Power
- Murujuga Aboriginal Corporation (MAC)*
- Department of Local Government, Sport and Cultural Industries

*MAC was consulted directly as described above.

Woodside considers it has discharged its obligations under regulation 11A by providing consultation materials and conducting various forms of engagement as set out in Section 5.8 and below.

Summary of information provided and record of consultation:

- On 17 February 2023, Woodside emailed Karratha Community Liaison Group advising of the proposed activity (Appendix F, reference 2.73) and provided a Consultation Information Sheet.
- On 8 March 2023, Woodside sent a reminder email to Karratha Community Liaison Group advising of the proposed activity (Appendix F, reference 2.73.1) and provided a Consultation Information Sheet.
- On 29 June 2023, Woodside presented to the Karratha Community Liaison Group on previous and upcoming EP consultation (Appendix F, reference 3.14).
 - Woodside acknowledged and discussed the increased volume of consultation material the Community Liaison Group (CLG) members had been receiving and explained the changes requiring consultation based on EMBA. A member of the CLG asked how they can opt out of consultation for Woodside's Environment Plans.
 - Woodside presented a slide which listed Environment Plans on which the CLG members had recently been consulted and potential Environment Plans they may be consulted on throughout the remainder of 2023.
 - Woodside confirmed it had a Senior Environment Adviser available to discuss any of the Environment Plans in detail after the meeting. No CLG members met with the Adviser and no feedback was received with specific reference to Woodside's Environment Plans.

Summary of Feedback, Objection or Claim	Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response	Environment Plan Controls
No feedback, objections or claims received despite follow up.	Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 11.6.4).	No additional measures or controls are required.

Broome Chamber of Commerce and Industry

Woodside considers it has discharged its obligations under regulation 11A by providing consultation materials and conducting various forms of engagement as set out in Section 5.8 and below.

Summary of information provided and record of consultation:

- On 17 May 2023 Woodside emailed the Broome Chamber of Commerce and Industry advising of the proposed activity (Appendix F, reference 2.75)
- On 17 May 2023, Woodside attended a meeting with the Broome Chamber of Commerce and Industry and provided an update on the proposed activity.

Summary of Feedback, Objection or Claim	Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response	Environment Plan Controls
No feedback, objections or claims received despite follow up.	Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 11.6.4).	No additional measures or controls are required.

Carnarvon Chamber of Commerce and Industry

Woodside considers it has discharged its obligations under regulation 11A by providing consultation materials and conducting various forms of engagement as set out in Section 5.8 and below.

Summary of information provided and record of consultation:

- On 16 February 2023, Woodside emailed Carnarvon Chamber of Commerce and Industry advising of the proposed activity (Appendix F, reference 2.7) and provided a Consultation Information Sheet.
- On 10 March 2023, Woodside sent a reminder email to Carnarvon Chamber of Commerce and Industry advising of the proposed activity (Appendix F, reference 2.7.1) and provided a Consultation Information Sheet.

Summary of Feedback, Objection or Claim	Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response	Environment Plan Controls
No feedback, objections or claims received despite follow up.	Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 11.6.4).	No additional measures or controls are required.
Onslow Chamber of Commerce and Industry		
<p>Woodside considers it has discharged its obligations under regulation 11A by providing consultation materials and conducting various forms of engagement as set out in Section 5.8 and below.</p> <p>Summary of information provided and record of consultation:</p> <ul style="list-style-type: none"> On 2 March 2023, Woodside met with the Onslow Chamber of Commerce and Industry and discussed Environment Plans and consultation, including the activities proposed under this EP. Onslow CCI provided feedback they are over consulted by industry and do not provide comment back to operators, however do share consultation materials with their Board. Woodside sought advice on how to continue sending consultation materials to the Onslow CCI for consultation on the EMBA. Woodside indicated it would check in periodically on any feedback. On 8 May, Woodside attended an Onslow Community Information Night hosted by the Shire of Ashburton. Woodside presented on decommissioning activities, including the activities proposed under this EP. Onslow Chamber of Commerce and Industry representatives attended. No concerns or questions were raised about the proposed activity. 		
Summary of Feedback, Objection or Claim	Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response	Environment Plan Controls
<p>Onslow Chamber of Commerce and Industry met with Woodside and attended a presentation on decommissioning activities. No concerns or questions were raised about the proposed activity.</p> <p>Whilst feedback has been received, there were no objections or claims.</p>	<p>Woodside notes that no concerns or questions were raised with respect to the proposed activity.</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 11.6.4).</p>	<p>Woodside considers the measures and controls described within this EP address the potential impact from the proposed activities on the Onslow Chamber of Commerce and Industry's functions, interests or activities.</p> <p>No additional measures or controls are required.</p>
Port Hedland Chamber of Commerce and Industry		
<p>Woodside considers it has discharged its obligations under regulation 11A by providing consultation materials and conducting various forms of engagement as set out in Section 5.8 and below.</p> <p>Summary of information provided and record of consultation:</p> <ul style="list-style-type: none"> On 16 February 2023, Woodside emailed Port Hedland Chamber of Commerce and Industry advising of the proposed activity (Appendix F, reference 2.8) and provided a Consultation Information Sheet. On 10 March 2023, Woodside sent a reminder email to Port Hedland Chamber of Commerce and Industry advising of the proposed activity (Appendix F, reference 2.8.1) and provided a Consultation Information Sheet. 		
Summary of Feedback, Objection or Claim	Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response	Environment Plan Controls
No feedback, objections or claims received despite follow up.	Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 11.6.4).	No additional measures or controls are required.

East Kimberley Chamber of Commerce and Industry		
<p>Woodside considers it has discharged its obligations under regulation 11A by providing consultation materials and conducting various forms of engagement as set out in Section 5.8 and below.</p> <p>Summary of information provided and record of consultation:</p> <ul style="list-style-type: none"> On 1 June 2023, Woodside emailed East Kimberley Chamber of Commerce and Industry advising of the proposed activity (Appendix F, reference 3.1) and provided a Consultation Information Sheet. On 23 June 2023, Woodside sent a reminder email to the Chamber advising of the proposed activity (Appendix F, reference 3.1.1) and provided a Consultation Information Sheet. 		
Summary of Feedback, Objection or Claim	Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response	Environment Plan Controls
No feedback, objections or claims received despite follow up.	Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 11.6.4).	No additional measures or controls are required.
Derby Chamber of Commerce and Industry		
<p>Woodside considers it has discharged its obligations under regulation 11A by providing consultation materials and conducting various forms of engagement as set out in Section 5.8 and below.</p> <p>Summary of information provided and record of consultation:</p> <ul style="list-style-type: none"> On 1 June 2023, Woodside emailed Derby Chamber of Commerce and Industry advising of the proposed activity (Appendix F, reference 3.1) and provided a Consultation Information Sheet. On 23 June 2023, Woodside sent a reminder email to the Shire advising of the proposed activity (Appendix F, reference 3.1.1) and provided a Consultation Information Sheet. 		
Summary of Feedback, Objection or Claim	Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response	Environment Plan Controls
No feedback, objections or claims received despite follow up.	Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 11.6.4).	No additional measures or controls are required.
Mid West Chamber of Commerce and Industry		
<p>Woodside considers it has discharged its obligations under regulation 11A by providing consultation materials and conducting various forms of engagement as set out in Section 5.8 and below.</p> <p>Summary of information provided and record of consultation:</p> <ul style="list-style-type: none"> On 1 June 2023, Woodside emailed Mid West Chamber of Commerce and Industry advising of the proposed activity (Appendix F, reference 3.1) and provided a Consultation Information Sheet. On 23 June 2023, Woodside sent a reminder email to the Shire advising of the proposed activity (Appendix F, reference 3.1.1) and provided a Consultation Information Sheet. 		
Summary of Feedback, Objection or Claim	Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response	Environment Plan Controls
No feedback, objections or claims received despite follow up.	Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 11.6.4).	No additional measures or controls are required.
Margaret River Chamber of Commerce and Industry		

Woodside considers it has discharged its obligations under regulation 11A by providing consultation materials and conducting various forms of engagement as set out in Section 5.8 and below.

Summary of information provided and record of consultation:

- On 1 June 2023, Woodside emailed Margaret River Chamber of Commerce and Industry advising of the proposed activity (Appendix F, reference 3.1) and provided a Consultation Information Sheet.
- On 23 June 2023, Woodside sent a reminder email to the Shire advising of the proposed activity (Appendix F, reference 3.1.1) and provided a Consultation Information Sheet.

Summary of Feedback, Objection or Claim	Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response	Environment Plan Controls
No feedback, objections or claims received despite follow up.	Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 11.6.4).	No additional measures or controls are required.

Other non-government groups or organisations

Australian Conservation Foundation (ACF)

Woodside considers it has discharged its obligations under regulation 11A by providing consultation materials and conducting various forms of engagement as set out in Section 5.8 and below.

Summary of information provided and record of consultation:

- On 16 February 2023, Woodside emailed ACF advising of the proposed activity (Appendix F, reference 2.12) and provided a Consultation Information Sheet.
- On 10 March 2023, Woodside sent a reminder email to ACF advising of the proposed activity (Appendix F, reference 2.12.1) and provided a Consultation Information Sheet.

Summary of Feedback, Objection or Claim	Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response	Environment Plan Controls
No feedback, objections or claims received despite follow up.	Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 11.6.4).	No additional measures or controls are required.

Friends of the Earth Australia

Woodside considers it has discharged its obligations under regulation 11A by providing consultation materials and conducting various forms of engagement as set out in Section 5.8 and below.

Summary of information provided and record of consultation:

- On 8 February 2023, Woodside had a meeting with Friends of the Earth of Australia:
 - Friends of the Earth provided Woodside an overview of the organisation’s functions, activities and interests.
 - Woodside provided an overview of its upcoming decommissioning activities, including activities proposed under this EP.
 - Friends of the Earth advised its desire for recycling, but also to leave certain infrastructure in-situ because of the habitat it has created. Friends of the Earth also expressed its views on dredging to minimise turbidity and working with Traditional Custodians to be guided on their views.
 - Woodside advised that decommissioned infrastructure such as the RTM when removed from the field would be transported for onshore recycling or reuse opportunities. Woodside also advised its focus on establishing local content opportunities for onshore recycling.
 - Woodside provided an overview of its expanded approach to consultation on the EMBA for proposed activities, including risks and mitigations.
 - Friends of the Earth requested a copy of Woodside’s Nganhurra RTM Consultation Information Sheet.
 - Woodside committed to sending Friends of the Earth the latest Nganhurra RTM Consultation Information Sheet and invited Friends of the Earth to provide further feedback. Woodside also recommended Friends of the Earth subscribe to the Woodside Consultation Page to receive all the latest updates on all Woodside’s proposed activities.

- On 9 February 2023, Woodside emailed Friends of the Earth Australia thanking it for its time to meet with Woodside on 8 February 2023. Woodside summarised the proposed activities, including the activities proposed under this EP and provided a link to the Activity Update Consultation Information Sheet as well as Woodside’s Consultation website which can be subscribed to.

- On 30 May 2023, Woodside had an email exchange with Friends of the Earth to arrange an update on Woodside’s decommissioning activities, including the activities proposed under this EP.

- On 30 May 2023, Woodside met with Friends of the Earth Australia and discussed the merits of leaving infrastructure in-situ, where there are net environmental benefits for marine life and/or other relevant considerations. It was agreed a meeting to discuss decommissioning further would be beneficial.

- On 6 June 2023, Woodside sent an email to Friends of the Earth Australia thanking it for the 30 May 2023 discussion and provided a copy of a number of Consultation Information Sheets, including the activities proposed under this EP and offered to arrange a meeting.

Summary of Feedback, Objection or Claim	Woodside Energy’s Assessment of Merits of Feedback, Objection or Claim and its Response	Environment Plan Controls
<p>Friends of the Earth provided feedback including:</p> <ul style="list-style-type: none"> • advising its desire for recycling, but also to leave certain infrastructure in-situ because of the habitat it has created. Friends of the Earth also expressed its views on dredging to minimise turbidity and working with Traditional Custodians to be guided on their views. • requested a copy of Woodside’s Nganhurra RTM Consultation Information Sheet. <p>Advising that its interest is in marine life, social justice and indigenous issues and welcomed a further meeting to further discuss proposed decommissioning activities.</p>	<p>Woodside has addressed Friends of the Earth’s feedback, including:</p> <ul style="list-style-type: none"> • advising that decommissioned infrastructure such as the RTM when removed from the field would be transported for onshore recycling or reuse opportunities. Woodside also advised its focus on establishing local content opportunities for onshore recycling. • providing an overview of its expanded approach to consultation on the EMBA for proposed activities, including risks and mitigations. • Woodside recommended Friends of the Earth subscribe to the Woodside Consultation Page to receive all the latest updates on all Woodside’s proposed activities. • Agreeing to send further information about proposed decommissioning activities <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 11.6).</p>	<p>Woodside considers the measures and controls described within this EP address the potential impact from the proposed activities on Friends of the Earth’s functions, interests or activities.</p> <p>No additional measures or controls are required.</p>
<p>Maritime Union of Australia (MUA)</p>		

Woodside considers it has discharged its obligations under regulation 11A by providing consultation materials and conducting various forms of engagement as set out in Section 5.8 and below.

Summary of information provided and record of consultation:

- On 21 February 2023, Woodside emailed the Maritime Union of Australia advising of the proposed activity (Appendix F, reference 2.32) and provided a Consultation Information Sheet.
- On 10 March 2023, Woodside sent a reminder email to the Maritime Union of Australia advising of the proposed activity (Appendix F, reference 2.32.1) and provided a Consultation Information Sheet.
- On 15 March 2023, the Maritime Union of Australia emailed thanking Woodside for the opportunity to comment on the Griffin and Stybarrow Decommissioning EPs. The Maritime Union of Australia advised it had no comments to make on the projects.
- On 15 March 2023, Woodside responded thanking the Maritime Union of Australia for their response.
- On 30 May 2023, Woodside met the new MUA representative at an industry conference and committed to follow up directly later in relation to the MUA position of removal of all infrastructure.
- On 6 June 2023, Woodside sent an email to the MUA thanking it for the 30 May 2023 discussion and provided a copy of a number of Consultation Information Sheets, including the activities proposed under this EP.
- On 14 June 2023, the MUA sent an email thanking Woodside for its 6 June 2023 email and provided potential dates for a meeting.
- Between 15 June 2023 and 22 June 2023, Woodside and MUA sent email correspondence to arrange a meeting on 5 July 2023.

Summary of Feedback, Objection or Claim	Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response	Environment Plan Controls
The MUA advised it had no comments to make with respect to the proposed activities.	Woodside notes the MUA's advice that it has no comments to make with respect to the proposed activities. 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 11.6.4).	Woodside considers the measures and controls described within this EP address the potential impact from the proposed activities on MUA's functions, interests or activities. No additional measures or controls are required.
Research institutes and local conservation groups or organisations		
Cape Conservation Group (CCG)		

Woodside considers it has discharged its obligations under regulation 11A by providing consultation materials and conducting various forms of engagement as set out in Section 5.8 and below.

Summary of information provided and record of consultation:

- On 27 May 2022, Woodside emailed CCG advising of the proposed activity (Appendix F, reference 1.24) and provided a Consultation Information Sheet.
 - On 17 February 2023, Woodside emailed the CCG advising of the proposed activity (Appendix F, reference 2.26) and provided a Consultation Information Sheet.
 - On 23 February 2023 CCG emailed Woodside seeking additional information on:
 - The unblocking of the Stybarrow H4 flowline and details release of crude oil to the marine environment.
 - The tow route and location of the shallow water lifting area.
 - On 1 March 2023 Woodside emailed the Cape Conservation Group and:
 - confirmed it was investigating feasibility options to unblock the H4 flowline, which was blocked by sand and hydrate, using coil tubing.
 - Woodside advised this approach would allow the hydrate and sand to be recovered to a construction vessel and the flexible flowline to be recovered onto a reel for transport to shore, without the oil being released.
 - Should this approach be determined not to be feasible due to potential safety risk, or if it is unsuccessful during activity execution, Woodside advised it proposed to cut and recover the line, releasing the contents of the blocked flowline at the seabed.
 - As the H4 flowline is at >800 m water depth, a release at the seabed minimises environmental impact as hydrates are stable at seabed conditions. Woodside advised it anticipated impacts to be localised and negligible.
 - On 10 March 2023 Woodside emailed CCG advising of changes to the proposed activity scope and provided an updated Consultation Information Sheet (Appendix F, reference 2.26.1).
 - On 14 March 2023 CCG responded to Woodside advising:
 - there is heightened potential of damage to the marine environment and wildlife during Woodside decommissioning activities including but not limited to:
 - Higher risk to reef and island habitats from spills
 - Increased potential negative impacts on migrating whales from marine noise
 - Higher possibility for contamination of inshore areas and reef habitat by chemicals used in the process of growth removal as a result of persistent and reckless delays in maintenance and disposal.
- CCG submits that:
- NOPSEMA and Regulators deny approval to Environmental Plans that include intentional petroleum releases.
 - Woodside be held accountable for failing to maintain infrastructure during and after the use/decommissioning of a field, as well as environmental and social damage caused by its industrial activities.
 - the use of CSV working in shallow waters increases risk
- CCG further submits that:
- no more delay or environmental damage from Nganhurra, Stybarrow or Griffin can be tolerated.
 - Due to previous Woodside consultations being unsatisfactory, CCG efforts in this space will be directed towards the regulators, government and media.
- On 24 May 2023 Woodside responded to CCG advising:
 - all decommissioning activities will be undertaken in accordance with relevant accepted EPs under NOPSEMA's jurisdiction.
 - unplanned loss of containment events have been identified as part of the EP risk assessment process (presented in **Section 8** of the respective EPs) and appropriate controls are adopted to prevent a hydrocarbon spill and controls to respond in the highly unlikely event of a hydrocarbon spill.
 - noise emissions from a range of sources have been assessed. Noise from vessel activities has the potential to exceed thresholds at the source, however as marine fauna is transient in the Operational Area, individuals are expected to potentially show localised avoidance based on behavioural avoidance responses.
 - marine growth and scale from subsea infrastructure may be removed using water jetting and blasting to expose lifting points or gain visualisation. Removed material is expected to disperse with prevailing currents or sink to the bottom. An acidification agent may be added to jetting water in a highly targeted process involving water and chemicals involved around <1 m³.
 - planned discharges include routine and non-routine discharges associated with the general operations of project vessels and as previously communicated, feasibility options are being investigated to unblock the H4 flowline as referenced above. The focus is to recover the flowline to construction vessel without fuel being released.
 - Its commitment to completing decommissioning and all regulatory requirements stipulated by the regulator through general directions.

Summary of Feedback, Objection or Claim	Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response	Environment Plan Controls
<p>CCG responded to Woodside seeking additional information on:</p> <ul style="list-style-type: none"> ○ The unblocking of the Stybarrow H4 flowline and details release of crude oil to the marine environment. ○ The tow route and location of the shallow water lifting area. <p>CCG advised there is a heightened risk to the marine environment during decommissioning activities from the potential for spills, marine noise and contamination of inshore areas and reef habitat by chemicals used in the decommissioning. CCG also advised the use of CSV in the shallow water increases risk.</p> <p>Whilst feedback has been received, there were no objections or claims.</p>	<p>Woodside responded and:</p> <ul style="list-style-type: none"> • confirmed it was investigating feasibility options to unblock the H4 flowline, which was blocked by sand and hydrate, using coil tubing. • advised this approach would allow the hydrate and sand to be recovered to a construction vessel and the flexible flowline to be recovered onto a reel for transport to shore, without the oil being released. • advised it anticipated impacts to be localised and negligible. • All current and proposed field management and decommissioning activities will be undertaken in accordance with relevant accepted EPs under NOPSEMA's regulatory jurisdiction. • Noise emissions from a range of sources have been assessed. Noise from vessel activities has the potential to exceed thresholds at the source, however as marine fauna is transient in the Operational Area, individuals are expected to potentially show localised avoidance based on behavioural avoidance responses. • Impacts and risks associated with these activities will be reduced to a level that is as low as reasonably practicable (ALARP) and acceptable to the satisfaction of NOPSEMA. • Woodside has progressed further planning for the Griffin RTM and Stybarrow DTM and is no longer planned to tow the structures to the shallow water locations for lifting operations, and therefore there is not expected to be any credible impacts to the shallow water environments. <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 11.6.4).</p>	<p>Woodside has consulted CCG in the course of preparing this EP. Woodside has assessed the claims or objections raised by CCG. No additional measures or controls have been put in place.</p> <p>Woodside considers the measures and controls described within this EP address the potential impact from the proposed activities on CCG's functions, interests or activities.</p>
Protect Ningaloo		
<p>Woodside considers it has discharged its obligations under regulation 11A by providing consultation materials and conducting various forms of engagement as set out in Section 5.8 and below.</p> <p>Summary of information provided and record of consultation:</p> <ul style="list-style-type: none"> • On 17 February 2023, Woodside emailed Protect Ningaloo advising of the proposed activity (Appendix F, reference 2.27) and provided a Consultation Information Sheet. • On 10 March 2023, Woodside sent a reminder email to Protect Ningaloo advising of the proposed activity (Appendix F, reference 2.27.1) and provided a Consultation Information Sheet. 		
Summary of Feedback, Objection or Claim	Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response	Environment Plan Controls
<p>No feedback, objections or claims received despite follow up.</p>	<p>Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 11.6.4).</p>	<p>No additional measures or controls are required.</p>

Table 2: Engagement Report with Persons or Organisations Assessed as Not Relevant

Commonwealth and WA State Government Departments or Agencies – Marine		
Pearl Producers Association (PPA)		
<p>Woodside considers it has discharged its obligations under regulation 11A by providing consultation materials and conducting various forms of engagement as set out in Section 5.8 and below.</p> <p>Summary of information provided and record of consultation:</p> <ul style="list-style-type: none"> On 16 February 2023, Woodside emailed the PPA advising of the proposed activity (Appendix F, reference 2.2) and provided a Consultation Information Sheet. On 10 March 2023, Woodside sent a reminder email to PPA advising of the proposed activity (Appendix F, reference 2.2.1) and provided a Consultation Information Sheet. 		
Summary of Feedback, Objection or Claim	Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response	Environment Plan Controls
No feedback, objections or claims received despite follow up.	<p>Woodside has provided consultation information to AFMA, DAFF - Fisheries, CFA, ASBTIA, Tuna Australia and individual relevant licence holders.</p> <p>Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 11.6.4).</p>	<p>Woodside has assessed the potential for interaction with Commonwealth and State managed commercial fisheries in Section 4.8.2 of this EP.</p> <p>Woodside will provide notifications to AFMA, DAFF – Fisheries, CFA, DPIRD, WAFIC, and relevant Fishery Licence Holders that have the potential to be directly impacted by planned activities in the Operational Area (Western Deepwater Trawl Fishery) prior to the commencement and at the end of the activity, as referenced as P.S 1.4 in this EP.</p> <p>No additional measures or controls are required.</p>
Commonwealth Commercial fisheries and representative bodies		
Australian Southern Bluefin Tuna Industry Association (ASBTIA)		
<p>Woodside considers it has discharged its obligations under regulation 11A by providing consultation materials and conducting various forms of engagement as set out in Section 5.8 and below.</p> <p>Summary of information provided and record of consultation:</p> <ul style="list-style-type: none"> On 1 June 2023, Woodside emailed ASBTIA advising of the proposed activity (Appendix F, reference 2.77) and provided a Consultation Information Sheet. On 23 June 2023, Woodside sent a reminder email to ASBTIA advising of the proposed activity (Appendix F, reference 2.77.1) and provided a Consultation Information Sheet. 		
Summary of Feedback, Objection or Claim	Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response	Environment Plan Controls

<p>No feedback, objections or claims received despite follow up.</p>	<p>Woodside has provided consultation information to AFMA, DAFF - Fisheries, CFA, ASBTIA, Tuna Australia and individual relevant licence holders.</p> <p>Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 11.6.4).</p>	<p>Woodside has assessed the potential for interaction with Commonwealth and State managed commercial fisheries in Section 4.8.2 of this EP.</p> <p>Woodside will provide notifications to AFMA, DAFF – Fisheries, CFA, DPIRD, WAFIC, and relevant Fishery Licence Holders that have the potential to be directly impacted by planned activities in the Operational Area (Western Deepwater Trawl Fishery) prior to the commencement and at the end of the activity, as referenced as P.S 1.4 in this EP.</p> <p>No additional measures or controls are required.</p>
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Other non-government groups or organisations

Conservation Council of Western Australia (CCWA)

Woodside considers it has discharged its obligations under regulation 11A by providing consultation materials and conducting various forms of engagement as set out in Section 5.8 and below.

Summary of information provided and record of consultation:

- On 16 February 2023, Woodside emailed CCWA advising of the proposed activity (Appendix F, reference 2.11) and provided a Consultation Information Sheet.
- On 10 March 2023, Woodside sent a reminder email to CCWA advising of the proposed activity (Appendix F, reference 2.11.1) and provided a Consultation Information Sheet.

Summary of Feedback, Objection or Claim	Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response	Environment Plan Controls
<p>No feedback, objections or claims received despite follow up.</p>	<p>Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 11.6.4).</p>	<p>No additional measures or controls are required.</p>

Greenpeace Australia Pacific (GAP)

Woodside considers it has discharged its obligations under regulation 11A by providing consultation materials and conducting various forms of engagement as set out in Section 5.8 and below.

Summary of information provided and record of consultation:

- On 2 June 2023, Woodside emailed GAP advising of the proposed activity and provided a Consultation Information Sheet (Appendix 2.79).
- On 23 June 2023, Woodside sent a reminder email to GAP advising of the proposed activity (Appendix F, reference 2.79.1) and provided a Consultation Information Sheet.

Summary of Feedback, Objection or Claim	Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response	Environment Plan Controls
<p>No feedback, objections or claims received despite follow up.</p>	<p>Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 11.6.4).</p>	<p>No additional measures or controls are required.</p>

Research institutes and local conservation groups or organisations		
University of Western Australia (UWA)		
<p>Woodside considers it has discharged its obligations under regulation 11A by providing consultation materials and conducting various forms of engagement as set out in Section 5.8 and below.</p> <p>Summary of information provided and record of consultation:</p> <ul style="list-style-type: none"> On 21 February 2023, Woodside UWA advising of the proposed activity (Appendix F, reference 2.30) and provided a Consultation Information Sheet. On 10 March 2023, Woodside sent a reminder email to the UWA advising of the proposed activity (Appendix F, reference 2.30.1) and provided a Consultation Information Sheet. 		
Summary of Feedback, Objection or Claim	Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response	Environment Plan Controls
No feedback, objections or claims received despite follow up.	Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 11.6.4).	No additional measures or controls are required.
Western Australian Marine Science Institution (WAMSI)		
<p>Woodside considers it has discharged its obligations under regulation 11A by providing consultation materials and conducting various forms of engagement as set out in Section 5.8 and below.</p> <p>Summary of information provided and record of consultation:</p> <ul style="list-style-type: none"> On 21 February 2023, Woodside emailed WAMSI advising of the proposed activity (Appendix F, reference 2.31) and provided a Consultation Information Sheet. On 10 March 2023, Woodside sent a reminder email to WAMSI advising of the proposed activity (Appendix F, reference 2.31.1) and provided a Consultation Information Sheet. 		
Summary of Feedback, Objection or Claim	Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response	Environment Plan Controls
No feedback, objections or claims received despite follow up.	Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 11.6.4).	No additional measures or controls are required.
Commonwealth Scientific and Industrial Research Organisation (CSIRO)		
<p>Woodside considers it has discharged its obligations under regulation 11A by providing consultation materials and conducting various forms of engagement as set out in Section 5.8 and below.</p> <p>Summary of information provided and record of consultation:</p> <ul style="list-style-type: none"> On 21 February 2023, Woodside emailed CSIRO advising of the proposed activity (Appendix F, reference 2.74) and provided a Consultation Information Sheet. On 21 February 2023, CSIRO sent an automated email acknowledging receipt of the email and provided an enquiry reference number. On 4 June 2023, Woodside sent a reminder email to CSIRO advising of the proposed activity (Appendix F, reference 2.74.1) and provided a Consultation Information Sheet. 		
Summary of Feedback, Objection or Claim	Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response	Environment Plan Controls
CSIRO responded with an automated email acknowledging receipt of the email.	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	Woodside considers the measures and controls described within this EP address the

<p>Whilst feedback has been received, there were no objections or claims.</p>	<p>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 11.6.4).</p>	<p>potential impact from the proposed activities on CSIRO's functions, interests or activities.</p> <p>No additional measures or controls are required.</p>
<p>Australian Institute of Marine Science (AIMS)</p>		
<p>Woodside considers it has discharged its obligations under regulation 11A by providing consultation materials and conducting various forms of engagement as set out in Section 5.8 and below.</p> <p>Summary of information provided and record of consultation:</p> <ul style="list-style-type: none"> • On 21 February 2023, Woodside emailed AIMS advising of the proposed activity (Appendix F, reference 2.69) and provided a Consultation Information Sheet. • On 10 March 2023, Woodside sent a reminder email to AIMS advising of the proposed activity (Appendix F, reference 2.69.1) and provided a Consultation Information Sheet. • On 21 March 2023, AIMS responded to Woodside and said that it will be undertaking offshore vessel and coring operations in this region out to 500 m depth over the next 12 months (actual dates yet to be determined). AIMS requested maintaining communications to minimise the risk of respective activity overlap. • On 27 March 2023, Woodside responded thanking AIMS for its feedback and sought clarity on the region where activities may take place. Woodside committed to ongoing communication to support planning of respective activities. • On 2 June 2023, Woodside followed up with AIMS with respect to the location where their activities are proposed. 		
<p>Summary of Feedback, Objection or Claim</p>	<p>Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response</p>	<p>Environment Plan Controls</p>
<p>AIMS responded that it will be undertaking offshore vessel and coring operations in this region out to 500 m depth over the next 12 months (actual dates yet to be determined). AIMS requested maintaining communications to minimise the risk of respective activity overlap.</p>	<p>Woodside sought clarity on the region where activities may take place and committed to ongoing communication to support planning of respective activities within the Griffin field.</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 11.6.4).</p>	<p>Woodside has consulted AIMS in the course of preparing this EP. Woodside has assessed the claims or objections raised by AIMS. No additional measures or controls have been put in place.</p> <p>Woodside considers the measures and controls described within this EP address the potential impact from the proposed activities on the AIMS's functions, interests or activities.</p>

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1. Initial Consultation (27 May 2022)

1.1 Consultation Information Sheet sent to relevant persons



Petroleum

Invitation for Feedback: Stakeholder Information Fact Sheet



Delivering environmental excellence

Stybarrow Plug & Abandonment and Decommissioning Environment Plans

Northern Carnarvon Basin, North West Australia

BHP Billiton Petroleum Pty Ltd (BHP) is planning to undertake subsea decommissioning activities for the Stybarrow field which is located within Commonwealth waters in Production Licence WA-32-L, approximately 53 km north-west of Exmouth, Western Australia and in water depths of approximately 810-850 m (Figure 1).

The Stybarrow development was in production from 2007 until 2015 and consisted of the Stybarrow floating production, storage and offloading (FPSO) facility and its mooring, subsea facilities including 10 subsea wells (production and water/gas injectors), the associated trees, manifolds, risers, flowlines, and umbilicals, and the disconnectable turret mooring (DTM) buoy which connected the FPSO to the subsea infrastructure.

Decommissioning of the Stybarrow Field is planned to be undertaken in stages under relevant Commonwealth approvals, with regulatory approvals being sought for the following activities:

- Removal of subsea equipment (wellheads, trees, manifolds, risers, flexible flowlines, umbilicals and the DTM and its moorings);
- Ongoing field management activities, such as equipment inspection and monitoring;
- The plug and abandonment (P&A) of 10 production/injection wells;
- Removal of the H4 flowline; and
- Proposed leave *in situ* of the DTM anchors (buried) and suction gravity bases for the riser holdbacks and water injection manifold.

This Stakeholder Fact Sheet relates to the activities planned to be managed under two Environment Plans (EPs), these being for:

- The well P&A, H4 flowline removal activities, managed under the Stybarrow P&A Environment Plan (EP).
- The equipment proposed to remain *in situ*, managed under a separate Stybarrow Field Deviation EP.

An EP for the subsea equipment removal and ongoing field management activities was submitted in April 2022 and is presently under assessment.

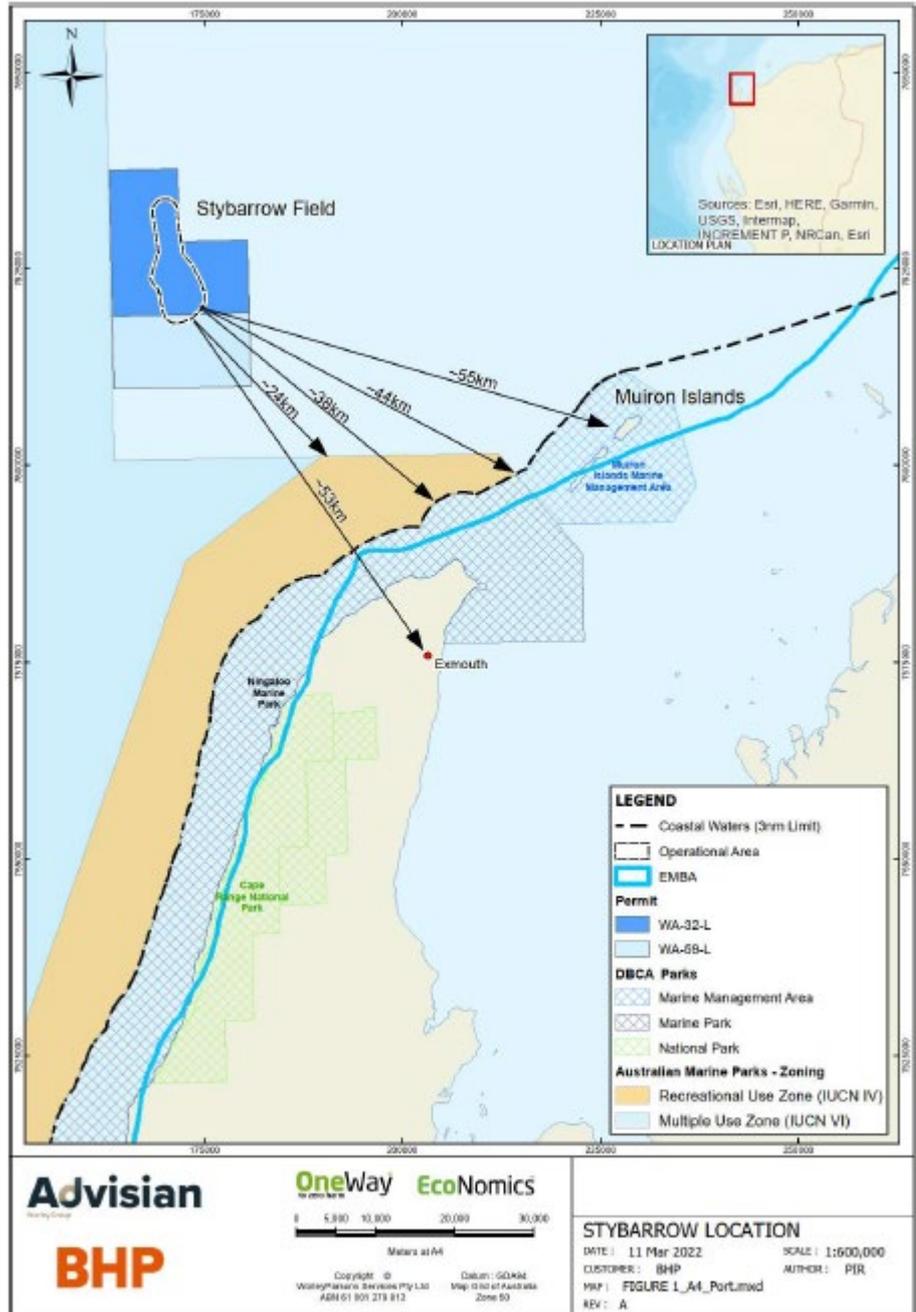
The well P&A and H4 flowline removal activities are planned to commence in 2024, pending approvals, vessel availability and weather constraints. BHP is preparing an EP for this activity for submission to the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA) under the Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2009. The EP is being written to allow the activity to occur at any time of year as schedules are subject to change and to allow our business flexibility. The P&A activities are required to be completed no later than 30 September 2024 and equipment removal completed no later than 31 March 2025.

BHP Billiton Petroleum (Australia) Pty Ltd is the designated operator on behalf of a joint venture comprising BHP Billiton Petroleum (Australia) Pty Ltd and Woodside Energy Ltd (Woodside), which are the holders of Production Licence WA-32-L.

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Stybarrow Plug and Abandonment Environment Plan

Figure 1 Stybarrow Location



Location of Operational Area

The Operational Area defines the spatial boundary within which the proposed activities will take place (Figure 1 and

Figure 2). The Operational Area is temporary for the duration of activities and will comprise a 1,500 m radius around the wells and subsea infrastructure. The nearest point to mainland shore from the Operational Area is approximately 42 km (near the tip of North West Cape) and the closest major town is Exmouth, approximately 52 km to the south east. There are several Commonwealth and State Marine protected areas in the region, the closest being the Gascoyne Australian Marine Park in Commonwealth waters, which is approximately 5 km west of the Operational Area (Figure 1 and Table 1).

Table 1 Marine protected areas in the region

Value/ Sensitivity	Approx. Distance from Operational Area
Gascoyne Australian Marine Park (Commonwealth)	5 km
Ningaloo Australian Marine Park (Commonwealth)	24 km
Ningaloo Marine Park (Western Australia)	36 km
Muiron Islands Marine Management Area (Western Australia)	45 km

Description of Activity

Within the scope of EPs covered by this fact sheet, BHP proposes to:

- Plug and abandon the 10 Stybarrow development wells
- Remove the H4 flowline which was blocked due to a sanding event during production. BHP has assessed that the impact to the marine environment would be a release of up to 14m³ in the event that any hydrocarbons are released during recovery of the flowline.

At the conclusion of these activities, BHP proposes that the following equipment will be left *in situ*:

- 9 DTM mooring anchors;
- 9 suction pile riser bases; and
- The suction pile foundation for the water injection manifold.

BHP has undertaken an environmental impact assessment of the feasible decommissioning options for the equipment proposed to be left *in situ*. This assessment concluded that leaving these items *in situ* was a better environmental outcome due to:

- the environmental damage caused by their removal, given they are deeply embedded in the seabed.
- the very low environmental risk associated with the degradation of equipment. The items are of steel construction and do not contain plastics or other known contaminants. The degradation products of steel are not considered toxic and these materials are routinely used in the construction of marinas, breakwaters etc.
- minimal impact to other users of the sea, due to the water depth (800m+)

The locations of the wellheads, H4 flowline and equipment proposed to be left *in situ* are provided in Table 3.

A detailed inventory of subsea infrastructure to be removed or left *in situ* under these activity scopes is included in the respective EPs, which will be available on NOPSEMA's website (<https://www.nopsema.gov.au/>) upon submission.

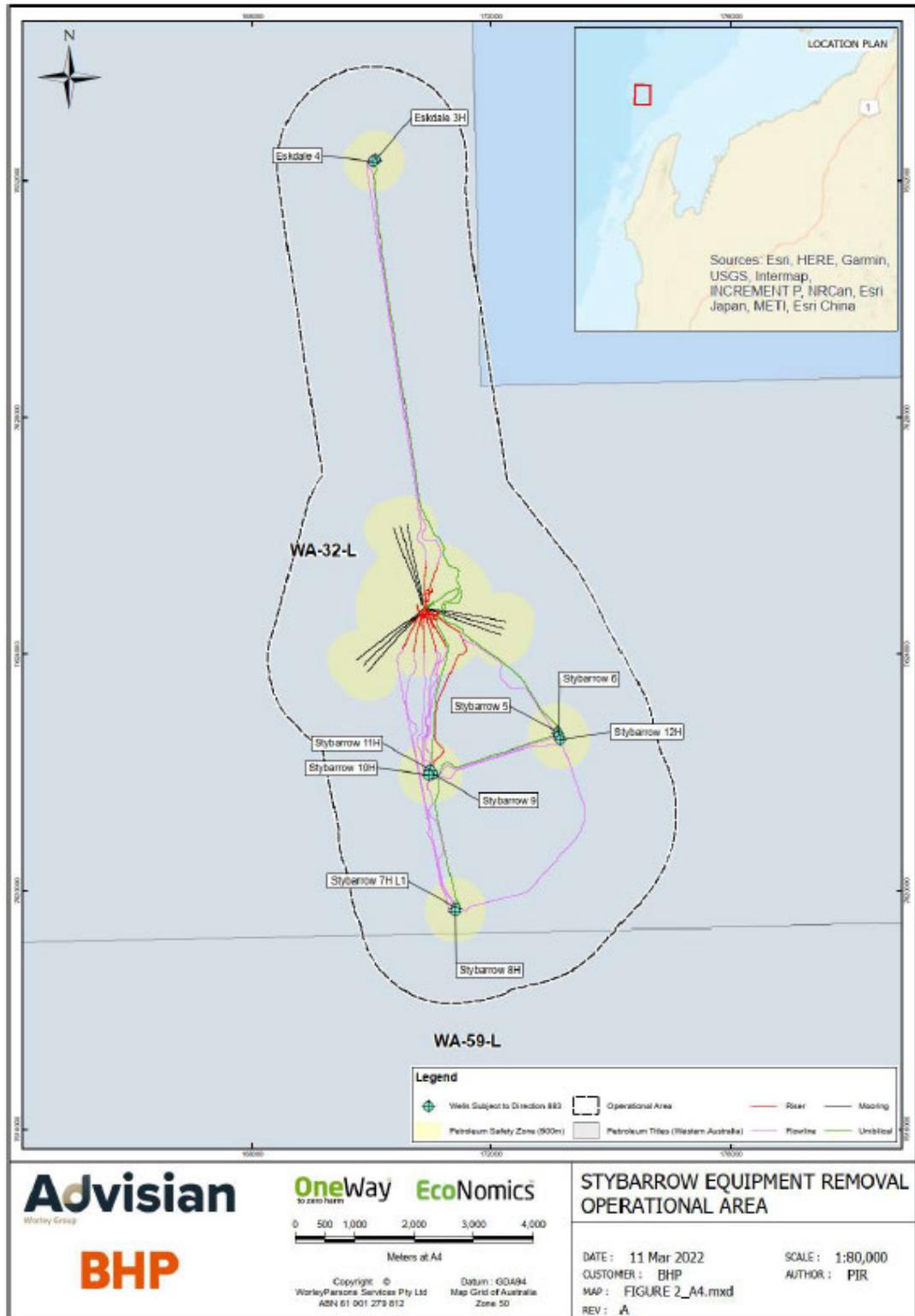


Figure 2 Equipment Removal Activity Operational Area

Stybarrow Plug and Abandonment Environment Plan

Table 2 Summary of decommissioning activities

Stybarrow Subsea Infrastructure Decommissioning Activities	
Earliest expected commencement date	Earliest P&A start is 2024 calendar year, subject to approvals, MODU and vessel availability, and weather constraints. P&A must be completed no later than 30 September 2024.
Petroleum title	Production Licence WA-32-L
Operational area	A 500 m safety exclusion zone around the wells and a 1,500 m radius temporary Operational Area (precautionary) around the wells and subsea equipment for the duration of the activity.
Petroleum Safety Zones	500 m radius around wells 1,134 m radius around former FPSO location
Estimated duration	Approximately 6 months
Water depth	Approximately 810-850 m
Activities proposed	P&A of 10 wells Removal of 1 x flexible production flowline, ~2000m long
Vessels	Semi submersible mobile offshore drilling unit (MODU) (Dynamic positioning) Offshore support vessels, such as general support/supply vessels, construction support vessels/installation vessels. Typically, two (but up to six) project vessels will be in the Operational Area during well P&A and subsea infrastructure removal activities.

Table 3 Location of subsea infrastructure and activity. All coordinates in MGA50/GDA94

Subsea infrastructure	Easting	Northing	Activity
H4 flowline	Between H4 well and riser, approximately ~2000m in length		Remove. Flowline was blocked with sand/hydrocarbons/hydrate during production. Up to 14m ³ of hydrocarbons could potentially be released during its recovery (unplanned)
Eskdale-4 (EG1) Well	170024.53	7632318.26	Plug and abandon. Wellhead and subsea tree removal is covered under the Equipment Removal EP
Stybarrow-5 (I-3) Well	173119.00	7622683.90	
Stybarrow-6 (I-2) Well	173143.86	7622636.19	
Stybarrow-12 (H-5) Well	173172.80	7622560.74	
Stybarrow-9 (I-1) Well	171032.33	7621985.59	
Stybarrow-10 (H-3) Well	170958.06	7621964.06	
Stybarrow-11 (H-4) Well	170980.53	7622056.34	
Stybarrow-7 (H-2) Well	171413.34	7619728.58	
Stybarrow-8 (H-1) Well	171403.11	7619659.88	
Eskdale-3 (EH1) Well	170065.05	7632345.32	
Eskdale-4 (EG1) Well	170024.53	7632318.26	
Water injection manifold suction base	171486.5	7624333.0	Leave in Situ proposed (flush with seabed), 4m in diameter, 7m high
Mooring 1 Anchor	172172.4	7624323.5	Leave in Situ Proposed (buried) Anchors are 11 tonne Stevpris Mk5 Vryhof anchors, ~6m x 6m x 3m
Mooring 2 Anchor	172215.2	7624441.7	
Mooring 3 Anchor	172237.1	7624561.1	
Mooring 4 Anchor	170594.8	7626195	

Subsea infrastructure	Easting	Northing	Activity
Mooring 5 Anchor	170489.2	7626161.1	
Mooring 6 Anchor	170372.9	7626127.5	
Mooring 7 Anchor	169759.4	7623909.3	
Mooring 8 Anchor	169828.7	7623775.8	
Mooring 9 Anchor	169943.1	7623715.9	
Dynamic Umbilical Riser Base	171433.8	7625113.9	
Water Injection 10" Riser base	171491.8	7624359.1	
H4GL Gas Lift 6" Riser Base	171256.2	7624136.9	
EG1 Gas Injection 6" Riser Base	171121.0	7625533.9	
H4 Production 8" Riser Base	171080.4	7624061.0	
H3 Production 8" Riser Base	170894.3	7624028.6	Riser bases embedded in seabed – leave in situ proposed. Clamps and chains removed. Riser bases are 4m in diameter, 7m high.
H2 Production 7" Riser Base	170704.2	7624040.9	
H1 Production 7" Riser Base	170526.5	7624100.2	
EH1 Production 6" Riser Base	170921.2	7625578.0	

Summary of potential risks and associated management measures

Potential risks and management measures associated with the activity have been considered and are summarised in Table 4.

Table 4 Potential risks and associated management measures

Potential Risks	Management and/or mitigation measures
Planned Activities	
Physical presence	<ul style="list-style-type: none"> BHP's existing infrastructure is marked on nautical charts. Establishment of a 500 m safety exclusion zone around the wells and a 1500 m Operational Area for the duration of the activity. Consultation with relevant stakeholders (e.g., adjacent petroleum titleholders, commercial fishers and their representative organisations, government departments and agencies and local communities) to inform decision making for the proposed activity and the development of the Environment Plan. BHP will notify relevant fishing industry representative organisations/associations and Government maritime safety agencies of the start and end dates for the activity, the MODU location and details of exclusion zones prior to commencement of the P&A and other removal activities.
Light emissions	<ul style="list-style-type: none"> Lighting is minimised to that required for safety and navigational purposes.
Noise Emissions	<ul style="list-style-type: none"> Measures will be in place for interacting with protected marine fauna as per the EPBC Regulations (Part 8) and consistent with relevant Conservation Management Plans Engines, compressors and machinery on the vessel are maintained via the vessel preventative maintenance system (PMS) to ensure equipment is operating efficiently.
Atmospheric emissions	<ul style="list-style-type: none"> Air emissions from marine engines meet MARPOL requirements and are routinely maintained. Marine-grade (low sulphur) diesel to be used.
Routine vessel discharges	<ul style="list-style-type: none"> Routine discharges and vessel waste treatment systems will meet legal / MARPOL requirements. No discharge of oily water exceeding 15 ppm oil in water content. Food-scrap macerated prior to discharge. Maintain biosecurity requirements such as anti-fouling certification, ballast water and biofouling controls.

Potential Risks	Management and/or mitigation measures
	<ul style="list-style-type: none"> Chemical use will be managed in accordance with BHP and contractor chemical selection and approval procedures
Subsea discharges	<ul style="list-style-type: none"> Chemical use will be managed in accordance with BHP and contractor chemical selection and approval procedures. All routine marine discharges will be managed according to legislative and regulatory requirements and BHP's Environment Performance Standards where applicable.
Unplanned Risks	
Unplanned releases, including hydrocarbons	<ul style="list-style-type: none"> All personnel undertaking activities will undergo relevant inductions and training Procedures for lifts, equipment maintenance, inspections and bunding All offshore activities will be managed in accordance with lifting and transfer procedures Well barrier management shall be implemented, tested and monitored Recovery of solid wastes overboard where safe and practicable to do so Implementation of Oil Pollution Emergency Plan (OPEP). No heavy fuels used – only marine diesel oil (MDO). Appropriate vessel spill response plans, equipment and materials will be in place and maintained
Marine fauna interaction	<ul style="list-style-type: none"> Measures will be in place for interacting with protected marine fauna as per the Environment Protection Biodiversity Conservation (EPBC) Regulations (Part 8).
Introduced marine species	<ul style="list-style-type: none"> BHP contracted vessels comply with Australian biosecurity requirements and guidance, and Australian ballast water requirements. Vessels will be assessed and managed in line with BHP procedures to prevent the introduction of invasive marine species.
Vessel collision	<ul style="list-style-type: none"> Marine notifications will be made to relevant stakeholders, describing the location of the activity and exclusion/cautionary zones to prevent the risk of vessel collisions

Protecting Our People and the Environment

Safety of our people and the communities in which we operate always comes first. Identifying, controlling, and mitigating safety risks is managed through an overarching, consistent approach guided by BHP's Risk Management governance framework, with supporting processes and performance standards. All activities (routine and non-routine) will be performed in accordance with the industry-leading standards established in BHP's Charter, HSEC Framework and Controls, BHP's Wells and Seismic Delivery Management System, Engineering Standards and Procedures, the Environment Plan and the NOPSEMA-accepted Well Operations Management Plan (WOMP) and NOPSEMA-accepted Vessel Safety Case.

Offshore petroleum activities are regulated through a robust and comprehensive environmental protection regime administered by NOPSEMA under the Commonwealth *Offshore Petroleum and Greenhouse Gas Storage Act 2006*. BHP undertakes risk assessments for all environmental aspects of a petroleum activity and stringently adheres to the regulatory regime.

The objective of the Environment Plan is to ensure that potential adverse impacts on the environment associated with activities, during both routine and non-routine activities, are identified, and will be continuously reduced to as low as reasonably practicable (ALARP) and an acceptable level. BHP is committed to understanding the impacts of our activities on stakeholders with an interest in the Stybarrow field and seeks feedback as part of the development of the EP.

Responding to Emergencies

BHP's incident response plans are accepted by the regulator NOPSEMA. The Commonwealth Oil Pollution Emergency Plan (OPEP) is required by law under the Environmental Regulations and forms an appendix to the full EP. The OPEP outlines responsibilities, specific procedures and identifies resources available in the unlikely event of an oil pollution incident. BHP maintains a constant vigilance and readiness to prevent and/or respond to hydrocarbon loss of containment incidents. The readiness and competency of BHP to respond to incidents is maintained and tested by conducting activity-specific emergency response exercises.

Should you have any questions, concerns or grievances regarding these activities or any other BHP Petroleum activities, please call BHP WA Community Hotline on **1800 421 077** or send an email to **bhppetexternalaffairs@bhp.com**

BHP believes in putting health and safety first, being environmentally responsible and supporting our communities.

1.2 Email sent to Australian Hydrographic Office (AHO) and Australian Maritime Safety Authority (AMSA) – Marine Safety (27 May 2022)

INVITATION FOR FEEDBACK | Stybarrow P&A and Decommissioning Environment Plans

BHP PET External Affairs <bhppetexternalaffairs@bhp.com>

Fri 5/27/2022 6:13 AM

To:

Cc: BHP PET External Affairs <bhppetexternalaffairs@bhp.com>

📎 1 attachments (691 KB)

Fact Sheet - Stybarrow P&A and Decommissioning Environment Plans.pdf;

Dear AMSA and AHO

BHP is planning for the next stage of its ongoing safe and sustainable closure of the Stybarrow Field in Commonwealth waters, approximately 53 km north-west of Exmouth, Western Australia.

Production from the Stybarrow Field commenced in 2007 and ceased in 2015. Since that time the following cessation activities have been completed:

- All flowlines and gas lift lines were flushed and filled with treated seawater and production flowlines disconnected (except for an abandoned flowline which was blocked by sand and gas hydrate during production, which is disconnected, sealed and lying on the seabed).
- All production, gas injection and water injection wells were shut in and capped.
- The Stybarrow Venture FPSO was disconnected from the DTM and departed from the field in August 2015.

BHP consulted stakeholders in March 2022 on the first phase of decommissioning, these being activities for the proposed removal of the Stybarrow subsea equipment and ongoing field management activities until the equipment is removed. Feedback from stakeholders was considered in planning the Stybarrow Equipment Removal Environment Plan (EP), which was submitted to National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA) in April 2022 for assessment.

BHP is now seeking stakeholder feedback on well plug and abandonment (P&A) and decommissioning activities, which are proposed to be managed under two separate Environment Plans, these being:

- Stybarrow P&A EP
- Stybarrow Field Deviation EP

A summary of proposed activities to be managed under each EP follows and a fact sheet is attached providing more detail on infrastructure location and activity, as well as a summary of risks and associated management measures.

Activity Overview

Activities: Stybarrow P&A EP Stybarrow Field Deviation EP	<ul style="list-style-type: none">• The P&A of 10 production/injection wells• Removal of the H4 flexible production flowline <p>Proposed leave <i>in situ</i>:</p> <ul style="list-style-type: none">• The disconnectable turret mooring (DTM) anchors. Each anchor is buried, is approximately 6m x 6m x 3m, and weighs 11 tonnes.• Suction gravity bases for the riser holdbacks and water injection manifold. The riser bases embedded in the seabed, and clamps and chains will be removed. Riser bases are 4m in diameter and 7m high.
Petroleum title:	Production Licence WA-32-L
Activity location:	Approximately 53 km north-west of Exmouth, Western Australia
Infrastructure locations:	See attached Stakeholder Information Fact Sheet

Stybarrow Plug and Abandonment Environment Plan

Approximate water depth:	Approximately 810-850 m
Estimate start date:	Earliest P&A start is 2024 calendar year, subject to approvals, MODU and vessel availability, and weather constraints. P&A must be completed no later than 30 September 2024.
Approximate duration:	Approximately 6 months
Vessels:	Semi submersible mobile offshore drilling unit (MODU) (Dynamic positioning) Offshore support vessels, such as general support/supply vessels, construction support vessels/installation vessels. Typically, two (but up to six) project vessels will be in the Operational Area during well P&A and subsea infrastructure removal activities.
Operational area:	A 500 m safety exclusion zone around the wells and a 1,500 m radius temporary Operational Area (precautionary) around the wells and subsea equipment for the duration of the activity.

Your Feedback

Your feedback on the proposed activity and our response will be provided to the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA), as is required under the Commonwealth Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2009.

As a relevant stakeholder you are invited to provide comments. The Environment Plan will contain a summary of all comments received. However, BHP will not use or disclose your personal information in the Environment Plan. Full transcripts of all correspondence will be included in a separate sensitive information part of the Environment Plan provided to NOPSEMA.

Please provide comment as soon as practicable. Comments can be made by email, letter or by phone (refer to attached Fact Sheet for contact details) by close of business on **24 June 2022**.

Regards,

BHP

1.3 Email sent to Australian Fisheries Management Authority (AFMA) (27 May 2022)

INVITATION FOR FEEDBACK | Stybarrow P&A and Decommissioning Environment Plans

BHP PET External Affairs <bhppetexternalaffairs@bhp.com>

Fri 5/27/2022 6:12 AM

To:

Cc: BHP PET External Affairs <bhppetexternalaffairs@bhp.com>

📎 1 attachments (691 KB)

Fact Sheet - Stybarrow P&A and Decommissioning Environment Plans.pdf;

Dear stakeholder

BHP is planning for the next stage of its ongoing safe and sustainable closure of the Stybarrow Field in Commonwealth waters, approximately 53 km north-west of Exmouth, Western Australia.

Production from the Stybarrow Field commenced in 2007 and ceased in 2015. Since that time the following cessation activities have been completed:

- All flowlines and gas lift lines were flushed and filled with treated seawater and production flowlines disconnected (except for an abandoned flowline which was blocked by sand and gas hydrate during production, which is disconnected sealed and lying on the seabed).
- All production, gas injection and water injection wells were shut in and capped.
- The Stybarrow Venture FPSO was disconnected from the DTM and departed from the field in August 2015.

BHP consulted stakeholders in March 2022 on the first phase of decommissioning, these being activities for the proposed removal of the Stybarrow subsea equipment and ongoing field management activities until the equipment is removed. Feedback from stakeholders was considered in planning the Stybarrow Equipment Removal Environment Plan (EP), which was submitted to National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA) in April 2022 for assessment.

BHP is now seeking stakeholder feedback on well plug and abandonment (P&A) and decommissioning activities, which are proposed to be managed under two separate Environment Plans, these being:

- Stybarrow P&A EP
- Stybarrow Field Deviation EP

A summary of proposed activities to be managed under each EP follows and a fact sheet is attached providing more detail on infrastructure location and activity, as well as a summary of risks and associated management measures.

Activity Overview

<p>Activities:</p> <ul style="list-style-type: none"> Stybarrow P&A EP Stybarrow Field Deviation EP 	<ul style="list-style-type: none"> • The P&A of 10 production/injection wells • Removal of the H4 flexible production flowline <p>Proposed leave <i>in situ</i>:</p> <ul style="list-style-type: none"> • The disconnectable turret mooring (DTM) anchors. Each anchor is buried, is approximately 6m x 6m x 3m, and weighs 11 tonnes. • Suction gravity bases for the riser holdbacks and water injection manifold. The riser bases embedded in the seabed, and clamps and chains will be removed. Riser bases are 4m in diameter and 7m high.
<p>Petroleum title:</p>	<p>Production Licence WA-32-L</p>
<p>Activity location:</p>	<p>Approximately 53 km north-west of Exmouth, Western Australia</p>
<p>Infrastructure locations:</p>	<p>See attached Stakeholder Information Fact Sheet</p>
<p>Approximate water depth:</p>	<p>Approximately 810-850 m</p>

Stybarrow Plug and Abandonment Environment Plan

Estimate start date:	Earliest P&A start is 2024 calendar year, subject to approvals, MODU and vessel availability, and weather constraints. P&A must be completed no later than 30 September 2024.
Approximate duration:	Approximately 6 months
Vessels:	Semi submersible mobile offshore drilling unit (MODU) (Dynamic positioning) Offshore support vessels, such as general support/supply vessels, construction support vessels/installation vessels. Typically, two (but up to six) project vessels will be in the Operational Area during well P&A and subsea infrastructure removal activities.
Operational area:	A 500 m safety exclusion zone around the wells and a 1,500 m radius temporary Operational Area (precautionary) around the wells and subsea equipment for the duration of the activity.

Commercial Fishing Overview

Stybarrow Plug and Abandonment Environment Plan

Commercial fisheries have been identified as being relevant to the proposed activities on the basis of fishing licence overlap with the proposed Operational (activity) Area, as well as consideration of fishing effort data, fishing methods and water depth.

Commonwealth fisheries

There are four overlapping Commonwealth fisheries, of which the Western Deepwater Trawl Fishery has been identified as relevant based on the identification criteria. BHP will consult representative organisations and licence holders entitled to fish in the Operational Area.

State fisheries

There are six overlapping State fisheries, of which the following fisheries have been identified as being relevant based on the identification criteria. Individual licence holders in these fisheries will be consulted.

- Mackerel Managed Fishery (Area 3)
- West Coast Deep Sea Crustacean Managed Fishery

The following government departments and organisations will also be consulted on behalf of licence holders entitled to fish in the Operational Area:

Commonwealth Fisheries:

- Australian Fisheries Management Authority
- Australian Southern Bluefin Tuna Industry Association on behalf of licence holders in the Southern Bluefin Tuna and Western Skipjack Tuna Fisheries
- Department of Agriculture, Water and the Environment
- Commonwealth Fisheries Association on behalf of licence holders in the Western Deepwater Trawl, Western Tuna and Billfish and Western Skipjack Tuna Fisheries
- Tuna Australia on behalf of licence holders in the Western Tuna and Billfish Fishery

State Fisheries and recreational fishing:

- Department of Primary Industry and Resources
- Western Australian Fishing Industry Council
- Pearl Producers Association
- Recfishwest

Your Feedback

Your feedback on the proposed activity and our response will be provided to the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA), as is required under the Commonwealth Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2009.

As a relevant stakeholder you are invited to provide comments. The Environment Plan will contain a summary of all comments received. However, BHP will not use or disclose your personal information in the Environment Plan. Full transcripts of all correspondence will be included in a separate sensitive information part of the Environment Plan provided to NOPSEMA.

Please provide comment as soon as practicable. Comments can be made by email, letter or by phone (refer to attached Fact Sheet for contact details) by close of business on **24 June 2022**.

Regards,

BHP

Stybarrow Plug and Abandonment Environment Plan

1.4 Email sent to Director of National Parks (DNP) (27 May 2022)

INVITATION FOR FEEDBACK | Stybarrow P&A and Decommissioning Environment Plans

BHP PET External Affairs <bhppetexternalaffairs@bhp.com>

Fri 5/27/2022 6:27 AM

To:

Cc: BHP PET External Affairs <bhppetexternalaffairs@bhp.com>

1 attachments (691 KB)

Fact Sheet - Stybarrow P&A and Decommissioning Environment Plans.pdf;

Dear Director of National Parks

BHP is planning for the next stage of its ongoing safe and sustainable closure of the Stybarrow Field in Commonwealth waters, approximately 53 km north-west of Exmouth, Western Australia.

Production from the Stybarrow Field commenced in 2007 and ceased in 2015. Since that time the following cessation activities have been completed:

- All flowlines and gas lift lines were flushed and filled with treated seawater and production flowlines disconnected (except for an abandoned flowline which was blocked by sand and gas hydrate during production, which is disconnected sealed and lying on the seabed).
- All production, gas injection and water injection wells were shut in and capped.
- The Stybarrow Venture FPSO was disconnected from the DTM and departed from the field in August 2015.

BHP consulted stakeholders in March 2022 on the first phase of decommissioning, these being activities for the proposed removal of the Stybarrow subsea equipment and ongoing field management activities until the equipment is removed. Feedback from stakeholders was considered in planning the Stybarrow Equipment Removal Environment Plan (EP), which was submitted to National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA) in April 2022 for assessment.

BHP is now seeking stakeholder feedback on well plug and abandonment (P&A) and decommissioning activities, which are proposed to be managed under two separate Environment Plans, these being:

- Stybarrow P&A EP
- Stybarrow Field Deviation EP

A summary of proposed activities to be managed under each EP follows and a fact sheet is attached providing more detail on infrastructure location and activity, as well as a summary of risks and associated management measures.

Activity Overview

Activities: Stybarrow P&A EP Stybarrow Field Deviation EP	<ul style="list-style-type: none">• The P&A of 10 production/injection wells• Removal of the H4 flexible production flowline <p>Proposed leave <i>in situ</i>:</p> <ul style="list-style-type: none">• The disconnectable turret mooring (DTM) anchors. Each anchor is buried, is approximately 6m x 6m x 3m, and weighs 11 tonnes.• Suction gravity bases for the riser holdbacks and water injection manifold. The riser bases embedded in the seabed, and clamps and chains will be removed. Riser bases are 4m in diameter and 7m high.
Petroleum title:	Production Licence WA-32-L
Activity location:	Approximately 53 km north-west of Exmouth, Western Australia
Infrastructure locations:	See attached Stakeholder Information Fact Sheet
Approximate water depth:	Approximately 810-850 m

Stybarrow Plug and Abandonment Environment Plan

Estimate start date:	Earliest P&A start is 2024 calendar year, subject to approvals, MODU and vessel availability, and weather constraints. P&A must be completed no later than 30 September 2024.
Approximate duration:	Approximately 6 months
Vessels:	Semi submersible mobile offshore drilling unit (MODU) (Dynamic positioning) Offshore support vessels, such as general support/supply vessels, construction support vessels/installation vessels. Typically, two (but up to six) project vessels will be in the Operational Area during well P&A and subsea infrastructure removal activities.
Operational area:	A 500 m safety exclusion zone around the wells and a 1,500 m radius temporary Operational Area (precautionary) around the wells and subsea equipment for the duration of the activity.

Your Feedback

Your feedback on the proposed activity and our response will be provided to the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA), as is required under the Commonwealth Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2009.

As a relevant stakeholder you are invited to provide comments. The Environment Plan will contain a summary of all comments received. However, BHP will not use or disclose your personal information in the Environment Plan. Full transcripts of all correspondence will be included in a separate sensitive information part of the Environment Plan provided to NOPSEMA.

Please provide comment as soon as practicable. Comments can be made by email, letter or by phone (refer to attached Fact Sheet for contact details) by close of business on **24 June 2022**.

Regards,

BHP

1.5 Email sent to Department of Biodiversity, Conservation and Attractions (DBCA) (27 May 2022)

INVITATION FOR FEEDBACK | Stybarrow P&A and Decommissioning Environment Plans

BHP PET External Affairs <bhppetexternalaffairs@bhp.com>

Fri 5/27/2022 6:29 AM

To: [REDACTED]

Cc: BHP PET External Affairs <bhppetexternalaffairs@bhp.com>

1 attachments (691 KB)

Fact Sheet - Stybarrow P&A and Decommissioning Environment Plans.pdf;

Dear DBCA

BHP is planning for the next stage of its ongoing safe and sustainable closure of the Stybarrow Field in Commonwealth waters, approximately 53 km north-west of Exmouth, Western Australia.

Production from the Stybarrow Field commenced in 2007 and ceased in 2015. Since that time the following cessation activities have been completed:

- All flowlines and gas lift lines were flushed and filled with treated seawater and production flowlines disconnected (except for an abandoned flowline which was blocked by sand and gas hydrate during production, which is disconnected, sealed and lying on the seabed).
- All production, gas injection and water injection wells were shut in and capped.
- The Stybarrow Venture FPSO was disconnected from the DTM and departed from the field in August 2015.

BHP consulted stakeholders in March 2022 on the first phase of decommissioning, these being activities for the proposed removal of the Stybarrow subsea equipment and ongoing field management activities until the equipment is removed. Feedback from stakeholders was considered in planning the Stybarrow Equipment Removal Environment Plan (EP), which was submitted to National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA) in April 2022 for assessment.

BHP is now seeking stakeholder feedback on well plug and abandonment (P&A) and decommissioning activities, which are proposed to be managed under two separate Environment Plans, these being:

- Stybarrow P&A EP
- Stybarrow Field Deviation EP

A summary of proposed activities to be managed under each EP follows and a fact sheet is attached providing more detail on infrastructure location and activity, as well as a summary of risks and associated management measures.

Activity Overview

Activities: Stybarrow P&A EP Stybarrow Field Deviation EP	<ul style="list-style-type: none">• The P&A of 10 production/injection wells• Removal of the H4 flexible production flowline <p>Proposed leave <i>in situ</i>:</p> <ul style="list-style-type: none">• The disconnectable turret mooring (DTM) anchors. Each anchor is buried, is approximately 6m x 6m x 3m, and weighs 11 tonnes.• Suction gravity bases for the riser holdbacks and water injection manifold. The riser bases embedded in the seabed, and clamps and chains will be removed. Riser bases are 4m in diameter and 7m high.
Petroleum title:	Production Licence WA-32-L
Activity location:	Approximately 53 km north-west of Exmouth, Western Australia
Infrastructure locations:	See attached Stakeholder Information Fact Sheet
Approximate water depth:	Approximately 810-850 m

Stybarrow Plug and Abandonment Environment Plan

Estimate start date:	Earliest P&A start is 2024 calendar year, subject to approvals, MODU and vessel availability, and weather constraints. P&A must be completed no later than 30 September 2024.
Approximate duration:	Approximately 6 months
Vessels:	Semi submersible mobile offshore drilling unit (MODU) (Dynamic positioning) Offshore support vessels, such as general support/supply vessels, construction support vessels/installation vessels. Typically, two (but up to six) project vessels will be in the Operational Area during well P&A and subsea infrastructure removal activities.
Operational area:	A 500 m safety exclusion zone around the wells and a 1,500 m radius temporary Operational Area (precautionary) around the wells and subsea equipment for the duration of the activity.

Your Feedback

Your feedback on the proposed activity and our response will be provided to the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA), as is required under the Commonwealth Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2009.

As a relevant stakeholder you are invited to provide comments. The Environment Plan will contain a summary of all comments received. However, BHP will not use or disclose your personal information in the Environment Plan. Full transcripts of all correspondence will be included in a separate sensitive information part of the Environment Plan provided to NOPSEMA.

Please provide comment as soon as practicable. Comments can be made by email, letter or by phone (refer to attached Fact Sheet for contact details) by close of business on **24 June 2022**.

Regards,

BHP

1.6 Email sent to Department of Mines, Industry Regulation and Safety (DMIRS) (27 May 2022)

INVITATION FOR FEEDBACK | Stybarrow P&A and Decommissioning Environment Plans

BHP PET External Affairs <bhppetexternalaffairs@bhp.com>

Fri 5/27/2022 6:30 AM

To:

Cc: BHP PET External Affairs <bhppetexternalaffairs@bhp.com>

1 attachments (691 KB)

Fact Sheet - Stybarrow P&A and Decommissioning Environment Plans.pdf;

Dear DMIRS

BHP is planning for the next stage of its ongoing safe and sustainable closure of the Stybarrow Field in Commonwealth waters, approximately 53 km north-west of Exmouth, Western Australia.

Production from the Stybarrow Field commenced in 2007 and ceased in 2015. Since that time the following cessation activities have been completed:

- All flowlines and gas lift lines were flushed and filled with treated seawater and production flowlines disconnected (except for an abandoned flowline which was blocked by sand and gas hydrate during production, which is disconnected, sealed and lying on the seabed).
- All production, gas injection and water injection wells were shut in and capped.
- The Stybarrow Venture FPSO was disconnected from the DTM and departed from the field in August 2015.

BHP consulted stakeholders in March 2022 on the first phase of decommissioning, these being activities for the proposed removal of the Stybarrow subsea equipment and ongoing field management activities until the equipment is removed. Feedback from stakeholders was considered in planning the Stybarrow Equipment Removal Environment Plan (EP), which was submitted to National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA) in April 2022 for assessment.

BHP is now seeking stakeholder feedback on well plug and abandonment (P&A) and decommissioning activities, which are proposed to be managed under two separate Environment Plans, these being:

- Stybarrow P&A EP
- Stybarrow Field Deviation EP

A summary of proposed activities to be managed under each EP follows and a fact sheet is attached providing more detail on infrastructure location and activity, as well as a summary of risks and associated management measures.

Activity Overview

Activities: Stybarrow P&A EP Stybarrow Field Deviation EP	<ul style="list-style-type: none"> • The P&A of 10 production/injection wells • Removal of the H4 flexible production flowline Proposed leave <i>in situ</i> : <ul style="list-style-type: none"> • The disconnectable turret mooring (DTM) anchors. Each anchor is buried, is approximately 6m x 6m x 3m, and weighs 11 tonnes. • Suction gravity bases for the riser holdbacks and water injection manifold. The riser bases embedded in the seabed, and clamps and chains will be removed. Riser bases are 4m in diameter and 7m high.
Petroleum title:	Production Licence WA-32-L
Activity location:	Approximately 53 km north-west of Exmouth, Western Australia
Infrastructure locations:	See attached Stakeholder Information Fact Sheet
Approximate water depth:	Approximately 810-850 m

Estimate start date:	Earliest P&A start is 2024 calendar year, subject to approvals, MODU and vessel availability, and weather constraints. P&A must be completed no later than 30 September 2024.
Approximate duration:	Approximately 6 months
Vessels:	Semi submersible mobile offshore drilling unit (MODU) (Dynamic positioning) Offshore support vessels, such as general support/supply vessels, construction support vessels/installation vessels. Typically, two (but up to six) project vessels will be in the Operational Area during well P&A and subsea infrastructure removal activities.
Operational area:	A 500 m safety exclusion zone around the wells and a 1,500 m radius temporary Operational Area (precautionary) around the wells and subsea equipment for the duration of the activity.

Your Feedback

Your feedback on the proposed activity and our response will be provided to the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA), as is required under the Commonwealth Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2009.

As a relevant stakeholder you are invited to provide comments. The Environment Plan will contain a summary of all comments received. However, BHP will not use or disclose your personal information in the Environment Plan. Full transcripts of all correspondence will be included in a separate sensitive information part of the Environment Plan provided to NOPSEMA.

Please provide comment as soon as practicable. Comments can be made by email, letter or by phone (refer to attached Fact Sheet for contact details) by close of business on **24 June 2022**.

Regards,

BHP

1.7 Email sent to Department of Transport (DoT) (27 May 2022)

INVITATION FOR FEEDBACK | Stybarrow P&A and Decommissioning Environment Plans

BHP PET External Affairs <bhppetexternalaffairs@bhp.com>

Fri 5/27/2022 6:41 AM

To:

Cc:BHP PET External Affairs <bhppetexternalaffairs@bhp.com>

📎 1 attachments (691 KB)

Fact Sheet - Stybarrow P&A and Decommissioning Environment Plans.pdf;

Dear DoT

BHP is planning for the next stage of its ongoing safe and sustainable closure of the Stybarrow Field in Commonwealth waters, approximately 53 km north-west of Exmouth, Western Australia.

Production from the Stybarrow Field commenced in 2007 and ceased in 2015. Since that time the following cessation activities have been completed:

- All flowlines and gas lift lines were flushed and filled with treated seawater and production flowlines disconnected (except for an abandoned flowline which was blocked by sand and gas hydrate during production, which is disconnected, sealed and lying on the seabed).
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- The Stybarrow Venture FPSO was disconnected from the DTM and departed from the field in August 2015.

BHP consulted stakeholders in March 2022 on the first phase of decommissioning, these being activities for the proposed removal of the Stybarrow subsea equipment and ongoing field management activities until the equipment is removed. Feedback from stakeholders was considered in planning the Stybarrow Equipment Removal Environment Plan (EP), which was submitted to National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA) in April 2022 for assessment.

BHP is now seeking stakeholder feedback on well plug and abandonment (P&A) and decommissioning activities, which are proposed to be managed under two separate Environment Plans, these being:

- Stybarrow P&A EP
- Stybarrow Field Deviation EP

A summary of proposed activities to be managed under each EP follows and a fact sheet is attached providing more detail on infrastructure location and activity, as well as a summary of risks and associated management measures.

Activity Overview

Activities: Stybarrow P&A EP Stybarrow Field Deviation EP	<ul style="list-style-type: none"> • The P&A of 10 production/injection wells • Removal of the H4 flexible production flowline Proposed leave <i>in situ</i> : <ul style="list-style-type: none"> • The disconnectable turret mooring (DTM) anchors. Each anchor is buried, is approximately 6m x 6m x 3m, and weighs 11 tonnes. • Suction gravity bases for the riser holdbacks and water injection manifold. The riser bases embedded in the seabed, and clamps and chains will be removed. Riser bases are 4m in diameter and 7m high.
Petroleum title:	Production Licence WA-32-L
Activity location:	Approximately 53 km north-west of Exmouth, Western Australia
Infrastructure locations:	See attached Stakeholder Information Fact Sheet
Approximate water depth:	Approximately 810-850 m

Stybarrow Plug and Abandonment Environment Plan

Estimate start date:	Earliest P&A start is 2024 calendar year, subject to approvals, MODU and vessel availability, and weather constraints. P&A must be completed no later than 30 September 2024.
Approximate duration:	Approximately 6 months
Vessels:	Semi submersible mobile offshore drilling unit (MODU) (Dynamic positioning) Offshore support vessels, such as general support/supply vessels, construction support vessels/installation vessels. Typically, two (but up to six) project vessels will be in the Operational Area during well P&A and subsea infrastructure removal activities.
Operational area:	A 500 m safety exclusion zone around the wells and a 1,500 m radius temporary Operational Area (precautionary) around the wells and subsea equipment for the duration of the activity.

Your Feedback

Your feedback on the proposed activity and our response will be provided to the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA), as is required under the Commonwealth Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2009.

As a relevant stakeholder you are invited to provide comments. The Environment Plan will contain a summary of all comments received. However, BHP will not use or disclose your personal information in the Environment Plan. Full transcript of all correspondence will be included in a separate sensitive information part of the Environment Plan provided to NOPSEMA.

Please provide comment as soon as practicable. Comments can be made by email, letter or by phone (refer to attached Fact Sheet for contact details) by close of business on **24 June 2022**.

Regards,

BHP

1.8 Email sent to Western Australian Fishing Industry Council (WAFIC) (27 May 2022)

Stybarrow Plug and Abandonment Environment Plan

From: BHP PET External Affairs <bhppetexternalaffairs@bhp.com>
Sent: Friday, 27 May 2022 3:02 PM
To: [REDACTED]
Cc: BHP PET External Affairs <bhppetexternalaffairs@bhp.com>
Subject: INVITATION FOR FEEDBACK | Stybarrow P&A and Decommissioning Environment Plans

Dear WAFIC

BHP is planning for the next stage of its ongoing safe and sustainable closure of the Stybarrow Field in Commonwealth waters, approximately 53 km north-west of Exmouth, Western Australia.

Production from the Stybarrow Field commenced in 2007 and ceased in 2015. Since that time the following cessation activities have been completed:

- All flowlines and gas lift lines were flushed and filled with treated seawater and production flowlines disconnected (except for an abandoned flowline which was blocked by sand and gas hydrate during production, which is disconnected, sealed and lying on the seabed).
- All production, gas injection and water injection wells were shut in and capped.
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BHP consulted stakeholders in March 2022 on the first phase of decommissioning, these being activities for the proposed removal of the Stybarrow subsea equipment and ongoing field management activities until the equipment is removed. Feedback from stakeholders was considered in planning the Stybarrow Equipment Removal Environment Plan (EP), which was submitted to National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA) in April 2022 for assessment.

BHP is now seeking stakeholder feedback on well plug and abandonment (P&A) and decommissioning activities, which are proposed to be managed under two separate Environment Plans, these being:

- Stybarrow P&A EP
- Stybarrow Field Deviation EP

A summary of proposed activities to be managed under each EP follows and a fact sheet is attached providing more detail on infrastructure location and activity, as well as a summary of risks and associated management measures.

Activity Overview

Activities: Stybarrow P&A EP Stybarrow Field Deviation EP	<ul style="list-style-type: none">• The P&A of 10 production/injection wells• Removal of the H4 flexible production flowline <p>Proposed leave <i>in situ</i>:</p> <ul style="list-style-type: none">• The disconnectable turret mooring (DTM) anchors. Each anchor is buried, is approximately 6m x 6m x 3m, and weighs 11 tonnes.• Suction gravity bases for the riser holdbacks and water injection manifold. The riser bases embedded in the seabed, and clamps and chains will be removed. Riser bases are 4m in diameter and 7m high.
Petroleum title:	Production Licence WA-32-L
Activity location:	Approximately 53 km north-west of Exmouth, Western Australia
Infrastructure locations:	See attached Stakeholder Information Fact Sheet
Approximate water depth:	Approximately 810-850 m
Estimate start date:	Earliest P&A start is 2024 calendar year, subject to approvals, MODU and vessel availability, and weather constraints. P&A must be completed no later than 30 September 2024.
Approximate duration:	Approximately 6 months

Vessels:	Semi submersible mobile offshore drilling unit (MODU) (Dynamic positioning) Offshore support vessels, such as general support/supply vessels, construction support vessels/installation vessels. Typically, two (but up to six) project vessels will be in the Operational Area during well P&A and subsea infrastructure removal activities.
Operational area:	A 500 m safety exclusion zone around the wells and a 1,500 m radius temporary Operational Area (precautionary) around the wells and subsea equipment for the duration of the activity.

Commercial Fishing Overview

Commercial fisheries have been identified as being relevant to the proposed activities on the basis of fishing licence overlap with the proposed Operational (activity) Area, as well as consideration of fishing effort data, fishing methods and water depth.

Commonwealth fisheries

There are four overlapping Commonwealth fisheries, of which the Western Deepwater Trawl Fishery has been identified as relevant based on the identification criteria. BHP will consult representative organisations and licence holders entitled to fish in the Operational Area.

State fisheries

There are six overlapping State fisheries, of which the following fisheries have been identified as being relevant based on the identification criteria. Individual licence holders in these fisheries will be consulted.

- Mackerel Managed Fishery (Area 3)
- West Coast Deep Sea Crustacean Managed Fishery

The following government departments and organisations will also be consulted on behalf of licence holders entitled to fish in the Operational Area:

Commonwealth Fisheries:

- Australian Fisheries Management Authority
- Australian Southern Bluefin Tuna Industry Association on behalf of licence holders in the Southern Bluefin Tuna and Western Skipjack Tuna Fisheries
- Department of Agriculture, Water and the Environment
- Commonwealth Fisheries Association on behalf of licence holders in the Western Deepwater Trawl, Western Tuna and Billfish and Western Skipjack Tuna Fisheries
- Tuna Australia on behalf of licence holders in the Western Tuna and Billfish Fishery

State Fisheries and recreational fishing:

- Department of Primary Industry and Resources
- Western Australian Fishing Industry Council
- Pearl Producers Association
- Recfishwest

Your Feedback

Your feedback on the proposed activity and our response will be provided to the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA), as is required under the Commonwealth Offshore Petroleum and

Stybarrow Plug and Abandonment Environment Plan

Greenhouse Gas Storage (Environment) Regulations 2009.

As a relevant stakeholder you are invited to provide comments. The Environment Plan will contain a summary of all comments received. However, BHP will not use or disclose your personal information in the Environment Plan. Full transcripts of all correspondence will be included in a separate sensitive information part of the Environment Plan provided to NOPSEMA.

Please provide comment as soon as practicable. Comments can be made by email, letter or by phone (refer to attached Fact Sheet for contact details) by close of business on **24 June 2022**.

Regards,

BHP

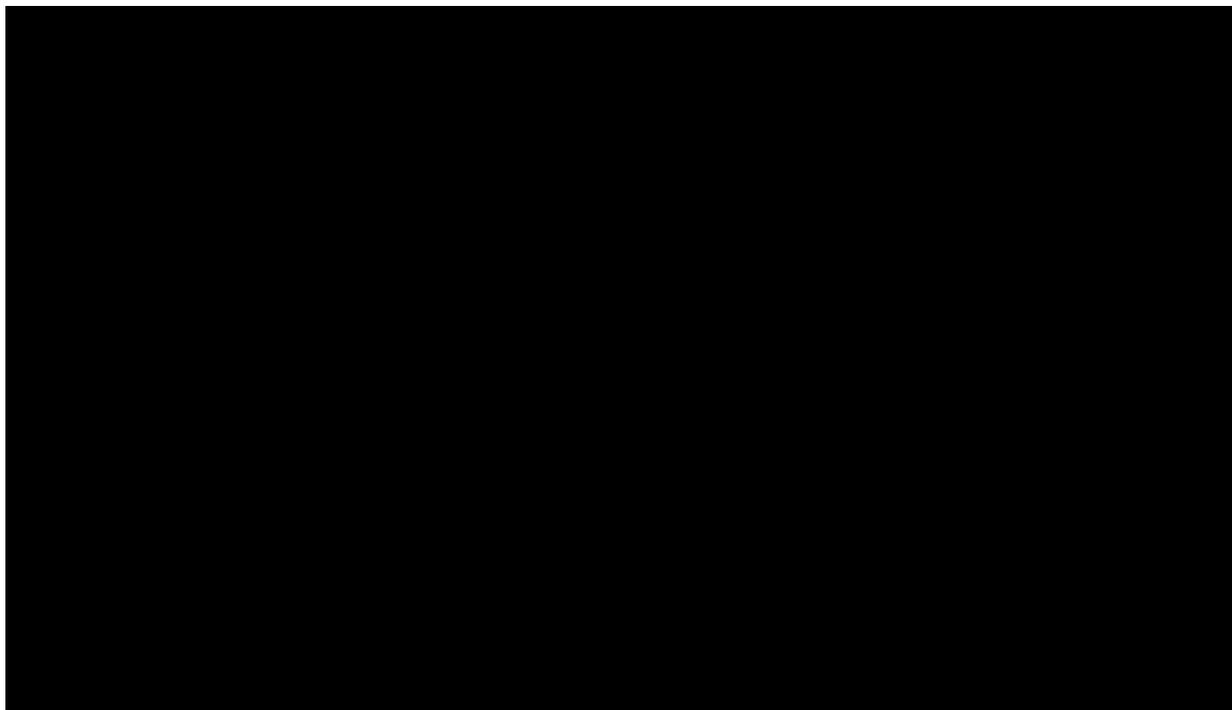
1.9 Email sent to Exmouth Recreational Marine Users (27 May 2022)

INVITATION FOR FEEDBACK | Stybarrow P&A and Decommissioning Environment Plans

BHP PET External Affairs <bhppetexternalaffairs@petroleumdeepwater.com>

Fri 5/27/2022 7:26 AM

Cc:BHP PET External Affairs <bhppetexternalaffairs@petroleumdeepwater.com>



 1 attachments (691 KB)

Fact Sheet - Stybarrow P&A and Decommissioning Environment Plans.pdf;

Dear tourism/charter operator

BHP is planning for the next stage of its ongoing safe and sustainable closure of the Stybarrow Field in Commonwealth waters, approximately 53 km north-west of Exmouth, Western Australia.

Production from the Stybarrow Field commenced in 2007 and ceased in 2015. Since that time the following cessation activities have been completed:

- All flowlines and gas lift lines were flushed and filled with treated seawater and production flowlines disconnected (except for an abandoned flowline which was blocked by sand and gas hydrate during production, which is disconnected sealed and lying on the seabed).
- All production, gas injection and water injection wells were shut in and capped.
- The Stybarrow Venture FPSO was disconnected from the DTM and departed from the field in August 2015.

BHP consulted stakeholders in March 2022 on the first phase of decommissioning, these being activities for the proposed removal of the Stybarrow subsea equipment and ongoing field management activities until the equipment is removed. Feedback from stakeholders was considered in planning the Stybarrow Equipment Removal Environment Plan (EP), which was submitted to National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA) in April 2022 for assessment.

BHP is now seeking stakeholder feedback on well plug and abandonment (P&A) and decommissioning activities, which are proposed to be managed under two separate Environment Plans, these being:

- Stybarrow P&A EP
- Stybarrow Field Deviation EP

Stybarrow Plug and Abandonment Environment Plan

A summary of proposed activities to be managed under each EP follows and a fact sheet is attached providing more detail on infrastructure location and activity, as well as a summary of risks and associated management measures.

Activity Overview

Activities: Stybarrow P&A EP Stybarrow Field Deviation EP	<ul style="list-style-type: none">The P&A of 10 production/injection wellsRemoval of the H4 flexible production flowline <p>Proposed leave <i>in situ</i>:</p> <ul style="list-style-type: none">The disconnectable turret mooring (DTM) anchors. Each anchor is buried, is approximately 6m x 6m x 3m, and weighs 11 tonnes.Suction gravity bases for the riser holdbacks and water injection manifold. The riser bases embedded in the seabed, and clamps and chains will be removed. Riser bases are 4m in diameter and 7m high.
Petroleum title:	Production Licence WA-32-L
Activity location:	Approximately 53 km north-west of Exmouth, Western Australia
Infrastructure locations:	See attached Stakeholder Information Fact Sheet
Approximate water depth:	Approximately 810-850 m
Estimate start date:	Earliest P&A start is 2024 calendar year, subject to approvals, MODU and vessel availability, and weather constraints. P&A must be completed no later than 30 September 2024.
Approximate duration:	Approximately 6 months
Vessels:	Semi submersible mobile offshore drilling unit (MODU) (Dynamic positioning) Offshore support vessels, such as general support/supply vessels, construction support vessels/installation vessels. Typically, two (but up to six) project vessels will be in the Operational Area during well P&A and subsea infrastructure removal activities.
Operational area:	A 500 m safety exclusion zone around the wells and a 1,500 m radius temporary Operational Area (precautionary) around the wells and subsea equipment for the duration of the activity.

Your Feedback

Your feedback on the proposed activity and our response will be provided to the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA), as is required under the Commonwealth Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2009.

As a relevant stakeholder you are invited to provide comments. The Environment Plan will contain a summary of all comments received. However, BHP will not use or disclose your personal information in the Environment Plan. Full transcripts of all correspondence will be included in a separate sensitive information part of the Environment Plan provided to NOPSEMA.

Please provide comment as soon as practicable. Comments can be made by email, letter or by phone (refer to attached Fact Sheet for contact details) by close of business on **24 June 2022**.

Regards,

BHP

Stybarrow Plug and Abandonment Environment Plan

1.9.1 Email sent to Exmouth Game Fishing Club (27 May 2022)

INVITATION FOR FEEDBACK | Stybarrow P&A and Decommissioning Environment Plans

BHP PET External Affairs <bhppetexternalaffairs@bhp.com>

Fri 5/27/2022 7:29 AM

Cc:BHP PET External Affairs <bhppetexternalaffairs@bhp.com>

1 attachments (691 KB)

Fact Sheet - Stybarrow P&A and Decommissioning Environment Plans.pdf;

Dear Exmouth Game Fishing Club

BHP is planning for the next stage of its ongoing safe and sustainable closure of the Stybarrow Field in Commonwealth waters, approximately 53 km north-west of Exmouth, Western Australia.

Production from the Stybarrow Field commenced in 2007 and ceased in 2015. Since that time the following cessation activities have been completed:

- All flowlines and gas lift lines were flushed and filled with treated seawater and production flowlines disconnected (except for an abandoned flowline which was blocked by sand and gas hydrate during production, which is disconnected, sealed and lying on the seabed).
- All production, gas injection and water injection wells were shut in and capped.
- The Stybarrow Venture FPSO was disconnected from the DTM and departed from the field in August 2015.

BHP consulted stakeholders in March 2022 on the first phase of decommissioning, these being activities for the proposed removal of the Stybarrow subsea equipment and ongoing field management activities until the equipment is removed. Feedback from stakeholders was considered in planning the Stybarrow Equipment Removal Environment Plan (EP), which was submitted to National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA) in April 2022 for assessment.

BHP is now seeking stakeholder feedback on well plug and abandonment (P&A) and decommissioning activities, which are proposed to be managed under two separate Environment Plans, these being:

- Stybarrow P&A EP
- Stybarrow Field Deviation EP

A summary of proposed activities to be managed under each EP follows and a fact sheet is attached providing more detail on infrastructure location and activity, as well as a summary of risks and associated management measures.

Activity Overview

Activities: Stybarrow P&A EP Stybarrow Field Deviation EP	<ul style="list-style-type: none">• The P&A of 10 production/injection wells• Removal of the H4 flexible production flowline <p>Proposed leave <i>in situ</i>:</p> <ul style="list-style-type: none">• The disconnectable turret mooring (DTM) anchors. Each anchor is buried, is approximately 6m x 6m x 3m, and weighs 11 tonnes.• Suction gravity bases for the riser holdbacks and water injection manifold. The riser bases embedded in the seabed, and clamps and chains will be removed. Riser bases are 4m in diameter and 7m high.
Petroleum title:	Production Licence WA-32-L
Activity location:	Approximately 53 km north-west of Exmouth, Western Australia
Infrastructure locations:	See attached Stakeholder Information Fact Sheet
Approximate water depth:	Approximately 810-850 m

Stybarrow Plug and Abandonment Environment Plan

Estimate start date:	Earliest P&A start is 2024 calendar year, subject to approvals, MODU and vessel availability, and weather constraints. P&A must be completed no later than 30 September 2024.
Approximate duration:	Approximately 6 months
Vessels:	Semi submersible mobile offshore drilling unit (MODU) (Dynamic positioning) Offshore support vessels, such as general support/supply vessels, construction support vessels/installation vessels. Typically, two (but up to six) project vessels will be in the Operational Area during well P&A and subsea infrastructure removal activities.
Operational area:	A 500 m safety exclusion zone around the wells and a 1,500 m radius temporary Operational Area (precautionary) around the wells and subsea equipment for the duration of the activity.

Your Feedback

Your feedback on the proposed activity and our response will be provided to the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA), as is required under the Commonwealth Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2009.

As a relevant stakeholder you are invited to provide comments. The Environment Plan will contain a summary of all comments received. However, BHP will not use or disclose your personal information in the Environment Plan. Full transcripts of all correspondence will be included in a separate sensitive information part of the Environment Plan provided to NOPSEMA.

Please provide comment as soon as practicable. Comments can be made by email, letter or by phone (refer to attached Fact Sheet for contact details) by close of business on **24 June 2022**.

Regards,

BHP

1.10 Email sent to Department of Agriculture, Water and the Environment (DAWE) (27 May 2022)

INVITATION FOR FEEDBACK | Stybarrow P&A and Decommissioning Environment Plans

BHP PET External Affairs <bhppetexternalaffairs@bhp.com>

Fri 5/27/2022 6:22 AM

To:

Cc:BHP PET External Affairs <bhppetexternalaffairs@bhp.com>

1 attachments (691 KB)

Fact Sheet - Stybarrow P&A and Decommissioning Environment Plans.pdf;

Dear stakeholder

BHP is planning for the next stage of its ongoing safe and sustainable closure of the Stybarrow Field in Commonwealth waters, approximately 53 km north-west of Exmouth, Western Australia.

Production from the Stybarrow Field commenced in 2007 and ceased in 2015. Since that time the following cessation activities have been completed:

- All flowlines and gas lift lines were flushed and filled with treated seawater and production flowlines disconnected (except for an abandoned flowline which was blocked by sand and gas hydrate during production, which is disconnected, sealed and lying on the seabed).
- All production, gas injection and water injection wells were shut in and capped.
- The Stybarrow Venture FPSO was disconnected from the DTM and departed from the field in August 2015.

BHP consulted stakeholders in March 2022 on the first phase of decommissioning, these being activities for the proposed removal of the Stybarrow subsea equipment and ongoing field management activities until the equipment is removed. Feedback from stakeholders was considered in planning the Stybarrow Equipment Removal Environment Plan (EP), which was submitted to National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA) in April 2022 for assessment.

BHP is now seeking stakeholder feedback on well plug and abandonment (P&A) and decommissioning activities, which are proposed to be managed under two separate Environment Plans, these being:

- Stybarrow P&A EP
- Stybarrow Field Deviation EP

A summary of proposed activities to be managed under each EP follows and a fact sheet is attached providing more detail on infrastructure location and activity, as well as a summary of risks and associated management measures.

Activity Overview

Activities: Stybarrow P&A EP Stybarrow Field Deviation EP	<ul style="list-style-type: none">• The P&A of 10 production/injection wells• Removal of the H4 flexible production flowline <p>Proposed leave <i>in situ</i>:</p> <ul style="list-style-type: none">• The disconnectable turret mooring (DTM) anchors. Each anchor is buried, is approximately 6m x 6m x 3m, and weighs 11 tonnes.• Suction gravity bases for the riser holdbacks and water injection manifold. The riser bases embedded in the seabed, and clamps and chains will be removed. Riser bases are 4m in diameter and 7m high.
Petroleum title:	Production Licence WA-32-L

Stybarrow Plug and Abandonment Environment Plan

Activity location:	Approximately 53 km north-west of Exmouth, Western Australia
Infrastructure locations:	See attached Stakeholder Information Fact Sheet
Approximate water depth:	Approximately 810-850 m
Estimate start date:	Earliest P&A start is 2024 calendar year, subject to approvals, MODU and vessel availability, and weather constraints. P&A must be completed no later than 30 September 2024.
Approximate duration:	Approximately 6 months
Vessels:	Semi submersible mobile offshore drilling unit (MODU) (Dynamic positioning) Offshore support vessels, such as general support/supply vessels, construction support vessels/installation vessels. Typically, two (but up to six) project vessels will be in the Operational Area during well P&A and subsea infrastructure removal activities.
Operational area:	A 500 m safety exclusion zone around the wells and a 1,500 m radius temporary Operational Area (precautionary) around the wells and subsea equipment for the duration of the activity.

Commercial Fishing Overview

Stybarrow Plug and Abandonment Environment Plan

Commercial fisheries have been identified as being relevant to the proposed activities on the basis of fishing licence overlap with the proposed Operational (activity) Area, as well as consideration of fishing effort data, fishing methods and water depth.

Commonwealth fisheries

There are four overlapping Commonwealth fisheries, of which the Western Deepwater Trawl Fishery has been identified as relevant based on the identification criteria. BHP will consult representative organisations and licence holders entitled to fish in the Operational Area.

State fisheries

There are six overlapping State fisheries, of which the following fisheries have been identified as being relevant based on the identification criteria. Individual licence holders in these fisheries will be consulted.

- Mackerel Managed Fishery (Area 3)
- West Coast Deep Sea Crustacean Managed Fishery

The following government departments and organisations will also be consulted on behalf of licence holders entitled to fish in the Operational Area:

Commonwealth Fisheries:

- Australian Fisheries Management Authority
- Australian Southern Bluefin Tuna Industry Association on behalf of licence holders in the Southern Bluefin Tuna and Western Skipjack Tuna Fisheries
- Department of Agriculture, Water and the Environment
- Commonwealth Fisheries Association on behalf of licence holders in the Western Deepwater Trawl, Western Tuna and Billfish and Western Skipjack Tuna Fisheries
- Tuna Australia on behalf of licence holders in the Western Tuna and Billfish Fishery

State Fisheries and recreational fishing:

- Department of Primary Industry and Resources
- Western Australian Fishing Industry Council
- Pearl Producers Association
- Recfishwest

Your Feedback

Your feedback on the proposed activity and our response will be provided to the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA), as is required under the Commonwealth Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2009.

As a relevant stakeholder you are invited to provide comments. The Environment Plan will contain a summary of all comments received. However, BHP will not use or disclose your personal information in the Environment Plan. Full transcripts of all correspondence will be included in a separate sensitive information part of the Environment Plan provided to NOPSEMA.

Please provide comment as soon as practicable. Comments can be made by email, letter or by phone (refer to attached Fact Sheet for contact details) by close of business on **24 June 2022**.

Regards,

BHP

1.11 Email sent to Department of Defence (DoD) (27 May 2022)

INVITATION FOR FEEDBACK | Stybarrow P&A and Decommissioning Environment Plans

BHP PET External Affairs <bhppetexternalaffairs@bhp.com>

Fri 5/27/2022 6:23 AM

To: [REDACTED]

Cc: BHP PET External Affairs <bhppetexternalaffairs@bhp.com>

1 attachments (691 KB)

Fact Sheet - Stybarrow P&A and Decommissioning Environment Plans.pdf;

Dear Department of Defence

BHP is planning for the next stage of its ongoing safe and sustainable closure of the Stybarrow Field in Commonwealth waters, approximately 53 km north-west of Exmouth, Western Australia.

Production from the Stybarrow Field commenced in 2007 and ceased in 2015. Since that time the following cessation activities have been completed:

- All flowlines and gas lift lines were flushed and filled with treated seawater and production flowlines disconnected (except for an abandoned flowline which was blocked by sand and gas hydrate during production, which is disconnected, sealed and lying on the seabed).
- All production, gas injection and water injection wells were shut in and capped.
- The Stybarrow Venture FPSO was disconnected from the DTM and departed from the field in August 2015.

BHP consulted stakeholders in March 2022 on the first phase of decommissioning, these being activities for the proposed removal of the Stybarrow subsea equipment and ongoing field management activities until the equipment is removed. Feedback from stakeholders was considered in planning the Stybarrow Equipment Removal Environment Plan (EP), which was submitted to National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA) in April 2022 for assessment.

BHP is now seeking stakeholder feedback on well plug and abandonment (P&A) and decommissioning activities, which are proposed to be managed under two separate Environment Plans, these being:

- Stybarrow P&A EP
- Stybarrow Field Deviation EP

A summary of proposed activities to be managed under each EP follows and a fact sheet is attached providing more detail on infrastructure location and activity, as well as a summary of risks and associated management measures.

Activity Overview

Activities: Stybarrow P&A EP Stybarrow Field Deviation EP	<ul style="list-style-type: none">• The P&A of 10 production/injection wells• Removal of the H4 flexible production flowline <p>Proposed leave <i>in situ</i>:</p> <ul style="list-style-type: none">• The disconnectable turret mooring (DTM) anchors. Each anchor is buried, is approximately 6m x 6m x 3m, and weighs 11 tonnes.• Suction gravity bases for the riser holdbacks and water injection manifold. The riser bases embedded in the seabed, and clamps and chains will be removed. Riser bases are 4m in diameter and 7m high.
Petroleum title:	Production Licence WA-32-L
Activity location:	Approximately 53 km north-west of Exmouth, Western Australia
Infrastructure locations:	See attached Stakeholder Information Fact Sheet
Approximate water depth:	Approximately 810-850 m

Stybarrow Plug and Abandonment Environment Plan

Estimate start date:	Earliest P&A start is 2024 calendar year, subject to approvals, MODU and vessel availability, and weather constraints. P&A must be completed no later than 30 September 2024.
Approximate duration:	Approximately 6 months
Vessels:	Semi submersible mobile offshore drilling unit (MODU) (Dynamic positioning) Offshore support vessels, such as general support/supply vessels, construction support vessels/installation vessels. Typically, two (but up to six) project vessels will be in the Operational Area during well P&A and subsea infrastructure removal activities.
Operational area:	A 500 m safety exclusion zone around the wells and a 1,500 m radius temporary Operational Area (precautionary) around the wells and subsea equipment for the duration of the activity.

Your Feedback

Your feedback on the proposed activity and our response will be provided to the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA), as is required under the Commonwealth Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2009.

As a relevant stakeholder you are invited to provide comments. The Environment Plan will contain a summary of all comments received. However, BHP will not use or disclose your personal information in the Environment Plan. Full transcripts of all correspondence will be included in a separate sensitive information part of the Environment Plan provided to NOPSEMA.

Please provide comment as soon as practicable. Comments can be made by email, letter or by phone (refer to attached Fact Sheet for contact details) by close of business on **24 June 2022**.

Regards,

BHP

1.12 Email sent to Department of Primary Industries and Regional Development (DPIRD) (27 May 2022)

INVITATION FOR FEEDBACK | Stybarrow P&A and Decommissioning Environment Plans

BHP PET External Affairs <bhppetexternalaffairs@bhp.com>

Fri 5/27/2022 6:39 AM

Cc:BHP PET External Affairs <bhppetexternalaffairs@bhp.com>

📎 1 attachments (691 KB)

Fact Sheet - Stybarrow P&A and Decommissioning Environment Plans.pdf;

Dear DPIRD

BHP is planning for the next stage of its ongoing safe and sustainable closure of the Stybarrow Field in Commonwealth waters, approximately 53 km north-west of Exmouth, Western Australia.

Production from the Stybarrow Field commenced in 2007 and ceased in 2015. Since that time the following cessation activities have been completed:

- All flowlines and gas lift lines were flushed and filled with treated seawater and production flowlines disconnected (except for an abandoned flowline which was blocked by sand and gas hydrate during production, which is disconnected, sealed and lying on the seabed).
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- The Stybarrow Venture FPSO was disconnected from the DTM and departed from the field in August 2015.

BHP consulted stakeholders in March 2022 on the first phase of decommissioning, these being activities for the proposed removal of the Stybarrow subsea equipment and ongoing field management activities until the equipment is removed. Feedback from stakeholders was considered in planning the Stybarrow Equipment Removal Environment Plan (EP), which was submitted to National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA) in April 2022 for assessment.

BHP is now seeking stakeholder feedback on well plug and abandonment (P&A) and decommissioning activities, which are proposed to be managed under two separate Environment Plans, these being:

- Stybarrow P&A EP
- Stybarrow Field Deviation EP

A summary of proposed activities to be managed under each EP follows and a fact sheet is attached providing more detail on infrastructure location and activity, as well as a summary of risks and associated management measures.

Activity Overview

<p>Activities:</p> <p>Stybarrow P&A EP</p> <p>Stybarrow Field Deviation EP</p>	<ul style="list-style-type: none"> • The P&A of 10 production/injection wells • Removal of the H4 flexible production flowline <p>Proposed leave <i>in situ</i>:</p> <ul style="list-style-type: none"> • The disconnectable turret mooring (DTM) anchors. Each anchor is buried, is approximately 6m x 6m x 3m, and weighs 11 tonnes. • Suction gravity bases for the riser holdbacks and water injection manifold. The riser bases embedded in the seabed, and clamps and chains will be removed. Riser bases are 4m in diameter and 7m high.
<p>Petroleum title:</p>	<p>Production Licence WA-32-L</p>
<p>Activity location:</p>	<p>Approximately 53 km north-west of Exmouth, Western Australia</p>
<p>Infrastructure locations:</p>	<p>See attached Stakeholder Information Fact Sheet</p>
<p>Approximate water depth:</p>	<p>Approximately 810-850 m</p>

Stybarrow Plug and Abandonment Environment Plan

Estimate start date:	Earliest P&A start is 2024 calendar year, subject to approvals, MODU and vessel availability, and weather constraints. P&A must be completed no later than 30 September 2024.
Approximate duration:	Approximately 6 months
Vessels:	Semi submersible mobile offshore drilling unit (MODU) (Dynamic positioning) Offshore support vessels, such as general support/supply vessels, construction support vessels/installation vessels. Typically, two (but up to six) project vessels will be in the Operational Area during well P&A and subsea infrastructure removal activities.
Operational area:	A 500 m safety exclusion zone around the wells and a 1,500 m radius temporary Operational Area (precautionary) around the wells and subsea equipment for the duration of the activity.

Commercial Fishing Overview

Stybarrow Plug and Abandonment Environment Plan

Commercial fisheries have been identified as being relevant to the proposed activities on the basis of fishing licence overlap with the proposed Operational (activity) Area, as well as consideration of fishing effort data, fishing methods and water depth.

Commonwealth fisheries

There are four overlapping Commonwealth fisheries, of which the Western Deepwater Trawl Fishery has been identified as relevant based on the identification criteria. BHP will consult representative organisations and licence holders entitled to fish in the Operational Area.

State fisheries

There are six overlapping State fisheries, of which the following fisheries have been identified as being relevant based on the identification criteria. Individual licence holders in these fisheries will be consulted.

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- West Coast Deep Sea Crustacean Managed Fishery

The following government departments and organisations will also be consulted on behalf of licence holders entitled to fish in the Operational Area:

Commonwealth Fisheries:

- Australian Fisheries Management Authority
- Australian Southern Bluefin Tuna Industry Association on behalf of licence holders in the Southern Bluefin Tuna and Western Skipjack Tuna Fisheries
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- Tuna Australia on behalf of licence holders in the Western Tuna and Billfish Fishery

State Fisheries and recreational fishing:

- Department of Primary Industry and Resources
- Western Australian Fishing Industry Council
- Pearl Producers Association
- Recfishwest

Your Feedback

Your feedback on the proposed activity and our response will be provided to the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA), as is required under the Commonwealth Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2009.

As a relevant stakeholder you are invited to provide comments. The Environment Plan will contain a summary of all comments received. However, BHP will not use or disclose your personal information in the Environment Plan. Full transcripts of all correspondence will be included in a separate sensitive information part of the Environment Plan provided to NOPSEMA.

Please provide comment as soon as practicable. Comments can be made by email, letter or by phone (refer to attached Fact Sheet for contact details) by close of business on **24 June 2022**.

Regards,

BHP

Stybarrow Plug and Abandonment Environment Plan

- 1.13 Email sent to Department of Industry, Science, Energy and Resources (DISER) (27 May 2022)**

INVITATION FOR FEEDBACK | Stybarrow P&A and Decommissioning Environment Plans

BHP PET External Affairs <bhppetexternalaffairs@bhp.com>

Fri 5/27/2022 6:25 AM

To:

Cc: BHP PET External Affairs <bhppetexternalaffairs@bhp.com>

📎 1 attachments (691 KB)

Fact Sheet - Stybarrow P&A and Decommissioning Environment Plans.pdf;

Dear DISER

BHP is planning for the next stage of its ongoing safe and sustainable closure of the Stybarrow Field in Commonwealth waters, approximately 53 km north-west of Exmouth, Western Australia.

Production from the Stybarrow Field commenced in 2007 and ceased in 2015. Since that time the following cessation activities have been completed:

- All flowlines and gas lift lines were flushed and filled with treated seawater and production flowlines disconnected (except for an abandoned flowline which was blocked by sand and gas hydrate during production, which is disconnected, sealed and lying on the seabed).
- All production, gas injection and water injection wells were shut in and capped.
- The Stybarrow Venture FPSO was disconnected from the DTM and departed from the field in August 2015.

BHP consulted stakeholders in March 2022 on the first phase of decommissioning, these being activities for the proposed removal of the Stybarrow subsea equipment and ongoing field management activities until the equipment is removed. Feedback from stakeholders was considered in planning the Stybarrow Equipment Removal Environment Plan (EP), which was submitted to National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA) in April 2022 for assessment.

BHP is now seeking stakeholder feedback on well plug and abandonment (P&A) and decommissioning activities, which are proposed to be managed under two separate Environment Plans, these being:

- Stybarrow P&A EP
- Stybarrow Field Deviation EP

A summary of proposed activities to be managed under each EP follows and a fact sheet is attached providing more detail on infrastructure location and activity, as well as a summary of risks and associated management measures.

Activity Overview

Activities: Stybarrow P&A EP Stybarrow Field Deviation EP	<ul style="list-style-type: none"> • The P&A of 10 production/injection wells • Removal of the H4 flexible production flowline Proposed leave <i>in situ</i> : <ul style="list-style-type: none"> • The disconnectable turret mooring (DTM) anchors. Each anchor is buried, is approximately 6m x 6m x 3m, and weighs 11 tonnes. • Suction gravity bases for the riser holdbacks and water injection manifold. The riser bases embedded in the seabed, and clamps and chains will be removed. Riser bases are 4m in diameter and 7m high.
Petroleum title:	Production Licence WA-32-L
Activity location:	Approximately 53 km north-west of Exmouth, Western Australia
Infrastructure locations:	See attached Stakeholder Information Fact Sheet
Approximate water depth:	Approximately 810-850 m

Stybarrow Plug and Abandonment Environment Plan

Estimate start date:	Earliest P&A start is 2024 calendar year, subject to approvals, MODU and vessel availability, and weather constraints. P&A must be completed no later than 30 September 2024.
Approximate duration:	Approximately 6 months
Vessels:	Semi submersible mobile offshore drilling unit (MODU) (Dynamic positioning) Offshore support vessels, such as general support/supply vessels, construction support vessels/installation vessels. Typically, two (but up to six) project vessels will be in the Operational Area during well P&A and subsea infrastructure removal activities.
Operational area:	A 500 m safety exclusion zone around the wells and a 1,500 m radius temporary Operational Area (precautionary) around the wells and subsea equipment for the duration of the activity.

Your Feedback

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Please provide comment as soon as practicable. Comments can be made by email, letter or by phone (refer to attached Fact Sheet for contact details) by close of business on **24 June 2022**.

Regards,

BHP

1.14 Email sent to Recfishwest (27 May 2022)

INVITATION FOR FEEDBACK | Stybarrow P&A and Decommissioning Environment Plans

BHP PET External Affairs <bhppetexternalaffairs@bhp.com>

Fri 5/27/2022 7:04 AM

Cc:BHP PET External Affairs <bhppetexternalaffairs@bhp.com>

📎 1 attachments (691 KB)

Fact Sheet - Stybarrow P&A and Decommissioning Environment Plans.pdf;

Dear Recfishwest

BHP is planning for the next stage of its ongoing safe and sustainable closure of the Stybarrow Field in Commonwealth waters, approximately 53 km north-west of Exmouth, Western Australia.

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- All production, gas injection and water injection wells were shut in and capped.
- The Stybarrow Venture FPSO was disconnected from the DTM and departed from the field in August 2015.

BHP consulted stakeholders in March 2022 on the first phase of decommissioning, these being activities for the proposed removal of the Stybarrow subsea equipment and ongoing field management activities until the equipment is removed. Feedback from stakeholders was considered in planning the Stybarrow Equipment Removal Environment Plan (EP), which was submitted to National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA) in April 2022 for assessment.

BHP is now seeking stakeholder feedback on well plug and abandonment (P&A) and decommissioning activities, which are proposed to be managed under two separate Environment Plans, these being:

- Stybarrow P&A EP
- Stybarrow Field Deviation EP

A summary of proposed activities to be managed under each EP follows and a fact sheet is attached providing more detail on infrastructure location and activity, as well as a summary of risks and associated management measures.

Activity Overview

Activities: Stybarrow P&A EP Stybarrow Field Deviation EP	<ul style="list-style-type: none">• The P&A of 10 production/injection wells• Removal of the H4 flexible production flowline <p>Proposed leave <i>in situ</i>:</p> <ul style="list-style-type: none">• The disconnectable turret mooring (DTM) anchors. Each anchor is buried, is approximately 6m x 6m x 3m, and weighs 11 tonnes.• Suction gravity bases for the riser holdbacks and water injection manifold. The riser bases embedded in the seabed, and clamps and chains will be removed. Riser bases are 4m in diameter and 7m high.
Petroleum title:	Production Licence WA-32-L
Activity location:	Approximately 53 km north-west of Exmouth, Western Australia
Infrastructure locations:	See attached Stakeholder Information Fact Sheet
Approximate water depth:	Approximately 810-850 m

Stybarrow Plug and Abandonment Environment Plan

Estimate start date:	Earliest P&A start is 2024 calendar year, subject to approvals, MODU and vessel availability, and weather constraints. P&A must be completed no later than 30 September 2024.
Approximate duration:	Approximately 6 months
Vessels:	Semi submersible mobile offshore drilling unit (MODU) (Dynamic positioning) Offshore support vessels, such as general support/supply vessels, construction support vessels/installation vessels. Typically, two (but up to six) project vessels will be in the Operational Area during well P&A and subsea infrastructure removal activities.
Operational area:	A 500 m safety exclusion zone around the wells and a 1,500 m radius temporary Operational Area (precautionary) around the wells and subsea equipment for the duration of the activity.

Your Feedback

Your feedback on the proposed activity and our response will be provided to the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA), as is required under the Commonwealth Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2009.

As a relevant stakeholder you are invited to provide comments. The Environment Plan will contain a summary of all comments received. However, BHP will not use or disclose your personal information in the Environment Plan. Full transcripts of all correspondence will be included in a separate sensitive information part of the Environment Plan provided to NOPSEMA.

Please provide comment as soon as practicable. Comments can be made by email, letter or by phone (refer to attached Fact Sheet for contact details) by close of business on **24 June 2022**.

Regards,

BHP

1.15 Email sent to Marine Tourism WA (27 May 2022)

INVITATION FOR FEEDBACK | Stybarrow P&A and Decommissioning Environment Plans

BHP PET External Affairs <bhppetexternalaffairs@bhp.com>

Fri 5/27/2022 7:05 AM

To:

Cc: BHP PET External Affairs <bhppetexternalaffairs@bhp.com>

1 attachments (691 KB)

Fact Sheet - Stybarrow P&A and Decommissioning Environment Plans.pdf

Dear MTWA

BHP is planning for the next stage of its ongoing safe and sustainable closure of the Stybarrow Field in Commonwealth waters, approximately 53 km north-west of Exmouth, Western Australia.

Production from the Stybarrow Field commenced in 2007 and ceased in 2015. Since that time the following cessation activities have been completed:

- All flowlines and gas lift lines were flushed and filled with treated seawater and production flowlines disconnected (except for an abandoned flowline which was blocked by sand and gas hydrate during production, which is disconnected, sealed and lying on the seabed).
- All production, gas injection and water injection wells were shut in and capped.
- The Stybarrow Venture FPSO was disconnected from the DTM and departed from the field in August 2015.

BHP consulted stakeholders in March 2022 on the first phase of decommissioning, these being activities for the proposed removal of the Stybarrow subsea equipment and ongoing field management activities until the equipment is removed. Feedback from stakeholders was considered in planning the Stybarrow Equipment Removal Environment Plan (EP), which was submitted to National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA) in April 2022 for assessment.

BHP is now seeking stakeholder feedback on well plug and abandonment (P&A) and decommissioning activities, which are proposed to be managed under two separate Environment Plans, these being:

- Stybarrow P&A EP
- Stybarrow Field Deviation EP

A summary of proposed activities to be managed under each EP follows and a fact sheet is attached providing more detail on infrastructure location and activity, as well as a summary of risks and associated management measures.

Activity Overview

Activities: Stybarrow P&A EP Stybarrow Field Deviation EP	<ul style="list-style-type: none"> • The P&A of 10 production/injection wells • Removal of the H4 flexible production flowline Proposed leave <i>in situ</i> : <ul style="list-style-type: none"> • The disconnectable turret mooring (DTM) anchors. Each anchor is buried, is approximately 6m x 6m x 3m, and weighs 11 tonnes. • Suction gravity bases for the riser holdbacks and water injection manifold. The riser bases embedded in the seabed, and clamps and chains will be removed. Riser bases are 4m in diameter and 7m high.
Petroleum title:	Production Licence WA-32-L
Activity location:	Approximately 53 km north-west of Exmouth, Western Australia
Infrastructure locations:	See attached Stakeholder Information Fact Sheet
Approximate water depth:	Approximately 810-850 m

Estimate start date:	Earliest P&A start is 2024 calendar year, subject to approvals, MODU and vessel availability, and weather constraints. P&A must be completed no later than 30 September 2024.
Approximate duration:	Approximately 6 months
Vessels:	Semi submersible mobile offshore drilling unit (MODU) (Dynamic positioning) Offshore support vessels, such as general support/supply vessels, construction support vessels/installation vessels. Typically, two (but up to six) project vessels will be in the Operational Area during well P&A and subsea infrastructure removal activities.
Operational area:	A 500 m safety exclusion zone around the wells and a 1,500 m radius temporary Operational Area (precautionary) around the wells and subsea equipment for the duration of the activity.

Your Feedback

Your feedback on the proposed activity and our response will be provided to the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA), as is required under the Commonwealth Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2009.

As a relevant stakeholder you are invited to provide comments. The Environment Plan will contain a summary of all comments received. However, BHP will not use or disclose your personal information in the Environment Plan. Full transcripts of all correspondence will be included in a separate sensitive information part of the Environment Plan provided to NOPSEMA.

Please provide comment as soon as practicable. Comments can be made by email, letter or by phone (refer to attached Fact Sheet for contact details) by close of business on **24 June 2022**.

Regards,

BHP

1.16 Email sent to APPEA (27 May 2022)

INVITATION FOR FEEDBACK | Stybarrow P&A and Decommissioning Environment Plans

BHP PET External Affairs <bhppetexternalaffairs@bhp.com>

Fri 5/27/2022 6:57 AM

To:

Cc:BHP PET External Affairs <bhppetexternalaffairs@bhp.com>

📎 1 attachments (691 KB)

Fact Sheet - Stybarrow P&A and Decommissioning Environment Plans.pdf;

Dear APPEA

BHP is planning for the next stage of its ongoing safe and sustainable closure of the Stybarrow Field in Commonwealth waters, approximately 53 km north-west of Exmouth, Western Australia.

Production from the Stybarrow Field commenced in 2007 and ceased in 2015. Since that time the following cessation activities have been completed:

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- All production, gas injection and water injection wells were shut in and capped.
- The Stybarrow Venture FPSO was disconnected from the DTM and departed from the field in August 2015.

BHP consulted stakeholders in March 2022 on the first phase of decommissioning, these being activities for the proposed removal of the Stybarrow subsea equipment and ongoing field management activities until the equipment is removed. Feedback from stakeholders was considered in planning the Stybarrow Equipment Removal Environment Plan (EP), which was submitted to National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA) in April 2022 for assessment.

BHP is now seeking stakeholder feedback on well plug and abandonment (P&A) and decommissioning activities, which are proposed to be managed under two separate Environment Plans, these being:

- Stybarrow P&A EP
- Stybarrow Field Deviation EP

A summary of proposed activities to be managed under each EP follows and a fact sheet is attached providing more detail on infrastructure location and activity, as well as a summary of risks and associated management measures.

Activity Overview

Activities: Stybarrow P&A EP Stybarrow Field Deviation EP	<ul style="list-style-type: none"> • The P&A of 10 production/injection wells • Removal of the H4 flexible production flowline Proposed leave <i>in situ</i> : <ul style="list-style-type: none"> • The disconnectable turret mooring (DTM) anchors. Each anchor is buried, is approximately 6m x 6m x 3m, and weighs 11 tonnes. • Suction gravity bases for the riser holdbacks and water injection manifold. The riser bases embedded in the seabed, and clamps and chains will be removed. Riser bases are 4m in diameter and 7m high.
Petroleum title:	Production Licence WA-32-L
Activity location:	Approximately 53 km north-west of Exmouth, Western Australia
Infrastructure locations:	See attached Stakeholder Information Fact Sheet
Approximate water depth:	Approximately 810-850 m

Stybarrow Plug and Abandonment Environment Plan

Estimate start date:	Earliest P&A start is 2024 calendar year, subject to approvals, MODU and vessel availability, and weather constraints. P&A must be completed no later than 30 September 2024.
Approximate duration:	Approximately 6 months
Vessels:	Semi submersible mobile offshore drilling unit (MODU) (Dynamic positioning) Offshore support vessels, such as general support/supply vessels, construction support vessels/installation vessels. Typically, two (but up to six) project vessels will be in the Operational Area during well P&A and subsea infrastructure removal activities.
Operational area:	A 500 m safety exclusion zone around the wells and a 1,500 m radius temporary Operational Area (precautionary) around the wells and subsea equipment for the duration of the activity.

Your Feedback

Your feedback on the proposed activity and our response will be provided to the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA), as is required under the Commonwealth Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2009.

As a relevant stakeholder you are invited to provide comments. The Environment Plan will contain a summary of all comments received. However, BHP will not use or disclose your personal information in the Environment Plan. Full transcripts of all correspondence will be included in a separate sensitive information part of the Environment Plan provided to NOPSEMA.

Please provide comment as soon as practicable. Comments can be made by email, letter or by phone (refer to attached Fact Sheet for contact details) by close of business on **24 June 2022**.

Regards,

BHP

1.17 Email to Western Deepwater Trawl Fishery (27 May 2022)

INVITATION FOR FEEDBACK | Stybarrow P&A and Decommissioning Environment Plans

BHP PET External Affairs <bhppetexternalaffairs@bhp.com>

Fri 5/27/2022 6:55 AM

Cc:BHP PET External Affairs <bhppetexternalaffairs@bhp.com>

📎 1 attachments (691 KB)

Fact Sheet - Stybarrow P&A and Decommissioning Environment Plans.pdf;

Dear Western Deepwater Trawl Licence Holder

BHP is planning for the next stage of its ongoing safe and sustainable closure of the Stybarrow Field in Commonwealth waters, approximately 53 km north-west of Exmouth, Western Australia.

Production from the Stybarrow Field commenced in 2007 and ceased in 2015. Since that time the following cessation activities have been completed:

- All flowlines and gas lift lines were flushed and filled with treated seawater and production flowlines disconnected (except for an abandoned flowline which was blocked by sand and gas hydrate during production, which is disconnected, sealed and lying on the seabed).
- All production, gas injection and water injection wells were shut in and capped.
- The Stybarrow Venture FPSO was disconnected from the DTM and departed from the field in August 2015.

BHP consulted stakeholders in March 2022 on the first phase of decommissioning, these being activities for the proposed removal of the Stybarrow subsea equipment and ongoing field management activities until the equipment is removed. Feedback from stakeholders was considered in planning the Stybarrow Equipment Removal Environment Plan (EP), which was submitted to National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA) in April 2022 for assessment.

BHP is now seeking stakeholder feedback on well plug and abandonment (P&A) and decommissioning activities, which are proposed to be managed under two separate Environment Plans, these being:

- Stybarrow P&A EP
- Stybarrow Field Deviation EP

A summary of proposed activities to be managed under each EP follows and a fact sheet is attached providing more detail on infrastructure location and activity, as well as a summary of risks and associated management measures.

Activity Overview

Activities: Stybarrow P&A EP Stybarrow Field Deviation EP	<ul style="list-style-type: none">• The P&A of 10 production/injection wells• Removal of the H4 flexible production flowline <p>Proposed leave <i>in situ</i>:</p> <ul style="list-style-type: none">• The disconnectable turret mooring (DTM) anchors. Each anchor is buried, is approximately 6m x 6m x 3m, and weighs 11 tonnes.• Suction gravity bases for the riser holdbacks and water injection manifold. The riser bases embedded in the seabed, and clamps and chains will be removed. Riser bases are 4m in diameter and 7m high.
Petroleum title:	Production Licence WA-32-L
Activity location:	Approximately 53 km north-west of Exmouth, Western Australia
Infrastructure locations:	See attached Stakeholder Information Fact Sheet
Approximate water depth:	Approximately 810-850 m

Stybarrow Plug and Abandonment Environment Plan

Estimate start date:	Earliest P&A start is 2024 calendar year, subject to approvals, MODU and vessel availability, and weather constraints. P&A must be completed no later than 30 September 2024.
Approximate duration:	Approximately 6 months
Vessels:	Semi submersible mobile offshore drilling unit (MODU) (Dynamic positioning) Offshore support vessels, such as general support/supply vessels, construction support vessels/installation vessels. Typically, two (but up to six) project vessels will be in the Operational Area during well P&A and subsea infrastructure removal activities.
Operational area:	A 500 m safety exclusion zone around the wells and a 1,500 m radius temporary Operational Area (precautionary) around the wells and subsea equipment for the duration of the activity.

Commercial Fishing Overview

Stybarrow Plug and Abandonment Environment Plan

Commercial fisheries have been identified as being relevant to the proposed activities on the basis of fishing licence overlap with the proposed Operational (activity) Area, as well as consideration of fishing effort data, fishing methods and water depth.

Commonwealth fisheries

There are four overlapping Commonwealth fisheries, of which the Western Deepwater Trawl Fishery has been identified as relevant based on the identification criteria. BHP will consult representative organisations and licence holders entitled to fish in the Operational Area.

State fisheries

There are six overlapping State fisheries, of which the following fisheries have been identified as being relevant based on the identification criteria. Individual licence holders in these fisheries will be consulted.

- Mackerel Managed Fishery (Area 3)
- West Coast Deep Sea Crustacean Managed Fishery

The following government departments and organisations will also be consulted on behalf of licence holders entitled to fish in the Operational Area:

Commonwealth Fisheries:

- Australian Fisheries Management Authority
- Australian Southern Bluefin Tuna Industry Association on behalf of licence holders in the Southern Bluefin Tuna and Western Skipjack Tuna Fisheries
- Department of Agriculture, Water and the Environment
- Commonwealth Fisheries Association on behalf of licence holders in the Western Deepwater Trawl, Western Tuna and Billfish and Western Skipjack Tuna Fisheries
- Tuna Australia on behalf of licence holders in the Western Tuna and Billfish Fishery

State Fisheries and recreational fishing:

- Department of Primary Industry and Resources
- Western Australian Fishing Industry Council
- Pearl Producers Association
- Recfishwest

Your Feedback

Your feedback on the proposed activity and our response will be provided to the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA), as is required under the Commonwealth Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2009.

As a relevant stakeholder you are invited to provide comments. The Environment Plan will contain a summary of all comments received. However, BHP will not use or disclose your personal information in the Environment Plan. Full transcript of all correspondence will be included in a separate sensitive information part of the Environment Plan provided to NOPSEMA.

Please provide comment as soon as practicable. Comments can be made by email, letter or by phone (refer to attached Fact Sheet for contact details) by close of business on **24 June 2022**.

Regards,

BHP

Stybarrow Plug and Abandonment Environment Plan

1.18 Email sent to Australian Border Force (27 May 2022)

INVITATION FOR FEEDBACK | Stybarrow P&A and Decommissioning Environment Plans

BHP PET External Affairs <bhppetexternalaffairs@petroleumdeepwater.com>

Fri 5/27/2022 5:38 AM

To:

Cc: BHP PET External Affairs <bhppetexternalaffairs@petroleumdeepwater.com>

📎 1 attachments (691 KB)

Fact Sheet - Stybarrow P&A and Decommissioning Environment Plans.pdf;

Dear Australian Border Force

BHP is planning for the next stage of its ongoing safe and sustainable closure of the Stybarrow Field in Commonwealth waters, approximately 53 km north-west of Exmouth, Western Australia.

Production from the Stybarrow Field commenced in 2007 and ceased in 2015. Since that time the following cessation activities have been completed:

- All flowlines and gas lift lines were flushed and filled with treated seawater and production flowlines disconnected (except for an abandoned flowline which was blocked by sand and gas hydrate during production, which is disconnected, sealed and lying on the seabed).
- All production, gas injection and water injection wells were shut in and capped.
- The Stybarrow Venture FPSO was disconnected from the DTM and departed from the field in August 2015.

BHP consulted stakeholders in March 2022 on the first phase of decommissioning, these being activities for the proposed removal of the Stybarrow subsea equipment and ongoing field management activities until the equipment is removed. Feedback from stakeholders was considered in planning the Stybarrow Equipment Removal Environment Plan (EP), which was submitted to National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA) in April 2022 for assessment.

BHP is now seeking stakeholder feedback on well plug and abandonment (P&A) and decommissioning activities, which are proposed to be managed under two separate Environment Plans, these being:

- Stybarrow P&A EP
- Stybarrow Field Deviation EP

A summary of proposed activities to be managed under each EP follows and a fact sheet is attached providing more detail on infrastructure location and activity, as well as a summary of risks and associated management measures.

Activity Overview

Activities: Stybarrow P&A EP Stybarrow Field Deviation EP	<ul style="list-style-type: none">• The P&A of 10 production/injection wells• Removal of the H4 flexible production flowline <p>Proposed leave <i>in situ</i>:</p> <ul style="list-style-type: none">• The disconnectable turret mooring (DTM) anchors. Each anchor is buried, is approximately 6m x 6m x 3m, and weighs 11 tonnes.• Suction gravity bases for the riser holdbacks and water injection manifold. The riser bases embedded in the seabed, and clamps and chains will be removed. Riser bases are 4m in diameter and 7m high.
Petroleum title:	Production Licence WA-32-L
Activity location:	Approximately 53 km north-west of Exmouth, Western Australia
Infrastructure locations:	See attached Stakeholder Information Fact Sheet
Approximate water depth:	Approximately 810-850 m

Stybarrow Plug and Abandonment Environment Plan

Estimate start date:	Earliest P&A start is 2024 calendar year, subject to approvals, MODU and vessel availability, and weather constraints. P&A must be completed no later than 30 September 2024.
Approximate duration:	Approximately 6 months
Vessels:	Semi submersible mobile offshore drilling unit (MODU) (Dynamic positioning) Offshore support vessels, such as general support/supply vessels, construction support vessels/installation vessels. Typically, two (but up to six) project vessels will be in the Operational Area during well P&A and subsea infrastructure removal activities.
Operational area:	A 500 m safety exclusion zone around the wells and a 1,500 m radius temporary Operational Area (precautionary) around the wells and subsea equipment for the duration of the activity.

Your Feedback

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Regards,

BHP

1.19 Email sent to Commonwealth Fisheries Association (CFA) (27 May 2022)

INVITATION FOR FEEDBACK | Stybarrow P&A and Decommissioning Environment Plans

BHP PET External Affairs <bhppetexternalaffairs@bhp.com>

Fri 5/27/2022 7:00 AM

Cc:BHP PET External Affairs <bhppetexternalaffairs@bhp.com>

📎 1 attachments (691 KB)

Fact Sheet - Stybarrow P&A and Decommissioning Environment Plans.pdf;

Dear Commercial Fishery Association

BHP is planning for the next stage of its ongoing safe and sustainable closure of the Stybarrow Field in Commonwealth waters, approximately 53 km north-west of Exmouth, Western Australia.

Production from the Stybarrow Field commenced in 2007 and ceased in 2015. Since that time the following cessation activities have been completed:

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Activity Overview

Activities: Stybarrow P&A EP Stybarrow Field Deviation EP	<ul style="list-style-type: none">• The P&A of 10 production/injection wells• Removal of the H4 flexible production flowline <p>Proposed leave <i>in situ</i>:</p> <ul style="list-style-type: none">• The disconnectable turret mooring (DTM) anchors. Each anchor is buried, is approximately 6m x 6m x 3m, and weighs 11 tonnes.• Suction gravity bases for the riser holdbacks and water injection manifold. The riser bases embedded in the seabed, and clamps and chains will be removed. Riser bases are 4m in diameter and 7m high.
Petroleum title:	Production Licence WA-32-L
Activity location:	Approximately 53 km north-west of Exmouth, Western Australia
Infrastructure locations:	See attached Stakeholder Information Fact Sheet
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Stybarrow Plug and Abandonment Environment Plan

Estimate start date:	Earliest P&A start is 2024 calendar year, subject to approvals, MODU and vessel availability, and weather constraints. P&A must be completed no later than 30 September 2024.
Approximate duration:	Approximately 6 months
Vessels:	Semi submersible mobile offshore drilling unit (MODU) (Dynamic positioning) Offshore support vessels, such as general support/supply vessels, construction support vessels/installation vessels. Typically, two (but up to six) project vessels will be in the Operational Area during well P&A and subsea infrastructure removal activities.
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Commercial Fishing Overview

Stybarrow Plug and Abandonment Environment Plan

Commercial fisheries have been identified as being relevant to the proposed activities on the basis of fishing licence overlap with the proposed Operational (activity) Area, as well as consideration of fishing effort data, fishing methods and water depth.

Commonwealth fisheries

There are four overlapping Commonwealth fisheries, of which the Western Deepwater Trawl Fishery has been identified as relevant based on the identification criteria. BHP will consult representative organisations and licence holders entitled to fish in the Operational Area.

State fisheries

There are six overlapping State fisheries, of which the following fisheries have been identified as being relevant based on the identification criteria. Individual licence holders in these fisheries will be consulted.

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- Australian Fisheries Management Authority
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- Department of Agriculture, Water and the Environment
- Commonwealth Fisheries Association on behalf of licence holders in the Western Deepwater Trawl, Western Tuna and Billfish and Western Skipjack Tuna Fisheries
- Tuna Australia on behalf of licence holders in the Western Tuna and Billfish Fishery

State Fisheries and recreational fishing:

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- Western Australian Fishing Industry Council
- Pearl Producers Association
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Regards,

BHP

Stybarrow Plug and Abandonment Environment Plan

- 1.20 Email sent to Ningaloo Coast World Heritage Advisory Committee (NCWHAC) (27 May 2022)**

INVITATION FOR FEEDBACK | Stybarrow P&A and Decommissioning Environment Plans

BHP PET External Affairs <bhppetexternalaffairs@bhp.com>

Fri 5/27/2022 6:43 AM

Cc:BHP PET External Affairs <bhppetexternalaffairs@bhp.com>

📎 1 attachments (691 KB)

Fact Sheet - Stybarrow P&A and Decommissioning Environment Plans.pdf;

Dear Ningaloo Coast World Heritage Advisory Committee

BHP is planning for the next stage of its ongoing safe and sustainable closure of the Stybarrow Field in Commonwealth waters, approximately 53 km north-west of Exmouth, Western Australia.

Production from the Stybarrow Field commenced in 2007 and ceased in 2015. Since that time the following cessation activities have been completed:

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BHP is now seeking stakeholder feedback on well plug and abandonment (P&A) and decommissioning activities, which are proposed to be managed under two separate Environment Plans, these being:

- Stybarrow P&A EP
- Stybarrow Field Deviation EP

A summary of proposed activities to be managed under each EP follows and a fact sheet is attached providing more detail on infrastructure location and activity, as well as a summary of risks and associated management measures.

Activity Overview

Activities: Stybarrow P&A EP Stybarrow Field Deviation EP	<ul style="list-style-type: none">• The P&A of 10 production/injection wells• Removal of the H4 flexible production flowline <p>Proposed leave <i>in situ</i>:</p> <ul style="list-style-type: none">• The disconnectable turret mooring (DTM) anchors. Each anchor is buried, is approximately 6m x 6m x 3m, and weighs 11 tonnes.• Suction gravity bases for the riser holdbacks and water injection manifold. The riser bases embedded in the seabed, and clamps and chains will be removed. Riser bases are 4m in diameter and 7m high.
Petroleum title:	Production Licence WA-32-L
Activity location:	Approximately 53 km north-west of Exmouth, Western Australia
Infrastructure locations:	See attached Stakeholder Information Fact Sheet
Approximate water depth:	Approximately 810-850 m

Estimate start date:	Earliest P&A start is 2024 calendar year, subject to approvals, MODU and vessel availability, and weather constraints. P&A must be completed no later than 30 September 2024.
Approximate duration:	Approximately 6 months
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Please provide comment as soon as practicable. Comments can be made by email, letter or by phone (refer to attached Fact Sheet for contact details) by close of business on **24 June 2022**.

Regards,

BHP

1.21 Email sent to Shire of Exmouth (27 May 2022)

INVITATION FOR FEEDBACK | Stybarrow P&A and Decommissioning Environment Plans

BHP PET External Affairs <bhppetexternalaffairs@bhp.com>

Fri 5/27/2022 8:27 AM

Cc:BHP PET External Affairs <bhppetexternalaffairs@bhp.com>

📎 1 attachments (686 KB)

Fact Sheet - Stybarrow P&A and Decommissioning Environment Plans.pdf;

Dear Shire of Exmouth

BHP is planning for the next stage of its ongoing safe and sustainable closure of the Stybarrow Field in Commonwealth waters, approximately 53 km north-west of Exmouth, Western Australia.

Production from the Stybarrow Field commenced in 2007 and ceased in 2015. Since that time the following cessation activities have been completed:

- All flowlines and gas lift lines were flushed and filled with treated seawater and production flowlines disconnected (except for an abandoned flowline which was blocked by sand and gas hydrate during production, which is disconnected, sealed and lying on the seabed).
- All production, gas injection and water injection wells were shut in and capped.
- The Stybarrow Venture FPSO was disconnected from the DTM and departed from the field in August 2015.

BHP consulted stakeholders in March 2022 on the first phase of decommissioning, these being activities for the proposed removal of the Stybarrow subsea equipment and ongoing field management activities until the equipment is removed. Feedback from stakeholders was considered in planning the Stybarrow Equipment Removal Environment Plan (EP), which was submitted to National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA) in April 2022 for assessment.

BHP is now seeking stakeholder feedback on well plug and abandonment (P&A) and decommissioning activities, which are proposed to be managed under two separate Environment Plans, these being:

- Stybarrow P&A EP
- Stybarrow Field Deviation EP

A summary of proposed activities to be managed under each EP follows and a fact sheet is attached providing more detail on infrastructure location and activity, as well as a summary of risks and associated management measures.

Activity Overview

Activities: Stybarrow P&A EP Stybarrow Field Deviation EP	<ul style="list-style-type: none">• The P&A of 10 production/injection wells• Removal of the H4 flexible production flowline Proposed leave <i>in situ</i> : <ul style="list-style-type: none">• The disconnectable turret mooring (DTM) anchors. Each anchor is buried, is approximately 6m x 6m x 3m, and weighs 11 tonnes.• Suction gravity bases for the riser holdbacks and water injection manifold. The riser bases embedded in the seabed, and clamps and chains will be removed. Riser bases are 4m in diameter and 7m high.
Petroleum title:	Production Licence WA-32-L
Activity location:	Approximately 53 km north-west of Exmouth, Western Australia
Infrastructure locations:	See attached Stakeholder Information Fact Sheet
Approximate water depth:	Approximately 810-850 m

Stybarrow Plug and Abandonment Environment Plan

Estimate start date:	Earliest P&A start is 2024 calendar year, subject to approvals, MODU and vessel availability, and weather constraints. P&A must be completed no later than 30 September 2024.
Approximate duration:	Approximately 6 months
Vessels:	Semi submersible mobile offshore drilling unit (MODU) (Dynamic positioning) Offshore support vessels, such as general support/supply vessels, construction support vessels/installation vessels. Typically, two (but up to six) project vessels will be in the Operational Area during well P&A and subsea infrastructure removal activities.
Operational area:	A 500 m safety exclusion zone around the wells and a 1,500 m radius temporary Operational Area (precautionary) around the wells and subsea equipment for the duration of the activity.

Your Feedback

Your feedback on the proposed activity and our response will be provided to the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA), as is required under the Commonwealth Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2009.

As a relevant stakeholder you are invited to provide comments. The Environment Plan will contain a summary of all comments received. However, BHP will not use or disclose your personal information in the Environment Plan. Full transcripts of all correspondence will be included in a separate sensitive information part of the Environment Plan provided to NOPSEMA.

Please provide comment as soon as practicable. Comments can be made by email, letter or by phone (refer to attached Fact Sheet for contact details) by close of business on **24 June 2022**.

Regards,

BHP

1.22 Email sent to Exmouth Community Liaison Group (27 May 2022)

Stybarrow Plug and Abandonment Environment Plan

 1 attachments (686 KB)

Fact Sheet - Stybarrow P&A and Decommissioning Environment Plans.pdf;

Dear Exmouth Community Reference Group members

BHP is planning for the next stage of its ongoing safe and sustainable closure of the Stybarrow Field in Commonwealth waters, approximately 53 km north-west of Exmouth, Western Australia.

Production from the Stybarrow Field commenced in 2007 and ceased in 2015. Since that time the following cessation activities have been completed:

- All flowlines and gas lift lines were flushed and filled with treated seawater and production flowlines disconnected (except for an abandoned flowline which was blocked by sand and gas hydrate during production, which is disconnected, sealed and lying on the seabed).
- All production, gas injection and water injection wells were shut in and capped.
- The Stybarrow Venture FPSO was disconnected from the DTM and departed from the field in August 2015.

BHP consulted stakeholders in March 2022 on the first phase of decommissioning, these being activities for the proposed removal of the Stybarrow subsea equipment and ongoing field management activities until the equipment is removed. Feedback from stakeholders was considered in planning the Stybarrow Equipment Removal Environment Plan (EP), which was submitted to National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA) in April 2022 for assessment.

BHP is now seeking stakeholder feedback on well plug and abandonment (P&A) and decommissioning activities, which are proposed to be managed under two separate Environment Plans, these being:

- Stybarrow P&A EP
- Stybarrow Field Deviation EP

Stybarrow Plug and Abandonment Environment Plan

A summary of proposed activities to be managed under each EP follows and a fact sheet is attached providing more detail on infrastructure location and activity, as well as a summary of risks and associated management measures.

Activity Overview

Activities: Stybarrow P&A EP Stybarrow Field Deviation EP	<ul style="list-style-type: none">The P&A of 10 production/injection wellsRemoval of the H4 flexible production flowline <p>Proposed leave <i>in situ</i>:</p> <ul style="list-style-type: none">The disconnectable turret mooring (DTM) anchors. Each anchor is buried, is approximately 6m x 6m x 3m, and weighs 11 tonnes.Suction gravity bases for the riser holdbacks and water injection manifold. The riser bases embedded in the seabed, and clamps and chains will be removed. Riser bases are 4m in diameter and 7m high.
Petroleum title:	Production Licence WA-32-L
Activity location:	Approximately 53 km north-west of Exmouth, Western Australia
Infrastructure locations:	See attached Stakeholder Information Fact Sheet
Approximate water depth:	Approximately 810-850 m
Estimate start date:	Earliest P&A start is 2024 calendar year, subject to approvals, MODU and vessel availability, and weather constraints. P&A must be completed no later than 30 September 2024.
Approximate duration:	Approximately 6 months
Vessels:	Semi submersible mobile offshore drilling unit (MODU) (Dynamic positioning) Offshore support vessels, such as general support/supply vessels, construction support vessels/installation vessels. Typically, two (but up to six) project vessels will be in the Operational Area during well P&A and subsea infrastructure removal activities.
Operational area:	A 500 m safety exclusion zone around the wells and a 1,500 m radius temporary Operational Area (precautionary) around the wells and subsea equipment for the duration of the activity.

Your Feedback

Your feedback on the proposed activity and our response will be provided to the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA), as is required under the Commonwealth Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2009.

As a relevant stakeholder you are invited to provide comments. The Environment Plan will contain a summary of all comments received. However, BHP will not use or disclose your personal information in the Environment Plan. Full transcripts of all correspondence will be included in a separate sensitive information part of the Environment Plan provided to NOPSEMA.

Please provide comment as soon as practicable. Comments can be made by email, letter or by phone (refer to attached Fact Sheet for contact details) by close of business on **24 June 2022**.

Regards,

BHP

1.23 Email sent to WA Game Fishing Association (27 May 2022)

INVITATION FOR FEEDBACK | Stybarrow P&A and Decommissioning Environment Plans

BHP PET External Affairs <bhppetexternalaffairs@bhp.com>

Fri 5/27/2022 7:07 AM

Cc:BHP PET External Affairs <bhppetexternalaffairs@bhp.com>

📎 1 attachments (691 KB)

Fact Sheet - Stybarrow P&A and Decommissioning Environment Plans.pdf;

Dear WA GFA

BHP is planning for the next stage of its ongoing safe and sustainable closure of the Stybarrow Field in Commonwealth waters, approximately 53 km north-west of Exmouth, Western Australia.

Production from the Stybarrow Field commenced in 2007 and ceased in 2015. Since that time the following cessation activities have been completed:

- All flowlines and gas lift lines were flushed and filled with treated seawater and production flowlines disconnected (except for an abandoned flowline which was blocked by sand and gas hydrate during production, which is disconnected, sealed and lying on the seabed).
- All production, gas injection and water injection wells were shut in and capped.
- The Stybarrow Venture FPSO was disconnected from the DTM and departed from the field in August 2015.

BHP consulted stakeholders in March 2022 on the first phase of decommissioning, these being activities for the proposed removal of the Stybarrow subsea equipment and ongoing field management activities until the equipment is removed. Feedback from stakeholders was considered in planning the Stybarrow Equipment Removal Environment Plan (EP), which was submitted to National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA) in April 2022 for assessment.

BHP is now seeking stakeholder feedback on well plug and abandonment (P&A) and decommissioning activities, which are proposed to be managed under two separate Environment Plans, these being:

- Stybarrow P&A EP
- Stybarrow Field Deviation EP

A summary of proposed activities to be managed under each EP follows and a fact sheet is attached providing more detail on infrastructure location and activity, as well as a summary of risks and associated management measures.

Activity Overview

Activities: Stybarrow P&A EP Stybarrow Field Deviation EP	<ul style="list-style-type: none"> • The P&A of 10 production/injection wells • Removal of the H4 flexible production flowline Proposed leave <i>in situ</i> : <ul style="list-style-type: none"> • The disconnectable turret mooring (DTM) anchors. Each anchor is buried, is approximately 6m x 6m x 3m, and weighs 11 tonnes. • Suction gravity bases for the riser holdbacks and water injection manifold. The riser bases embedded in the seabed, and clamps and chains will be removed. Riser bases are 4m in diameter and 7m high.
Petroleum title:	Production Licence WA-32-L
Activity location:	Approximately 53 km north-west of Exmouth, Western Australia
Infrastructure locations:	See attached Stakeholder Information Fact Sheet
Approximate water depth:	Approximately 810-850 m

Stybarrow Plug and Abandonment Environment Plan

Estimate start date:	Earliest P&A start is 2024 calendar year, subject to approvals, MODU and vessel availability, and weather constraints. P&A must be completed no later than 30 September 2024.
Approximate duration:	Approximately 6 months
Vessels:	Semi submersible mobile offshore drilling unit (MODU) (Dynamic positioning) Offshore support vessels, such as general support/supply vessels, construction support vessels/installation vessels. Typically, two (but up to six) project vessels will be in the Operational Area during well P&A and subsea infrastructure removal activities.
Operational area:	A 500 m safety exclusion zone around the wells and a 1,500 m radius temporary Operational Area (precautionary) around the wells and subsea equipment for the duration of the activity.

Your Feedback

Your feedback on the proposed activity and our response will be provided to the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA), as is required under the Commonwealth Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2009.

As a relevant stakeholder you are invited to provide comments. The Environment Plan will contain a summary of all comments received. However, BHP will not use or disclose your personal information in the Environment Plan. Full transcripts of all correspondence will be included in a separate sensitive information part of the Environment Plan provided to NOPSEMA.

Please provide comment as soon as practicable. Comments can be made by email, letter or by phone (refer to attached Fact Sheet for contact details) by close of business on **24 June 2022**.

Regards,

BHP

1.24 Email sent to Cape Conservation Group (27 May 2022)

Dear Cape Conservation Group

BHP is planning for the next stage of its ongoing safe and sustainable closure of the Stybarrow Field in Commonwealth waters, approximately 53 km north-west of Exmouth, Western Australia.

Production from the Stybarrow Field commenced in 2007 and ceased in 2015. Since that time the following cessation activities have been completed:

- All flowlines and gas lift lines were flushed and filled with treated seawater and production flowlines disconnected (except for an abandoned flowline which was blocked by sand and gas hydrate during production, which is disconnected, sealed and lying on the seabed).
- All production, gas injection and water injection wells were shut in and capped.
- The Stybarrow Venture FPSO was disconnected from the DTM and departed from the field in August 2015.

BHP consulted stakeholders in March 2022 on the first phase of decommissioning, these being activities for the proposed removal of the Stybarrow subsea equipment and ongoing field management activities until the equipment is removed. Feedback from stakeholders was considered in planning the Stybarrow Equipment Removal Environment Plan (EP), which was submitted to National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA) in April 2022 for assessment.

BHP is now seeking stakeholder feedback on well plug and abandonment (P&A) and decommissioning activities, which are proposed to be managed under two separate Environment Plans, these being:

Stybarrow Plug and Abandonment Environment Plan

- Stybarrow P&A EP
- Stybarrow Field Deviation EP

A summary of proposed activities to be managed under each EP follows and a fact sheet is attached providing more detail on infrastructure location and activity, as well as a summary of risks and associated management measures.

Activity Overview

Activities: Stybarrow P&A EP	<ul style="list-style-type: none"> • The P&A of 10 production/injection wells • Removal of the H4 flexible production flowline
Stybarrow Field Deviation EP	<p>Proposed leave <i>in situ</i>:</p> <ul style="list-style-type: none"> • The disconnectable turret mooring (DTM) anchors. Each anchor is buried, is approximately 6m x 6m x 3m, and weighs 11 tonnes. • Suction gravity bases for the riser holdbacks and water injection manifold. The riser bases embedded in the seabed, and clamps and chains will be removed. Riser bases are 4m in diameter and 7m high.
Petroleum title:	Production Licence WA-32-L
Activity location:	Approximately 53 km north-west of Exmouth, Western Australia
Infrastructure locations:	See attached Stakeholder Information Fact Sheet
Approximate water depth:	Approximately 810-850 m
Estimate start date:	Earliest P&A start is 2024 calendar year, subject to approvals, MODU and vessel availability, and weather constraints. P&A must be completed no later than 30 September 2024.
Approximate duration:	Approximately 6 months
Vessels:	<p>Semi submersible mobile offshore drilling unit (MODU) (Dynamic positioning)</p> <p>Offshore support vessels, such as general support/supply vessels, construction support vessels/installation vessels. Typically, two (but up to six) project vessels will be in the Operational Area during well P&A and subsea infrastructure removal activities.</p>
Operational area:	A 500 m safety exclusion zone around the wells and a 1,500 m radius temporary Operational Area (precautionary) around the wells and subsea equipment for the duration of the activity.

Your Feedback

Your feedback on the proposed activity and our response will be provided to the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA), as is required under the Commonwealth Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2009.

As a relevant stakeholder you are invited to provide comments. The Environment Plan will contain a summary of all comments received. However, BHP will not use or disclose your personal information in the Environment

Stybarrow Plug and Abandonment Environment Plan

Plan. Full transcripts of all correspondence will be included in a separate sensitive information part of the Environment Plan provided to NOPSEMA.

Please provide comment as soon as practicable. Comments can be made by email, letter or by phone (refer to attached Fact Sheet for contact details) by close of business on **24 June 2022**.

Regards,

BHP

1.25 Email sent to Australian Maritime Safety Authority – Marine Pollution (27 May 2022)

Stybarrow Plug and Abandonment Environment Plan

6/20/23, 3:40 PM

Mail - BHP PET External Affairs - Outlook

INVITATION FOR FEEDBACK | Stybarrow P&A and Decommissioning Environment Plans

BHP PET External Affairs <bhppetexternalaffairs@bhp.com>

Fri 5/27/2022 6:16 AM

Cc: BHP PET External Affairs <bhppetexternalaffairs@bhp.com>

1 attachments (691 KB)

Fact Sheet - Stybarrow P&A and Decommissioning Environment Plans.pdf

Dear [REDACTED]

BHP is planning for the next stage of its ongoing safe and sustainable closure of the Stybarrow Field in Commonwealth waters, approximately 53 km north-west of Exmouth, Western Australia.

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Stybarrow Plug and Abandonment Environment Plan

Estimate start date:	Earliest P&A start is 2024 calendar year, subject to approvals, MODU and vessel availability, and weather constraints. P&A must be completed no later than 30 September 2024.
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Your Feedback

Your feedback on the proposed activity and our response will be provided to the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA), as is required under the Commonwealth Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2009.

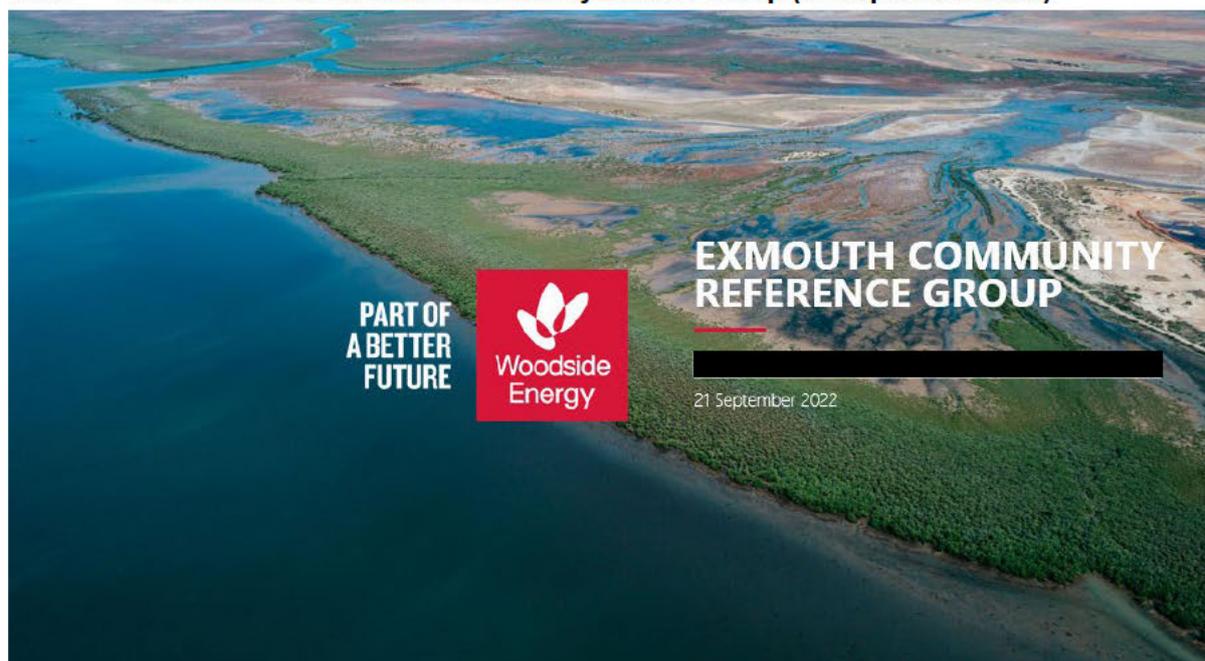
As a relevant stakeholder you are invited to provide comments. The Environment Plan will contain a summary of all comments received. However, BHP will not use or disclose your personal information in the Environment Plan. Full transcripts of all correspondence will be included in a separate sensitive information part of the Environment Plan provided to NOPSEMA.

Please provide comment as soon as practicable. Comments can be made by email, letter or by phone (refer to attached Fact Sheet for contact details) by close of business on **24 June 2022**.

Regards,

BHP

1.26 Presentation to Exmouth Community Liaison Group (21 September 2022)



INTRODUCTION

Disclaimer, important notes and assumptions

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This presentation may contain forward-looking statements with respect to Woodside's business and operations, market conditions, results of operations and financial condition which reflect Woodside's views held as at the date of this presentation. All statements, other than statements of historical or present facts, are forward-looking statements and generally may be identified by the use of forward-looking words such as 'guidance', 'foresee', 'likely', 'potential', 'anticipate', 'believe', 'aim', 'estimate', 'expect', 'intend', 'may', 'target', 'plan', 'forecast', 'project', 'schedule', 'will', 'should', 'seek' and other similar words or expressions.

Forward-looking statements are not guarantees of future performance and are subject to inherent known and unknown risks, uncertainties, assumptions and other factors, many of which are beyond the control of Woodside, its related bodies corporate and their respective Beneficiaries. Details of the key risks relating to Woodside and its business can be found in the "Risk" section of Woodside's most recent Annual Report released to the Australian Securities Exchange and in Woodside's filings with the U.S. Securities and Exchange Commission. You should review and have regard to these risks when considering the information contained in this presentation.

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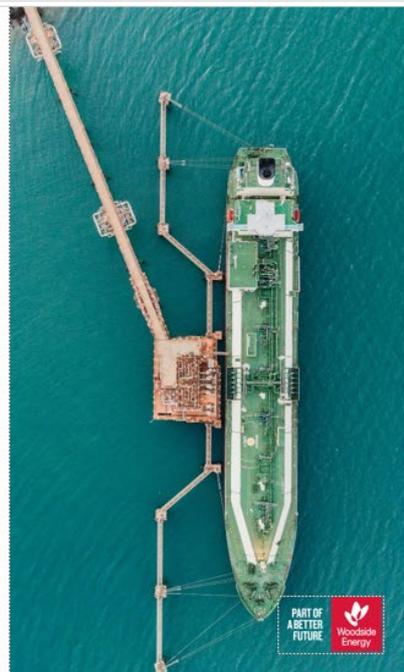
Other important information

All references to dollars, cents or \$ in this presentation are to US currency, unless otherwise stated. References to "Woodside" may be references to Woodside Energy Group Ltd or its applicable subsidiaries. This presentation does not include any express or implied prices at which Woodside will buy or sell financial products.

EXMOUTH COMMUNITY REFERENCE GROUP

AGENDA

- Operations update
- Activity update
- Environment Plans
- Community partnerships



ENVIRONMENT PLANS

Stybarrow Decommissioning

- [Stybarrow](#) ceased production in 2015 and planning is underway for decommissioning in 2023/24
- Decommissioning activities will be covered by three Environment Plans, all currently under assessment

Decommissioning and Field Management (Cth)

- Submitted for assessment April 2022
- Proposal to remove subsea equipment including wellheads, flexibles, DTM, moorings and ancillary subsea equipment

Plug & Abandonment (Cth)

- Submitted for assessment August 2022
- Proposal to plug and abandon 10 [Stybarrow](#) wells

End State Decommissioning (Cth)

- Submitted for assessment July 2022
- Proposal to leave *in situ* anchors, suction bases and a historical wellhead that was unable to be removed previously

2. Activity Update (February 2023)

2.1 Activity Update - Information Sheet – Stybarrow Decommissioning Environment Plans (16 February 2023)



STAKEHOLDER CONSULTATION

INFORMATION SHEET

February 2023

ACTIVITY UPDATE – STYBARROW DECOMMISSIONING ENVIRONMENT PLANS

EXMOUTH PLATEAU SUB-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 activity is carried out in a manner that is consistent with the principles of Ecologically Sustainable Development (ESD), by which the environmental impacts and risks of the activity are reduced to As Low As Reasonably Practicable (ALARP) and of an acceptable level. We want relevant persons whose functions, interests or activities 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 planning to undertake subsea decommissioning activities for the Stybarrow field (previously operated by BHP Petroleum Pty Ltd (BHP)), which is located in Commonwealth waters in permit area WA-32-L, approximately 53 km north-west of Exmouth, Western Australia and in water depths of approximately 810 - 850m (**Figure 1**).

Regulatory approvals are being sought for the following activities:

Stybarrow plug and production (P&A) EP

- Well P&A of the 10 productions/injection wells by placing cement plugs in the wells to permanently prevent hydrocarbon release.
- Potential unblocking of the H4 flowline, if deemed feasible.

Stybarrow Decommissioning and Field Management EP

- Removal of subsea equipment including wellheads, trees, manifolds, risers, flexible flowlines, umbilicals.
- Removal of the Disconnectable Turret Mooring (DTM) and its moorings. Recovery of the DTM may require it to be towed to shallower water outside of permit area WA-32-L. It is intended that the DTM will be towed to WA-12-L, adjacent to the Woodside-operated Griffin field, in water depths of about 120 m and, that the DTM would be placed directly onto a vessel, not placed on the seabed.
- Ongoing field management activities (equipment monitoring and inspection).

Stybarrow Field Deviation EP

- Proposed leave *in situ* of the nine DTM drag anchors (buried), nine suction piles for the riser holdbacks and the historical exploration wellhead, Eskdale-1, which was unable to be removed following its drilling and abandonment in 2003.

P&A activities are anticipated to take approximately 6-9 months to complete, removal activities are anticipated to take approximately 6 months to complete and DTM removal activities are anticipated to take approximately 2-4 weeks to complete.

Decommissioning of the Stybarrow field is planned to be undertaken following acceptance of the EP, with work anticipated to commence around late 2023, commencing with P&A pre-execution activities, subject to vessel availability and weather constraints.

The P&A activities are required to be completed by 30 September 2024 and equipment removal completed by 31 March 2025, as per NOPSEMA General Direction 833.

Following removal, Woodside proposes to dispose of equipment onshore in accordance with applicable requirements, assessing all options to reduce waste through reuse or recycling of recovered equipment.

The equipment locations and proposed activity or end state is summarised at **Table 2**.

EPs for these activities have previously been submitted to the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA) for assessment under the *Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2009*.

This Activity Update provides an overview of proposed activities under each of the three EPs, as well as additional information or changes to information previously provided.

Feedback from relevant persons as part of current consultation activities will be included in revisions to the EPs, which will be submitted to NOPSEMA for further assessment.

Stybarrow Decommissioning Background

The Stybarrow development was in production from 2007 to 2015 and consisted of the Stybarrow floating production, storage and offloading (FPSO) facility and its moorings, subsea facilities including 10 subsea wells (production and water/gas injectors), the associated trees, manifolds, risers, flowlines, umbilicals and the DTM buoy which connected the FPSO to the subsea infrastructure.

Since 2015 the following activities have been completed:

- All flowlines and gas lift lines were flushed and filled with treated seawater and production flowlines disconnected, with the exception of the H4 flowline which was blocked by sand and hydrates during production. The H4 flowline is disconnected, sealed and lying on the seabed. Hydrates are ice like solids that form when water and natural gas combine at high pressure and low temperatures. They are stable and pose no impact to the environment.

1 Stybarrow Decommissioning Environment Plans - update | February 2023

Stybarrow Plug and Abandonment Environment Plan

- All production, gas and water injection wells were shut in and capped.
- The Stybarrow Venture FPSO was disconnected from the DTM and departed the field in August 2015.

During an echo sounding survey of the facilities in 2016, the DTM was found to have lost buoyancy and is now lying on the seabed at a depth of approximately 820 meters. Since then, the buoyancy modules from the risers have been removed to eliminate the risk of floating equipment coming to the sea surface.

Communications with mariners

Well P&A: The Operational Area includes the area encompassing an approximate 3,000 m radius around each of the four drill centers within WA-32-L. It is intended that a temporary 500 m exclusion zone will apply around the MODU and the associated project vessels during P&A activities.

Removal activities: The Operational Area includes the area encompassing an approximate 1,500 m radius around the subsea infrastructure and wellheads. It is intended that a temporary 500 m exclusion zone will apply around the Construction Support Vessel and the associated project vessels during removal activities.

The DTM has an existing 1200 m radius petroleum safety zone which will continue to be in place until it is removed. It is intended that a temporary 500 m exclusion zone will apply around the HLV and the associated project vessels during the removal of the DTM.

Commercial fishers and other marine users are permitted to use but should take care when entering the Operational Area and remain clear of the Exclusion Zone.

It is intended that subsea infrastructure which is proposed to be left in situ will continue to be marked, and infrastructure proposed to be removed will continue to be marked on navigation charts until it is removed.

It is anticipated that vessels will operate 24 hours per day for the duration of the activities. The duration of these activities is subject to change due to project schedule requirements, vessel availability, weather or unforeseen circumstances.



Typical subsea cutting activity

Decommissioning assessment

Woodside has undertaken an assessment to identify potential risks to the marine environment and relevant persons, considering timing, duration, location and potential impacts arising from the planned activities. A number of mitigation and management measures will be implemented and are summarised in **Table 3**. Further details will be provided in the revised EPs.

In preparing the EP revisions, Woodside's intent is to minimise environmental and social impacts associated with the proposed activities, and we are seeking comments and input from relevant persons to inform our decision making and for the intended outcome of consultation (see above).

Joint Venture

Woodside Energy (Australia) Pty Ltd is operator and sole titleholder of WA-32-L.

Woodside Energy (Australia) Pty Ltd is operator of WA-12-L SR on behalf of Joint Venture participant Mobil Australia Resources Company Pty Ltd.

We welcome your feedback by 17 March 2023.

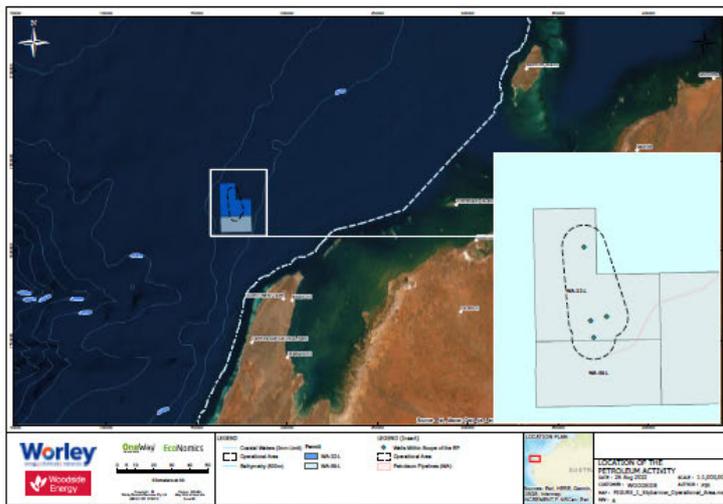


Figure 1. Stybarrow Location Map



Typical subsea equipment recovery activity

Stybarrow Plug and Abandonment Environment Plan

Table 1. Activity summary

Stybarrow Decommissioning activities	Well P&A	Equipment Removal	DTM Removal	Stybarrow Field Deviation EP
	Stybarrow Plug and Abandonment EP	Stybarrow Decommissioning and Field Management EP		
Summary	<p>Permanent P&A of 10 wells (6 production wells, 3 water injection wells and 1 gas injection well).</p> <p>Potential removal of wellhead and subsea trees, either by MODU or CSV.</p> <p>Potential unblocking of the H4 flowline, if deemed feasible.</p>	<p>Removal of subsea equipment including wellheads, trees, manifolds, risers, flexible flowlines, umbilicals.</p> <p>Ongoing field management activities (equipment monitoring and inspection).</p>	<p>Removal of the DTM and its moorings.</p> <p>Recovery of the DTM may require it to be towed to shallower water outside of permit area WA-32-L. In this instance, it will be towed to WA-12-L, adjacent to the Woodside-operated Griffin field.</p>	<p>Proposal to leave in situ of 9 suction piles (largely buried), 9 drag anchors (buried) and the historical Eskdale-1 wellhead</p>
Commencement date	<p>Earliest P&A start is around Q4 2023, subject to approvals, MODU vessel availability and weather constraints. P&A must be completed no later than 30 September 2024, pursuant to General Direction 833.</p>	<p>Earliest facilities removal is estimated to be Q4 2023, subject to approvals, MODU vessel availability and weather constraints. Equipment removal must be completed no later than 31 March 2025, pursuant to General Direction 833.</p>	<p>Earliest DTM recovery is estimated to be Q4 2023, subject to approvals, Heavy Lift vessel (HLV) availability and weather constraints. Removal must be completed no later than 31 March 2025 pursuant to General Direction 833.</p>	N/A – no activities
Simultaneous Operations (SIMOPS)	Potential SIMOPS may occur with subsea infrastructure and DTM removal activities if vessel and equipment availabilities permit.			N/A (no activities)
Petroleum Title	WA-32-L	WA-32-L	WA-32-L WA-12-L	WA-32-L
Operational Area	The Operational Area includes the area encompassing an approximate 3,000 m radius around each of the four drill centers within WA-32-L.	The Operational Area includes the area encompassing an approximate 1,500 m radius around the subsea infrastructure and wellheads.		N/A
Exclusion Zones	A temporary 500 m exclusion zone will apply around the MODU and the associated project vessels during P&A activities.	<p>The DTM has an existing 1200 m radius petroleum safety zone which will continue to be in place until it is removed.</p> <p>A temporary 500 m exclusion zone will apply around the Construction Support Vessel and the associated project vessels during removal activities.</p>	A temporary 500 m exclusion zone will apply around the HLV and the associated project vessels during the removal of the DTM.	N/A
Estimated duration	<p>-6 - 9 months with the following approximate activity breakdowns:</p> <ul style="list-style-type: none"> Preparatory activities (-4 – 7 days per well) P&A (-18 – 24 days per well) Removal of Well Infrastructure (-1 – 5 days per well) Recovery of moorings and ancillary equipment (-1 – 2 days per well) 	<p>-4-6 months with the following approximate activity breakdowns:</p> <ul style="list-style-type: none"> Flexible flowline recovery (-2 months) Seabed equipment recovery (-1-2 months) H4 flowline recovery (-1-2 months) 	<p>Up to -1 month:</p> <ul style="list-style-type: none"> -1-2 weeks preparatory activities (disconnection of risers, mooring chains) -1-2 weeks for recovery, in WA-32L or WA-12L 	N/A (no activities)
Location and Water depth	-53 km north west of Exmouth, 810-85 m water depth	-53 km north west of Exmouth, 810-850 m water depth	71 km north east of WA-32-L, 120 m water depth	-53 km north west of Exmouth, 810-85 m water depth

Stybarrow Plug and Abandonment Environment Plan

Infrastructure	<p>6 x production wells 3 x water injection wells 1 x gas injection well</p> <p>The P&A covers the following optional scopes that may be conducted on the MODU or otherwise be covered during the facilities removal scope:</p> <ul style="list-style-type: none"> Removal of well infrastructure above the mudline including wellheads and xmas trees. Intervention from the MODU to unblock sand, hydrates and hydrocarbons from inside the H4 flowline, if determined feasible, prior to removal. 	<p>9 x DTM mooring legs/chains 9 support buoys 9 flexible risers 8 flexible production flowlines 4 gas injection/lift flowlines 2 water injection flowlines All flying leads, jumpers and umbilicals 1 water injection manifold 7 subsea distribution units 15 anode skids 10 wellheads and trees</p> <p>The EP includes ongoing field maintenance activities as required until equipment is removed.</p>	<p>DTM structure, steel construction, conical shape, -15 m diameter, -15 m height, -800 tonnes (in air)</p>	<p>Leave in situ proposed for: 9 suction piles (embedded in seabed) 9 drag anchors (buried) The historical Eskdale -1 wellhead</p> <p>Contaminant assessments have been conducted for the materials within these items (steel, concrete, cement) and they pose no short-term or long-term risk to the environment.</p>
Vessels	<p>Semi Submersible Mobile Offshore Drilling Unit (MODU). MODU supported by 2 - 3 offshore support vessels.</p>	<p>Construction Support Vessel (CSV).</p>	<p>Heavy Lift Vessel (HLV) with dynamic positioning (DP). Anchor handling tugs (AHTs) required to support the towing of the DTM to the shallower water location (if required), to support the HLV.</p>	N/A
<p>Offshore support vessels, such as general support/supply vessels, construction support/installation vessels. Typically two (but up to six) project vessels may be in the Operational Area during well P&A and subsea infrastructure removal activities</p>				
Distance to nearest marine park/mature reserve	<p>5 km to Gascoyne Commonwealth Marine Park 24 km to Ningaloo Marine Park (Commonwealth) 36 km to Ningaloo Marine Park (State) 45 km to Murion Islands Marine Management Area</p>			

Stybarrow Plug and Abandonment Environment Plan

Table 2. Approximate location and activity/end state

Subsea Infrastructure	Easting	Northing	
DTM buoy	170873.2	7624770.8	Remove
DTM mooring legs – chain and wire	Between anchors and DTM buoy		Remove
Mooring Anchor 1	172172.4	7624323.5	Leave <i>in situ</i> proposed, with chains removed
Mooring Anchor 2	172215.2	7624441.7	Anchors are 11 tonne Stevpris Mk5 Vryhof drag anchors, -6m x 6m x 3m, constructed from mild steel
Mooring Anchor 3	172237.1	7624561.1	
Mooring Anchor 4	170594.8	7626195	
Mooring Anchor 5	170489.2	7626161.1	
Mooring Anchor 6	170372.9	7626127.5	
Mooring Anchor 7	169759.4	7623909.3	
Mooring Anchor 8	169828.7	7623775.8	
Mooring Anchor 9	169943.1	7623715.9	
Mooring support buoys	With mooring legs		Remove
Dynamic umbilical riser base	171433.8	7625113.9	Leave <i>in situ</i> proposed, with chains and clamps removed.
Water Injection riser base	171491.8	7624359.1	
H4 Gas lift riser base	171256.2	7624136.9	Riser bases are -4m in diameter, -7m high embedded in the seabed with -0.75m protruding, constructed from mild steel
EG1 gas injection riser base	171121.0	7625533.9	
H4 production riser base	171080.4	7624061.0	
H3 production riser base	170894.3	7624028.6	
H2 production riser base	170704.2	7624040.9	
H1 production riser base	170526.5	7624100.2	
EH1 production riser base	170921.2	7625578.0	
Flexible production flowlines	Between risers and drill centres		Remove
H4 flowline	Adjacent to H4 riser and drill centre		Remove – flowline was blocked with sand, hydrocarbons and hydrates during operation and attempts to unblock prior to removal will be made
Gas Injection/lift flowlines	Between risers and drill centres		Remove
Water Injection flowlines			Remove
Umbilicals			Remove
Jumpers	With drill centres		Remove
Water Injection manifold	171486.5	7624333.0	Remove
Riser base SDU	171223.8	7624891.4	Remove
SDU A	173159.3	7622671.3	Remove
SDU B	171004.5	7622008.6	Remove
SDU C	171443.1	7619702.8	Remove
SDU D	170065.5	7632321.3	Remove
DC-A UTA	173183.0	7622582.1	Remove
DC-B UTA	171019.6	7621973.9	Remove
Anode sklds	Various		Remove
Stybarrow 5 (I-3) well	173119.0	7622683.9	P&A of 10 wells. Removal of wellhead and subsea trees, either by MODU or CSV
Stybarrow 6 (I-2) well	173143.9	7622636.2	
Stybarrow 12 (H-5) well	173172.8	76225560.7	
Stybarrow 9 (I-1) well	171032.3	7621985.6	
Stybarrow 10 (H-3) well	170958.1	7621964.1	
Stybarrow 11 (H-4) well	170980.5	7622056.3	
Stybarrow 7 (H-2) well	171413.3	7619728.6	
Stybarrow 8 (H-1) well	171403.1	7619659.9	
Eskdale 3 (EH1) well	170065.1	7632345.3	
Eskdale 4 (EG1) well	170024.5	7632318.3	
Eskdale-1 well	170896.6	7634287.2	Well was plugged and abandoned in 2003 following drilling. Wellhead removal unsuccessful – proposed to remain <i>in situ</i>

Environment That May Be Affected (EMBA)

The environment that may be affected (EMBA) is the largest spatial extent where unplanned events could potentially have an environmental consequence. For this EP, the broadest extent of the EMBA has been determined by the highly unlikely event of a hydrocarbon release from both the direct and indirect activities the subject of the EP. The worst-case credible spill scenario for these EPs is loss of well containment during the well P&A activities.

The EMBA does not represent the predicted impact of the highly unlikely oil release. Rather, the EMBA represents the merged area of many possible paths that a highly unlikely hydrocarbon release could travel depending on 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 entire EMBA will not be affected and the specific and minimal part of the EMBA that is affected will only be known at the time of the release.

There are three potential EMBA's for this EP, reflecting the activities and the different locations that the activity could occur.

Each of the EMBA's are presented in Figure 2 below and summarised as:

- **Loss of Well Containment EMBA** : Primary activity of the Well P&A EP – P&A of 10 production/injection wells by a MODU.
- **Facilities Equipment Removal EMBA** : Primary activity for the Stybarrow Decommissioning and Field Management EP – Recovery of subsea infrastructure using a CSV.
- **DTM Tow Location EMBA** : Option for the removal of the DTM, an activity within the Stybarrow Decommissioning and Field Management EP – DTM towed from its current location approximately 65 km to permit area WA-12-L SR (adjacent to Griffin permit area) for recovery by the HLV in shallow water. This EMBA has been adopted from the worst-case spill from a vessel collision at the Griffin removal location.

Given the buried nature of the infrastructure proposed to remain in situ and the absence of related activities for the infrastructure, the EMBA for this EP is the footprint of the equipment.



Figure 2. Environment that may be affected (EMBA) for the proposed activity.

Stybarrow Plug and Abandonment Environment Plan

Mitigation and Management Measures

Woodside has undertaken an assessment to identify potential impacts and risks to the marine environment arising from the decommissioning activities considering timing, duration, location.

A number of mitigation and management measures for the removal of the RTM are outlined in **Table 3**. Further details will be provided in the EP.

Table 3. Summary of key risks and/or impacts and management measures for the Stybarrow Decommissioning activities. Key risks and/or impacts and management measure apply to activities occurring within the title area and tow location.

Potential Impact/ Risk	Description of Source of Potential Impact/ Risk	Description of Potential Impacts	Proposed Mitigation and/ or Management Measure
Planned			
Physical presence and interactions with other marine users	<ul style="list-style-type: none"> The activities will be undertaken using a range of project vessels, namely a MODU, CSV and a HLV, along with general support project vessels. A 500 m petroleum safety zone will apply around the equipment locations. If the DTM is towed out of title, a 500 m exclusion zone will apply to the DTM and project vessels during tow and lifting. Presence of vessels in the safety and exclusion zones has the potential to result in interaction with third-party marine users. 	<ul style="list-style-type: none"> Interference with commercial shipping. Interference with commercial fishing activity. Displacement of recreational fishing activity. Interaction with existing oil and gas infrastructure. 	<ul style="list-style-type: none"> 500 m petroleum safety zone maintained around equipment until removal. 500 m exclusion zone established around the MODU and project vessels. Activity support vessel(s) to communicate with third-party vessels to assist in maintaining the petroleum safety zone/ exclusion zones. Consultation with relevant persons for the consultation outcomes.
Physical presence of infrastructure on seabed causing seabed disturbance Interference and displacement of other marine users	<ul style="list-style-type: none"> Excess marine growth may need to be removed from the equipment prior to removal using high-pressure water jetting. Equipment deburial and short-term wet parking of infrastructure may be required. 	<ul style="list-style-type: none"> Removal activities may result in localised, temporary seabed disturbance from resuspension of sediments. Marine growth removal may result in highly localised seabed disturbance as debris deposits on the seabed. Interference or displacement of commercial fishing activity. Displacement of recreational fishing activity. 	<ul style="list-style-type: none"> Use controlled recovery techniques to limit seabed disturbance. Equipment to be marked on navigational charts until removal.
Discharges: Project Vessels	<ul style="list-style-type: none"> Sewage, greywater and putrescible waste will be discharged from project vessels. Bilge water, deck drainage and brine and cooling water may also be discharged. 	<ul style="list-style-type: none"> Short-term, localised impacts to water quality i.e. eutrophication from the addition of nutrients from these discharge fluids. 	<ul style="list-style-type: none"> All routine marine discharges will be managed according to legislative and regulatory requirements.
Discharges: Decommissioning Activities	<ul style="list-style-type: none"> During equipment removal, small volumes of treated seawater within the equipment will be released into the surrounding environment. Chemical use may be required to remove marine growth. During recovery of the blocked H4 flowline, it may be necessary to cut and recover rather than unblocking, resulting in a release of up to 14m³ crude oil and sand 	<ul style="list-style-type: none"> Localised short-term impacts to water quality from the release of seawater ballast and residual chemicals and hydrocarbons. 	<ul style="list-style-type: none"> Chemical reviews performed on all previously approved chemicals to confirm potential impacts are reduced to ALARP.

Stybarrow Plug and Abandonment Environment Plan

Potential Impact/ Risk	Description of Source of Potential Impact/ Risk	Description of Potential Impacts	Proposed Mitigation and/ or Management Measure
Light Emissions	<ul style="list-style-type: none"> Project vessels and MODU will use external lighting to navigate and conduct safe operations at night. Vessel lighting will also be used to communicate the vessel's presence to other marine users (i.e. navigation/ warning lights). Light emissions may be generated by flaring during well P&A if required. Flaring is only expected to occur for short durations (hours). 	<ul style="list-style-type: none"> Light emissions have the potential to affect fauna such as marine turtles and birds by influencing changes in behaviour or impacting their orientation. 	<ul style="list-style-type: none"> Implement relevant controls in the National Light Pollution Guidelines for Wildlife including Marine Turtles, Seabirds and Migratory Shorebirds (2020). Lighting will be limited to the minimum required for navigational and safety requirements except in emergency circumstances. Maintain a 12 km buffer from turtle nesting beaches during towing and lifting activities to avoid impacts to turtle hatchlings.
Noise Emissions	<ul style="list-style-type: none"> Project vessels will generate noise both in the air and underwater due to the operation of thruster engines, propellers, and the use of cutting tools subsea. 	<ul style="list-style-type: none"> Noise from project vessels and the MODU will contribute to ambient noise levels. Elevated underwater noise has the potential to affect marine fauna. 	<ul style="list-style-type: none"> Maintain a 12 km buffer from turtle nesting beaches during towing and lifting activities to avoid impacts to turtles. Compliance with legislative and regulatory requirements for interactions with marine fauna to prevent adverse interactions.
Atmospheric Emissions	<ul style="list-style-type: none"> Atmospheric emissions will be generated by the MODU and project vessels from internal combustion engines and incineration activities. Atmospheric emissions will be generated from venting of residual gas and contingent flaring from the MODU during P&A activities 	<ul style="list-style-type: none"> Emissions from project vessels could result in temporary, localised reductions in air quality in the immediate vicinity of the vessels. Venting or flaring of hydrocarbon gas may result in a short-lived localised gas plume and a minor contribution to greenhouse gas emissions 	<ul style="list-style-type: none"> Compliance with legislative and regulatory requirements for marine air pollution. Flaring and venting of hydrocarbons is restricted to a duration necessary to perform the P&A activity.
Unplanned			
Unplanned Hydrocarbon Release – vessel collision or Loss of Well Containment during P&A	<ul style="list-style-type: none"> Project vessels will use marine diesel fuel. In the unlikely event of a vessel collision involving a project vessel or third-party vessels during the activity, there is potential for a release of marine diesel fuel if the collision has enough force to penetrate the vessel hull in the exact location of the fuel tank. In the highly unlikely event of loss of well containment, there is the potential for a release of well fluids. 	<ul style="list-style-type: none"> In the highly unlikely event of a vessel collision causing a release of hydrocarbons, impacts to water quality and marine ecosystems could occur. 	<p>Preventing Vessel Collision:</p> <ul style="list-style-type: none"> 500 m exclusion zone established around the equipment and project vessels during removal activities. Compliance with legislative and regulatory requirements for the prevention of vessel collisions and safety and emergency arrangements. Consultation with relevant persons to ensure other marine users are informed and aware, reducing the likelihood of a collision. Develop a management plan for simultaneous operations where multiple campaigns occur concurrently in the same Operational Area. <p>Spill Response Arrangements:</p> <ul style="list-style-type: none"> Arrangements supporting the Oil Pollution Emergency Preparation document (OPEP) will be tested to ensure the OPEP can be implemented as planned. Emergency response activities would be implemented in line with the OPEP.

Stybarrow Plug and Abandonment Environment Plan

Potential Impact/ Risk	Description of Source of Potential Impact/ Risk	Description of Potential Impacts	Proposed Mitigation and/ or Management Measure
Deck Spills and Bunkering	<ul style="list-style-type: none"> Accidental deck spills from project vessels can include stored hydrocarbons, chemicals or equipment. 	<ul style="list-style-type: none"> Deck spills could result in short term, localised impacts to water quality or marine fauna in the immediate area surrounding the spill. 	<ul style="list-style-type: none"> Compliance with legislative and regulatory requirements for the prevention of marine pollution. Liquid chemical and fuel storage areas banded or secondarily contained when they are not being handled or temporarily moved. Maintain and locate spill kits in close proximity to hydrocarbon storage and deck areas for use to contain and recover deck spills Appropriate bunkering equipment kept and maintained, and contractors to follow procedures and requirements for bunkering and refuelling to reduce the likelihood of a spill.
Unplanned Discharge of Solid Hazardous/ Non- Hazardous Wastes	<ul style="list-style-type: none"> Accidental, unplanned loss of hazardous solid wastes such as oily rags or paint cans from the project vessels. 	<ul style="list-style-type: none"> Short term, localised impacts to water quality or marine fauna in the area surrounding the release. Incorrect classification of waste can also result in inappropriate disposal of hazardous decommissioning wastes. 	<ul style="list-style-type: none"> Compliance with legislative and regulatory requirements for the prevention of marine pollution and handling of hazardous wastes Project vessel waste arrangements to ensure waste is recorded and segregated and that all non-putrescible waste (excludes all food, greywater or sewage waste) to be disposed of onshore. Lost waste and dropped objects will be recovered, where safe and practicable. Waste contractors engaged to identify potential waste disposal pathways. Infrastructure and resource recovery strategy that ensures waste is handled and disposed of in accordance with applicable legislation, monitors and tracks waste and sets KPIs for recycling and reuse of decommissioned infrastructure.
Vessel Collision with Marine Fauna	<ul style="list-style-type: none"> Vessel movements have the potential to result in collisions between the vessel (hull and propellers) and marine fauna. 	<ul style="list-style-type: none"> Vessel disturbance presents a potential threat to marine mammals, marine reptiles and fish, sharks and rays. 	<ul style="list-style-type: none"> Compliance with legislative and regulatory requirements for interactions with marine fauna to reduce the likelihood of a collision occurring.
Disturbance to Seabed from Dropped Objects	<ul style="list-style-type: none"> Accidental, unplanned dropping of objects overboard from project vessels during recovery operations. 	<ul style="list-style-type: none"> Short term, localised impacts to sediment quality and benthic habitats. 	<ul style="list-style-type: none"> Project vessel inductions include control measures and training for crew in dropped object prevention. Lost waste/ dropped objects will be recovered where safe and practicable to do so. Procedures for lifts, bulk transfers and cargo loading if an unplanned object release does occur.
Accidental Introduction of Invasive Marine Species	<ul style="list-style-type: none"> Vessels transiting to the Operational Area may be subject to marine fouling whereby organisms attach to the vessel hull. Organisms can also be drawn into ballast tanks during onboarding of ballast water IMS could also be present as biofouling on subsea structures. 	<ul style="list-style-type: none"> It is not credible for IMS to be introduced and establish on the seabed or subsea structures in the Operational Area as these deep waters are not conducive to the settlement and establishment of IMS. There is potential for the transfer of IMS between the project vessels and DTM while in its currently location within the Operational Area, or for IMS to be established in the shallower waters of the controlled sinking location or tow route and lift location. 	<ul style="list-style-type: none"> Ballast water will be managed according to legislative and regulatory requirements. Application of Woodside's IMS risk assessment and appropriate management measures to the RTM, project vessels and relevant immersible equipment such as Remotely Operated Vehicles (ROVs), unless exempt.

Potential Impact/ Risk	Description of Source of Potential Impact/ Risk	Description of Potential Impacts	Proposed Mitigation and/ or Management Measure
Indirect			
Waste generation	<ul style="list-style-type: none"> Removal of the subsea equipment will result in the generation of waste products 	<ul style="list-style-type: none"> Generation of waste products that require appropriate management. 	<ul style="list-style-type: none"> Recovered equipment will be transported onshore by a licensed waste contractor for disposal including recycling and reuse opportunities. Waste generated on the vessels will be managed in accordance with legislative requirements. Wastes will be managed and disposed of in a safe and environmentally responsible manner that prevents accidental loss to the environment.

Feedback

If you would like to comment on the proposed activities outlined in this information sheet, or would like additional information, please contact Woodside before 17 March 2023 via:

E: Feedback@woodside.com.au
Toll free: 1800 442 977

You can subscribe on our website to receive Consultation Information Sheets for proposed activities: **www.woodside.com/sustainability/consultation-activities**.

Please note that stakeholder feedback will be communicated to the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA) as required under legislation. Woodside will communicate any material changes to the proposed activity to affected stakeholders as they arise.

Please note that your feedback and our response will be included in our 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 2009 (Cth)*.

Please let us know if your feedback for this activity is sensitive and we will make this known to NOPSEMA upon submission of the EP in order for this information to remain confidential to NOPSEMA.

2.2 Email sent to the following relevant persons (16 February 2023)

- Australian Border Force (ABF)
- Department of Industry, Science and Resources (DISR)
- Department of Mines, Industry Regulation and Safety (DMIRS)
- Australian Petroleum Production and Exploration Association (APPEA)
- Marine Tourism Association of Western Australia
- Pearl Producers Association
- Recfishwest
- Western Australian Game Fishing Association

Dear Stakeholder

Woodside is providing this update on the progressive decommissioning of the Griffin and Stybarrow fields, previously operated by BHP Petroleum Pty Ltd (BHP).

We are providing this information to ensure relevant persons are informed about the status of proposed activities, as there have been changes to activity scope and supporting consultation information since consultation commenced for these decommissioning projects in 2021.

The **Griffin Field** is in Commonwealth waters in Petroleum Licence WA-10-L, 65 km northwest of Onslow and 94 km northeast of Exmouth, Western Australia and in water depths of approximately 120 m.

The **Stybarrow Field** is in Commonwealth waters in Petroleum Licence WA-32-L, approximately 53 km northwest of Exmouth, Western Australia and in water depths of approximately 810 – 850 m.

A summary of proposed activities is outlined below, and more detailed information is provided in the attached Consultation Information Sheets. The Information Sheets provide details on activities proposed to be managed under a number of Environment Plans for each Field, including a summary of potential key risks and associated management measures. The Information Sheets are also available on our [website](#).

Any feedback provided previously on proposed activities will remain current where Environment Plans are under assessment by the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA).

Please let us know if you would like to update previous feedback or have any additional views by **17 March 2023**.

Activity:

	Griffin Field Decommissioning Activities	Stybarrow Field Decommissioning Activities
Summary:	Removal Activities <ul style="list-style-type: none">• Removal of subsea equipment (wellheads, trees, distribution skids,	Plugging and Abandonment (P&A) Activities <ul style="list-style-type: none">• Pre-execution activities associated with the well

	<p>risers, flexible flowlines, rigid flowlines, umbilicals, and the pipeline end module (PLEM)).</p> <ul style="list-style-type: none"> • Removal of the Riser Turret Mooring (RTM) and its moorings. Depending on the vessel utilised, recovery of the RTM may require sections of it to be towed to shallower water out of the title. • Removal of an exploration wellhead (Ramillies-1 in neighbouring petroleum title WA-12-L). • Ongoing field management activities. • Pigging and subsequent removal of the 26 km of Griffin Gas Export Pipeline (GEP) within Commonwealth waters. <p>In Situ Activities</p> <ul style="list-style-type: none"> • Proposal to leave in situ 12 RTM drag anchors (buried), 6 concrete gravity bases and 5 piled foundations for the PLEM and 4 distribution skids. 	<p>P&A, such as barrier testing and removal of marine growth.</p> <ul style="list-style-type: none"> • Well P&A of the 10 productions/injection wells by placing cement plugs in the wells to permanently prevent hydrocarbon release. • Cutting and removal of the wellhead and subsea tree assembly. • Unblocking of the H4 flowline, if deemed feasible. <p>Removal Activities</p> <ul style="list-style-type: none"> • Removal of subsea equipment (wellheads, trees, manifolds, risers, flexible flowlines, and umbilicals). • Removal of the Disconnectable Turret Mooring (DTM) and its moorings. Recovery of the DTM may require it to be towed to shallower water outside of permit area WA-32-L to support the DTM removal from the marine environment. • Ongoing field management activities (equipment monitoring and inspection). <p>In Situ Activities</p> <ul style="list-style-type: none"> • Proposed leave in situ of the 9 DTM drag anchors (buried), nine suction piles for the riser holdbacks and the historical exploration wellhead, Eskdale-1, which was unable to be removed following its drilling and abandonment in 2003.
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Stybarrow Plug and Abandonment Environment Plan

<p>Location:</p>	<ul style="list-style-type: none"> • 94 km northeast of Exmouth, Western Australia. 	<ul style="list-style-type: none"> • 53 km northwest of Exmouth, Western Australia.
<p>Approx. Water Depth (m):</p>	<ul style="list-style-type: none"> • Approx. 120 m. 	<ul style="list-style-type: none"> • Approx. 810 – 850 m.
<p>Schedule:</p>	<p>Removal Activities</p> <ul style="list-style-type: none"> • Earliest proposed removal activity start is estimated to be Q4 2023, subject to approvals, vessel availability and weather constraints. • Facilities removal must be completed no later than 31 December 2024, pursuant to General Direction 832. 	<p>Plugging and Abandonment (P&A) Activities</p> <ul style="list-style-type: none"> • Earliest P&A start is estimated to be Q4 2023, subject to approvals, MODU and vessel availability and weather constraints. • P&A activities must be completed no later than 30 September 2024, pursuant to General Direction 833. <p>Removal Activities</p> <ul style="list-style-type: none"> • Earliest facilities and DTM removal is estimated to be Q4 2023, subject to approvals, vessel availability and weather constraints. • Equipment removal must be completed no later than 31 March 2025, pursuant to General Direction 833.
<p>Duration:</p>	<p>Removal Activities</p> <ul style="list-style-type: none"> • Removal activities are anticipated to take approximately 6 months to complete and GEP removal activities are anticipated to take approximately 2 months to complete. 	<p>Plugging and Abandonment (P&A) Activities</p> <ul style="list-style-type: none"> • P&A activities are anticipated to take approximately 6 – 9 months. <p>Removal Activities</p> <ul style="list-style-type: none"> • Removal activities are anticipated to take approximately 4-6 months to complete and DTM removal activities are anticipated to take approximately 1 month to complete.

<p>Exclusionary/Cautious Zone:</p>	<p>Removal Activities</p> <ul style="list-style-type: none"> • The temporary Operational Area includes the area encompassing an approximate 1,500 m radius around the equipment. • A temporary 500 m exclusion zone will apply around the project vessels during removal and potential tow activities. 	<p>P&A Activities</p> <ul style="list-style-type: none"> • The Operational Area includes the area encompassing an approximate 3,000 m radius around each of the four drill centers within WA-32-L. • A temporary 500 m exclusion zone will apply around the MODU and the associated project vessels during P&A activities. <p>Removal Activities</p> <ul style="list-style-type: none"> • The temporary Operational Area includes the area encompassing an approximate 1,500 m radius around the subsea infrastructure and wellheads. • The DTM has an existing 1200 m radius petroleum safety zone which will continue to be in place until it is removed. • A temporary 500 m exclusion zone will apply around the CSV and the associated project vessels during removal activities. • A temporary 500 m exclusion zone will apply around the HLV and the associated project vessels during the removal of the DTM.
<p>Vessels:</p>	<p>Removal Activities</p> <ul style="list-style-type: none"> • Construction support vessel (CSV) and Heavy Lift Vessel (HLV) for recovery and pipeline removal activities. 	<p>P&A activities</p> <ul style="list-style-type: none"> • Semi-Submersible Mobile Offshore Drilling Unit (MODU) • The MODU will be supported by 2 to 3 offshore support vessels.

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	<ul style="list-style-type: none">• An anchor handling tug (AHT) to support the towing of the RTM to sheltered water.	Removal Activities <ul style="list-style-type: none">• CSV and HLV for recovery and activities.• AHTs to support the towing of the DTM to the shallower water location (if required).
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Feedback:

If you have any feedback on these activities, please respond to Woodside at: Feedback@woodside.com.au or 1800 442 977.

Your feedback and our response will be included in our Environment Plan which will be submitted to NOPSEMA for acceptance in accordance with the *Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2009* (Cth).

Please let us know if your feedback for this activity is sensitive and we will make this known to NOPSEMA upon submission of the Environment Plan in order for this information to remain confidential to NOPSEMA.

Please provide your views by **17 March 2023**.

You can also subscribe on our website to receive Consultation Information Sheets for proposed activities: www.woodside.com/sustainability/consultation-activities.

2.2.1 Email sent to the following relevant persons (10 March 2023)

- *Australian Border Force*
- *Department of Industry, Science and Resources (DISR)*
- *Department of Mines, Industry Regulation and Safety (DMIRS)*
- *Australian Petroleum Production and Exploration Association (APPEA)*
- *Marine Tourism Association of Western Australia*
- *Pearl Producers Association*
- *Western Australian Game Fishing Association*

Dear Stakeholder

Woodside previously consulted you (see email below) on Woodside's proposed activities for the progressive decommissioning of the Griffin and Stybarrow fields.

We provided this information to ensure relevant persons are informed about the status of proposed activities, as there have been changes to activity scope and supporting consultation information since consultation commenced for these decommissioning projects in 2021.

We would appreciate any feedback you may have by **17 March 2023** to support the development of our proposed Environment Plans.

Stybarrow Plug and Abandonment Environment Plan

Any feedback provided previously on proposed activities will remain current where Environment Plans are under assessment by the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA).

For reference:

- The **Griffin Field** is in Commonwealth waters in Petroleum Licence WA-10-L, 65 km northwest of Onslow and 94 km northeast of Exmouth, Western Australia and in water depths of approximately 120 m.
- The **Stybarrow Field** is in Commonwealth waters in Petroleum Licence WA-32-L, approximately 53 km northwest of Exmouth, Western Australia and in water depths of approximately 810 – 850 m.

Consultation Information Sheets for the proposed activities are attached, which provide a summary of potential key risks and associated management measures. The Information Sheets are also available on our [website](#).

Regards

Woodside Feedback

2.3 Email sent to North West Slope and Trawl Fishery (4 licence holders), Western Deepwater Trawl Fishery (5 licence holders) and Western Tuna and Billfish Fishery (4 licence holders) (17 February 2023)

Dear Licence Holder

Woodside is providing this update on the progressive decommissioning of the Griffin and Stybarrow fields, previously operated by BHP Petroleum Pty Ltd (BHP).

We are providing this information to ensure relevant persons are informed about the status of proposed activities, as there have been changes to activity scope and supporting consultation information since consultation commenced for these decommissioning projects in 2021.

The **Griffin Field** is in Commonwealth waters in Petroleum Licence WA-10-L, 65 km northwest of Onslow and 94 km northeast of Exmouth, Western Australia and in water depths of approximately 120 m.

The Stybarrow Field is in Commonwealth waters in Petroleum Licence WA-32-L, approximately 53 km northwest of Exmouth, Western Australia and in water depths of approximately 810 – 850 m.

Operational Areas and Exclusion Zones will apply around a range of vessels that will support plugging and abandonment and infrastructure recovery and removal activities, which are outlined in the activity summaries below.

A summary of proposed activities is outlined below and more detailed information is provided in the attached Consultation Information Sheets, including a summary of potential key risks and associated management measures. The Information Sheets are also available on our website.

Fisheries have been identified as being relevant based on fishing licence overlap with the activity area, assessment of government fishing effort data (including Fishcube and AFMA

Stybarrow Plug and Abandonment Environment Plan

) from recent years, fishing methods and water depth.

Any feedback provided previously on proposed activities will remain current where Environment Plans are under assessment by the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA). Please let us know if you would like to update previous feedback or have any additional views by 17 March 2023.

Activity:

	Griffin Field Decommissioning Activities	Stybarrow Field Decommissioning Activities
Summary:	<p>Removal Activities</p> <ul style="list-style-type: none"> • Removal of subsea equipment (wellheads, trees, distribution skids, risers, flexible flowlines, rigid flowlines, umbilicals, and the pipeline end module (PLEM)). • Removal of the Riser Turret Mooring (RTM) and its moorings. Depending on the vessel utilised, recovery of the RTM may require sections of it to be towed to shallower water out of the title. • Removal of an exploration wellhead (Ramillies-1 in neighbouring petroleum title WA-12-L). • Ongoing field management activities. • Pigging and subsequent removal of the 26 km of Griffin Gas Export Pipeline (GEP) within Commonwealth waters. <p>In Situ Activities</p> <ul style="list-style-type: none"> • Proposal to leave in situ 12 RTM drag anchors (buried), 6 concrete gravity bases and 5 piled 	<p>Plugging and Abandonment (P&A) Activities</p> <ul style="list-style-type: none"> • Pre-execution activities associated with the well P&A, such as barrier testing and removal of marine growth. • Well P&A of the 10 productions/injection wells by placing cement plugs in the wells to permanently prevent hydrocarbon release. • Cutting and removal of the wellhead and subsea tree assembly. • Unblocking of the H4 flowline, if deemed feasible. <p>Removal Activities</p> <ul style="list-style-type: none"> • Removal of subsea equipment (wellheads, trees, manifolds, risers, flexible flowlines, and umbilicals). • Removal of the Disconnectable Turret Mooring (DTM) and its moorings. Recovery of the DTM may require it to be towed to shallower water outside of permit area WA-32-L to support the DTM

Stybarrow Plug and Abandonment Environment Plan

	<p>foundations for the PLEM and 4 distribution skids.</p>	<p>removal from the marine environment.</p> <ul style="list-style-type: none"> • Ongoing field management activities (equipment monitoring and inspection). <p>In Situ Activities</p> <ul style="list-style-type: none"> • Proposed leave in situ of the 9 DTM drag anchors (buried), nine suction piles for the riser holdbacks and the historical exploration wellhead, Eskdale-1, which was unable to be removed following its drilling and abandonment in 2003.
Location:	<ul style="list-style-type: none"> • 94 km northeast of Exmouth, Western Australia. 	<ul style="list-style-type: none"> • 53 km northwest of Exmouth, Western Australia.
Approx. Water Depth (m):	<ul style="list-style-type: none"> • Approx. 120 m. 	<ul style="list-style-type: none"> • Approx. 810 – 850 m.
Schedule:	<p>Removal Activities</p> <ul style="list-style-type: none"> • Earliest proposed removal activity start is estimated to be Q4 2023, subject to approvals, vessel availability and weather constraints. • Facilities removal must be completed no later than 31 December 2024, pursuant to General Direction 832. 	<p>Plugging and Abandonment (P&A) Activities</p> <ul style="list-style-type: none"> • Earliest P&A start is estimated to be Q4 2023, subject to approvals, MODU and vessel availability and weather constraints. • P&A activities must be completed no later than 30 September 2024, pursuant to General Direction 833. <p>Removal Activities</p> <ul style="list-style-type: none"> • Earliest facilities and DTM removal is estimated to be Q4 2023, subject to approvals, vessel availability and weather constraints. • Equipment removal must be completed no later than 31 March 2025, pursuant to General Direction 833.

<p>Duration:</p>	<p>Removal Activities</p> <ul style="list-style-type: none"> Removal activities are anticipated to take approximately 6 months to complete and GEP removal activities are anticipated to take approximately 2 months to complete. 	<p>Plugging and Abandonment (P&A) Activities</p> <ul style="list-style-type: none"> P&A activities are anticipated to take approximately 6 – 9 months. <p>Removal Activities</p> <ul style="list-style-type: none"> Removal activities are anticipated to take approximately 4-6 months to complete and DTM removal activities are anticipated to take approximately 1 month to complete.
<p>Exclusionary/Cautious Zone:</p>	<p>Removal Activities</p> <ul style="list-style-type: none"> The temporary Operational Area includes the area encompassing an approximate 1,500 m radius around the equipment. A temporary 500 m exclusion zone will apply around the project vessels during removal and potential tow activities. 	<p>P&A Activities</p> <ul style="list-style-type: none"> The Operational Area includes the area encompassing an approximate 3,000 m radius around each of the four drill centers within WA-32-L. A temporary 500 m exclusion zone will apply around the MODU and the associated project vessels during P&A activities. <p>Removal Activities</p> <ul style="list-style-type: none"> The temporary Operational Area includes the area encompassing an approximate 1,500 m radius around the subsea infrastructure and wellheads. The DTM has an existing 1200 m radius petroleum safety zone which will continue to be in place until it is removed. A temporary 500 m exclusion zone will apply around the CSV and the

Stybarrow Plug and Abandonment Environment Plan

		<p>associated project vessels during removal activities.</p> <ul style="list-style-type: none"> • A temporary 500 m exclusion zone will apply around the HLV and the associated project vessels during the removal of the DTM.
Vessels:	<p>Removal Activities</p> <ul style="list-style-type: none"> • Construction support vessel (CSV) and Heavy Lift Vessel (HLV) for recovery and pipeline removal activities. • An anchor handling tug (AHT) to support the towing of the RTM to sheltered water. 	<p>P&A activities</p> <ul style="list-style-type: none"> • Semi-Submersible Mobile Offshore Drilling Unit (MODU) • The MODU will be supported by 2 to 3 offshore support vessels. <p>Removal Activities</p> <ul style="list-style-type: none"> • CSV and HLV for recovery and activities. • AHTs to support the towing of the DTM to the shallower water location (if required).

Commonwealth-managed fishery implications:

We note there are three overlapping Commonwealth managed fisheries (listed below) in the Environments that May Be Affected (EMBAs) for the Griffin and Stybarrow decommissioning projects, of which the Western Deepwater Trawl Fishery may have been active in the Stybarrow Operational Area (see attached Information Sheets for more details).

- Western Tuna and Billfish
- North West Slope Trawl
- Western Deepwater Trawl

Woodside is consulting licence holders in these fisheries, as well as providing information to representative organisations on AFMA advice that it expects all Commonwealth fishers who have entitlements to fish within the proposed area to be consulted, which can be through the relevant fishing industry associations.

Feedback:

If you have any feedback on these activities, please respond to Woodside at: Feedback@woodside.com.au or 1800 442 977.

Your feedback and our response will be included in our Environment Plan which will be submitted to NOPSEMA for acceptance in accordance with the *Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2009* (Cth).

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Please let us know if your feedback for this activity is sensitive and we will make this known to NOPSEMA upon submission of the Environment Plan in order for this information to remain confidential to NOPSEMA. Please provide your views by **17 March 2023**.

You can also subscribe on our website to receive Consultation Information Sheets for proposed activities: www.woodside.com/sustainability/consultation-activities.

2.3.1 Email sent to North West Slope and Trawl Fishery (4 licence holders), Western Deepwater Trawl Fishery (5 licence holders) and Western Tuna and Billfish Fishery (4 licence holders) (10 March 2023)

Dear Licence Holder

Woodside previously consulted you (see email below) on Woodside's proposed activities for the progressive decommissioning of the Griffin and Stybarrow fields.

We provided this information to ensure relevant persons are informed about the status of proposed activities, as there have been changes to activity scope and supporting consultation information since consultation commenced for these decommissioning projects in 2021.

We would appreciate any feedback you may have by **17 March 2023** to support the development of our proposed Environment Plans.

Any feedback provided previously on proposed activities will remain current where Environment Plans are under assessment by the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA).

For reference:

- The **Griffin Field** is in Commonwealth waters in Petroleum Licence WA-10-L, 65 km northwest of Onslow and 94 km northeast of Exmouth, Western Australia and in water depths of approximately 120 m.
- The **Stybarrow Field** is in Commonwealth waters in Petroleum Licence WA-32-L, approximately 53 km northwest of Exmouth, Western Australia and in water depths of approximately 810 – 850 m.

Consultation Information Sheets for the proposed activities are attached, which provide a summary of potential key risks and associated management measures. The Information Sheets are also available on our [website](#).

Regards

2.4 Email sent to titleholders (17 February 2023)

- *BP Australia*
- *Carnarvon Energy*
- *Chevron*
- *ENI*

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- *Finder Energy*
- *Jadestone Energy*
- *JX Nippon*
- *KUFPEC*
- *ExxonMobil*
- *Santos*
- *Sapura OMV*
- *TGS*
- *Vermilion Energy*
- *Western Gas*

Dear Titleholder

Woodside is providing this update on the progressive decommissioning of the Griffin and Stybarrow fields, previously operated by BHP Petroleum Pty Ltd (BHP).

We are providing this information to ensure relevant persons are informed about the status of proposed activities, as there have been changes to activity scope and supporting consultation information since consultation commenced for these decommissioning projects in 2021.

The **Griffin Field** is in Commonwealth waters in Petroleum Licence WA-10-L, 65 km northwest of Onslow and 94 km northeast of Exmouth, Western Australia and in water depths of approximately 120 m.

The **Stybarrow Field** is in Commonwealth waters in Petroleum Licence WA-32-L, approximately 53 km northwest of Exmouth, Western Australia and in water depths of approximately 810 – 850 m.

A summary of proposed activities is outlined below, and more detailed information is provided in the attached Consultation Information Sheets. The Information Sheets provide details on activities proposed to be managed under a number of Environment Plans for each Field, including a summary of potential key risks and associated management measures. The Information Sheets are also available on our [website](#).

Any feedback provided previously on proposed activities will remain current where Environment Plans are under assessment by the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA).

Please let us know if you would like to update previous feedback or have any additional views by **17 March 2023**.

Activity:

	Griffin Field Decommissioning Activities	Stybarrow Field Decommissioning Activities
Summary:	Removal Activities <ul style="list-style-type: none">• Removal of subsea equipment (wellheads,	Plugging and Abandonment (P&A) Activities <ul style="list-style-type: none">• Pre-execution activities associated with the well P&A,

	<p>trees, distribution skids, risers, flexible flowlines, rigid flowlines, umbilicals, and the pipeline end module (PLEM)).</p> <ul style="list-style-type: none"> • Removal of the Riser Turret Mooring (RTM) and its moorings. Depending on the vessel utilised, recovery of the RTM may require sections of it to be towed to shallower water out of the title. • Removal of an exploration wellhead (Ramillies-1 in neighbouring petroleum title WA-12-L). • Ongoing field management activities. • Pigging and subsequent removal of the 26 km of Griffin Gas Export Pipeline (GEP) within Commonwealth waters. 	<p>such as barrier testing and removal of marine growth.</p> <ul style="list-style-type: none"> • Well P&A of the 10 productions/injection wells by placing cement plugs in the wells to permanently prevent hydrocarbon release. • Cutting and removal of the wellhead and subsea tree assembly. • Unblocking of the H4 flowline, if deemed feasible. <p>Removal Activities</p> <ul style="list-style-type: none"> • Removal of subsea equipment (wellheads, trees, manifolds, risers, flexible flowlines, and umbilicals). • Removal of the Disconnectable Turret Mooring (DTM) and its moorings. Recovery of the DTM may require it to be towed to shallower water outside of permit area WA-32-L to support the DTM removal from the marine environment. • Ongoing field management activities (equipment monitoring and inspection). <p>In Situ Activities</p>
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	<ul style="list-style-type: none"> Proposal to leave in situ 12 RTM drag anchors (buried), 6 concrete gravity bases and 5 piled foundations for the PLEM and 4 distribution skids. 	<ul style="list-style-type: none"> Proposed leave in situ of the 9 DTM drag anchors (buried), nine suction piles for the riser holdbacks and the historical exploration wellhead, Eskdale-1, which was unable to be removed following its drilling and abandonment in 2003.
Location:	<ul style="list-style-type: none"> 94 km northeast of Exmouth, Western Australia. 	<ul style="list-style-type: none"> 53 km northwest of Exmouth, Western Australia.
Approx. Water Depth (m):	<ul style="list-style-type: none"> Approx. 120 m. 	<ul style="list-style-type: none"> Approx. 810 – 850 m.
Schedule:	<p>Removal Activities</p> <ul style="list-style-type: none"> Earliest proposed removal activity start is estimated to be Q4 2023, subject to approvals, vessel availability and weather constraints. Facilities removal must be completed no later than 31 December 2024, pursuant to General Direction 832. 	<p>Plugging and Abandonment (P&A) Activities</p> <ul style="list-style-type: none"> Earliest P&A start is estimated to be Q4 2023, subject to approvals, MODU and vessel availability and weather constraints. P&A activities must be completed no later than 30 September 2024, pursuant to General Direction 833. <p>Removal Activities</p> <ul style="list-style-type: none"> Earliest facilities and DTM removal is estimated to be Q4 2023, subject to approvals, vessel availability and weather constraints. Equipment removal must be completed no later than 31

		March 2025, pursuant to General Direction 833.
Duration:	<p>Removal Activities</p> <ul style="list-style-type: none"> Removal activities are anticipated to take approximately 6 months to complete and GEP removal activities are anticipated to take approximately 2 months to complete. 	<p>Plugging and Abandonment (P&A) Activities</p> <ul style="list-style-type: none"> P&A activities are anticipated to take approximately 6 – 9 months. <p>Removal Activities</p> <ul style="list-style-type: none"> Removal activities are anticipated to take approximately 4-6 months to complete and DTM removal activities are anticipated to take approximately 1 month to complete.
Exclusionary/Cautious Zone:	<p>Removal Activities</p> <ul style="list-style-type: none"> The temporary Operational Area includes the area encompassing an approximate 1,500 m radius around the equipment. A temporary 500 m exclusion zone will apply around the project vessels during removal and potential tow activities. 	<p>P&A Activities</p> <ul style="list-style-type: none"> The Operational Area includes the area encompassing an approximate 3,000 m radius around each of the four drill centers within WA-32-L. A temporary 500 m exclusion zone will apply around the MODU and the associated project vessels during P&A activities. <p>Removal Activities</p> <ul style="list-style-type: none"> The temporary Operational Area includes the area encompassing an approximate 1,500 m radius around the subsea infrastructure and wellheads.

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		<ul style="list-style-type: none"> • The DTM has an existing 1200 m radius petroleum safety zone which will continue to be in place until it is removed. • A temporary 500 m exclusion zone will apply around the CSV and the associated project vessels during removal activities. • A temporary 500 m exclusion zone will apply around the HLV and the associated project vessels during the removal of the DTM.
<p>Vessels:</p>	<p>Removal Activities</p> <ul style="list-style-type: none"> • Construction support vessel (CSV) and Heavy Lift Vessel (HLV) for recovery and pipeline removal activities. • An anchor handling tug (AHT) to support the towing of the RTM to sheltered water. 	<p>P&A activities</p> <ul style="list-style-type: none"> • Semi-Submersible Mobile Offshore Drilling Unit (MODU) • The MODU will be supported by 2 to 3 offshore support vessels. <p>Removal Activities</p> <ul style="list-style-type: none"> • CSV and HLV for recovery and activities. • AHTs to support the towing of the DTM to the shallower water location (if required).

Feedback:

If you have any feedback on these activities, please respond to Woodside at: Feedback@woodside.com.au or 1800 442 977.

Your feedback and our response will be included in our Environment Plan which will be submitted to NOPSEMA for acceptance in accordance with the *Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2009* (Cth).

Stybarrow Plug and Abandonment Environment Plan

Please let us know if your feedback for this activity is sensitive and we will make this known to NOPSEMA upon submission of the Environment Plan in order for this information to remain confidential to NOPSEMA.

Please provide your views by **17 March 2023**.

You can also subscribe on our website to receive Consultation Information Sheets for proposed activities: www.woodside.com/sustainability/consultation-activities.

2.4.1 Email sent to titleholders (10 March 2023)

- *BP Australia*
- *Carnarvon Energy*
- *Chevron*
- *ENI*
- *Finder Energy*
- *Jadestone energy*
- *JX Nippon*
- *KUFPEC*
- *ExxonMobil*
- *Santos*
- *Sapura OMV*
- *TGS*
- *Vermilion Energy*
- *Western Gas*

Dear Titleholder

Woodside previously consulted you (see email below) on Woodside's proposed activities for the progressive decommissioning of the Griffin and Stybarrow fields.

We provided this information to ensure relevant persons are informed about the status of proposed activities, as there have been changes to activity scope and supporting consultation information since consultation commenced for these decommissioning projects in 2021.

We would appreciate any feedback you may have by **17 March 2023** to support the development of our proposed Environment Plans.

Any feedback provided previously on proposed activities will remain current where Environment Plans are under assessment by the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA).

For reference:

- The **Griffin Field** is in Commonwealth waters in Petroleum Licence WA-10-L, 65 km northwest of Onslow and 94 km northeast of Exmouth, Western Australia and in water depths of approximately 120 m.

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- The **Stybarrow Field** is in Commonwealth waters in Petroleum Licence WA-32-L, approximately 53 km northwest of Exmouth, Western Australia and in water depths of approximately 810 – 850 m.

Consultation Information Sheets for the proposed activities are attached, which provide a summary of potential key risks and associated management measures. The Information Sheets are also available on our [website](#).

Regards

Woodside Feedback

2.5 Email sent to the Shire of Carnarvon (16 February 2023)

Dear Shire of Carnarvon

Woodside is providing this update on the progressive decommissioning of the Griffin and Stybarrow fields, previously operated by BHP Petroleum Pty Ltd (BHP).

We are providing this information to ensure relevant persons are informed about the status of proposed activities, as there have been changes to activity scope and supporting consultation information since consultation commenced for these decommissioning projects in 2021.

The **Griffin Field** is in Commonwealth waters in Petroleum Licence WA-10-L, 65 km northwest of Onslow and 94 km northeast of Exmouth, Western Australia and in water depths of approximately 120 m.

The **Stybarrow Field** is in Commonwealth waters in Petroleum Licence WA-32-L, approximately 53 km northwest of Exmouth, Western Australia and in water depths of approximately 810 – 850 m.

A summary of proposed activities is outlined below, and more detailed information is provided in the attached Consultation Information Sheets. The Information Sheets provide details on activities proposed to be managed under a number of Environment Plans for each Field, including a summary of potential key risks and associated management measures. The Information Sheets are also available on our [website](#).

Any feedback provided previously on proposed activities will remain current where Environment Plans are under assessment by the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA).

Please let us know if you would like to update previous feedback or have any additional views by **17 March 2023**.

Activity:

	Griffin Field Decommissioning Activities	Stybarrow Field Decommissioning Activities
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<p>Summary:</p>	<p>Removal Activities</p> <ul style="list-style-type: none"> • Removal of subsea equipment (wellheads, trees, distribution skids, risers, flexible flowlines, rigid flowlines, umbilicals, and the pipeline end module (PLEM)). • Removal of the Riser Turret Mooring (RTM) and its moorings. Depending on the vessel utilised, recovery of the RTM may require sections of it to be towed to shallower water out of the title. • Removal of an exploration wellhead (Ramillies-1 in neighbouring petroleum title WA-12-L). • Ongoing field management activities. • Pigging and subsequent removal of the 26 km of Griffin Gas Export Pipeline (GEP) within Commonwealth waters. <p>In Situ Activities</p> <ul style="list-style-type: none"> • Proposal to leave in situ 12 RTM drag anchors (buried), 6 concrete gravity bases and 5 piled foundations for the PLEM and 4 distribution skids. 	<p>Plugging and Abandonment (P&A) Activities</p> <ul style="list-style-type: none"> • Pre-execution activities associated with the well P&A, such as barrier testing and removal of marine growth. • Well P&A of the 10 productions/injection wells by placing cement plugs in the wells to permanently prevent hydrocarbon release. • Cutting and removal of the wellhead and subsea tree assembly. • Unblocking of the H4 flowline, if deemed feasible. <p>Removal Activities</p> <ul style="list-style-type: none"> • Removal of subsea equipment (wellheads, trees, manifolds, risers, flexible flowlines, and umbilicals). • Removal of the Disconnectable Turret Mooring (DTM) and its moorings. Recovery of the DTM may require it to be towed to shallower water outside of permit area WA-32-L to support the DTM removal from the marine environment. • Ongoing field management activities (equipment monitoring and inspection). <p>In Situ Activities</p> <ul style="list-style-type: none"> • Proposed leave in situ of the 9 DTM drag anchors (buried), nine suction piles for the riser holdbacks and
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		the historical exploration wellhead, Eskdale-1, which was unable to be removed following its drilling and abandonment in 2003.
Location:	<ul style="list-style-type: none"> 94 km northeast of Exmouth, Western Australia. 	<ul style="list-style-type: none"> 53 km northwest of Exmouth, Western Australia.
Approx. Water Depth (m):	<ul style="list-style-type: none"> Approx. 120 m. 	<ul style="list-style-type: none"> Approx. 810 – 850 m.
Schedule:	<p>Removal Activities</p> <ul style="list-style-type: none"> Earliest proposed removal activity start is estimated to be Q4 2023, subject to approvals, vessel availability and weather constraints. Facilities removal must be completed no later than 31 December 2024, pursuant to General Direction 832. 	<p>Plugging and Abandonment (P&A) Activities</p> <ul style="list-style-type: none"> Earliest P&A start is estimated to be Q4 2023, subject to approvals, MODU and vessel availability and weather constraints. P&A activities must be completed no later than 30 September 2024, pursuant to General Direction 833. <p>Removal Activities</p> <ul style="list-style-type: none"> Earliest facilities and DTM removal is estimated to be Q4 2023, subject to approvals, vessel availability and weather constraints. Equipment removal must be completed no later than 31 March 2025, pursuant to General Direction 833.
Duration:	<p>Removal Activities</p> <ul style="list-style-type: none"> Removal activities are anticipated to take approximately 6 months to complete and GEP removal activities are anticipated to take approximately 2 months to complete. 	<p>Plugging and Abandonment (P&A) Activities</p> <ul style="list-style-type: none"> P&A activities are anticipated to take approximately 6 – 9 months. <p>Removal Activities</p> <ul style="list-style-type: none"> Removal activities are anticipated to take approximately 4-6 months to complete and DTM removal activities are

		anticipated to take approximately 1 month to complete.
Exclusionary/Cautious Zone:	<p>Removal Activities</p> <ul style="list-style-type: none"> The temporary Operational Area includes the area encompassing an approximate 1,500 m radius around the equipment. A temporary 500 m exclusion zone will apply around the project vessels during removal and potential tow activities. 	<p>P&A Activities</p> <ul style="list-style-type: none"> The Operational Area includes the area encompassing an approximate 3,000 m radius around each of the four drill centers within WA-32-L. A temporary 500 m exclusion zone will apply around the MODU and the associated project vessels during P&A activities. <p>Removal Activities</p> <ul style="list-style-type: none"> The temporary Operational Area includes the area encompassing an approximate 1,500 m radius around the subsea infrastructure and wellheads. The DTM has an existing 1200 m radius petroleum safety zone which will continue to be in place until it is removed. A temporary 500 m exclusion zone will apply around the CSV and the associated project vessels during removal activities. A temporary 500 m exclusion zone will apply around the HLV and the associated project vessels during the removal of the DTM.
Vessels:	<p>Removal Activities</p> <ul style="list-style-type: none"> Construction support vessel (CSV) and Heavy Lift Vessel (HLV) for recovery 	<p>P&A activities</p> <ul style="list-style-type: none"> Semi-Submersible Mobile Offshore Drilling Unit (MODU)

Stybarrow Plug and Abandonment Environment Plan

	<p>and pipeline removal activities.</p> <ul style="list-style-type: none">• An anchor handling tug (AHT) to support the towing of the RTM to sheltered water.	<ul style="list-style-type: none">• The MODU will be supported by 2 to 3 offshore support vessels. <p>Removal Activities</p> <ul style="list-style-type: none">• CSV and HLV for recovery and activities.• AHTs to support the towing of the DTM to the shallower water location (if required).
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Feedback:

If you have any feedback on these activities, please respond to Woodside at: Feedback@woodside.com.au or 1800 442 977.

Your feedback and our response will be included in our Environment Plan which will be submitted to NOPSEMA for acceptance in accordance with the *Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2009* (Cth).

Please let us know if your feedback for this activity is sensitive and we will make this known to NOPSEMA upon submission of the Environment Plan in order for this information to remain confidential to NOPSEMA.

Please provide your views by **17 March 2023**.

You can also subscribe on our website to receive Consultation Information Sheets for proposed activities: www.woodside.com/sustainability/consultation-activities.

2.5.1 Email sent to Shire of Carnarvon (10 March 2023)

Dear Shire of Carnarvon

Woodside previously consulted you (see email below) on Woodside's proposed activities for the progressive decommissioning of the Griffin and Stybarrow fields.

We provided this information to ensure relevant persons are informed about the status of proposed activities, as there have been changes to activity scope and supporting consultation information since consultation commenced for these decommissioning projects in 2021.

We would appreciate any feedback you may have by **17 March 2023** to support the development of our proposed Environment Plans.

Any feedback provided previously on proposed activities will remain current where Environment Plans are under assessment by the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA).

For reference:

Stybarrow Plug and Abandonment Environment Plan

- The **Griffin Field** is in Commonwealth waters in Petroleum Licence WA-10-L, 65 km northwest of Onslow and 94 km northeast of Exmouth, Western Australia and in water depths of approximately 120 m.
- The **Stybarrow Field** is in Commonwealth waters in Petroleum Licence WA-32-L, approximately 53 km northwest of Exmouth, Western Australia and in water depths of approximately 810 – 850 m.

Consultation Information Sheets for the proposed activities are attached, which provide a summary of potential key risks and associated management measures. The Information Sheets are also available on our [website](#).

Regards

Woodside Feedback

2.6 Email sent to the Town of Port Hedland (16 February 2023)

For the Attention of the CEO, Town of Port Hedland

Dear Town of Port Hedland

Woodside is providing this update on the progressive decommissioning of the Griffin and Stybarrow fields, previously operated by BHP Petroleum Pty Ltd (BHP).

We are providing this information to ensure relevant persons are informed about the status of proposed activities, as there have been changes to activity scope and supporting consultation information since consultation commenced for these decommissioning projects in 2021.

The **Griffin Field** is in Commonwealth waters in Petroleum Licence WA-10-L, 65 km northwest of Onslow and 94 km northeast of Exmouth, Western Australia and in water depths of approximately 120 m.

The **Stybarrow Field** is in Commonwealth waters in Petroleum Licence WA-32-L, approximately 53 km northwest of Exmouth, Western Australia and in water depths of approximately 810 – 850 m.

A summary of proposed activities is outlined below, and more detailed information is provided in the attached Consultation Information Sheets. The Information Sheets provide details on activities proposed to be managed under a number of Environment Plans for each Field, including a summary of potential key risks and associated management measures. The Information Sheets are also available on our [website](#).

Any feedback provided previously on proposed activities will remain current where Environment Plans are under assessment by the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA).

Please let us know if you would like to update previous feedback or have any additional views by **17 March 2023**.

Activity:

	Griffin Field Decommissioning Activities	Stybarrow Field Decommissioning Activities
<p>Summary:</p>	<p>Removal Activities</p> <ul style="list-style-type: none"> • Removal of subsea equipment (wellheads, trees, distribution skids, risers, flexible flowlines, rigid flowlines, umbilicals, and the pipeline end module (PLEM)). • Removal of the Riser Turret Mooring (RTM) and its moorings. Depending on the vessel utilised, recovery of the RTM may require sections of it to be towed to shallower water out of the title. • Removal of an exploration wellhead (Ramillies-1 in neighbouring petroleum title WA-12-L). • Ongoing field management activities. • Pigging and subsequent removal of the 26 km of Griffin Gas Export Pipeline (GEP) within Commonwealth waters. <p>In Situ Activities</p> <ul style="list-style-type: none"> • Proposal to leave in situ 12 RTM drag anchors (buried), 6 concrete gravity bases and 5 piled foundations for the PLEM and 4 distribution skids. 	<p>Plugging and Abandonment (P&A) Activities</p> <ul style="list-style-type: none"> • Pre-execution activities associated with the well P&A, such as barrier testing and removal of marine growth. • Well P&A of the 10 productions/injection wells by placing cement plugs in the wells to permanently prevent hydrocarbon release. • Cutting and removal of the wellhead and subsea tree assembly. • Unblocking of the H4 flowline, if deemed feasible. <p>Removal Activities</p> <ul style="list-style-type: none"> • Removal of subsea equipment (wellheads, trees, manifolds, risers, flexible flowlines, and umbilicals). • Removal of the Disconnectable Turret Mooring (DTM) and its moorings. Recovery of the DTM may require it to be towed to shallower water outside of permit area WA-32-L to support the DTM removal from the marine environment. • Ongoing field management activities (equipment monitoring and inspection). <p>In Situ Activities</p> <ul style="list-style-type: none"> • Proposed leave in situ of the 9 DTM drag anchors

Stybarrow Plug and Abandonment Environment Plan

		(buried), nine suction piles for the riser holdbacks and the historical exploration wellhead, Eskdale-1, which was unable to be removed following its drilling and abandonment in 2003.
Location:	<ul style="list-style-type: none"> 94 km northeast of Exmouth, Western Australia. 	<ul style="list-style-type: none"> 53 km northwest of Exmouth, Western Australia.
Approx. Water Depth (m):	<ul style="list-style-type: none"> Approx. 120 m. 	<ul style="list-style-type: none"> Approx. 810 – 850 m.
Schedule:	<p>Removal Activities</p> <ul style="list-style-type: none"> Earliest proposed removal activity start is estimated to be Q4 2023, subject to approvals, vessel availability and weather constraints. Facilities removal must be completed no later than 31 December 2024, pursuant to General Direction 832. 	<p>Plugging and Abandonment (P&A) Activities</p> <ul style="list-style-type: none"> Earliest P&A start is estimated to be Q4 2023, subject to approvals, MODU and vessel availability and weather constraints. P&A activities must be completed no later than 30 September 2024, pursuant to General Direction 833. <p>Removal Activities</p> <ul style="list-style-type: none"> Earliest facilities and DTM removal is estimated to be Q4 2023, subject to approvals, vessel availability and weather constraints. Equipment removal must be completed no later than 31 March 2025, pursuant to General Direction 833.
Duration:	<p>Removal Activities</p> <ul style="list-style-type: none"> Removal activities are anticipated to take approximately 6 months to complete and GEP removal activities are anticipated to take approximately 2 months to complete. 	<p>Plugging and Abandonment (P&A) Activities</p> <ul style="list-style-type: none"> P&A activities are anticipated to take approximately 6 – 9 months. <p>Removal Activities</p> <ul style="list-style-type: none"> Removal activities are anticipated to take approximately 4-6 months

		to complete and DTM removal activities are anticipated to take approximately 1 month to complete.
Exclusionary/Cautious Zone:	<p>Removal Activities</p> <ul style="list-style-type: none"> • The temporary Operational Area includes the area encompassing an approximate 1,500 m radius around the equipment. • A temporary 500 m exclusion zone will apply around the project vessels during removal and potential tow activities. 	<p>P&A Activities</p> <ul style="list-style-type: none"> • The Operational Area includes the area encompassing an approximate 3,000 m radius around each of the four drill centers within WA-32-L. • A temporary 500 m exclusion zone will apply around the MODU and the associated project vessels during P&A activities. <p>Removal Activities</p> <ul style="list-style-type: none"> • The temporary Operational Area includes the area encompassing an approximate 1,500 m radius around the subsea infrastructure and wellheads. • The DTM has an existing 1200 m radius petroleum safety zone which will continue to be in place until it is removed. • A temporary 500 m exclusion zone will apply around the CSV and the associated project vessels during removal activities. • A temporary 500 m exclusion zone will apply around the HLV and the associated project vessels during the removal of the DTM.
Vessels:	Removal Activities	P&A activities

	<ul style="list-style-type: none">• Construction support vessel (CSV) and Heavy Lift Vessel (HLV) for recovery and pipeline removal activities.• An anchor handling tug (AHT) to support the towing of the RTM to sheltered water.	<ul style="list-style-type: none">• Semi-Submersible Mobile Offshore Drilling Unit (MODU)• The MODU will be supported by 2 to 3 offshore support vessels. <p>Removal Activities</p> <ul style="list-style-type: none">• CSV and HLV for recovery and activities.• AHTs to support the towing of the DTM to the shallower water location (if required).
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Feedback:

If you have any feedback on these activities, please respond to Woodside at: Feedback@woodside.com.au or 1800 442 977.

Your feedback and our response will be included in our Environment Plan which will be submitted to NOPSEMA for acceptance in accordance with the *Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2009* (Cth).

Please let us know if your feedback for this activity is sensitive and we will make this known to NOPSEMA upon submission of the Environment Plan in order for this information to remain confidential to NOPSEMA.

Please provide your views by **17 March 2023**.

You can also subscribe on our website to receive Consultation Information Sheets for proposed activities: www.woodside.com/sustainability/consultation-activities.

2.6.1 Email sent to Town of Port Hedland (10 March 2023)

Dear Town of Port Hedland

Woodside previously consulted you (see email below) on Woodside's proposed activities for the progressive decommissioning of the Griffin and Stybarrow fields.

We provided this information to ensure relevant persons are informed about the status of proposed activities, as there have been changes to activity scope and supporting consultation information since consultation commenced for these decommissioning projects in 2021.

We would appreciate any feedback you may have by **17 March 2023** to support the development of our proposed Environment Plans.

Stybarrow Plug and Abandonment Environment Plan

Any feedback provided previously on proposed activities will remain current where Environment Plans are under assessment by the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA).

For reference:

- The **Griffin Field** is in Commonwealth waters in Petroleum Licence WA-10-L, 65 km northwest of Onslow and 94 km northeast of Exmouth, Western Australia and in water depths of approximately 120 m.
- The **Stybarrow Field** is in Commonwealth waters in Petroleum Licence WA-32-L, approximately 53 km northwest of Exmouth, Western Australia and in water depths of approximately 810 – 850 m.

Consultation Information Sheets for the proposed activities are attached, which provide a summary of potential key risks and associated management measures. The Information Sheets are also available on our [website](#).

Regards

Woodside Feedback

2.7 Email sent to the Carnarvon Chamber of Commerce and Industry (16 February 2023)

Dear Carnarvon Chamber of Commerce and Industry

Woodside is providing this update on the progressive decommissioning of the Griffin and Stybarrow fields, previously operated by BHP Petroleum Pty Ltd (BHP).

We are providing this information to ensure relevant persons are informed about the status of proposed activities, as there have been changes to activity scope and supporting consultation information since consultation commenced for these decommissioning projects in 2021.

The **Griffin Field** is in Commonwealth waters in Petroleum Licence WA-10-L, 65 km northwest of Onslow and 94 km northeast of Exmouth, Western Australia and in water depths of approximately 120 m.

The **Stybarrow Field** is in Commonwealth waters in Petroleum Licence WA-32-L, approximately 53 km northwest of Exmouth, Western Australia and in water depths of approximately 810 – 850 m.

A summary of proposed activities is outlined below, and more detailed information is provided in the attached Consultation Information Sheets. The Information Sheets provide details on activities proposed to be managed under a number of Environment Plans for each Field, including a summary of potential key risks and associated management measures. The Information Sheets are also available on our [website](#).

Any feedback provided previously on proposed activities will remain current where Environment Plans are under assessment by the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA).

Please let us know if you would like to update previous feedback or have any additional views by **17 March 2023**.

Activity:

	Griffin Field Decommissioning Activities	Stybarrow Field Decommissioning Activities
Summary:	<p>Removal Activities</p> <ul style="list-style-type: none"> • Removal of subsea equipment (wellheads, trees, distribution skids, risers, flexible flowlines, rigid flowlines, umbilicals, and the pipeline end module (PLEM)). • Removal of the Riser Turret Mooring (RTM) and its moorings. Depending on the vessel utilised, recovery of the RTM may require sections of it to be towed to shallower water out of the title. • Removal of an exploration wellhead (Ramillies-1 in neighbouring petroleum title WA-12-L). • Ongoing field management activities. • Pigging and subsequent removal of the 26 km of Griffin Gas Export Pipeline (GEP) within Commonwealth waters. <p>In Situ Activities</p> <ul style="list-style-type: none"> • Proposal to leave in situ 12 RTM drag anchors (buried), 6 concrete gravity bases and 5 piled foundations for the PLEM and 4 distribution skids. 	<p>Plugging and Abandonment (P&A) Activities</p> <ul style="list-style-type: none"> • Pre-execution activities associated with the well P&A, such as barrier testing and removal of marine growth. • Well P&A of the 10 productions/injection wells by placing cement plugs in the wells to permanently prevent hydrocarbon release. • Cutting and removal of the wellhead and subsea tree assembly. • Unblocking of the H4 flowline, if deemed feasible. <p>Removal Activities</p> <ul style="list-style-type: none"> • Removal of subsea equipment (wellheads, trees, manifolds, risers, flexible flowlines, and umbilicals). • Removal of the Disconnectable Turret Mooring (DTM) and its moorings. Recovery of the DTM may require it to be towed to shallower water outside of permit area WA-32-L to support the DTM removal from the marine environment. • Ongoing field management activities (equipment monitoring and inspection).

Stybarrow Plug and Abandonment Environment Plan

		<p>In Situ Activities</p> <ul style="list-style-type: none"> Proposed leave in situ of the 9 DTM drag anchors (buried), nine suction piles for the riser holdbacks and the historical exploration wellhead, Eskdale-1, which was unable to be removed following its drilling and abandonment in 2003.
Location:	<ul style="list-style-type: none"> 94 km northeast of Exmouth, Western Australia. 	<ul style="list-style-type: none"> 53 km northwest of Exmouth, Western Australia.
Approx. Water Depth (m):	<ul style="list-style-type: none"> Approx. 120 m. 	<ul style="list-style-type: none"> Approx. 810 – 850 m.
Schedule:	<p>Removal Activities</p> <ul style="list-style-type: none"> Earliest proposed removal activity start is estimated to be Q4 2023, subject to approvals, vessel availability and weather constraints. Facilities removal must be completed no later than 31 December 2024, pursuant to General Direction 832. 	<p>Plugging and Abandonment (P&A) Activities</p> <ul style="list-style-type: none"> Earliest P&A start is estimated to be Q4 2023, subject to approvals, MODU and vessel availability and weather constraints. P&A activities must be completed no later than 30 September 2024, pursuant to General Direction 833. <p>Removal Activities</p> <ul style="list-style-type: none"> Earliest facilities and DTM removal is estimated to be Q4 2023, subject to approvals, vessel availability and weather constraints. Equipment removal must be completed no later than 31 March 2025, pursuant to General Direction 833.
Duration:	<p>Removal Activities</p> <ul style="list-style-type: none"> Removal activities are anticipated to take approximately 6 months to complete and GEP removal activities are 	<p>Plugging and Abandonment (P&A) Activities</p> <ul style="list-style-type: none"> P&A activities are anticipated to take approximately 6 – 9 months.

	<p>anticipated to take approximately 2 months to complete.</p>	<p>Removal Activities</p> <ul style="list-style-type: none"> Removal activities are anticipated to take approximately 4-6 months to complete and DTM removal activities are anticipated to take approximately 1 month to complete.
<p>Exclusionary/Cautious Zone:</p>	<p>Removal Activities</p> <ul style="list-style-type: none"> The temporary Operational Area includes the area encompassing an approximate 1,500 m radius around the equipment. A temporary 500 m exclusion zone will apply around the project vessels during removal and potential tow activities. 	<p>P&A Activities</p> <ul style="list-style-type: none"> The Operational Area includes the area encompassing an approximate 3,000 m radius around each of the four drill centers within WA-32-L. A temporary 500 m exclusion zone will apply around the MODU and the associated project vessels during P&A activities. <p>Removal Activities</p> <ul style="list-style-type: none"> The temporary Operational Area includes the area encompassing an approximate 1,500 m radius around the subsea infrastructure and wellheads. The DTM has an existing 1200 m radius petroleum safety zone which will continue to be in place until it is removed. A temporary 500 m exclusion zone will apply around the CSV and the associated project vessels during removal activities. A temporary 500 m exclusion zone will apply around the HLV and the associated project vessels

		during the removal of the DTM.
Vessels:	<p>Removal Activities</p> <ul style="list-style-type: none"> • Construction support vessel (CSV) and Heavy Lift Vessel (HLV) for recovery and pipeline removal activities. • An anchor handling tug (AHT) to support the towing of the RTM to sheltered water. 	<p>P&A activities</p> <ul style="list-style-type: none"> • Semi-Submersible Mobile Offshore Drilling Unit (MODU) • The MODU will be supported by 2 to 3 offshore support vessels. <p>Removal Activities</p> <ul style="list-style-type: none"> • CSV and HLV for recovery and activities. • AHTs to support the towing of the DTM to the shallower water location (if required).

Feedback:

If you have any feedback on these activities, please respond to Woodside at: Feedback@woodside.com.au or 1800 442 977.

Your feedback and our response will be included in our Environment Plan which will be submitted to NOPSEMA for acceptance in accordance with the *Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2009* (Cth).

Please let us know if your feedback for this activity is sensitive and we will make this known to NOPSEMA upon submission of the Environment Plan in order for this information to remain confidential to NOPSEMA.

Please provide your views by **17 March 2023**.

You can also subscribe on our website to receive Consultation Information Sheets for proposed activities: www.woodside.com/sustainability/consultation-activities.

2.7.1 Email sent to Carnarvon Chamber of Commerce and Industry (10 March 2023)

Dear Carnarvon Chamber of Commerce and Industry

Woodside previously consulted you (see email below) on Woodside's proposed activities for the progressive decommissioning of the Griffin and Stybarrow fields.

We provided this information to ensure relevant persons are informed about the status of proposed activities, as there have been changes to activity scope and supporting consultation information since consultation commenced for these decommissioning projects in 2021.

Stybarrow Plug and Abandonment Environment Plan

We would appreciate any feedback you may have by **17 March 2023** to support the development of our proposed Environment Plans.

Any feedback provided previously on proposed activities will remain current where Environment Plans are under assessment by the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA).

For reference:

- The **Griffin Field** is in Commonwealth waters in Petroleum Licence WA-10-L, 65 km northwest of Onslow and 94 km northeast of Exmouth, Western Australia and in water depths of approximately 120 m.
- The **Stybarrow Field** is in Commonwealth waters in Petroleum Licence WA-32-L, approximately 53 km northwest of Exmouth, Western Australia and in water depths of approximately 810 – 850 m.

Consultation Information Sheets for the proposed activities are attached, which provide a summary of potential key risks and associated management measures. The Information Sheets are also available on our [website](#).

Regards

Woodside Feedback

2.8 Email sent to the Port Hedland Chamber of Commerce and Industry (16 February 2023)

Dear Port Hedland Chamber of Commerce and Industry

Woodside is providing this update on the progressive decommissioning of the Griffin and Stybarrow fields, previously operated by BHP Petroleum Pty Ltd (BHP).

We are providing this information to ensure relevant persons are informed about the status of proposed activities, as there have been changes to activity scope and supporting consultation information since consultation commenced for these decommissioning projects in 2021.

The **Griffin Field** is in Commonwealth waters in Petroleum Licence WA-10-L, 65 km northwest of Onslow and 94 km northeast of Exmouth, Western Australia and in water depths of approximately 120 m.

The **Stybarrow Field** is in Commonwealth waters in Petroleum Licence WA-32-L, approximately 53 km northwest of Exmouth, Western Australia and in water depths of approximately 810 – 850 m.

A summary of proposed activities is outlined below, and more detailed information is provided in the attached Consultation Information Sheets. The Information Sheets provide details on activities proposed to be managed under a number of Environment Plans for each Field, including a summary of potential key risks and associated management measures. The Information Sheets are also available on our [website](#).

Stybarrow Plug and Abandonment Environment Plan

Any feedback provided previously on proposed activities will remain current where Environment Plans are under assessment by the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA).

Please let us know if you would like to update previous feedback or have any additional views by **17 March 2023**.

Activity:

	Griffin Field Decommissioning Activities	Stybarrow Field Decommissioning Activities
Summary:	<p>Removal Activities</p> <ul style="list-style-type: none"> • Removal of subsea equipment (wellheads, trees, distribution skids, risers, flexible flowlines, rigid flowlines, umbilicals, and the pipeline end module (PLEM)). • Removal of the Riser Turret Mooring (RTM) and its moorings. Depending on the vessel utilised, recovery of the RTM may require sections of it to be towed to shallower water out of the title. • Removal of an exploration wellhead (Ramillies-1 in neighbouring petroleum title WA-12-L). • Ongoing field management activities. • Pigging and subsequent removal of the 26 km of Griffin Gas Export Pipeline (GEP) within Commonwealth waters. <p>In Situ Activities</p> <ul style="list-style-type: none"> • Proposal to leave in situ 12 RTM drag anchors (buried), 6 concrete gravity bases and 5 piled 	<p>Plugging and Abandonment (P&A) Activities</p> <ul style="list-style-type: none"> • Pre-execution activities associated with the well P&A, such as barrier testing and removal of marine growth. • Well P&A of the 10 productions/injection wells by placing cement plugs in the wells to permanently prevent hydrocarbon release. • Cutting and removal of the wellhead and subsea tree assembly. • Unblocking of the H4 flowline, if deemed feasible. <p>Removal Activities</p> <ul style="list-style-type: none"> • Removal of subsea equipment (wellheads, trees, manifolds, risers, flexible flowlines, and umbilicals). • Removal of the Disconnectable Turret Mooring (DTM) and its moorings. Recovery of the DTM may require it to be towed to shallower water outside of permit area WA-32-L to support the DTM

Stybarrow Plug and Abandonment Environment Plan

	<p>foundations for the PLEM and 4 distribution skids.</p>	<p>removal from the marine environment.</p> <ul style="list-style-type: none"> • Ongoing field management activities (equipment monitoring and inspection). <p>In Situ Activities</p> <ul style="list-style-type: none"> • Proposed leave in situ of the 9 DTM drag anchors (buried), nine suction piles for the riser holdbacks and the historical exploration wellhead, Eskdale-1, which was unable to be removed following its drilling and abandonment in 2003.
Location:	<ul style="list-style-type: none"> • 94 km northeast of Exmouth, Western Australia. 	<ul style="list-style-type: none"> • 53 km northwest of Exmouth, Western Australia.
Approx. Water Depth (m):	<ul style="list-style-type: none"> • Approx. 120 m. 	<ul style="list-style-type: none"> • Approx. 810 – 850 m.
Schedule:	<p>Removal Activities</p> <ul style="list-style-type: none"> • Earliest proposed removal activity start is estimated to be Q4 2023, subject to approvals, vessel availability and weather constraints. • Facilities removal must be completed no later than 31 December 2024, pursuant to General Direction 832. 	<p>Plugging and Abandonment (P&A) Activities</p> <ul style="list-style-type: none"> • Earliest P&A start is estimated to be Q4 2023, subject to approvals, MODU and vessel availability and weather constraints. • P&A activities must be completed no later than 30 September 2024, pursuant to General Direction 833. <p>Removal Activities</p> <ul style="list-style-type: none"> • Earliest facilities and DTM removal is estimated to be Q4 2023, subject to approvals, vessel availability and weather constraints. • Equipment removal must be completed no later than 31 March 2025, pursuant to General Direction 833.

<p>Duration:</p>	<p>Removal Activities</p> <ul style="list-style-type: none"> Removal activities are anticipated to take approximately 6 months to complete and GEP removal activities are anticipated to take approximately 2 months to complete. 	<p>Plugging and Abandonment (P&A) Activities</p> <ul style="list-style-type: none"> P&A activities are anticipated to take approximately 6 – 9 months. <p>Removal Activities</p> <ul style="list-style-type: none"> Removal activities are anticipated to take approximately 4-6 months to complete and DTM removal activities are anticipated to take approximately 1 month to complete.
<p>Exclusionary/Cautious Zone:</p>	<p>Removal Activities</p> <ul style="list-style-type: none"> The temporary Operational Area includes the area encompassing an approximate 1,500 m radius around the equipment. A temporary 500 m exclusion zone will apply around the project vessels during removal and potential tow activities. 	<p>P&A Activities</p> <ul style="list-style-type: none"> The Operational Area includes the area encompassing an approximate 3,000 m radius around each of the four drill centers within WA-32-L. A temporary 500 m exclusion zone will apply around the MODU and the associated project vessels during P&A activities. <p>Removal Activities</p> <ul style="list-style-type: none"> The temporary Operational Area includes the area encompassing an approximate 1,500 m radius around the subsea infrastructure and wellheads. The DTM has an existing 1200 m radius petroleum safety zone which will continue to be in place until it is removed. A temporary 500 m exclusion zone will apply around the CSV and the

		<p>associated project vessels during removal activities.</p> <ul style="list-style-type: none"> • A temporary 500 m exclusion zone will apply around the HLV and the associated project vessels during the removal of the DTM.
Vessels:	<p>Removal Activities</p> <ul style="list-style-type: none"> • Construction support vessel (CSV) and Heavy Lift Vessel (HLV) for recovery and pipeline removal activities. • An anchor handling tug (AHT) to support the towing of the RTM to sheltered water. 	<p>P&A activities</p> <ul style="list-style-type: none"> • Semi-Submersible Mobile Offshore Drilling Unit (MODU) • The MODU will be supported by 2 to 3 offshore support vessels. <p>Removal Activities</p> <ul style="list-style-type: none"> • CSV and HLV for recovery and activities. • AHTs to support the towing of the DTM to the shallower water location (if required).

Feedback:

If you have any feedback on these activities, please respond to Woodside at: Feedback@woodside.com.au or 1800 442 977.

Your feedback and our response will be included in our Environment Plan which will be submitted to NOPSEMA for acceptance in accordance with the *Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2009* (Cth).

Please let us know if your feedback for this activity is sensitive and we will make this known to NOPSEMA upon submission of the Environment Plan in order for this information to remain confidential to NOPSEMA.

Please provide your views by **17 March 2023**.

You can also subscribe on our website to receive Consultation Information Sheets for proposed activities: www.woodside.com/sustainability/consultation-activities.

2.8.1 Email sent to Port Hedland Chamber of Commerce and Industry (10 March 2023)

Dear Port Hedland Chamber of Commerce and Industry

Woodside previously consulted you (see email below) on Woodside's proposed activities for the progressive decommissioning of the Griffin and Stybarrow fields.

Stybarrow Plug and Abandonment Environment Plan

We provided this information to ensure relevant persons are informed about the status of proposed activities, as there have been changes to activity scope and supporting consultation information since consultation commenced for these decommissioning projects in 2021.

We would appreciate any feedback you may have by **17 March 2023** to support the development of our proposed Environment Plans.

Any feedback provided previously on proposed activities will remain current where Environment Plans are under assessment by the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA).

For reference:

- The **Griffin Field** is in Commonwealth waters in Petroleum Licence WA-10-L, 65 km northwest of Onslow and 94 km northeast of Exmouth, Western Australia and in water depths of approximately 120 m.
- The **Stybarrow Field** is in Commonwealth waters in Petroleum Licence WA-32-L, approximately 53 km northwest of Exmouth, Western Australia and in water depths of approximately 810 – 850 m.

Consultation Information Sheets for the proposed activities are attached, which provide a summary of potential key risks and associated management measures. The Information Sheets are also available on our [website](#).

Regards

Woodside Feedback

2.9 Email sent to Exmouth (52 licence holders) and Karratha (9 licence holders) recreational marine users (17 February 2023)

Dear Charter / Tourism

Woodside is providing this update on the progressive decommissioning of the Griffin and Stybarrow fields, previously operated by BHP Petroleum Pty Ltd (BHP).

We are providing this information to ensure relevant persons are informed about the status of proposed activities, as there have been changes to activity scope and supporting consultation information since consultation commenced for these decommissioning projects in 2021.

The **Griffin Field** is in Commonwealth waters in Petroleum Licence WA-10-L, 65 km northwest of Onslow and 94 km northeast of Exmouth, Western Australia and in water depths of approximately 120 m.

Stybarrow Plug and Abandonment Environment Plan

The **Stybarrow Field** is in Commonwealth waters in Petroleum Licence WA-32-L, approximately 53 km northwest of Exmouth, Western Australia and in water depths of approximately 810 – 850 m.

A summary of proposed activities is outlined below, and more detailed information is provided in the attached Consultation Information Sheets. The Information Sheets provide details on activities proposed to be managed under a number of Environment Plans for each Field, including a summary of potential key risks and associated management measures. The Information Sheets are also available on our [website](#).

Any feedback provided previously on proposed activities will remain current where Environment Plans are under assessment by the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA).

Please let us know if you would like to update previous feedback or have any additional views by **17 March 2023**.

Activity:

	Griffin Field Decommissioning Activities	Stybarrow Field Decommissioning Activities
Summary:	Removal Activities <ul style="list-style-type: none"> Removal of subsea equipment (wellheads, trees, distribution skids, risers, flexible flowlines, rigid flowlines, umbilicals, and the pipeline end module (PLEM)). Removal of the Riser Turret Mooring (RTM) and its moorings. Depending on the vessel utilised, recovery of the RTM may require 	Plugging and Abandonment (P&A) Activities <ul style="list-style-type: none"> Pre-execution activities associated with the well P&A, such as barrier testing and removal of marine growth. Well P&A of the 10 productions/injection wells by placing cement plugs in the wells to permanently prevent hydrocarbon release. Cutting and removal of the wellhead and subsea tree assembly. Unblocking of the H4 flowline, if deemed feasible.

	<p>sections of it to be towed to shallower water out of the title.</p> <ul style="list-style-type: none"> • Removal of an exploration wellhead (Ramillies-1 in neighbouring petroleum title WA-12-L). • Ongoing field management activities. • Pigging and subsequent removal of the 26 km of Griffin Gas Export Pipeline (GEP) within Commonwealth waters. 	<p>Removal Activities</p> <ul style="list-style-type: none"> • Removal of subsea equipment (wellheads, trees, manifolds, risers, flexible flowlines, and umbilicals). • Removal of the Disconnectable Turret Mooring (DTM) and its moorings. Recovery of the DTM may require it to be towed to shallower water outside of permit area WA-32-L to support the DTM removal from the marine environment. • Ongoing field management activities (equipment monitoring and inspection).
	<p>In Situ Activities</p> <ul style="list-style-type: none"> • Proposal to leave in situ 12 RTM drag anchors (buried), 6 concrete gravity bases and 5 piled foundations for the PLEM and 4 distribution skids. 	<p>In Situ Activities</p> <ul style="list-style-type: none"> • Proposed leave in situ of the 9 DTM drag anchors (buried), nine suction piles for the riser holdbacks and the historical exploration wellhead, Eskdale-1, which was unable to be removed following its drilling and abandonment in 2003.

Stybarrow Plug and Abandonment Environment Plan

<p>Location:</p>	<ul style="list-style-type: none"> 94 km northeast of Exmouth, Western Australia. 	<ul style="list-style-type: none"> 53 km northwest of Exmouth, Western Australia.
<p>Approx. Water Depth (m):</p>	<ul style="list-style-type: none"> Approx. 120 m. 	<ul style="list-style-type: none"> Approx. 810 – 850 m.
<p>Schedule:</p>	<p>Removal Activities</p> <ul style="list-style-type: none"> Earliest proposed removal activity start is estimated to be Q4 2023, subject to approvals, vessel availability and weather constraints. Facilities removal must be completed no later than 31 December 2024, pursuant to General Direction 832. 	<p>Plugging and Abandonment (P&A) Activities</p> <ul style="list-style-type: none"> Earliest P&A start is estimated to be Q4 2023, subject to approvals, MODU and vessel availability and weather constraints. P&A activities must be completed no later than 30 September 2024, pursuant to General Direction 833. <p>Removal Activities</p> <ul style="list-style-type: none"> Earliest facilities and DTM removal is estimated to be Q4 2023, subject to approvals, vessel availability and weather constraints. Equipment removal must be completed no later than 31 March 2025, pursuant to General Direction 833.
<p>Duration:</p>	<p>Removal Activities</p> <ul style="list-style-type: none"> Removal activities are anticipated to take 	<p>Plugging and Abandonment (P&A) Activities</p> <ul style="list-style-type: none"> P&A activities are anticipated to take

	<p>approximately 6 months to complete and GEP removal activities are anticipated to take approximately 2 months to complete.</p>	<p>approximately 6 – 9 months.</p> <p>Removal Activities</p> <ul style="list-style-type: none"> Removal activities are anticipated to take approximately 4-6 months to complete and DTM removal activities are anticipated to take approximately 1 month to complete.
<p>Exclusionary/Cautious Zone:</p>	<p>Removal Activities</p> <ul style="list-style-type: none"> The temporary Operational Area includes the area encompassing an approximate 1,500 m radius around the equipment. A temporary 500 m exclusion zone will apply around the project vessels during removal and potential tow activities. 	<p>P&A Activities</p> <ul style="list-style-type: none"> The Operational Area includes the area encompassing an approximate 3,000 m radius around each of the four drill centers within WA-32-L. A temporary 500 m exclusion zone will apply around the MODU and the associated project vessels during P&A activities. <p>Removal Activities</p> <ul style="list-style-type: none"> The temporary Operational Area includes the area encompassing an approximate 1,500 m radius around the subsea infrastructure and wellheads.

		<ul style="list-style-type: none"> • The DTM has an existing 1200 m radius petroleum safety zone which will continue to be in place until it is removed. • A temporary 500 m exclusion zone will apply around the CSV and the associated project vessels during removal activities. • A temporary 500 m exclusion zone will apply around the HLV and the associated project vessels during the removal of the DTM.
<p>Vessels:</p>	<p>Removal Activities</p> <ul style="list-style-type: none"> • Construction support vessel (CSV) and Heavy Lift Vessel (HLV) for recovery and pipeline removal activities. • An anchor handling tug (AHT) to support the towing of the RTM to sheltered water. 	<p>P&A activities</p> <ul style="list-style-type: none"> • Semi-Submersible Mobile Offshore Drilling Unit (MODU) • The MODU will be supported by 2 to 3 offshore support vessels. <p>Removal Activities</p> <ul style="list-style-type: none"> • CSV and HLV for recovery and activities. • AHTs to support the towing of the DTM to the shallower water location (if required).

Feedback:

Stybarrow Plug and Abandonment Environment Plan

If you have any feedback on these activities, please respond to Woodside at: Feedback@woodside.com.au or 1800 442 977.

Your feedback and our response will be included in our Environment Plan which will be submitted to NOPSEMA for acceptance in accordance with the *Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2009* (Cth).

Please let us know if your feedback for this activity is sensitive and we will make this known to NOPSEMA upon submission of the Environment Plan in order for this information to remain confidential to NOPSEMA.

Please provide your views by **17 March 2023**.

You can also subscribe on our website to receive Consultation Information Sheets for proposed activities: www.woodside.com/sustainability/consultation-activities.

Woodside Feedback

2.9.1 Email set to Exmouth (52 licence holders) and Karratha recreational marine users (9 licence holders) (10 March 2023)

Dear Charter / Tourism Operator

Woodside previously consulted you (see email below) on Woodside's proposed activities for the progressive decommissioning of the Griffin and Stybarrow fields.

We provided this information to ensure relevant persons are informed about the status of proposed activities, as there have been changes to activity scope and supporting consultation information since consultation commenced for these decommissioning projects in 2021.

We would appreciate any feedback you may have by **17 March 2023** to support the development of our proposed Environment Plans.

Any feedback provided previously on proposed activities will remain current where Environment Plans are under assessment by the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA).

For reference:

- The **Griffin Field** is in Commonwealth waters in Petroleum Licence WA-10-L, 65 km northwest of Onslow and 94 km northeast of Exmouth, Western Australia and in water depths of approximately 120 m.
- The **Stybarrow Field** is in Commonwealth waters in Petroleum Licence WA-32-L, approximately 53 km northwest of Exmouth, Western Australia and in water depths of approximately 810 – 850 m.

Consultation Information Sheets for the proposed activities are attached, which provide a summary of potential key risks and associated management measures. The Information Sheets are also available on our [website](#).

Regards

2.9.2 Email sent to King Bay Game Fishing Club (15 March 2023)

Dear King Bay Fishing Club

Woodside previously consulted you (see email below) on Woodside's proposed activities for the progressive decommissioning of the Griffin and Stybarrow fields.

We provided this information to ensure relevant persons are informed about the status of proposed activities, as there have been changes to activity scope and supporting consultation information since consultation commenced for these decommissioning projects in 2021.

We would appreciate any feedback you may have by **17 March 2023** to support the development of our proposed Environment Plans.

Any feedback provided previously on proposed activities will remain current where Environment Plans are under assessment by the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA).

For reference:

- The **Griffin Field** is in Commonwealth waters in Petroleum Licence WA-10-L, 65 km northwest of Onslow and 94 km northeast of Exmouth, Western Australia and in water depths of approximately 120 m.
- The **Stybarrow Field** is in Commonwealth waters in Petroleum Licence WA-32-L, approximately 53 km northwest of Exmouth, Western Australia and in water depths of approximately 810 – 850 m.

Consultation Information Sheets for the proposed activities are attached, which provide a summary of potential key risks and associated management measures. The Information Sheets are also available on our [website](#).

Regards

Woodside Feedback

Woodside Feedback

- 2.10 Letter sent to Marine Aquarium Managed Fishery (12 licence holders), Mackerel Managed Fishery (Area 2 and 3) (43 licence holders), Pilbara Crab Managed Fishery (1 licence holder), West Coast Deep Sea Crustacean managed Fishery (7 licence holders), Onslow Prawn Managed Fishery (30 licence holders), Western Australian Sea Cucumber Fishery (6 licence holders), Exmouth Gulf Prawn Managed Fishery (15 licence holders),**

Gascoyne Demersal Scalefish Fishery (53 licence holders), West Coast Demersal Scalefish Fishery (48 licence holders), West Coast Rock Lobster Fishery (723 licence holders), Pilbara Line Fishery (9 licence holders), Pilbara Trap Fishery (6 licence holders) and Pilbara Trawl Fishery (7 licence holders), Nickol Bay Prawn (14 licence holders), Shark Bay Crab (31 licence holders) Shark Bay Prawn (18 licence holders), Shark Bay Scallop (29 licence holders), (8 March 2023)



Please direct all responses/queries to:
Woodside Feedback
T: 1800 442 977
E: feedback@woodside.com

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

08 March 2023

Attn: [Stakeholder]
[Company]
[Address]

Dear Stakeholder

Woodside previously consulted you (correspondence dated 17 February 2023) on Woodside's proposed activities for the decommissioning of the Griffin and Stybarrow fields.

The **Griffin Field** is in Commonwealth waters in Petroleum Licence WA-10-L, 65 km northwest of Onslow and 94 km northeast of Exmouth, Western Australia and in water depths of approximately 120 m.

The **Stybarrow Field** is in Commonwealth waters in Petroleum Licence WA-32-L, approximately 53 km northwest of Exmouth, Western Australia and in water depths of approximately 810 – 850 m.

The below QR codes link to our Consultation Information Sheets for the proposed activities, which provide a summary of potential key risks and associated management measures. Should the information be easier for you to access, the Information Sheets are also available on our [website](#).

**Activity Update: Griffin
Decommissioning EP**



**Activity Update:
Stybarrow
Decommissioning EP**



**Activity Update:
Stybarrow Plug &
Abandonment EP**



We would appreciate any feedback you may have by **17 March 2023** to support the development of our proposed environment plans.

You can also subscribe on our website to receive Consultation Information Sheets for proposed activities: www.woodside.com/sustainability/consultation-activities.

Kind regards,

Woodside Feedback



Woodside Energy
Mia Yellagonga
Karlak, 11 Mount Street
Perth WA 6000
Australia

T: 1800 442 977
E: feedback@woodside.com.au
www.woodside.com
f t in v @

2.11 Email sent to the Conservation Council of WA (CCWA) (16 February 2023)

Dear Conservation Council of WA

Stybarrow Plug and Abandonment Environment Plan

Woodside is providing this update on the progressive decommissioning of the Griffin and Stybarrow fields, previously operated by BHP Petroleum Pty Ltd (BHP).

We are providing this information to ensure relevant persons are informed about the status of proposed activities, as there have been changes to activity scope and supporting consultation information since consultation commenced for these decommissioning projects in 2021.

The **Griffin Field** is in Commonwealth waters in Petroleum Licence WA-10-L, 65 km northwest of Onslow and 94 km northeast of Exmouth, Western Australia and in water depths of approximately 120 m.

The **Stybarrow Field** is in Commonwealth waters in Petroleum Licence WA-32-L, approximately 53 km northwest of Exmouth, Western Australia and in water depths of approximately 810 – 850 m.

A summary of proposed activities is outlined below, and more detailed information is provided in the attached Consultation Information Sheets. The Information Sheets provide details on activities proposed to be managed under a number of Environment Plans for each Field, including a summary of potential key risks and associated management measures. The Information Sheets are also available on our [website](#).

Any feedback provided previously on proposed activities will remain current where Environment Plans are under assessment by the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA).

Please let us know if you would like to update previous feedback or have any additional views by **17 March 2023**.

Activity:

	Griffin Field Decommissioning Activities	Stybarrow Field Decommissioning Activities
Summary:	Removal Activities <ul style="list-style-type: none">• Removal of subsea equipment (wellheads, trees, distribution skids, risers, flexible flowlines, rigid flowlines, umbilicals, and the pipeline end module (PLEM)).• Removal of the Riser Turret Mooring (RTM) and its moorings. Depending on the vessel utilised, recovery of the RTM may require sections of it to be towed to shallower water out of the title.	Plugging and Abandonment (P&A) Activities <ul style="list-style-type: none">• Pre-execution activities associated with the well P&A, such as barrier testing and removal of marine growth.• Well P&A of the 10 productions/injection wells by placing cement plugs in the wells to permanently prevent hydrocarbon release.• Cutting and removal of the wellhead and subsea tree assembly.

Stybarrow Plug and Abandonment Environment Plan

	<ul style="list-style-type: none"> Removal of an exploration wellhead (Ramillies-1 in neighbouring petroleum title WA-12-L). Ongoing field management activities. Pigging and subsequent removal of the 26 km of Griffin Gas Export Pipeline (GEP) within Commonwealth waters. <p>In Situ Activities</p> <ul style="list-style-type: none"> Proposal to leave in situ 12 RTM drag anchors (buried), 6 concrete gravity bases and 5 piled foundations for the PLEM and 4 distribution skids. 	<ul style="list-style-type: none"> Unblocking of the H4 flowline, if deemed feasible. <p>Removal Activities</p> <ul style="list-style-type: none"> Removal of subsea equipment (wellheads, trees, manifolds, risers, flexible flowlines, and umbilicals). Removal of the Disconnectable Turret Mooring (DTM) and its moorings. Recovery of the DTM may require it to be towed to shallower water outside of permit area WA-32-L to support the DTM removal from the marine environment. Ongoing field management activities (equipment monitoring and inspection). <p>In Situ Activities</p> <ul style="list-style-type: none"> Proposed leave in situ of the 9 DTM drag anchors (buried), nine suction piles for the riser holdbacks and the historical exploration wellhead, Eskdale-1, which was unable to be removed following its drilling and abandonment in 2003.
Location:	<ul style="list-style-type: none"> 94 km northeast of Exmouth, Western Australia. 	<ul style="list-style-type: none"> 53 km northwest of Exmouth, Western Australia.
Approx. Water Depth (m):	<ul style="list-style-type: none"> Approx. 120 m. 	<ul style="list-style-type: none"> Approx. 810 – 850 m.
Schedule:	<p>Removal Activities</p> <ul style="list-style-type: none"> Earliest proposed removal activity start is estimated to be Q4 2023, subject to approvals, vessel 	<p>Plugging and Abandonment (P&A) Activities</p> <ul style="list-style-type: none"> Earliest P&A start is estimated to be Q4 2023, subject to approvals, MODU

Stybarrow Plug and Abandonment Environment Plan

	<p>availability and weather constraints.</p> <ul style="list-style-type: none"> Facilities removal must be completed no later than 31 December 2024, pursuant to General Direction 832. 	<p>and vessel availability and weather constraints.</p> <ul style="list-style-type: none"> P&A activities must be completed no later than 30 September 2024, pursuant to General Direction 833. <p>Removal Activities</p> <ul style="list-style-type: none"> Earliest facilities and DTM removal is estimated to be Q4 2023, subject to approvals, vessel availability and weather constraints. Equipment removal must be completed no later than 31 March 2025, pursuant to General Direction 833.
<p>Duration:</p>	<p>Removal Activities</p> <ul style="list-style-type: none"> Removal activities are anticipated to take approximately 6 months to complete and GEP removal activities are anticipated to take approximately 2 months to complete. 	<p>Plugging and Abandonment (P&A) Activities</p> <ul style="list-style-type: none"> P&A activities are anticipated to take approximately 6 – 9 months. <p>Removal Activities</p> <ul style="list-style-type: none"> Removal activities are anticipated to take approximately 4-6 months to complete and DTM removal activities are anticipated to take approximately 1 month to complete.
<p>Exclusionary/Cautious Zone:</p>	<p>Removal Activities</p> <ul style="list-style-type: none"> The temporary Operational Area includes the area encompassing an approximate 1,500 m radius around the equipment. A temporary 500 m exclusion zone will apply around the project vessels during removal and potential tow activities. 	<p>P&A Activities</p> <ul style="list-style-type: none"> The Operational Area includes the area encompassing an approximate 3,000 m radius around each of the four drill centers within WA-32-L. A temporary 500 m exclusion zone will apply around the MODU and the associated project vessels during P&A activities.

		<p>Removal Activities</p> <ul style="list-style-type: none"> • The temporary Operational Area includes the area encompassing an approximate 1,500 m radius around the subsea infrastructure and wellheads. • The DTM has an existing 1200 m radius petroleum safety zone which will continue to be in place until it is removed. • A temporary 500 m exclusion zone will apply around the CSV and the associated project vessels during removal activities. • A temporary 500 m exclusion zone will apply around the HLV and the associated project vessels during the removal of the DTM.
<p>Vessels:</p>	<p>Removal Activities</p> <ul style="list-style-type: none"> • Construction support vessel (CSV) and Heavy Lift Vessel (HLV) for recovery and pipeline removal activities. • An anchor handling tug (AHT) to support the towing of the RTM to sheltered water. 	<p>P&A activities</p> <ul style="list-style-type: none"> • Semi-Submersible Mobile Offshore Drilling Unit (MODU) • The MODU will be supported by 2 to 3 offshore support vessels. <p>Removal Activities</p> <ul style="list-style-type: none"> • CSV and HLV for recovery and activities. • AHTs to support the towing of the DTM to the shallower water location (if required).

Feedback:

If you have any feedback on these activities, please respond to Woodside at: Feedback@woodside.com.au or 1800 442 977.

Stybarrow Plug and Abandonment Environment Plan

Your feedback and our response will be included in our Environment Plan which will be submitted to NOPSEMA for acceptance in accordance with the *Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2009* (Cth).

Please let us know if your feedback for this activity is sensitive and we will make this known to NOPSEMA upon submission of the Environment Plan in order for this information to remain confidential to NOPSEMA.

Please provide your views by **17 March 2023**.

You can also subscribe on our website to receive Consultation Information Sheets for proposed activities: www.woodside.com/sustainability/consultation-activities.

2.11.1 Email sent to CCWA (10 March 2023)

Dear Conservation Council of WA

Woodside previously consulted you (see email below) on Woodside's proposed activities for the progressive decommissioning of the Griffin and Stybarrow fields.

We provided this information to ensure relevant persons are informed about the status of proposed activities, as there have been changes to activity scope and supporting consultation information since consultation commenced for these decommissioning projects in 2021.

We would appreciate any feedback you may have by **17 March 2023** to support the development of our proposed Environment Plans.

Any feedback provided previously on proposed activities will remain current where Environment Plans are under assessment by the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA).

For reference:

- The **Griffin Field** is in Commonwealth waters in Petroleum Licence WA-10-L, 65 km northwest of Onslow and 94 km northeast of Exmouth, Western Australia and in water depths of approximately 120 m.
- The **Stybarrow Field** is in Commonwealth waters in Petroleum Licence WA-32-L, approximately 53 km northwest of Exmouth, Western Australia and in water depths of approximately 810 – 850 m.

Consultation Information Sheets for the proposed activities are attached, which provide a summary of potential key risks and associated management measures. The Information Sheets are also available on our [website](#).

Regards

Woodside Feedback

2.12 Email sent to the Australian Conservation Foundation (ACF) (16 February 2023)

Dear Australian Conservation Foundation

Woodside is providing this update on the progressive decommissioning of the Griffin and Stybarrow fields, previously operated by BHP Petroleum Pty Ltd (BHP).

We are providing this information to ensure relevant persons are informed about the status of proposed activities, as there have been changes to activity scope and supporting consultation information since consultation commenced for these decommissioning projects in 2021.

The **Griffin Field** is in Commonwealth waters in Petroleum Licence WA-10-L, 65 km northwest of Onslow and 94 km northeast of Exmouth, Western Australia and in water depths of approximately 120 m.

The **Stybarrow Field** is in Commonwealth waters in Petroleum Licence WA-32-L, approximately 53 km northwest of Exmouth, Western Australia and in water depths of approximately 810 – 850 m.

A summary of proposed activities is outlined below, and more detailed information is provided in the attached Consultation Information Sheets. The Information Sheets provide details on activities proposed to be managed under a number of Environment Plans for each Field, including a summary of potential key risks and associated management measures. The Information Sheets are also available on our [website](#).

Any feedback provided previously on proposed activities will remain current where Environment Plans are under assessment by the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA).

Please let us know if you would like to update previous feedback or have any additional views by **17 March 2023**.

Activity:

	Griffin Field Decommissioning Activities	Stybarrow Field Decommissioning Activities
Summary:	<p>Removal Activities</p> <ul style="list-style-type: none"> Removal of subsea equipment (wellheads, trees, distribution skids, risers, flexible flowlines, rigid flowlines, umbilicals, and the pipeline end module (PLEM)). Removal of the Riser Turret Mooring (RTM) and its moorings. Depending 	<p>Plugging and Abandonment (P&A) Activities</p> <ul style="list-style-type: none"> Pre-execution activities associated with the well P&A, such as barrier testing and removal of marine growth. Well P&A of the 10 productions/injection wells by placing cement plugs in the wells to permanently

	<p>on the vessel utilised, recovery of the RTM may require sections of it to be towed to shallower water out of the title.</p> <ul style="list-style-type: none"> • Removal of an exploration wellhead (Ramillies-1 in neighbouring petroleum title WA-12-L). • Ongoing field management activities. • Pigging and subsequent removal of the 26 km of Griffin Gas Export Pipeline (GEP) within Commonwealth waters. <p>In Situ Activities</p> <ul style="list-style-type: none"> • Proposal to leave in situ 12 RTM drag anchors (buried), 6 concrete gravity bases and 5 piled foundations for the PLEM and 4 distribution skids. 	<p>prevent hydrocarbon release.</p> <ul style="list-style-type: none"> • Cutting and removal of the wellhead and subsea tree assembly. • Unblocking of the H4 flowline, if deemed feasible. <p>Removal Activities</p> <ul style="list-style-type: none"> • Removal of subsea equipment (wellheads, trees, manifolds, risers, flexible flowlines, and umbilicals). • Removal of the Disconnectable Turret Mooring (DTM) and its moorings. Recovery of the DTM may require it to be towed to shallower water outside of permit area WA-32-L to support the DTM removal from the marine environment. • Ongoing field management activities (equipment monitoring and inspection). <p>In Situ Activities</p> <ul style="list-style-type: none"> • Proposed leave in situ of the 9 DTM drag anchors (buried), nine suction piles for the riser holdbacks and the historical exploration wellhead, Eskdale-1, which was unable to be removed following its drilling and abandonment in 2003.
Location:	<ul style="list-style-type: none"> • 94 km northeast of Exmouth, Western Australia. 	<ul style="list-style-type: none"> • 53 km northwest of Exmouth, Western Australia.
Approx. Water Depth (m):	<ul style="list-style-type: none"> • Approx. 120 m. 	<ul style="list-style-type: none"> • Approx. 810 – 850 m.

<p>Schedule:</p>	<p>Removal Activities</p> <ul style="list-style-type: none"> • Earliest proposed removal activity start is estimated to be Q4 2023, subject to approvals, vessel availability and weather constraints. • Facilities removal must be completed no later than 31 December 2024, pursuant to General Direction 832. 	<p>Plugging and Abandonment (P&A) Activities</p> <ul style="list-style-type: none"> • Earliest P&A start is estimated to be Q4 2023, subject to approvals, MODU and vessel availability and weather constraints. • P&A activities must be completed no later than 30 September 2024, pursuant to General Direction 833. <p>Removal Activities</p> <ul style="list-style-type: none"> • Earliest facilities and DTM removal is estimated to be Q4 2023, subject to approvals, vessel availability and weather constraints. • Equipment removal must be completed no later than 31 March 2025, pursuant to General Direction 833.
<p>Duration:</p>	<p>Removal Activities</p> <ul style="list-style-type: none"> • Removal activities are anticipated to take approximately 6 months to complete and GEP removal activities are anticipated to take approximately 2 months to complete. 	<p>Plugging and Abandonment (P&A) Activities</p> <ul style="list-style-type: none"> • P&A activities are anticipated to take approximately 6 – 9 months. <p>Removal Activities</p> <ul style="list-style-type: none"> • Removal activities are anticipated to take approximately 4-6 months to complete and DTM removal activities are anticipated to take approximately 1 month to complete.
<p>Exclusionary/Cautious Zone:</p>	<p>Removal Activities</p> <ul style="list-style-type: none"> • The temporary Operational Area includes the area encompassing an approximate 1,500 m radius around the equipment. 	<p>P&A Activities</p> <ul style="list-style-type: none"> • The Operational Area includes the area encompassing an approximate 3,000 m radius around each of the four drill centers within WA-32-L.

	<ul style="list-style-type: none"> • A temporary 500 m exclusion zone will apply around the project vessels during removal and potential tow activities. 	<ul style="list-style-type: none"> • A temporary 500 m exclusion zone will apply around the MODU and the associated project vessels during P&A activities. <p>Removal Activities</p> <ul style="list-style-type: none"> • The temporary Operational Area includes the area encompassing an approximate 1,500 m radius around the subsea infrastructure and wellheads. • The DTM has an existing 1200 m radius petroleum safety zone which will continue to be in place until it is removed. • A temporary 500 m exclusion zone will apply around the CSV and the associated project vessels during removal activities. • A temporary 500 m exclusion zone will apply around the HLV and the associated project vessels during the removal of the DTM.
<p>Vessels:</p>	<p>Removal Activities</p> <ul style="list-style-type: none"> • Construction support vessel (CSV) and Heavy Lift Vessel (HLV) for recovery and pipeline removal activities. • An anchor handling tug (AHT) to support the towing of the RTM to sheltered water. 	<p>P&A activities</p> <ul style="list-style-type: none"> • Semi-Submersible Mobile Offshore Drilling Unit (MODU) • The MODU will be supported by 2 to 3 offshore support vessels. <p>Removal Activities</p> <ul style="list-style-type: none"> • CSV and HLV for recovery and activities. • AHTs to support the towing of the DTM to the shallower water location (if required).

Stybarrow Plug and Abandonment Environment Plan

Feedback:

If you have any feedback on these activities, please respond to Woodside at: Feedback@woodside.com.au or 1800 442 977.

Your feedback and our response will be included in our Environment Plan which will be submitted to NOPSEMA for acceptance in accordance with the *Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2009* (Cth).

Please let us know if your feedback for this activity is sensitive and we will make this known to NOPSEMA upon submission of the Environment Plan in order for this information to remain confidential to NOPSEMA.

Please provide your views by **17 March 2023**.

You can also subscribe on our website to receive Consultation Information Sheets for proposed activities: www.woodside.com/sustainability/consultation-activities.

2.12.1 Email sent to ACF (10 March 2023)

Dear Australian Conservation Foundation

Woodside previously consulted you (see email below) on Woodside's proposed activities for the progressive decommissioning of the Griffin and Stybarrow fields.

We provided this information to ensure relevant persons are informed about the status of proposed activities, as there have been changes to activity scope and supporting consultation information since consultation commenced for these decommissioning projects in 2021.

We would appreciate any feedback you may have by **17 March 2023** to support the development of our proposed Environment Plans.

Any feedback provided previously on proposed activities will remain current where Environment Plans are under assessment by the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA).

For reference:

- The **Griffin Field** is in Commonwealth waters in Petroleum Licence WA-10-L, 65 km northwest of Onslow and 94 km northeast of Exmouth, Western Australia and in water depths of approximately 120 m.
- The **Stybarrow Field** is in Commonwealth waters in Petroleum Licence WA-32-L, approximately 53 km northwest of Exmouth, Western Australia and in water depths of approximately 810 – 850 m.

Consultation Information Sheets for the proposed activities are attached, which provide a summary of potential key risks and associated management measures. The Information Sheets are also available on our [website](#).

Regards

Woodside Feedback

2.13 Email sent to the Ningaloo Coast World Heritage Advisory Committee (NCWHAC) (16 February 2023)

Dear Ningaloo World Heritage Area Committee

Woodside is providing this update on the progressive decommissioning of the Griffin and Stybarrow fields, previously operated by BHP Petroleum Pty Ltd (BHP).

We are providing this information to ensure relevant persons are informed about the status of proposed activities, as there have been changes to activity scope and supporting consultation information since consultation commenced for these decommissioning projects in 2021.

The **Griffin Field** is in Commonwealth waters in Petroleum Licence WA-10-L, 65 km northwest of Onslow and 94 km northeast of Exmouth, Western Australia and in water depths of approximately 120 m.

The **Stybarrow Field** is in Commonwealth waters in Petroleum Licence WA-32-L, approximately 53 km northwest of Exmouth, Western Australia and in water depths of approximately 810 – 850 m.

A summary of proposed activities is outlined below, and more detailed information is provided in the attached Consultation Information Sheets. The Information Sheets provide details on activities proposed to be managed under a number of Environment Plans for each Field, including a summary of potential key risks and associated management measures. The Information Sheets are also available on our [website](#).

Any feedback provided previously on proposed activities will remain current where Environment Plans are under assessment by the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA).

Please let us know if you would like to update previous feedback or have any additional views by **17 March 2023**.

Activity:

	Griffin Field Decommissioning Activities	Stybarrow Field Decommissioning Activities
Summary:	Removal Activities <ul style="list-style-type: none">Removal of subsea equipment (wellheads, trees, distribution skids, risers, flexible flowlines, rigid flowlines, umbilicals, and the pipeline end module (PLEM)).	Plugging and Abandonment (P&A) Activities <ul style="list-style-type: none">Pre-execution activities associated with the well P&A, such as barrier testing and removal of marine growth.Well P&A of the 10 productions/injection wells

	<ul style="list-style-type: none"> • Removal of the Riser Turret Mooring (RTM) and its moorings. Depending on the vessel utilised, recovery of the RTM may require sections of it to be towed to shallower water out of the title. • Removal of an exploration wellhead (Ramillies-1 in neighbouring petroleum title WA-12-L). • Ongoing field management activities. • Pigging and subsequent removal of the 26 km of Griffin Gas Export Pipeline (GEP) within Commonwealth waters. <p>In Situ Activities</p> <ul style="list-style-type: none"> • Proposal to leave in situ 12 RTM drag anchors (buried), 6 concrete gravity bases and 5 piled foundations for the PLEM and 4 distribution skids. 	<p>by placing cement plugs in the wells to permanently prevent hydrocarbon release.</p> <ul style="list-style-type: none"> • Cutting and removal of the wellhead and subsea tree assembly. • Unblocking of the H4 flowline, if deemed feasible. <p>Removal Activities</p> <ul style="list-style-type: none"> • Removal of subsea equipment (wellheads, trees, manifolds, risers, flexible flowlines, and umbilicals). • Removal of the Disconnectable Turret Mooring (DTM) and its moorings. Recovery of the DTM may require it to be towed to shallower water outside of permit area WA-32-L to support the DTM removal from the marine environment. • Ongoing field management activities (equipment monitoring and inspection). <p>In Situ Activities</p> <ul style="list-style-type: none"> • Proposed leave in situ of the 9 DTM drag anchors (buried), nine suction piles for the riser holdbacks and the historical exploration wellhead, Eskdale-1, which was unable to be removed following its drilling and abandonment in 2003.
<p>Location:</p>	<ul style="list-style-type: none"> • 94 km northeast of Exmouth, Western Australia. 	<ul style="list-style-type: none"> • 53 km northwest of Exmouth, Western Australia.

Stybarrow Plug and Abandonment Environment Plan

<p>Approx. Water Depth (m):</p>	<ul style="list-style-type: none"> • Approx. 120 m. 	<ul style="list-style-type: none"> • Approx. 810 – 850 m.
<p>Schedule:</p>	<p>Removal Activities</p> <ul style="list-style-type: none"> • Earliest proposed removal activity start is estimated to be Q4 2023, subject to approvals, vessel availability and weather constraints. • Facilities removal must be completed no later than 31 December 2024, pursuant to General Direction 832. 	<p>Plugging and Abandonment (P&A) Activities</p> <ul style="list-style-type: none"> • Earliest P&A start is estimated to be Q4 2023, subject to approvals, MODU and vessel availability and weather constraints. • P&A activities must be completed no later than 30 September 2024, pursuant to General Direction 833. <p>Removal Activities</p> <ul style="list-style-type: none"> • Earliest facilities and DTM removal is estimated to be Q4 2023, subject to approvals, vessel availability and weather constraints. • Equipment removal must be completed no later than 31 March 2025, pursuant to General Direction 833.
<p>Duration:</p>	<p>Removal Activities</p> <ul style="list-style-type: none"> • Removal activities are anticipated to take approximately 6 months to complete and GEP removal activities are anticipated to take approximately 2 months to complete. 	<p>Plugging and Abandonment (P&A) Activities</p> <ul style="list-style-type: none"> • P&A activities are anticipated to take approximately 6 – 9 months. <p>Removal Activities</p> <ul style="list-style-type: none"> • Removal activities are anticipated to take approximately 4-6 months to complete and DTM removal activities are anticipated to take approximately 1 month to complete.
<p>Exclusionary/Cautionary Zone:</p>	<p>Removal Activities</p> <ul style="list-style-type: none"> • The temporary Operational Area includes the area encompassing an approximate 1,500 m 	<p>P&A Activities</p> <ul style="list-style-type: none"> • The Operational Area includes the area encompassing an approximate 3,000 m radius

	<p>radius around the equipment.</p> <ul style="list-style-type: none"> • A temporary 500 m exclusion zone will apply around the project vessels during removal and potential tow activities. 	<p>around each of the four drill centers within WA-32-L.</p> <ul style="list-style-type: none"> • A temporary 500 m exclusion zone will apply around the MODU and the associated project vessels during P&A activities. <p>Removal Activities</p> <ul style="list-style-type: none"> • The temporary Operational Area includes the area encompassing an approximate 1,500 m radius around the subsea infrastructure and wellheads. • The DTM has an existing 1200 m radius petroleum safety zone which will continue to be in place until it is removed. • A temporary 500 m exclusion zone will apply around the CSV and the associated project vessels during removal activities. • A temporary 500 m exclusion zone will apply around the HLV and the associated project vessels during the removal of the DTM.
<p>Vessels:</p>	<p>Removal Activities</p> <ul style="list-style-type: none"> • Construction support vessel (CSV) and Heavy Lift Vessel (HLV) for recovery and pipeline removal activities. • An anchor handling tug (AHT) to support the towing of the RTM to sheltered water. 	<p>P&A activities</p> <ul style="list-style-type: none"> • Semi-Submersible Mobile Offshore Drilling Unit (MODU) • The MODU will be supported by 2 to 3 offshore support vessels. <p>Removal Activities</p> <ul style="list-style-type: none"> • CSV and HLV for recovery and activities.

Stybarrow Plug and Abandonment Environment Plan

		<ul style="list-style-type: none">• AHTs to support the towing of the DTM to the shallower water location (if required).
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Feedback:

If you have any feedback on these activities, please respond to Woodside at: Feedback@woodside.com.au or 1800 442 977.

Your feedback and our response will be included in our Environment Plan which will be submitted to NOPSEMA for acceptance in accordance with the *Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2009* (Cth).

Please let us know if your feedback for this activity is sensitive and we will make this known to NOPSEMA upon submission of the Environment Plan in order for this information to remain confidential to NOPSEMA.

Please provide your views by **17 March 2023**.

You can also subscribe on our website to receive Consultation Information Sheets for proposed activities: www.woodside.com/sustainability/consultation-activities.

2.13.1 Email sent to NCWHAC (10 March 2023)

Dear Ningaloo Coast World Heritage Area Advisory Committee

Woodside previously consulted you (see email below) on Woodside's proposed activities for the progressive decommissioning of the Griffin and Stybarrow fields.

We provided this information to ensure relevant persons are informed about the status of proposed activities, as there have been changes to activity scope and supporting consultation information since consultation commenced for these decommissioning projects in 2021.

We would appreciate any feedback you may have by **17 March 2023** to support the development of our proposed Environment Plans.

Any feedback provided previously on proposed activities will remain current where Environment Plans are under assessment by the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA).

For reference:

- The **Griffin Field** is in Commonwealth waters in Petroleum Licence WA-10-L, 65 km northwest of Onslow and 94 km northeast of Exmouth, Western Australia and in water depths of approximately 120 m.
- The **Stybarrow Field** is in Commonwealth waters in Petroleum Licence WA-32-L, approximately 53 km northwest of Exmouth, Western Australia and in water depths of approximately 810 – 850 m.

Stybarrow Plug and Abandonment Environment Plan

Consultation Information Sheets for the proposed activities are attached, which provide a summary of potential key risks and associated management measures. The Information Sheets are also available on our [website](#).

Regards

Woodside Feedback

2.14 Email sent to the Western Australian Fishing Industry Council (WAFIC) (16 February 2023)

Dear [REDACTED]

Woodside is providing this update on the progressive decommissioning of the Griffin and Stybarrow fields, previously operated by BHP Petroleum Pty Ltd (BHP).

We are providing this information to ensure relevant persons are informed about the status of proposed activities, as there have been changes to activity scope and supporting consultation information since consultation commenced for these decommissioning projects in 2021.

The **Griffin Field** is in Commonwealth waters in Petroleum Licence WA-10-L, 65 km northwest of Onslow and 94 km northeast of Exmouth, Western Australia and in water depths of approximately 120 m.

The **Stybarrow Field** is in Commonwealth waters in Petroleum Licence WA-32-L, approximately 53 km northwest of Exmouth, Western Australia and in water depths of approximately 810 – 850 m.

Operational Areas and Exclusion Zones will apply around a range of vessels that will support plugging and abandonment and infrastructure recovery and removal activities, which are outlined in the activity summaries below.

A summary of proposed activities is outlined below and more detailed information is provided in the attached Consultation Information Sheets, including a summary of potential key risks and associated management measures. The Information Sheets are also available on our [website](#).

Fisheries have been identified as being relevant based on fishing licence overlap with the activity area, assessment of government fishing effort data (including Fishcube and AFMA) from recent years, fishing methods and water depth.

Any feedback provided previously on proposed activities will remain current where Environment Plans are under assessment by the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA). Please let us know if you would like to update previous feedback or have any additional views by 17 March 2023.

Activity:

	Griffin Field Decommissioning Activities	Stybarrow Field Decommissioning Activities
<p>Summary:</p>	<p>Removal Activities</p> <ul style="list-style-type: none"> • Removal of subsea equipment (wellheads, trees, distribution skids, risers, flexible flowlines, rigid flowlines, umbilicals, and the pipeline end module (PLEM)). • Removal of the Riser Turret Mooring (RTM) and its moorings. Depending on the vessel utilised, recovery of the RTM may require sections of it to be towed to shallower water out of the title. • Removal of an exploration wellhead (Ramillies-1 in neighbouring petroleum title WA-12-L). • Ongoing field management activities. • Pigging and subsequent removal of the 26 km of Griffin Gas Export Pipeline (GEP) within Commonwealth waters. <p>In Situ Activities</p> <ul style="list-style-type: none"> • Proposal to leave in situ 12 RTM drag anchors (buried), 6 concrete gravity bases and 5 piled foundations for the PLEM and 4 distribution skids. 	<p>Plugging and Abandonment (P&A) Activities</p> <ul style="list-style-type: none"> • Pre-execution activities associated with the well P&A, such as barrier testing and removal of marine growth. • Well P&A of the 10 productions/injection wells by placing cement plugs in the wells to permanently prevent hydrocarbon release. • Cutting and removal of the wellhead and subsea tree assembly. • Unblocking of the H4 flowline, if deemed feasible. <p>Removal Activities</p> <ul style="list-style-type: none"> • Removal of subsea equipment (wellheads, trees, manifolds, risers, flexible flowlines, and umbilicals). • Removal of the Disconnectable Turret Mooring (DTM) and its moorings. Recovery of the DTM may require it to be towed to shallower water outside of permit area WA-32-L to support the DTM removal from the marine environment. • Ongoing field management activities (equipment monitoring and inspection). <p>In Situ Activities</p> <ul style="list-style-type: none"> • Proposed leave in situ of the 9 DTM drag anchors

Stybarrow Plug and Abandonment Environment Plan

		(buried), nine suction piles for the riser holdbacks and the historical exploration wellhead, Eskdale-1, which was unable to be removed following its drilling and abandonment in 2003.
Location:	<ul style="list-style-type: none"> 94 km northeast of Exmouth, Western Australia. 	<ul style="list-style-type: none"> 53 km northwest of Exmouth, Western Australia.
Approx. Water Depth (m):	<ul style="list-style-type: none"> Approx. 120 m. 	<ul style="list-style-type: none"> Approx. 810 – 850 m.
Schedule:	<p>Removal Activities</p> <ul style="list-style-type: none"> Earliest proposed removal activity start is estimated to be Q4 2023, subject to approvals, vessel availability and weather constraints. Facilities removal must be completed no later than 31 December 2024, pursuant to General Direction 832. 	<p>Plugging and Abandonment (P&A) Activities</p> <ul style="list-style-type: none"> Earliest P&A start is estimated to be Q4 2023, subject to approvals, MODU and vessel availability and weather constraints. P&A activities must be completed no later than 30 September 2024, pursuant to General Direction 833. <p>Removal Activities</p> <ul style="list-style-type: none"> Earliest facilities and DTM removal is estimated to be Q4 2023, subject to approvals, vessel availability and weather constraints. Equipment removal must be completed no later than 31 March 2025, pursuant to General Direction 833.
Duration:	<p>Removal Activities</p> <ul style="list-style-type: none"> Removal activities are anticipated to take approximately 6 months to complete and GEP removal activities are anticipated to take approximately 2 months to complete. 	<p>Plugging and Abandonment (P&A) Activities</p> <ul style="list-style-type: none"> P&A activities are anticipated to take approximately 6 – 9 months. <p>Removal Activities</p> <ul style="list-style-type: none"> Removal activities are anticipated to take approximately 4-6 months

		to complete and DTM removal activities are anticipated to take approximately 1 month to complete.
Exclusionary/Cautious Zone:	<p>Removal Activities</p> <ul style="list-style-type: none"> • The temporary Operational Area includes the area encompassing an approximate 1,500 m radius around the equipment. • A temporary 500 m exclusion zone will apply around the project vessels during removal and potential tow activities. 	<p>P&A Activities</p> <ul style="list-style-type: none"> • The Operational Area includes the area encompassing an approximate 3,000 m radius around each of the four drill centers within WA-32-L. • A temporary 500 m exclusion zone will apply around the MODU and the associated project vessels during P&A activities. <p>Removal Activities</p> <ul style="list-style-type: none"> • The temporary Operational Area includes the area encompassing an approximate 1,500 m radius around the subsea infrastructure and wellheads. • The DTM has an existing 1200 m radius petroleum safety zone which will continue to be in place until it is removed. • A temporary 500 m exclusion zone will apply around the CSV and the associated project vessels during removal activities. • A temporary 500 m exclusion zone will apply around the HLV and the associated project vessels during the removal of the DTM.
Vessels:	Removal Activities	P&A activities

Stybarrow Plug and Abandonment Environment Plan

	<ul style="list-style-type: none">• Construction support vessel (CSV) and Heavy Lift Vessel (HLV) for recovery and pipeline removal activities.• An anchor handling tug (AHT) to support the towing of the RTM to sheltered water.	<ul style="list-style-type: none">• Semi-Submersible Mobile Offshore Drilling Unit (MODU)• The MODU will be supported by 2 to 3 offshore support vessels. <p>Removal Activities</p> <ul style="list-style-type: none">• CSV and HLV for recovery and activities.• AHTs to support the towing of the DTM to the shallower water location (if required).
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Commercial fishing implications:

Commonwealth-managed fisheries

We note there are three active overlapping Commonwealth managed fisheries in the environment that may be affected (EMBA), listed below, of which the Western Deepwater Trawl Fishery may have been active in the Stybarrow Operational Area in recent years. We have consulted licence holders in this fishery.

- Western Tuna and Billfish
- North West Slope Trawl
- Western Deepwater Trawl

Woodside has also provided information to the representative organisations of other identified Commonwealth managed fisheries on AFMA advice that it expects all Commonwealth fishers who have entitlements to fish within the proposed area to be consulted, which can be through the relevant fishing industry associations.

State-managed fisheries

We note that there are 20 overlapping State managed fisheries in the EMBA listed below.

- Exmouth Gulf Beach Seine and Mesh Net Managed Fish
- Exmouth Gulf Prawn Managed Fishery
- Gascoyne Demersal Scalefish Managed Fishery
- Mackerel Managed Fishery (Area 2)
- Mackerel Managed Fishery (Area 3)
- Marine Aquarium Fish Managed Fishery
- Nickol Bay Prawn Managed Fishery
- Onslow Prawn Managed Fishery
- Open Access in the North Coast, Gascoyne Coast and
- Pilbara Crab Managed Fishery
- Pilbara Fish Trawl (Interim) Managed Fishery
- Pilbara Line Fishery (Condition)
- Pilbara Trap Managed Fishery
- Shark Bay Crab Managed Fishery
- Shark Bay Prawn Managed Fishery

Stybarrow Plug and Abandonment Environment Plan

- Shark Bay Scallop Managed Fishery
- West Australian Sea Cucumber Fishery
- West Coast Deep Sea Crustacean Managed Fishery
- West Coast Demersal Scalefish (Interim) Managed Fishery
- West Coast Rock Lobster Managed Fishery

Of these State-managed fisheries, the following may have been active in the Operational Area in recent years.

Griffin Field Decommissioning	Stybarrow Field Decommissioning
<ul style="list-style-type: none">• Exmouth Gulf Prawn Managed Fishery• Mackerel Managed Fishery (Area 2)• Marine Aquarium Fish Managed Fishery• Onslow Prawn Managed Fishery• Pilbara Line Fishery (Condition)• Pilbara Trap Managed Fishery• Tour Operators• West Coast Deep Sea Crustacean Managed Fishery	<ul style="list-style-type: none">• Tour Operators• West Coast Deep Sea Crustacean Managed Fishery

Feedback:

If you have any feedback on these activities, please respond to Woodside at: Feedback@woodside.com.au or 1800 442 977.

Your feedback and our response will be included in our Environment Plan which will be submitted to NOPSEMA for acceptance in accordance with the *Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2009* (Cth).

Please let us know if your feedback for this activity is sensitive and we will make this known to NOPSEMA upon submission of the Environment Plan in order for this information to remain confidential to NOPSEMA. Please provide your views by **17 March 2023**.

You can also subscribe on our website to receive Consultation Information Sheets for proposed activities: www.woodside.com/sustainability/consultation-activities.

2.14.1 Email sent to WAFIC (10 March 2023)

Dear [REDACTED]

Woodside previously consulted you (see email below) on Woodside's proposed activities for the progressive decommissioning of the Griffin and Stybarrow fields.

We provided this information to ensure relevant persons are informed about the status of proposed activities, as there have been changes to activity scope and supporting consultation information since consultation commenced for these decommissioning projects in 2021.

We would appreciate any feedback you may have by **17 March 2023** to support the development of our proposed Environment Plans.

Stybarrow Plug and Abandonment Environment Plan

Any feedback provided previously on proposed activities will remain current where Environment Plans are under assessment by the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA).

For reference:

- The **Griffin Field** is in Commonwealth waters in Petroleum Licence WA-10-L, 65 km northwest of Onslow and 94 km northeast of Exmouth, Western Australia and in water depths of approximately 120 m.
- The **Stybarrow Field** is in Commonwealth waters in Petroleum Licence WA-32-L, approximately 53 km northwest of Exmouth, Western Australia and in water depths of approximately 810 – 850 m.

Consultation Information Sheets for the proposed activities are attached, which provide a summary of potential key risks and associated management measures. The Information Sheets are also available on our [website](#).

Regards

Woodside Feedback

2.15 Email sent to the Australian Maritime Safety Authority (AMSA) and Australian Hydrographic Office (AHO) (16 February 2023)

Dear AMSA and AHO

Woodside is providing this update on the progressive decommissioning of the Griffin and Stybarrow fields, previously operated by BHP Petroleum Pty Ltd (BHP).

We are providing this information to ensure relevant persons are informed about the status of proposed activities, as there have been changes to activity scope and supporting consultation information since consultation commenced for these decommissioning projects in 2021.

The **Griffin Field** is in Commonwealth waters in Petroleum Licence WA-10-L, 65 km northwest of Onslow and 94 km northeast of Exmouth, Western Australia and in water depths of approximately 120 m.

The **Stybarrow Field** is in Commonwealth waters in Petroleum Licence WA-32-L, approximately 53 km northwest of Exmouth, Western Australia and in water depths of approximately 810 – 850 m.

A summary of proposed activities is outlined below, and more detailed information is provided in the attached Consultation Information Sheets. The Information Sheets provide details on activities proposed to be managed under a number of Environment Plans for each Field, including a summary of potential key risks and associated management measures. The Information Sheets are also available on our [website](#).

Stybarrow Plug and Abandonment Environment Plan

Any feedback provided previously on proposed activities will remain current where Environment Plans are under assessment by the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA).

Please let us know if you would like to update previous feedback or have any additional views by **17 March 2023**.

Activity:

	Griffin Field Decommissioning Activities	Stybarrow Field Decommissioning Activities
Summary:	<p>Removal Activities</p> <ul style="list-style-type: none"> • Removal of subsea equipment (wellheads, trees, distribution skids, risers, flexible flowlines, rigid flowlines, umbilicals, and the pipeline end module (PLEM)). • Removal of the Riser Turret Mooring (RTM) and its moorings. Depending on the vessel utilised, recovery of the RTM may require sections of it to be towed to shallower water out of the title. • Removal of an exploration wellhead (Ramillies-1 in neighbouring petroleum title WA-12-L). • Ongoing field management activities. • Pigging and subsequent removal of the 26 km of Griffin Gas Export Pipeline (GEP) within Commonwealth waters. <p>In Situ Activities</p> <ul style="list-style-type: none"> • Proposal to leave in situ 12 RTM drag anchors (buried), 6 concrete gravity bases and 5 piled 	<p>Plugging and Abandonment (P&A) Activities</p> <ul style="list-style-type: none"> • Pre-execution activities associated with the well P&A, such as barrier testing and removal of marine growth. • Well P&A of the 10 productions/injection wells by placing cement plugs in the wells to permanently prevent hydrocarbon release. • Cutting and removal of the wellhead and subsea tree assembly. • Unblocking of the H4 flowline, if deemed feasible. <p>Removal Activities</p> <ul style="list-style-type: none"> • Removal of subsea equipment (wellheads, trees, manifolds, risers, flexible flowlines, and umbilicals). • Removal of the Disconnectable Turret Mooring (DTM) and its moorings. Recovery of the DTM may require it to be towed to shallower water outside of permit area WA-32-L to support the DTM

Stybarrow Plug and Abandonment Environment Plan

	<p>foundations for the PLEM and 4 distribution skids.</p>	<p>removal from the marine environment.</p> <ul style="list-style-type: none"> • Ongoing field management activities (equipment monitoring and inspection). <p>In Situ Activities</p> <ul style="list-style-type: none"> • Proposed leave in situ of the 9 DTM drag anchors (buried), nine suction piles for the riser holdbacks and the historical exploration wellhead, Eskdale-1, which was unable to be removed following its drilling and abandonment in 2003.
Location:	<ul style="list-style-type: none"> • 94 km northeast of Exmouth, Western Australia. 	<ul style="list-style-type: none"> • 53 km northwest of Exmouth, Western Australia.
Approx. Water Depth (m):	<ul style="list-style-type: none"> • Approx. 120 m. 	<ul style="list-style-type: none"> • Approx. 810 – 850 m.
Schedule:	<p>Removal Activities</p> <ul style="list-style-type: none"> • Earliest proposed removal activity start is estimated to be Q4 2023, subject to approvals, vessel availability and weather constraints. • Facilities removal must be completed no later than 31 December 2024, pursuant to General Direction 832. 	<p>Plugging and Abandonment (P&A) Activities</p> <ul style="list-style-type: none"> • Earliest P&A start is estimated to be Q4 2023, subject to approvals, MODU and vessel availability and weather constraints. • P&A activities must be completed no later than 30 September 2024, pursuant to General Direction 833. <p>Removal Activities</p> <ul style="list-style-type: none"> • Earliest facilities and DTM removal is estimated to be Q4 2023, subject to approvals, vessel availability and weather constraints. • Equipment removal must be completed no later than 31 March 2025, pursuant to General Direction 833.

<p>Duration:</p>	<p>Removal Activities</p> <ul style="list-style-type: none"> Removal activities are anticipated to take approximately 6 months to complete and GEP removal activities are anticipated to take approximately 2 months to complete. 	<p>Plugging and Abandonment (P&A) Activities</p> <ul style="list-style-type: none"> P&A activities are anticipated to take approximately 6 – 9 months. <p>Removal Activities</p> <ul style="list-style-type: none"> Removal activities are anticipated to take approximately 4-6 months to complete and DTM removal activities are anticipated to take approximately 1 month to complete.
<p>Exclusionary/Cautious Zone:</p>	<p>Removal Activities</p> <ul style="list-style-type: none"> The temporary Operational Area includes the area encompassing an approximate 1,500 m radius around the equipment. A temporary 500 m exclusion zone will apply around the project vessels during removal and potential tow activities. 	<p>P&A Activities</p> <ul style="list-style-type: none"> The Operational Area includes the area encompassing an approximate 3,000 m radius around each of the four drill centers within WA-32-L. A temporary 500 m exclusion zone will apply around the MODU and the associated project vessels during P&A activities. <p>Removal Activities</p> <ul style="list-style-type: none"> The temporary Operational Area includes the area encompassing an approximate 1,500 m radius around the subsea infrastructure and wellheads. The DTM has an existing 1200 m radius petroleum safety zone which will continue to be in place until it is removed. A temporary 500 m exclusion zone will apply around the CSV and the

Stybarrow Plug and Abandonment Environment Plan

		<p>associated project vessels during removal activities.</p> <ul style="list-style-type: none"> • A temporary 500 m exclusion zone will apply around the HLV and the associated project vessels during the removal of the DTM.
Vessels:	<p>Removal Activities</p> <ul style="list-style-type: none"> • Construction support vessel (CSV) and Heavy Lift Vessel (HLV) for recovery and pipeline removal activities. • An anchor handling tug (AHT) to support the towing of the RTM to sheltered water. 	<p>P&A activities</p> <ul style="list-style-type: none"> • Semi-Submersible Mobile Offshore Drilling Unit (MODU) • The MODU will be supported by 2 to 3 offshore support vessels. <p>Removal Activities</p> <ul style="list-style-type: none"> • CSV and HLV for recovery and activities. • AHTs to support the towing of the DTM to the shallower water location (if required).

Feedback:

If you have any feedback on these activities, please respond to Woodside at: Feedback@woodside.com.au or 1800 442 977.

Your feedback and our response will be included in our Environment Plan which will be submitted to NOPSEMA for acceptance in accordance with the *Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2009* (Cth).

Please let us know if your feedback for this activity is sensitive and we will make this known to NOPSEMA upon submission of the Environment Plan in order for this information to remain confidential to NOPSEMA.

Please provide your views by **17 March 2023**.

You can also subscribe on our website to receive Consultation Information Sheets for proposed activities: www.woodside.com/sustainability/consultation-activities.

2.15.1 Email sent to AMSA – Marine Safety and AHO (15 March 2023)

Dear AMSA and AHO

Woodside previously consulted you (email below) on its plans for the progressive decommissioning of the Griffin and Stybarrow fields, previously operated by BHP Petroleum Pty Ltd (BHP).

Stybarrow Plug and Abandonment Environment Plan

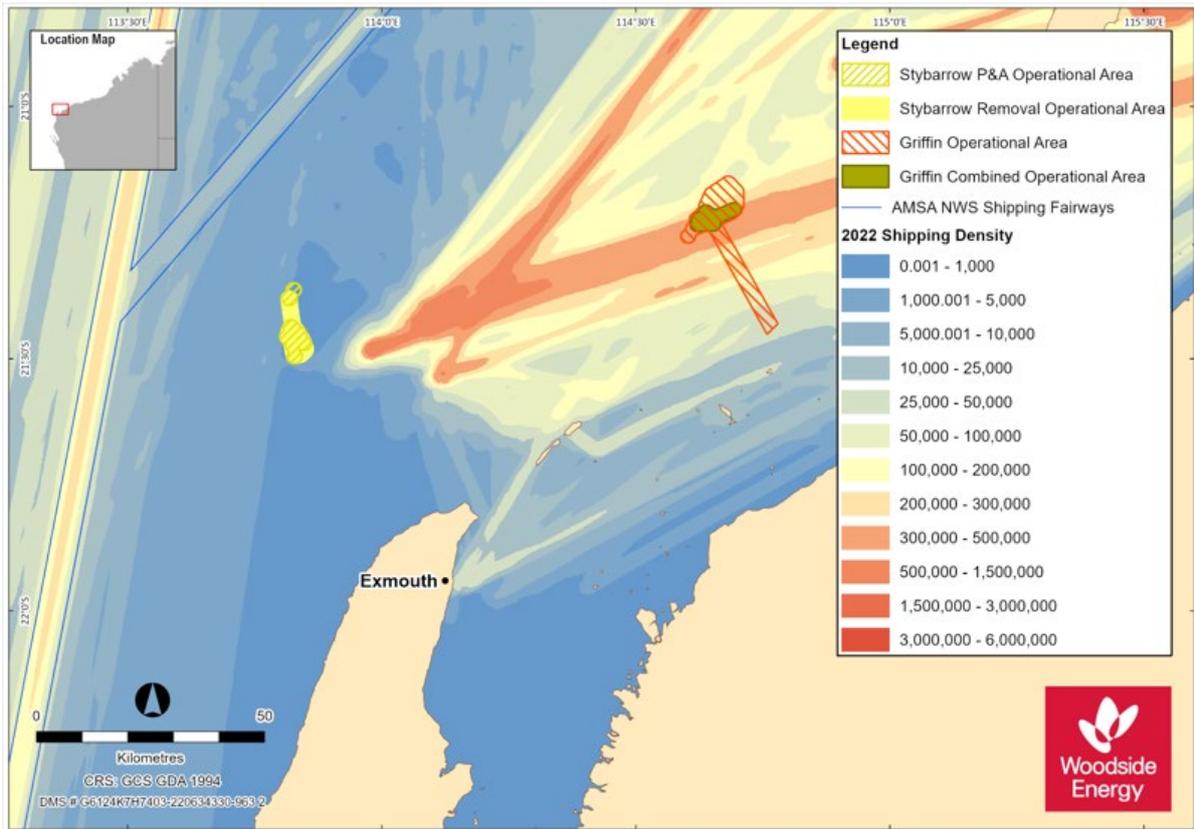
The Shipping Lane figures for the proposed activities Operational Areas are attached. Separate figures showing the Environment that May Be Affected (EMBA) for the proposed activities are also been attached for reference.

Please let us know should you have any feedback relating to the proposed activities by 17 March 2023.

Regards

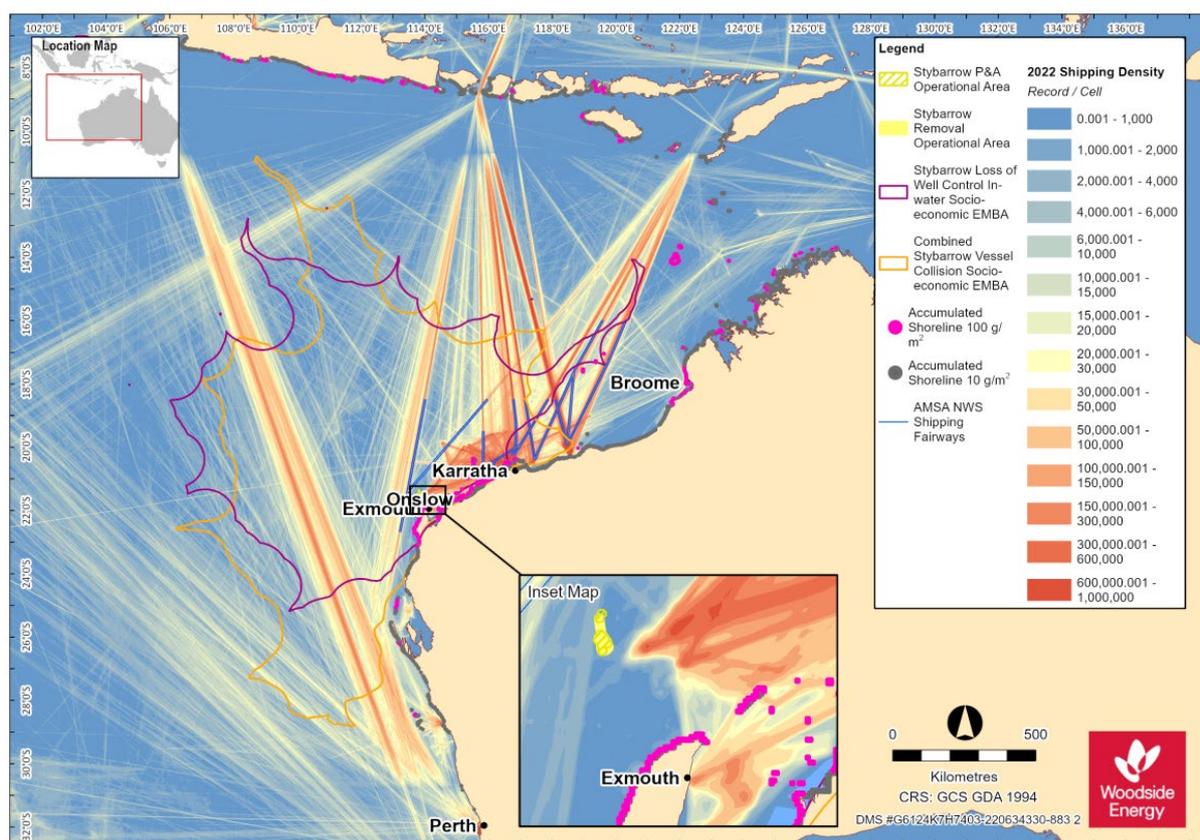
Woodside Feedback

Attached Image 1 – Griffin and Stybarrow – Shipping lanes – Operational Areas



Attached Image 2 – Shipping channels_Stybarrow

Stybarrow Plug and Abandonment Environment Plan



2.16 Email sent to the Department of Defence (DoD) (16 February 2023)

Dear Department of Defence

Woodside is providing this update on the progressive decommissioning of the Griffin and Stybarrow fields, previously operated by BHP Petroleum Pty Ltd (BHP).

We are providing this information to ensure relevant persons are informed about the status of proposed activities, as there have been changes to activity scope and supporting consultation information since consultation commenced for these decommissioning projects in 2021.

The **Griffin Field** is in Commonwealth waters in Petroleum Licence WA-10-L, 65 km northwest of Onslow and 94 km northeast of Exmouth, Western Australia and in water depths of approximately 120 m.

The **Stybarrow Field** is in Commonwealth waters in Petroleum Licence WA-32-L, approximately 53 km northwest of Exmouth, Western Australia and in water depths of approximately 810 – 850 m.

A summary of proposed activities is outlined below, and more detailed information is provided in the attached Consultation Information Sheets. The Information Sheets provide details on activities proposed to be managed under a number of Environment Plans for each Field, including a summary of potential key risks and associated management measures. The Information Sheets are also available on our [website](#).

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Any feedback provided previously on proposed activities will remain current where Environment Plans are under assessment by the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA).

Please let us know if you would like to update previous feedback or have any additional views by **17 March 2023**.

Activity:

	Griffin Field Decommissioning Activities	Stybarrow Field Decommissioning Activities
Summary:	<p>Removal Activities</p> <ul style="list-style-type: none"> • Removal of subsea equipment (wellheads, trees, distribution skids, risers, flexible flowlines, rigid flowlines, umbilicals, and the pipeline end module (PLEM)). • Removal of the Riser Turret Mooring (RTM) and its moorings. Depending on the vessel utilised, recovery of the RTM may require sections of it to be towed to shallower water out of the title. • Removal of an exploration wellhead (Ramillies-1 in neighbouring petroleum title WA-12-L). • Ongoing field management activities. • Pigging and subsequent removal of the 26 km of Griffin Gas Export Pipeline (GEP) within Commonwealth waters. <p>In Situ Activities</p> <ul style="list-style-type: none"> • Proposal to leave in situ 12 RTM drag anchors (buried), 6 concrete gravity bases and 5 piled 	<p>Plugging and Abandonment (P&A) Activities</p> <ul style="list-style-type: none"> • Pre-execution activities associated with the well P&A, such as barrier testing and removal of marine growth. • Well P&A of the 10 productions/injection wells by placing cement plugs in the wells to permanently prevent hydrocarbon release. • Cutting and removal of the wellhead and subsea tree assembly. • Unblocking of the H4 flowline, if deemed feasible. <p>Removal Activities</p> <ul style="list-style-type: none"> • Removal of subsea equipment (wellheads, trees, manifolds, risers, flexible flowlines, and umbilicals). • Removal of the Disconnectable Turret Mooring (DTM) and its moorings. Recovery of the DTM may require it to be towed to shallower water outside of permit area WA-32-L to support the DTM

Stybarrow Plug and Abandonment Environment Plan

	<p>foundations for the PLEM and 4 distribution skids.</p>	<p>removal from the marine environment.</p> <ul style="list-style-type: none"> • Ongoing field management activities (equipment monitoring and inspection). <p>In Situ Activities</p> <ul style="list-style-type: none"> • Proposed leave in situ of the 9 DTM drag anchors (buried), nine suction piles for the riser holdbacks and the historical exploration wellhead, Eskdale-1, which was unable to be removed following its drilling and abandonment in 2003.
Location:	<ul style="list-style-type: none"> • 94 km northeast of Exmouth, Western Australia. 	<ul style="list-style-type: none"> • 53 km northwest of Exmouth, Western Australia.
Approx. Water Depth (m):	<ul style="list-style-type: none"> • Approx. 120 m. 	<ul style="list-style-type: none"> • Approx. 810 – 850 m.
Schedule:	<p>Removal Activities</p> <ul style="list-style-type: none"> • Earliest proposed removal activity start is estimated to be Q4 2023, subject to approvals, vessel availability and weather constraints. • Facilities removal must be completed no later than 31 December 2024, pursuant to General Direction 832. 	<p>Plugging and Abandonment (P&A) Activities</p> <ul style="list-style-type: none"> • Earliest P&A start is estimated to be Q4 2023, subject to approvals, MODU and vessel availability and weather constraints. • P&A activities must be completed no later than 30 September 2024, pursuant to General Direction 833. <p>Removal Activities</p> <ul style="list-style-type: none"> • Earliest facilities and DTM removal is estimated to be Q4 2023, subject to approvals, vessel availability and weather constraints. • Equipment removal must be completed no later than 31 March 2025, pursuant to General Direction 833.

<p>Duration:</p>	<p>Removal Activities</p> <ul style="list-style-type: none"> Removal activities are anticipated to take approximately 6 months to complete and GEP removal activities are anticipated to take approximately 2 months to complete. 	<p>Plugging and Abandonment (P&A) Activities</p> <ul style="list-style-type: none"> P&A activities are anticipated to take approximately 6 – 9 months. <p>Removal Activities</p> <ul style="list-style-type: none"> Removal activities are anticipated to take approximately 4-6 months to complete and DTM removal activities are anticipated to take approximately 1 month to complete.
<p>Exclusionary/Cautious Zone:</p>	<p>Removal Activities</p> <ul style="list-style-type: none"> The temporary Operational Area includes the area encompassing an approximate 1,500 m radius around the equipment. A temporary 500 m exclusion zone will apply around the project vessels during removal and potential tow activities. 	<p>P&A Activities</p> <ul style="list-style-type: none"> The Operational Area includes the area encompassing an approximate 3,000 m radius around each of the four drill centers within WA-32-L. A temporary 500 m exclusion zone will apply around the MODU and the associated project vessels during P&A activities. <p>Removal Activities</p> <ul style="list-style-type: none"> The temporary Operational Area includes the area encompassing an approximate 1,500 m radius around the subsea infrastructure and wellheads. The DTM has an existing 1200 m radius petroleum safety zone which will continue to be in place until it is removed. A temporary 500 m exclusion zone will apply around the CSV and the

		<p>associated project vessels during removal activities.</p> <ul style="list-style-type: none"> • A temporary 500 m exclusion zone will apply around the HLV and the associated project vessels during the removal of the DTM.
Vessels:	<p>Removal Activities</p> <ul style="list-style-type: none"> • Construction support vessel (CSV) and Heavy Lift Vessel (HLV) for recovery and pipeline removal activities. • An anchor handling tug (AHT) to support the towing of the RTM to sheltered water. 	<p>P&A activities</p> <ul style="list-style-type: none"> • Semi-Submersible Mobile Offshore Drilling Unit (MODU) • The MODU will be supported by 2 to 3 offshore support vessels. <p>Removal Activities</p> <ul style="list-style-type: none"> • CSV and HLV for recovery and activities. • AHTs to support the towing of the DTM to the shallower water location (if required).

Feedback:

If you have any feedback on these activities, please respond to Woodside at: Feedback@woodside.com.au or 1800 442 977.

Your feedback and our response will be included in our Environment Plan which will be submitted to NOPSEMA for acceptance in accordance with the *Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2009* (Cth).

Please let us know if your feedback for this activity is sensitive and we will make this known to NOPSEMA upon submission of the Environment Plan in order for this information to remain confidential to NOPSEMA.

Please provide your views by **17 March 2023**.

You can also subscribe on our website to receive Consultation Information Sheets for proposed activities: www.woodside.com/sustainability/consultation-activities.

2.16.1 Email sent to the DoD (8 March 2023)

Dear Department of Defence

Woodside previously consulted you (email below) on its plans for the progressive decommissioning of the Griffin and Stybarrow fields, previously operated by BHP Petroleum Pty Ltd (BHP).

Stybarrow Plug and Abandonment Environment Plan

The Defence Area figures for the proposed Griffin and Stybarrow Operational Areas are attached. Separate figures showing the Environment that May Be Affected (EMBA) for the proposed activities are also attached for reference.

Please let us know should you have any feedback relating to the proposed activities by **17 March 2023**.

Regards

Woodside Feedback

2.17 Email sent to the Commonwealth Fisheries Association (CFA) (16 February 2023)

Dear [REDACTED]

Woodside is providing this update on the progressive decommissioning of the Griffin and Stybarrow fields, previously operated by BHP Petroleum Pty Ltd (BHP).

We are providing this information to ensure relevant persons are informed about the status of proposed activities, as there have been changes to activity scope and supporting consultation information since consultation commenced for these decommissioning projects in 2021.

The **Griffin Field** is in Commonwealth waters in Petroleum Licence WA-10-L, 65 km northwest of Onslow and 94 km northeast of Exmouth, Western Australia and in water depths of approximately 120 m.

The **Stybarrow Field** is in Commonwealth waters in Petroleum Licence WA-32-L, approximately 53 km northwest of Exmouth, Western Australia and in water depths of approximately 810 – 850 m.

Operational Areas and Exclusion Zones will apply around a range of vessels that will support plugging and abandonment and infrastructure recovery and removal activities, which are outlined in the activity summaries below.

A summary of proposed activities is outlined below and more detailed information is provided in the attached Consultation Information Sheets, including a summary of potential key risks and associated management measures. The Information Sheets are also available on our [website](#).

Fisheries have been identified as being relevant based on fishing licence overlap with the activity area, assessment of government fishing effort data (including Fishcube and AFMA) from recent years, fishing methods and water depth.

Any feedback provided previously on proposed activities will remain current where Environment Plans are under assessment by the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA). Please let us know if you would like to update previous feedback or have any additional views by 17 March 2023.

Activity:

	Griffin Field Decommissioning Activities	Stybarrow Field Decommissioning Activities
<p>Summary:</p>	<p>Removal Activities</p> <ul style="list-style-type: none"> • Removal of subsea equipment (wellheads, trees, distribution skids, risers, flexible flowlines, rigid flowlines, umbilicals, and the pipeline end module (PLEM)). • Removal of the Riser Turret Mooring (RTM) and its moorings. Depending on the vessel utilised, recovery of the RTM may require sections of it to be towed to shallower water out of the title. • Removal of an exploration wellhead (Ramillies-1 in neighbouring petroleum title WA-12-L). • Ongoing field management activities. • Pigging and subsequent removal of the 26 km of Griffin Gas Export Pipeline (GEP) within Commonwealth waters. <p>In Situ Activities</p> <ul style="list-style-type: none"> • Proposal to leave in situ 12 RTM drag anchors (buried), 6 concrete gravity bases and 5 piled foundations for the PLEM and 4 distribution skids. 	<p>Plugging and Abandonment (P&A) Activities</p> <ul style="list-style-type: none"> • Pre-execution activities associated with the well P&A, such as barrier testing and removal of marine growth. • Well P&A of the 10 productions/injection wells by placing cement plugs in the wells to permanently prevent hydrocarbon release. • Cutting and removal of the wellhead and subsea tree assembly. • Unblocking of the H4 flowline, if deemed feasible. <p>Removal Activities</p> <ul style="list-style-type: none"> • Removal of subsea equipment (wellheads, trees, manifolds, risers, flexible flowlines, and umbilicals). • Removal of the Disconnectable Turret Mooring (DTM) and its moorings. Recovery of the DTM may require it to be towed to shallower water outside of permit area WA-32-L to support the DTM removal from the marine environment. • Ongoing field management activities (equipment monitoring and inspection). <p>In Situ Activities</p> <ul style="list-style-type: none"> • Proposed leave in situ of the 9 DTM drag anchors

Stybarrow Plug and Abandonment Environment Plan

		(buried), nine suction piles for the riser holdbacks and the historical exploration wellhead, Eskdale-1, which was unable to be removed following its drilling and abandonment in 2003.
Location:	<ul style="list-style-type: none"> 94 km northeast of Exmouth, Western Australia. 	<ul style="list-style-type: none"> 53 km northwest of Exmouth, Western Australia.
Approx. Water Depth (m):	<ul style="list-style-type: none"> Approx. 120 m. 	<ul style="list-style-type: none"> Approx. 810 – 850 m.
Schedule:	<p>Removal Activities</p> <ul style="list-style-type: none"> Earliest proposed removal activity start is estimated to be Q4 2023, subject to approvals, vessel availability and weather constraints. Facilities removal must be completed no later than 31 December 2024, pursuant to General Direction 832. 	<p>Plugging and Abandonment (P&A) Activities</p> <ul style="list-style-type: none"> Earliest P&A start is estimated to be Q4 2023, subject to approvals, MODU and vessel availability and weather constraints. P&A activities must be completed no later than 30 September 2024, pursuant to General Direction 833. <p>Removal Activities</p> <ul style="list-style-type: none"> Earliest facilities and DTM removal is estimated to be Q4 2023, subject to approvals, vessel availability and weather constraints. Equipment removal must be completed no later than 31 March 2025, pursuant to General Direction 833.
Duration:	<p>Removal Activities</p> <ul style="list-style-type: none"> Removal activities are anticipated to take approximately 6 months to complete and GEP removal activities are anticipated to take approximately 2 months to complete. 	<p>Plugging and Abandonment (P&A) Activities</p> <ul style="list-style-type: none"> P&A activities are anticipated to take approximately 6 – 9 months. <p>Removal Activities</p> <ul style="list-style-type: none"> Removal activities are anticipated to take approximately 4-6 months

		to complete and DTM removal activities are anticipated to take approximately 1 month to complete.
Exclusionary/Cautious Zone:	<p>Removal Activities</p> <ul style="list-style-type: none"> • The temporary Operational Area includes the area encompassing an approximate 1,500 m radius around the equipment. • A temporary 500 m exclusion zone will apply around the project vessels during removal and potential tow activities. 	<p>P&A Activities</p> <ul style="list-style-type: none"> • The Operational Area includes the area encompassing an approximate 3,000 m radius around each of the four drill centers within WA-32-L. • A temporary 500 m exclusion zone will apply around the MODU and the associated project vessels during P&A activities. <p>Removal Activities</p> <ul style="list-style-type: none"> • The temporary Operational Area includes the area encompassing an approximate 1,500 m radius around the subsea infrastructure and wellheads. • The DTM has an existing 1200 m radius petroleum safety zone which will continue to be in place until it is removed. • A temporary 500 m exclusion zone will apply around the CSV and the associated project vessels during removal activities. • A temporary 500 m exclusion zone will apply around the HLV and the associated project vessels during the removal of the DTM.
Vessels:	Removal Activities	P&A activities

Stybarrow Plug and Abandonment Environment Plan

	<ul style="list-style-type: none">• Construction support vessel (CSV) and Heavy Lift Vessel (HLV) for recovery and pipeline removal activities.• An anchor handling tug (AHT) to support the towing of the RTM to sheltered water.	<ul style="list-style-type: none">• Semi-Submersible Mobile Offshore Drilling Unit (MODU)• The MODU will be supported by 2 to 3 offshore support vessels. <p>Removal Activities</p> <ul style="list-style-type: none">• CSV and HLV for recovery and activities.• AHTs to support the towing of the DTM to the shallower water location (if required).
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Commonwealth-managed fishery implications:

We note there are three overlapping Commonwealth managed fisheries (listed below) in the Environments that May Be Affected (EMBAs) for the Griffin and Stybarrow decommissioning projects, of which the Western Deepwater Trawl Fishery may have been active in the Stybarrow Operational Area (see attached Information Sheets for more details).

- Western Tuna and Billfish
- North West Slope Trawl
- Western Deepwater Trawl

Woodside is consulting licence holders in these fisheries, as well as providing information to representative organisations on AFMA advice that it expects all Commonwealth fishers who have entitlements to fish within the proposed area to be consulted, which can be through the relevant fishing industry associations.

Feedback:

If you have any feedback on these activities, please respond to Woodside at: Feedback@woodside.com.au or 1800 442 977.

Your feedback and our response will be included in our Environment Plan which will be submitted to NOPSEMA for acceptance in accordance with the *Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2009* (Cth).

Please let us know if your feedback for this activity is sensitive and we will make this known to NOPSEMA upon submission of the Environment Plan in order for this information to remain confidential to NOPSEMA. Please provide your views by **17 March 2023**.

You can also subscribe on our website to receive Consultation Information Sheets for proposed activities: www.woodside.com/sustainability/consultation-activities.

2.17.1 Email sent to CFA (10 March 2023)

Dear [REDACTED]

Stybarrow Plug and Abandonment Environment Plan

Woodside previously consulted you (see email below) on Woodside's proposed activities for the progressive decommissioning of the Griffin and Stybarrow fields.

We provided this information to ensure relevant persons are informed about the status of proposed activities, as there have been changes to activity scope and supporting consultation information since consultation commenced for these decommissioning projects in 2021.

We would appreciate any feedback you may have by **17 March 2023** to support the development of our proposed Environment Plans.

Any feedback provided previously on proposed activities will remain current where Environment Plans are under assessment by the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA).

For reference:

- The **Griffin Field** is in Commonwealth waters in Petroleum Licence WA-10-L, 65 km northwest of Onslow and 94 km northeast of Exmouth, Western Australia and in water depths of approximately 120 m.
- The **Stybarrow Field** is in Commonwealth waters in Petroleum Licence WA-32-L, approximately 53 km northwest of Exmouth, Western Australia and in water depths of approximately 810 – 850 m.

Consultation Information Sheets for the proposed activities are attached, which provide a summary of potential key risks and associated management measures. The Information Sheets are also available on our [website](#).

Regards

Woodside Feedback

2.18 Email sent to Tuna Australia (16 February 2023)

Dear [REDACTED]

Woodside is providing this update on the progressive decommissioning of the Griffin and Stybarrow fields, previously operated by BHP Petroleum Pty Ltd (BHP).

We are providing this information to ensure relevant persons are informed about the status of proposed activities, as there have been changes to activity scope and supporting consultation information since consultation commenced for these decommissioning projects in 2021.

The **Griffin Field** is in Commonwealth waters in Petroleum Licence WA-10-L, 65 km northwest of Onslow and 94 km northeast of Exmouth, Western Australia and in water depths of approximately 120 m.

The Stybarrow Field is in Commonwealth waters in Petroleum Licence WA-32-L, approximately 53 km northwest of Exmouth, Western Australia and in water depths of approximately 810 – 850 m.

Operational Areas and Exclusion Zones will apply around a range of vessels that will support plugging and abandonment and infrastructure recovery and removal activities, which are outlined in the activity summaries below.

A summary of proposed activities is outlined below and more detailed information is provided in the attached Consultation Information Sheets, including a summary of potential key risks and associated management measures. The Information Sheets are also available on our website.

Fisheries have been identified as being relevant based on fishing licence overlap with the activity area, assessment of government fishing effort data (including Fishcube and AFMA) from recent years, fishing methods and water depth.

Any feedback provided previously on proposed activities will remain current where Environment Plans are under assessment by the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA). Please let us know if you would like to update previous feedback or have any additional views by 17 March 2023.

Activity:

	Griffin Field Decommissioning Activities	Stybarrow Field Decommissioning Activities
Summary:	<p>Removal Activities</p> <ul style="list-style-type: none"> • Removal of subsea equipment (wellheads, trees, distribution skids, risers, flexible flowlines, rigid flowlines, umbilicals, and the pipeline end module (PLEM)). • Removal of the Riser Turret Mooring (RTM) and its moorings. Depending on the vessel utilised, recovery of the RTM may require sections of it to be towed to shallower water out of the title. • Removal of an exploration wellhead (Ramillies-1 in neighbouring petroleum title WA-12-L). • Ongoing field management activities. • Pigging and subsequent removal of the 26 km of Griffin Gas Export Pipeline 	<p>Plugging and Abandonment (P&A) Activities</p> <ul style="list-style-type: none"> • Pre-execution activities associated with the well P&A, such as barrier testing and removal of marine growth. • Well P&A of the 10 productions/injection wells by placing cement plugs in the wells to permanently prevent hydrocarbon release. • Cutting and removal of the wellhead and subsea tree assembly. • Unblocking of the H4 flowline, if deemed feasible. <p>Removal Activities</p> <ul style="list-style-type: none"> • Removal of subsea equipment (wellheads, trees, manifolds, risers, flexible flowlines, and umbilicals).

	<p>(GEP) within Commonwealth waters.</p> <p>In Situ Activities</p> <ul style="list-style-type: none"> • Proposal to leave in situ 12 RTM drag anchors (buried), 6 concrete gravity bases and 5 piled foundations for the PLEM and 4 distribution skids. 	<ul style="list-style-type: none"> • Removal of the Disconnectable Turret Mooring (DTM) and its moorings. Recovery of the DTM may require it to be towed to shallower water outside of permit area WA-32-L to support the DTM removal from the marine environment. • Ongoing field management activities (equipment monitoring and inspection). <p>In Situ Activities</p> <ul style="list-style-type: none"> • Proposed leave in situ of the 9 DTM drag anchors (buried), nine suction piles for the riser holdbacks and the historical exploration wellhead, Eskdale-1, which was unable to be removed following its drilling and abandonment in 2003.
Location:	<ul style="list-style-type: none"> • 94 km northeast of Exmouth, Western Australia. 	<ul style="list-style-type: none"> • 53 km northwest of Exmouth, Western Australia.
Approx. Water Depth (m):	<ul style="list-style-type: none"> • Approx. 120 m. 	<ul style="list-style-type: none"> • Approx. 810 – 850 m.
Schedule:	<p>Removal Activities</p> <ul style="list-style-type: none"> • Earliest proposed removal activity start is estimated to be Q4 2023, subject to approvals, vessel availability and weather constraints. • Facilities removal must be completed no later than 31 December 2024, pursuant to General Direction 832. 	<p>Plugging and Abandonment (P&A) Activities</p> <ul style="list-style-type: none"> • Earliest P&A start is estimated to be Q4 2023, subject to approvals, MODU and vessel availability and weather constraints. • P&A activities must be completed no later than 30 September 2024, pursuant to General Direction 833. <p>Removal Activities</p> <ul style="list-style-type: none"> • Earliest facilities and DTM removal is estimated to be

		<p>Q4 2023, subject to approvals, vessel availability and weather constraints.</p> <ul style="list-style-type: none"> Equipment removal must be completed no later than 31 March 2025, pursuant to General Direction 833.
Duration:	<p>Removal Activities</p> <ul style="list-style-type: none"> Removal activities are anticipated to take approximately 6 months to complete and GEP removal activities are anticipated to take approximately 2 months to complete. 	<p>Plugging and Abandonment (P&A) Activities</p> <ul style="list-style-type: none"> P&A activities are anticipated to take approximately 6 – 9 months. <p>Removal Activities</p> <ul style="list-style-type: none"> Removal activities are anticipated to take approximately 4-6 months to complete and DTM removal activities are anticipated to take approximately 1 month to complete.
Exclusionary/Cautious Zone:	<p>Removal Activities</p> <ul style="list-style-type: none"> The temporary Operational Area includes the area encompassing an approximate 1,500 m radius around the equipment. A temporary 500 m exclusion zone will apply around the project vessels during removal and potential tow activities. 	<p>P&A Activities</p> <ul style="list-style-type: none"> The Operational Area includes the area encompassing an approximate 3,000 m radius around each of the four drill centers within WA-32-L. A temporary 500 m exclusion zone will apply around the MODU and the associated project vessels during P&A activities. <p>Removal Activities</p> <ul style="list-style-type: none"> The temporary Operational Area includes the area encompassing an approximate 1,500 m radius around the subsea infrastructure and wellheads.

Stybarrow Plug and Abandonment Environment Plan

		<ul style="list-style-type: none"> • The DTM has an existing 1200 m radius petroleum safety zone which will continue to be in place until it is removed. • A temporary 500 m exclusion zone will apply around the CSV and the associated project vessels during removal activities. • A temporary 500 m exclusion zone will apply around the HLV and the associated project vessels during the removal of the DTM.
<p>Vessels:</p>	<p>Removal Activities</p> <ul style="list-style-type: none"> • Construction support vessel (CSV) and Heavy Lift Vessel (HLV) for recovery and pipeline removal activities. • An anchor handling tug (AHT) to support the towing of the RTM to sheltered water. 	<p>P&A activities</p> <ul style="list-style-type: none"> • Semi-Submersible Mobile Offshore Drilling Unit (MODU) • The MODU will be supported by 2 to 3 offshore support vessels. <p>Removal Activities</p> <ul style="list-style-type: none"> • CSV and HLV for recovery and activities. • AHTs to support the towing of the DTM to the shallower water location (if required).

Commonwealth-managed fishery implications:

We note there are three overlapping Commonwealth managed fisheries (listed below) in the Environments that May Be Affected (EMBAs) for the Griffin and Stybarrow decommissioning projects, of which the Western Deepwater Trawl Fishery may have been active in the Stybarrow Operational Area (see attached Information Sheets for more details).

- Western Tuna and Billfish
- North West Slope Trawl
- Western Deepwater Trawl

Woodside is consulting licence holders in these fisheries, as well as providing information to representative organisations on AFMA advice that it expects all Commonwealth fishers who have entitlements to fish within the proposed area to be consulted, which can be through the relevant fishing industry associations.

Stybarrow Plug and Abandonment Environment Plan

Feedback:

If you have any feedback on these activities, please respond to Woodside at: Feedback@woodside.com.au or 1800 442 977.

Your feedback and our response will be included in our Environment Plan which will be submitted to NOPSEMA for acceptance in accordance with the *Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2009* (Cth).

Please let us know if your feedback for this activity is sensitive and we will make this known to NOPSEMA upon submission of the Environment Plan in order for this information to remain confidential to NOPSEMA. Please provide your views by **17 March 2023**.

You can also subscribe on our website to receive Consultation Information Sheets for proposed activities: www.woodside.com/sustainability/consultation-activities.

2.18.1 Email sent to Tuna Australia (10 March 2023)

Dear [REDACTED]

Woodside previously consulted you (see email below) on Woodside's proposed activities for the progressive decommissioning of the Griffin and Stybarrow fields.

We provided this information to ensure relevant persons are informed about the status of proposed activities, as there have been changes to activity scope and supporting consultation information since consultation commenced for these decommissioning projects in 2021.

We would appreciate any feedback you may have by **17 March 2023** to support the development of our proposed Environment Plans.

Any feedback provided previously on proposed activities will remain current where Environment Plans are under assessment by the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA).

For reference:

- The **Griffin Field** is in Commonwealth waters in Petroleum Licence WA-10-L, 65 km northwest of Onslow and 94 km northeast of Exmouth, Western Australia and in water depths of approximately 120 m.
- The **Stybarrow Field** is in Commonwealth waters in Petroleum Licence WA-32-L, approximately 53 km northwest of Exmouth, Western Australia and in water depths of approximately 810 – 850 m.

Consultation Information Sheets for the proposed activities are attached, which provide a summary of potential key risks and associated management measures. The Information Sheets are also available on our [website](#).

Regards

Woodside Feedback

2.19 Email sent to the Australian Fisheries Management Authority (AFMA) (16 February 2023)

Dear AFMA

Woodside is providing this update on the progressive decommissioning of the Griffin and Stybarrow fields, previously operated by BHP Petroleum Pty Ltd (BHP).

We are providing this information to ensure relevant persons are informed about the status of proposed activities, as there have been changes to activity scope and supporting consultation information since consultation commenced for these decommissioning projects in 2021.

The **Griffin Field** is in Commonwealth waters in Petroleum Licence WA-10-L, 65 km northwest of Onslow and 94 km northeast of Exmouth, Western Australia and in water depths of approximately 120 m.

The **Stybarrow Field** is in Commonwealth waters in Petroleum Licence WA-32-L, approximately 53 km northwest of Exmouth, Western Australia and in water depths of approximately 810 – 850 m.

Operational Areas and Exclusion Zones will apply around a range of vessels that will support plugging and abandonment and infrastructure recovery and removal activities, which are outlined in the activity summaries below.

A summary of proposed activities is outlined below and more detailed information is provided in the attached Consultation Information Sheets, including a summary of potential key risks and associated management measures. The Information Sheets are also available on our website.

Fisheries have been identified as being relevant based on fishing licence overlap with the activity area, assessment of government fishing effort data (including Fishcube and AFMA) from recent years, fishing methods and water depth.

Any feedback provided previously on proposed activities will remain current where Environment Plans are under assessment by the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA). Please let us know if you would like to update previous feedback or have any additional views by 17 March 2023.

Activity:

	Griffin Field Decommissioning Activities	Stybarrow Field Decommissioning Activities
Summary:	<p>Removal Activities</p> <ul style="list-style-type: none"> Removal of subsea equipment (wellheads, trees, distribution skids, risers, flexible flowlines, rigid flowlines, umbilicals, and the pipeline end module (PLEM)). 	<p>Plugging and Abandonment (P&A) Activities</p> <ul style="list-style-type: none"> Pre-execution activities associated with the well P&A, such as barrier testing and removal of marine growth.

	<ul style="list-style-type: none"> • Removal of the Riser Turret Mooring (RTM) and its moorings. Depending on the vessel utilised, recovery of the RTM may require sections of it to be towed to shallower water out of the title. • Removal of an exploration wellhead (Ramillies-1 in neighbouring petroleum title WA-12-L). • Ongoing field management activities. • Pigging and subsequent removal of the 26 km of Griffin Gas Export Pipeline (GEP) within Commonwealth waters. <p>In Situ Activities</p> <ul style="list-style-type: none"> • Proposal to leave in situ 12 RTM drag anchors (buried), 6 concrete gravity bases and 5 piled foundations for the PLEM and 4 distribution skids. 	<ul style="list-style-type: none"> • Well P&A of the 10 productions/injection wells by placing cement plugs in the wells to permanently prevent hydrocarbon release. • Cutting and removal of the wellhead and subsea tree assembly. • Unblocking of the H4 flowline, if deemed feasible. <p>Removal Activities</p> <ul style="list-style-type: none"> • Removal of subsea equipment (wellheads, trees, manifolds, risers, flexible flowlines, and umbilicals). • Removal of the Disconnectable Turret Mooring (DTM) and its moorings. Recovery of the DTM may require it to be towed to shallower water outside of permit area WA-32-L to support the DTM removal from the marine environment. • Ongoing field management activities (equipment monitoring and inspection). <p>In Situ Activities</p> <ul style="list-style-type: none"> • Proposed leave in situ of the 9 DTM drag anchors (buried), nine suction piles for the riser holdbacks and the historical exploration wellhead, Eskdale-1, which was unable to be removed following its drilling and abandonment in 2003.
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Stybarrow Plug and Abandonment Environment Plan

Location:	<ul style="list-style-type: none"> 94 km northeast of Exmouth, Western Australia. 	<ul style="list-style-type: none"> 53 km northwest of Exmouth, Western Australia.
Approx. Water Depth (m):	<ul style="list-style-type: none"> Approx. 120 m. 	<ul style="list-style-type: none"> Approx. 810 – 850 m.
Schedule:	<p>Removal Activities</p> <ul style="list-style-type: none"> Earliest proposed removal activity start is estimated to be Q4 2023, subject to approvals, vessel availability and weather constraints. Facilities removal must be completed no later than 31 December 2024, pursuant to General Direction 832. 	<p>Plugging and Abandonment (P&A) Activities</p> <ul style="list-style-type: none"> Earliest P&A start is estimated to be Q4 2023, subject to approvals, MODU and vessel availability and weather constraints. P&A activities must be completed no later than 30 September 2024, pursuant to General Direction 833. <p>Removal Activities</p> <ul style="list-style-type: none"> Earliest facilities and DTM removal is estimated to be Q4 2023, subject to approvals, vessel availability and weather constraints. Equipment removal must be completed no later than 31 March 2025, pursuant to General Direction 833.
Duration:	<p>Removal Activities</p> <ul style="list-style-type: none"> Removal activities are anticipated to take approximately 6 months to complete and GEP removal activities are anticipated to take approximately 2 months to complete. 	<p>Plugging and Abandonment (P&A) Activities</p> <ul style="list-style-type: none"> P&A activities are anticipated to take approximately 6 – 9 months. <p>Removal Activities</p> <ul style="list-style-type: none"> Removal activities are anticipated to take approximately 4-6 months to complete and DTM removal activities are anticipated to take approximately 1 month to complete.

<p>Exclusionary/Cautious Zone:</p>	<p>Removal Activities</p> <ul style="list-style-type: none"> • The temporary Operational Area includes the area encompassing an approximate 1,500 m radius around the equipment. • A temporary 500 m exclusion zone will apply around the project vessels during removal and potential tow activities. 	<p>P&A Activities</p> <ul style="list-style-type: none"> • The Operational Area includes the area encompassing an approximate 3,000 m radius around each of the four drill centers within WA-32-L. • A temporary 500 m exclusion zone will apply around the MODU and the associated project vessels during P&A activities. <p>Removal Activities</p> <ul style="list-style-type: none"> • The temporary Operational Area includes the area encompassing an approximate 1,500 m radius around the subsea infrastructure and wellheads. • The DTM has an existing 1200 m radius petroleum safety zone which will continue to be in place until it is removed. • A temporary 500 m exclusion zone will apply around the CSV and the associated project vessels during removal activities. • A temporary 500 m exclusion zone will apply around the HLV and the associated project vessels during the removal of the DTM.
<p>Vessels:</p>	<p>Removal Activities</p> <ul style="list-style-type: none"> • Construction support vessel (CSV) and Heavy Lift Vessel (HLV) for recovery and pipeline removal activities. 	<p>P&A activities</p> <ul style="list-style-type: none"> • Semi-Submersible Mobile Offshore Drilling Unit (MODU) • The MODU will be supported by 2 to 3 offshore support vessels.

Stybarrow Plug and Abandonment Environment Plan

	<ul style="list-style-type: none">• An anchor handling tug (AHT) to support the towing of the RTM to sheltered water.	Removal Activities <ul style="list-style-type: none">• CSV and HLV for recovery and activities.• AHTs to support the towing of the DTM to the shallower water location (if required).
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Commonwealth-managed fishery implications:

We note there are three overlapping Commonwealth managed fisheries (listed below) in the Environments that May Be Affected (EMBA)s for the Griffin and Stybarrow decommissioning projects, of which the Western Deepwater Trawl Fishery may have been active in the Stybarrow Operational Area (see attached Information Sheets for more details).

- Western Tuna and Billfish
- North West Slope Trawl
- Western Deepwater Trawl

Woodside is consulting licence holders in these fisheries, as well as providing information to representative organisations on AFMA advice that it expects all Commonwealth fishers who have entitlements to fish within the proposed area to be consulted, which can be through the relevant fishing industry associations.

Feedback:

If you have any feedback on these activities, please respond to Woodside at: Feedback@woodside.com.au or 1800 442 977.

Your feedback and our response will be included in our Environment Plan which will be submitted to NOPSEMA for acceptance in accordance with the *Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2009* (Cth).

Please let us know if your feedback for this activity is sensitive and we will make this known to NOPSEMA upon submission of the Environment Plan in order for this information to remain confidential to NOPSEMA. Please provide your views by **17 March 2023**.

You can also subscribe on our website to receive Consultation Information Sheets for proposed activities: www.woodside.com/sustainability/consultation-activities.

2.19.1 Email sent to AFMA (10 March 2023)

Dear AFMA

Woodside previously consulted you (see email below) on Woodside's proposed activities for the progressive decommissioning of the Griffin and Stybarrow fields.

We provided this information to ensure relevant persons are informed about the status of proposed activities, as there have been changes to activity scope and supporting consultation information since consultation commenced for these decommissioning projects in 2021.

Stybarrow Plug and Abandonment Environment Plan

We would appreciate any feedback you may have by **17 March 2023** to support the development of our proposed Environment Plans.

Any feedback provided previously on proposed activities will remain current where Environment Plans are under assessment by the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA).

For reference:

- The **Griffin Field** is in Commonwealth waters in Petroleum Licence WA-10-L, 65 km northwest of Onslow and 94 km northeast of Exmouth, Western Australia and in water depths of approximately 120 m.
- The **Stybarrow Field** is in Commonwealth waters in Petroleum Licence WA-32-L, approximately 53 km northwest of Exmouth, Western Australia and in water depths of approximately 810 – 850 m.

Consultation Information Sheets for the proposed activities are attached, which provide a summary of potential key risks and associated management measures. The Information Sheets are also available on our [website](#).

Regards

Woodside Feedback

2.20 Email sent to the Department of Primary Industries and Regional Development (DPIRD) (16 February 2023)

Dear DPIRD

Woodside is providing this update on the progressive decommissioning of the Griffin and Stybarrow fields, previously operated by BHP Petroleum Pty Ltd (BHP).

We are providing this information to ensure relevant persons are informed about the status of proposed activities, as there have been changes to activity scope and supporting consultation information since consultation commenced for these decommissioning projects in 2021.

The **Griffin Field** is in Commonwealth waters in Petroleum Licence WA-10-L, 65 km northwest of Onslow and 94 km northeast of Exmouth, Western Australia and in water depths of approximately 120 m.

The **Stybarrow Field** is in Commonwealth waters in Petroleum Licence WA-32-L, approximately 53 km northwest of Exmouth, Western Australia and in water depths of approximately 810 – 850 m.

Operational Areas and Exclusion Zones will apply around a range of vessels that will support plugging and abandonment and infrastructure recovery and removal activities, which are outlined in the activity summaries below.

A summary of proposed activities is outlined below and more detailed information is provided in the attached Consultation Information Sheets, including a summary of potential key risks and associated

Stybarrow Plug and Abandonment Environment Plan

management measures. The Information Sheets are also available and be accessed via the QR Code in this letter.

Fisheries have been identified as being relevant based on fishing licence overlap with the activity area, assessment of government fishing effort data (including Fishcube and AFMA) from recent years, fishing methods and water depth.

Any feedback provided previously on proposed activities will remain current where Environment Plans are under assessment by the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA). Please let us know if you would like to update previous feedback or have any additional views by 17 March 2023.

Activity:

	Griffin Field Decommissioning Activities	Stybarrow Field Decommissioning Activities
Summary:	<p>Removal Activities</p> <ul style="list-style-type: none"> • Removal of subsea equipment (wellheads, trees, distribution skids, risers, flexible flowlines, rigid flowlines, umbilicals, and the pipeline end module (PLEM)). • Removal of the Riser Turret Mooring (RTM) and its moorings. Depending on the vessel utilised, recovery of the RTM may require sections of it to be towed to shallower water out of the title. • Removal of an exploration wellhead (Ramillies-1 in neighbouring petroleum title WA-12-L). • Ongoing field management activities. • Pigging and subsequent removal of the 26 km of Griffin Gas Export Pipeline (GEP) within Commonwealth waters. 	<p>Plugging and Abandonment (P&A) Activities</p> <ul style="list-style-type: none"> • Pre-execution activities associated with the well P&A, such as barrier testing and removal of marine growth. • Well P&A of the 10 productions/injection wells by placing cement plugs in the wells to permanently prevent hydrocarbon release. • Cutting and removal of the wellhead and subsea tree assembly. • Unblocking of the H4 flowline, if deemed feasible. <p>Removal Activities</p> <ul style="list-style-type: none"> • Removal of subsea equipment (wellheads, trees, manifolds, risers, flexible flowlines, and umbilicals). • Removal of the Disconnectable Turret

	<p><i>In Situ</i> Activities</p> <ul style="list-style-type: none"> • Proposal to leave <i>in situ</i> 12 RTM drag anchors (buried), 6 concrete gravity bases and 5 piled foundations for the PLEM and 4 distribution skids. 	<p>Mooring (DTM) and its moorings. Recovery of the DTM may require it to be towed to shallower water outside of permit area WA-32-L to support the DTM removal from the marine environment.</p> <ul style="list-style-type: none"> • Ongoing field management activities (equipment monitoring and inspection). <p><i>In Situ</i> Activities</p> <ul style="list-style-type: none"> • Proposed leave <i>in situ</i> of the 9 DTM drag anchors (buried), nine suction piles for the riser holdbacks and the historical exploration wellhead, Eskdale-1, which was unable to be removed following its drilling and abandonment in 2003.
Location:	<ul style="list-style-type: none"> • 94 km northeast of Exmouth, Western Australia. 	<ul style="list-style-type: none"> • 53 km northwest of Exmouth, Western Australia.
Approx. Water Depth (m):	<ul style="list-style-type: none"> • Approx. 120 m. 	<ul style="list-style-type: none"> • Approx. 810 – 850 m.
Schedule:	<p>Removal Activities</p> <ul style="list-style-type: none"> • Earliest proposed removal activity start is estimated to be Q4 2023, subject to approvals, vessel availability and weather constraints. • Facilities removal must be completed no later than 31 December 2024, pursuant to General Direction 832. 	<p>Plugging and Abandonment (P&A) Activities</p> <ul style="list-style-type: none"> • Earliest P&A start is estimated to be Q4 2023, subject to approvals, MODU and vessel availability and weather constraints. • P&A activities must be completed no later than 30 September 2024, pursuant to General Direction 833. <p>Removal Activities</p> <ul style="list-style-type: none"> • Earliest facilities and DTM removal is estimated to be Q4 2023, subject to

		<p>approvals, vessel availability and weather constraints.</p> <ul style="list-style-type: none"> • Equipment removal must be completed no later than 31 March 2025, pursuant to General Direction 833.
Duration:	<p>Removal Activities</p> <ul style="list-style-type: none"> • Removal activities are anticipated to take approximately 6 months to complete and GEP removal activities are anticipated to take approximately 2 months to complete. 	<p>Plugging and Abandonment (P&A) Activities</p> <ul style="list-style-type: none"> • P&A activities are anticipated to take approximately 6 – 9 months. <p>Removal Activities</p> <ul style="list-style-type: none"> • Removal activities are anticipated to take approximately 4-6 months to complete and DTM removal activities are anticipated to take approximately 1 month to complete.
Exclusionary/Cautious Zone:	<p>Removal Activities</p> <ul style="list-style-type: none"> • The temporary Operational Area includes the area encompassing an approximate 1,500 m radius around the equipment. • A temporary 500 m exclusion zone will apply around the project vessels during removal and potential tow activities. 	<p>P&A Activities</p> <ul style="list-style-type: none"> • The Operational Area includes the area encompassing an approximate 3,000 m radius around each of the four drill centers within WA-32-L. • A temporary 500 m exclusion zone will apply around the MODU and the associated project vessels during P&A activities. <p>Removal Activities</p> <ul style="list-style-type: none"> • The temporary Operational Area includes the area encompassing an approximate 1,500 m radius around the subsea infrastructure and wellheads. • The DTM has an existing 1200 m radius petroleum

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		<p>safety zone which will continue to be in place until it is removed.</p> <ul style="list-style-type: none"> • A temporary 500 m exclusion zone will apply around the CSV and the associated project vessels during removal activities. • A temporary 500 m exclusion zone will apply around the HLV and the associated project vessels during the removal of the DTM.
Vessels:	<p>Removal Activities</p> <ul style="list-style-type: none"> • Construction support vessel (CSV) and Heavy Lift Vessel (HLV) for recovery and pipeline removal activities. • An anchor handling tug (AHT) to support the towing of the RTM to sheltered water. 	<p>P&A activities</p> <ul style="list-style-type: none"> • Semi-Submersible Mobile Offshore Drilling Unit (MODU) • The MODU will be supported by 2 to 3 offshore support vessels. <p>Removal Activities</p> <ul style="list-style-type: none"> • CSV and HLV for recovery and activities. • AHTs to support the towing of the DTM to the shallower water location (if required).

State-managed fisheries implications:

We note there are 20 overlapping State managed fisheries (listed below) in the Environments that May Be Affected (EMBAs) for the Griffin and Stybarrow decommissioning projects (see attached Information Sheets for more details).

- Exmouth Gulf Beach Seine and Mesh Net Managed Fish
- Exmouth Gulf Prawn Managed Fishery
- Gascoyne Demersal Scalefish Managed Fishery
- Mackerel Managed Fishery (Area 2)
- Mackerel Managed Fishery (Area 3)
- Marine Aquarium Fish Managed Fishery
- Nickol Bay Prawn Managed Fishery
- Onslow Prawn Managed Fishery
- Pilbara Crab Managed Fishery
- Pilbara Fish Trawl (Interim) Managed Fishery
- Pilbara Line Fishery (Condition)
- Pilbara Trap Managed Fishery

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- Shark Bay Crab Managed Fishery
- Shark Bay Prawn Managed Fishery
- Shark Bay Scallop Managed Fishery
- West Australian Sea Cucumber Fishery
- West Coast Deep Sea Crustacean Managed Fishery
- West Coast Demersal Scalefish (Interim) Managed Fishery
- West Coast Rock Lobster Managed Fishery

Of these State-managed fisheries, the following may have been active in the Operational Area in recent years.

Griffin Field Decommissioning	Stybarrow Field Decommissioning
<ul style="list-style-type: none">• Exmouth Gulf Prawn Managed Fishery• Mackerel Managed Fishery (Area 2)• Marine Aquarium Fish Managed Fishery• Onslow Prawn Managed Fishery• Pilbara Line Fishery (Condition)• Pilbara Trap Managed Fishery• Tour Operators• West Coast Deep Sea Crustacean Managed Fishery	<ul style="list-style-type: none">• Tour Operators• West Coast Deep Sea Crustacean Managed Fishery

Woodside is consulting licence holders in all identified fisheries, as well as providing information to representative organisations.

Feedback:

If you have any feedback on these activities, please respond to Woodside at: Feedback@woodside.com.au or 1800 442 977.

Your feedback and our response will be included in our Environment Plan which will be submitted to NOPSEMA for acceptance in accordance with the *Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2009* (Cth).

Please let us know if your feedback for this activity is sensitive and we will make this known to NOPSEMA upon submission of the Environment Plan in order for this information to remain confidential to NOPSEMA.

Please provide your views by **17 March 2023**.

2.20.1 Email sent to DPIRD (10 March 2023)

Dear [REDACTED]

Woodside previously consulted you (see email below) on Woodside's proposed activities for the progressive decommissioning of the Griffin and Stybarrow fields.

Stybarrow Plug and Abandonment Environment Plan

We provided this information to ensure relevant persons are informed about the status of proposed activities, as there have been changes to activity scope and supporting consultation information since consultation commenced for these decommissioning projects in 2021.

We would appreciate any feedback you may have by **17 March 2023** to support the development of our proposed Environment Plans.

Any feedback provided previously on proposed activities will remain current where Environment Plans are under assessment by the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA).

For reference:

- The **Griffin Field** is in Commonwealth waters in Petroleum Licence WA-10-L, 65 km northwest of Onslow and 94 km northeast of Exmouth, Western Australia and in water depths of approximately 120 m.
- The **Stybarrow Field** is in Commonwealth waters in Petroleum Licence WA-32-L, approximately 53 km northwest of Exmouth, Western Australia and in water depths of approximately 810 – 850 m.

Consultation Information Sheets for the proposed activities are attached, which provide a summary of potential key risks and associated management measures. The Information Sheets are also available on our [website](#).

Regards

Woodside Feedback

2.21 Email sent to the Department of Climate Change, Energy, the Environment and Water (DCCEE) and the Department of Agriculture, Fisheries and Forestry (DAFF) (16 February 2023)

Dear DCCEE and DAFF

Woodside is providing this update on the progressive decommissioning of the Griffin and Stybarrow fields, previously operated by BHP Petroleum Pty Ltd (BHP).

We are providing this information to ensure relevant persons are informed about the status of proposed activities, as there have been changes to activity scope and supporting consultation information since consultation commenced for these decommissioning projects in 2021.

The **Griffin Field** is in Commonwealth waters in Petroleum Licence WA-10-L, 65 km northwest of Onslow and 94 km northeast of Exmouth, Western Australia and in water depths of approximately 120 m.

The **Stybarrow Field** is in Commonwealth waters in Petroleum Licence WA-32-L, approximately 53 km northwest of Exmouth, Western Australia and in water depths of approximately 810 – 850 m.

Stybarrow Plug and Abandonment Environment Plan

A summary of proposed activities is outlined below, and more detailed information is provided in the attached Consultation Information Sheets. The Information Sheets provide details on activities proposed to be managed under a number of Environment Plans for each Field, including a summary of potential key risks and associated management measures. The Information Sheets are also available on our [website](#).

Any feedback provided previously on proposed activities will remain current where Environment Plans are under assessment by the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA). Please let us know if you would like to update previous feedback or have any additional views by 17 March 2023.

Activity:

	Griffin Field Decommissioning Activities	Stybarrow Field Decommissioning Activities
Summary:	<p>Removal Activities</p> <ul style="list-style-type: none"> • Removal of subsea equipment (wellheads, trees, distribution skids, risers, flexible flowlines, rigid flowlines, umbilicals, and the pipeline end module (PLEM)). • Removal of the Riser Turret Mooring (RTM) and its moorings. Depending on the vessel utilised, recovery of the RTM may require sections of it to be towed to shallower water out of the title. • Removal of an exploration wellhead (Ramillies-1 in neighbouring petroleum title WA-12-L). • Ongoing field management activities. • Pigging and subsequent removal of the 26 km of Griffin Gas Export Pipeline (GEP) within Commonwealth waters. <p>In Situ Activities</p>	<p>Plugging and Abandonment (P&A) Activities</p> <ul style="list-style-type: none"> • Pre-execution activities associated with the well P&A, such as barrier testing and removal of marine growth. • Well P&A of the 10 productions/injection wells by placing cement plugs in the wells to permanently prevent hydrocarbon release. • Cutting and removal of the wellhead and subsea tree assembly. • Unblocking of the H4 flowline, if deemed feasible. <p>Removal Activities</p> <ul style="list-style-type: none"> • Removal of subsea equipment (wellheads, trees, manifolds, risers, flexible flowlines, and umbilicals). • Removal of the Disconnectable Turret Mooring (DTM) and its moorings. Recovery of the DTM may require it to be

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	<ul style="list-style-type: none"> Proposal to leave in situ 12 RTM drag anchors (buried), 6 concrete gravity bases and 5 piled foundations for the PLEM and 4 distribution skids. 	<p>towed to shallower water outside of permit area WA-32-L to support the DTM removal from the marine environment.</p> <ul style="list-style-type: none"> Ongoing field management activities (equipment monitoring and inspection). <p>In Situ Activities</p> <ul style="list-style-type: none"> Proposed leave in situ of the 9 DTM drag anchors (buried), nine suction piles for the riser holdbacks and the historical exploration wellhead, Eskdale-1, which was unable to be removed following its drilling and abandonment in 2003.
Location:	<ul style="list-style-type: none"> 94 km northeast of Exmouth, Western Australia. 	<ul style="list-style-type: none"> 53 km northwest of Exmouth, Western Australia.
Approx. Water Depth (m):	<ul style="list-style-type: none"> Approx. 120 m. 	<ul style="list-style-type: none"> Approx. 810 – 850 m.
Schedule:	<p>Removal Activities</p> <ul style="list-style-type: none"> Earliest proposed removal activity start is estimated to be Q4 2023, subject to approvals, vessel availability and weather constraints. Facilities removal must be completed no later than 31 December 2024, pursuant to General Direction 832. 	<p>Plugging and Abandonment (P&A) Activities</p> <ul style="list-style-type: none"> Earliest P&A start is estimated to be Q4 2023, subject to approvals, MODU and vessel availability and weather constraints. P&A activities must be completed no later than 30 September 2024, pursuant to General Direction 833. <p>Removal Activities</p> <ul style="list-style-type: none"> Earliest facilities and DTM removal is estimated to be Q4 2023, subject to approvals, vessel availability and weather constraints. Equipment removal must be completed no later than 31

		March 2025, pursuant to General Direction 833.
Duration:	<p>Removal Activities</p> <ul style="list-style-type: none"> Removal activities are anticipated to take approximately 6 months to complete and GEP removal activities are anticipated to take approximately 2 months to complete. 	<p>Plugging and Abandonment (P&A) Activities</p> <ul style="list-style-type: none"> P&A activities are anticipated to take approximately 6 – 9 months. <p>Removal Activities</p> <ul style="list-style-type: none"> Removal activities are anticipated to take approximately 4-6 months to complete and DTM removal activities are anticipated to take approximately 1 month to complete.
Exclusionary/Cautious Zone:	<p>Removal Activities</p> <ul style="list-style-type: none"> The temporary Operational Area includes the area encompassing an approximate 1,500 m radius around the equipment. A temporary 500 m exclusion zone will apply around the project vessels during removal and potential tow activities. 	<p>P&A Activities</p> <ul style="list-style-type: none"> The Operational Area includes the area encompassing an approximate 3,000 m radius around each of the four drill centers within WA-32-L. A temporary 500 m exclusion zone will apply around the MODU and the associated project vessels during P&A activities. <p>Removal Activities</p> <ul style="list-style-type: none"> The temporary Operational Area includes the area encompassing an approximate 1,500 m radius around the subsea infrastructure and wellheads. The DTM has an existing 1200 m radius petroleum safety zone which will continue to be in place until it is removed.

		<ul style="list-style-type: none"> • A temporary 500 m exclusion zone will apply around the CSV and the associated project vessels during removal activities. • A temporary 500 m exclusion zone will apply around the HLV and the associated project vessels during the removal of the DTM.
Vessels:	<p>Removal Activities</p> <ul style="list-style-type: none"> • Construction support vessel (CSV) and Heavy Lift Vessel (HLV) for recovery and pipeline removal activities. • An anchor handling tug (AHT) to support the towing of the RTM to sheltered water. 	<p>P&A activities</p> <ul style="list-style-type: none"> • Semi-Submersible Mobile Offshore Drilling Unit (MODU) • The MODU will be supported by 2 to 3 offshore support vessels. <p>Removal Activities</p> <ul style="list-style-type: none"> • CSV and HLV for recovery and activities. • AHTs to support the towing of the DTM to the shallower water location (if required).

Bioresecurity implications:

With respect to the bioresecurity matters, please note the following information below:

Environment description Griffin Field:

The **Operational Area** falls within the continental slope and shelf. The continental slope and shelf are, for the most part, ecosystems built on a soft sediment habitat with gradational variation in species composition due to depth, water temperature, light penetration and sediment composition/structure. It consists of generally sparse populations of sessile sponges, soft corals and algae (at shallower depths), with a mobile population of burrowing crustaceans, echinoderms and molluscs.

The **Environment that May Be Affected (EMBA)** falls within continental shelf, continental slope, continental rise and abyssal plain. The Griffin field subsea infrastructure has created a large artificial reef system in an otherwise fine sand and mud habitat with sparse benthic populations typical of the continental slope and shelf.

Environment description Stybarrow Field:

The **Operational Area** and the **EMBA** both fall within the outer shelf, continental slope, and deep ocean. The continental slope and shelf are, for the most part, ecosystems built on a soft sediment habitat with gradational variation in species composition due to depth,

Stybarrow Plug and Abandonment Environment Plan

water temperature, light penetration, and sediment composition/structure. It consists of generally sparse populations of sessile filter feeders (e.g., sponges, soft corals etc.), infauna, and a mobile epibiota (e.g., crustaceans, echinoderms, and molluscs).

Potential IMS risk	IMS mitigation management
Accidental introduction and establishment of invasive marine species	Ballast water will be managed according to legislative and regulatory requirements. Application of Woodside's IMS risk assessment and appropriate management measures to the RTM (Griffin), DTM (Stybarrow), project vessels and relevant immersible equipment such as Remotely Operated Vehicles (ROVs), unless exempt.

Commercial fishing implications:

Woodside has assessed potential impacts for commercial fisheries based on ABARES/AFMA data, fishing methods and water depth.

We note there are three overlapping Commonwealth managed fisheries (listed below) in the Environments that May Be Affected (EMBAs) for the Griffin and Stybarrow decommissioning projects, of which the Western Deepwater Trawl Fishery may have been active in the Stybarrow Operational Area (see attached Information Sheets for more details).

- Western Tuna and Billfish
- North West Slope Trawl
- Western Deepwater Trawl

Woodside is consulting licence holders in these fisheries, as well as providing information to representative organisations on AFMA advice that it expects all Commonwealth fishers who have entitlements to fish within the proposed area to be consulted, which can be through the relevant fishing industry associations.

Feedback:

If you have any feedback on these activities, please respond to Woodside at: Feedback@woodside.com.au or 1800 442 977.

Your feedback and our response will be included in our Environment Plan which will be submitted to NOPSEMA for acceptance in accordance with the *Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2009* (Cth).

Please let us know if your feedback for this activity is sensitive and we will make this known to NOPSEMA upon submission of the Environment Plan in order for this information to remain confidential to NOPSEMA. Please provide your views by **17 March 2023**.

You can also subscribe on our website to receive Consultation Information Sheets for proposed activities: www.woodside.com/sustainability/consultation-activities.

2.21.1 Email sent to the DCCEEW and DAFF (10 March 2023)

Dear DCCEEW and DAFF

Stybarrow Plug and Abandonment Environment Plan

Woodside previously consulted you (see email below) on Woodside's proposed activities for the progressive decommissioning of the Griffin and Stybarrow fields.

We provided this information to ensure relevant persons are informed about the status of proposed activities, as there have been changes to activity scope and supporting consultation information since consultation commenced for these decommissioning projects in 2021.

We would appreciate any feedback you may have by **17 March 2023** to support the development of our proposed Environment Plans.

Any feedback provided previously on proposed activities will remain current where Environment Plans are under assessment by the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA).

For reference:

- The **Griffin Field** is in Commonwealth waters in Petroleum Licence WA-10-L, 65 km northwest of Onslow and 94 km northeast of Exmouth, Western Australia and in water depths of approximately 120 m.
- The **Stybarrow Field** is in Commonwealth waters in Petroleum Licence WA-32-L, approximately 53 km northwest of Exmouth, Western Australia and in water depths of approximately 810 – 850 m.

Consultation Information Sheets for the proposed activities are attached, which provide a summary of potential key risks and associated management measures. The Information Sheets are also available on our [website](#).

Regards
Woodside Feedback

2.22 Email sent to the Department of Planning, Lands and Heritage (DPLH) and WA Museum (16 February 2023)

Dear DPLH and WA Museum

Woodside is planning to undertake subsea decommissioning activities for the Griffin and Stybarrow fields (previously operated by BHP Petroleum Pty Ltd (BHP)).

The **Griffin Field** is in Commonwealth waters in Petroleum Licence WA-10-L, 65 km northwest of Onslow and 94 km northeast of Exmouth, Western Australia and in water depths of approximately 120 m.

The **Stybarrow Field** is in Commonwealth waters in Petroleum Licence WA-32-L, approximately 53 km northwest of Exmouth, Western Australia and in water depths of approximately 810 – 850 m.

A summary of proposed activities is outlined below, and more detailed information is provided in the attached Consultation Information Sheets. The Information Sheets provide details on activities proposed to be managed under a number of Environment Plans for each Field, including a summary of potential key risks and associated management measures. The Information Sheets are also available on our [website](#).

Stybarrow Plug and Abandonment Environment Plan

Any feedback provided previously on proposed activities will remain current where Environment Plans are under assessment by the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA).

Please let us know if you would like to update previous feedback or have any additional views by **17 March 2023**.

Activity:

	Griffin Field Decommissioning Activities	Stybarrow Field Decommissioning Activities
Summary:	<p>Removal Activities</p> <ul style="list-style-type: none"> • Removal of subsea equipment (wellheads, trees, distribution skids, risers, flexible flowlines, rigid flowlines, umbilicals, and the pipeline end module (PLEM)). • Removal of the Riser Turret Mooring (RTM) and its moorings. Depending on the vessel utilised, recovery of the RTM may require sections of it to be towed to shallower water out of the title. • Removal of an exploration wellhead (Ramillies-1 in neighbouring petroleum title WA-12-L). • Ongoing field management activities. • Pigging and subsequent removal of the 26 km of Griffin Gas Export Pipeline (GEP) within Commonwealth waters. <p>In Situ Activities</p> <ul style="list-style-type: none"> • Proposal to leave in situ 12 RTM drag anchors (buried), 6 concrete gravity bases and 5 piled foundations for the PLEM and 4 distribution skids. 	<p>Plugging and Abandonment (P&A) Activities</p> <ul style="list-style-type: none"> • Pre-execution activities associated with the well P&A, such as barrier testing and removal of marine growth. • Well P&A of the 10 productions/injection wells by placing cement plugs in the wells to permanently prevent hydrocarbon release. • Cutting and removal of the wellhead and subsea tree assembly. • Unblocking of the H4 flowline, if deemed feasible. <p>Removal Activities</p> <ul style="list-style-type: none"> • Removal of subsea equipment (wellheads, trees, manifolds, risers, flexible flowlines, and umbilicals). • Removal of the Disconnectable Turret Mooring (DTM) and its moorings. Recovery of the DTM may require it to be towed to shallower water outside of permit area WA-32-L to support the DTM removal from the marine environment.

Stybarrow Plug and Abandonment Environment Plan

		<ul style="list-style-type: none"> Ongoing field management activities (equipment monitoring and inspection). <p>In Situ Activities</p> <ul style="list-style-type: none"> Proposed leave in situ of the 9 DTM drag anchors (buried), nine suction piles for the riser holdbacks and the historical exploration wellhead, Eskdale-1, which was unable to be removed following its drilling and abandonment in 2003.
Location:	<ul style="list-style-type: none"> 94 km northeast of Exmouth, Western Australia. 	<ul style="list-style-type: none"> 53 km northwest of Exmouth, Western Australia.
Approx. Water Depth (m):	<ul style="list-style-type: none"> Approx. 120 m. 	<ul style="list-style-type: none"> Approx. 810 – 850 m.
Schedule:	<p>Removal Activities</p> <ul style="list-style-type: none"> Earliest proposed removal activity start is estimated to be Q4 2023, subject to approvals, vessel availability and weather constraints. Facilities removal must be completed no later than 31 December 2024, pursuant to General Direction 832. 	<p>Plugging and Abandonment (P&A) Activities</p> <ul style="list-style-type: none"> Earliest P&A start is estimated to be Q4 2023, subject to approvals, MODU and vessel availability and weather constraints. P&A activities must be completed no later than 30 September 2024, pursuant to General Direction 833. <p>Removal Activities</p> <ul style="list-style-type: none"> Earliest facilities and DTM removal is estimated to be Q4 2023, subject to approvals, vessel availability and weather constraints. Equipment removal must be completed no later than 31 March 2025, pursuant to General Direction 833.
Duration:	<p>Removal Activities</p> <ul style="list-style-type: none"> Removal activities are anticipated to take 	<p>Plugging and Abandonment (P&A) Activities</p>

	<p>approximately 6 months to complete and GEP removal activities are anticipated to take approximately 2 months to complete.</p>	<ul style="list-style-type: none"> • P&A activities are anticipated to take approximately 6 – 9 months. <p>Removal Activities</p> <ul style="list-style-type: none"> • Removal activities are anticipated to take approximately 4-6 months to complete and DTM removal activities are anticipated to take approximately 1 month to complete.
<p>Exclusionary/Cautious Zone:</p>	<p>Removal Activities</p> <ul style="list-style-type: none"> • The temporary Operational Area includes the area encompassing an approximate 1,500 m radius around the equipment. • A temporary 500 m exclusion zone will apply around the project vessels during removal and potential tow activities. 	<p>P&A Activities</p> <ul style="list-style-type: none"> • The Operational Area includes the area encompassing an approximate 3,000 m radius around each of the four drill centers within WA-32-L. • A temporary 500 m exclusion zone will apply around the MODU and the associated project vessels during P&A activities. <p>Removal Activities</p> <ul style="list-style-type: none"> • The temporary Operational Area includes the area encompassing an approximate 1,500 m radius around the subsea infrastructure and wellheads. • The DTM has an existing 1200 m radius petroleum safety zone which will continue to be in place until it is removed. • A temporary 500 m exclusion zone will apply around the CSV and the associated project vessels during removal activities.

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		<ul style="list-style-type: none"> A temporary 500 m exclusion zone will apply around the HLV and the associated project vessels during the removal of the DTM.
Vessels:	Removal Activities <ul style="list-style-type: none"> Construction support vessel (CSV) and Heavy Lift Vessel (HLV) for recovery and pipeline removal activities. An anchor handling tug (AHT) to support the towing of the RTM to sheltered water. 	P&A activities <ul style="list-style-type: none"> Semi-Submersible Mobile Offshore Drilling Unit (MODU) The MODU will be supported by 2 to 3 offshore support vessels. Removal Activities <ul style="list-style-type: none"> CSV and HLV for recovery and activities. AHTs to support the towing of the DTM to the shallower water location (if required).

Feedback:

If you have any feedback on these activities, please respond to Woodside at: Feedback@woodside.com.au or 1800 442 977.

Your feedback and our response will be included in our Environment Plan which will be submitted to NOPSEMA for acceptance in accordance with the *Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2009* (Cth).

Please let us know if your feedback for this activity is sensitive and we will make this known to NOPSEMA upon submission of the Environment Plan in order for this information to remain confidential to NOPSEMA. Please provide your views by **17 March 2023**.

You can also subscribe on our website to receive Consultation Information Sheets for proposed activities: www.woodside.com/sustainability/consultation-activities.

2.23 Email sent to the Director of National Parks (DNP) (16 February 2023)

Dear DNP

Woodside is planning to undertake subsea decommissioning activities for the Griffin and Stybarrow fields (previously operated by BHP Petroleum Pty Ltd (BHP).

The **Griffin Field** is in Commonwealth waters in Petroleum Licence WA-10-L, 65 km northwest of Onslow and 94 km northeast of Exmouth, Western Australia and in water depths of approximately 120 m.

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The **Stybarrow Field** is in Commonwealth waters in Petroleum Licence WA-32-L, approximately 53 km northwest of Exmouth, Western Australia and in water depths of approximately 810 – 850 m.

A summary of proposed activities is outlined below, and more detailed information is provided in the attached Consultation Information Sheets. The Information Sheets provide details on activities proposed to be managed under a number of Environment Plans for each Field, including a summary of potential key risks and associated management measures. The Information Sheets are also available on our [website](#).

Any feedback provided previously on proposed activities will remain current where Environment Plans are under assessment by the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA).

Please let us know if you would like to update previous feedback or have any additional views by **17 March 2023**.

Activity:

	Griffin Field Decommissioning Activities	Stybarrow Field Decommissioning Activities
Summary:	<p>Removal Activities</p> <ul style="list-style-type: none"> • Removal of subsea equipment (wellheads, trees, distribution skids, risers, flexible flowlines, rigid flowlines, umbilicals, and the pipeline end module (PLEM)). • Removal of the Riser Turret Mooring (RTM) and its moorings. Depending on the vessel utilised, recovery of the RTM may require sections of it to be towed to shallower water out of the title. • Removal of an exploration wellhead (Ramillies-1 in neighbouring petroleum title WA-12-L). • Ongoing field management activities. • Pigging and subsequent removal of the 26 km of Griffin Gas Export Pipeline (GEP) within Commonwealth waters. 	<p>Plugging and Abandonment (P&A) Activities</p> <ul style="list-style-type: none"> • Pre-execution activities associated with the well P&A, such as barrier testing and removal of marine growth. • Well P&A of the 10 productions/injection wells by placing cement plugs in the wells to permanently prevent hydrocarbon release. • Cutting and removal of the wellhead and subsea tree assembly. • Unblocking of the H4 flowline, if deemed feasible. <p>Removal Activities</p> <ul style="list-style-type: none"> • Removal of subsea equipment (wellheads, trees, manifolds, risers, flexible flowlines, and umbilicals). • Removal of the Disconnectable Turret Mooring (DTM) and its moorings. Recovery of the DTM may require it to be towed to shallower water outside of permit area WA-32-

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	<p>In Situ Activities</p> <ul style="list-style-type: none"> • Proposal to leave in situ 12 RTM drag anchors (buried), 6 concrete gravity bases and 5 piled foundations for the PLEM and 4 distribution skids. 	<p>L to support the DTM removal from the marine environment.</p> <ul style="list-style-type: none"> • Ongoing field management activities (equipment monitoring and inspection). <p>In Situ Activities</p> <ul style="list-style-type: none"> • Proposed leave in situ of the 9 DTM drag anchors (buried), nine suction piles for the riser holdbacks and the historical exploration wellhead, Eskdale-1, which was unable to be removed following its drilling and abandonment in 2003.
Location:	<ul style="list-style-type: none"> • 94 km northeast of Exmouth, Western Australia. 	<ul style="list-style-type: none"> • 53 km northwest of Exmouth, Western Australia.
Approx. Water Depth (m):	<ul style="list-style-type: none"> • Approx. 120 m. 	<ul style="list-style-type: none"> • Approx. 810 – 850 m.
Schedule:	<p>Removal Activities</p> <ul style="list-style-type: none"> • Earliest proposed removal activity start is estimated to be Q4 2023, subject to approvals, vessel availability and weather constraints. • Facilities removal must be completed no later than 31 December 2024, pursuant to General Direction 832. 	<p>Plugging and Abandonment (P&A) Activities</p> <ul style="list-style-type: none"> • Earliest P&A start is estimated to be Q4 2023, subject to approvals, MODU and vessel availability and weather constraints. • P&A activities must be completed no later than 30 September 2024, pursuant to General Direction 833. <p>Removal Activities</p> <ul style="list-style-type: none"> • Earliest facilities and DTM removal is estimated to be Q4 2023, subject to approvals, vessel availability and weather constraints. • Equipment removal must be completed no later than 31 March 2025, pursuant to General Direction 833.
Duration:	<p>Removal Activities</p> <ul style="list-style-type: none"> • Removal activities are anticipated to take approximately 6 months to complete and GEP removal activities are anticipated to 	<p>Plugging and Abandonment (P&A) Activities</p> <ul style="list-style-type: none"> • P&A activities are anticipated to take approximately 6 – 9 months.

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	take approximately 2 months to complete.	<p>Removal Activities</p> <ul style="list-style-type: none"> Removal activities are anticipated to take approximately 4-6 months to complete and DTM removal activities are anticipated to take approximately 1 month to complete.
Exclusionary/Cautious Zone:	<p>Removal Activities</p> <ul style="list-style-type: none"> The temporary Operational Area includes the area encompassing an approximate 1,500 m radius around the equipment. A temporary 500 m exclusion zone will apply around the project vessels during removal and potential tow activities. 	<p>P&A Activities</p> <ul style="list-style-type: none"> The Operational Area includes the area encompassing an approximate 3,000 m radius around each of the four drill centers within WA-32-L. A temporary 500 m exclusion zone will apply around the MODU and the associated project vessels during P&A activities. <p>Removal Activities</p> <ul style="list-style-type: none"> The temporary Operational Area includes the area encompassing an approximate 1,500 m radius around the subsea infrastructure and wellheads. The DTM has an existing 1200 m radius petroleum safety zone which will continue to be in place until it is removed. A temporary 500 m exclusion zone will apply around the CSV and the associated project vessels during removal activities. A temporary 500 m exclusion zone will apply around the HLV and the associated project vessels during the removal of the DTM.
Vessels:	<p>Removal Activities</p> <ul style="list-style-type: none"> Construction support vessel (CSV) and Heavy Lift Vessel (HLV) for recovery and pipeline removal activities. An anchor handling tug (AHT) to support the towing 	<p>P&A activities</p> <ul style="list-style-type: none"> Semi-Submersible Mobile Offshore Drilling Unit (MODU) The MODU will be supported by 2 to 3 offshore support vessels.

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	of the RTM to sheltered water.	Removal Activities <ul style="list-style-type: none"> • CSV and HLV for recovery and activities. • AHTs to support the towing of the DTM to the shallower water location (if required).
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Protected Area implications:

We note Australian Government Guidance on consultation activities and confirm that:

Griffin Field Decommissioning Activities	Stybarrow Field Decommissioning Activities
<ul style="list-style-type: none"> • Proposed activities are outside the boundaries of a proclaimed Australian Marine Park. • Nearest protected areas are: <ul style="list-style-type: none"> ○ ~76 km to Gascoyne Commonwealth Marine Park ○ ~59 km to Ningaloo Marine Park (Commonwealth) ○ ~41 km to Ningaloo Marine Park (State) ○ ~42km to Murion Islands Marine Management Area 	<ul style="list-style-type: none"> • Proposed activities are outside the boundaries of a proclaimed Australian Marine Park. • Nearest protected areas are: <ul style="list-style-type: none"> ○ ~5 km to Gascoyne Commonwealth Marine Park ○ ~24 km to Ningaloo Marine Park (Commonwealth) ○ ~36 km to Ningaloo Marine Park (State) ○ ~45 km to Murion Islands Marine Management Area

We have assessed potential risks to Protected Areas in the development of the proposed Environment Plan and believe that there are no credible risks as part of planned activities that have potential to impact the values of Australian Marine Parks.

The worst-case credible spill scenarios have been assessed for activities to be managed under the Environment Plans:

Stybarrow Field Management and Decommissioning EP	<p>The worst-case credible spill scenario assessed in this EP is the remote likelihood event of a vessel collision resulting a spill of marine diesel to the marine environment. Through review of hydrocarbon spill modelling, and with consideration of a 10 ppb dissolved and entrained hydrocarbon threshold, the following AMPs may be contacted in the event of a spill:</p> <ul style="list-style-type: none"> • Abrolhos • Argo-Rowley Terrace • Carnarvon Canyon • Dampier • Gascoyne • Montebello • Shark Bay
Stybarrow Plugging abandonment EP	<p>The worst-case credible spill scenario assessed in this EP is the remote likelihood event of a loss of well containment resulting in a spill of Stybarrow Crude to</p>

Stybarrow Plug and Abandonment Environment Plan

	<p>the marine environment. Through review of hydrocarbon spill modelling, and with consideration of a 10 ppb dissolved and entrained hydrocarbon threshold, the following AMPs may be contacted in the event of a spill:</p> <ul style="list-style-type: none"> • Carnarvon Canyon • Gascoyne • Ningaloo
Griffin Decommissioning and Field Management EP	<p>The worst-case credible spill scenario assessed in this EP is the remote likelihood event of a loss of well containment resulting in a spill of Stybarrow Crude to the marine environment. Through review of hydrocarbon spill modelling, and with consideration of a 10 ppb dissolved and entrained hydrocarbon threshold, the following AMPs may be contacted in the event of a spill:</p> <ul style="list-style-type: none"> • Carnarvon Canyon • Gascoyne • Ningaloo
Griffin Gas Export Pipeline Decommissioning EP (Commonwealth)	<p>The worst-case credible spill scenario assessed in this EP is the remote likelihood event of a vessel collision resulting a spill of marine diesel to the marine environment. Through review of hydrocarbon spill modelling, and with consideration of a 10 ppb dissolved and entrained hydrocarbon threshold, the following AMPs may be contacted in the event of a spill:</p> <ul style="list-style-type: none"> • Abrolhos • Argo-Rowley Terrace • Carnarvon Canyon • Gascoyne • Montebello • Shark Bay • Ningaloo

A Commonwealth Government-approved oil spill response plan will be in place for the duration of the activities, which will include notification to relevant agencies and organisations as to the nature and scale of the event, as soon as practicable following an occurrence. The Director of National Parks will be advised if an environmental incident occurs that may impact on the values of the Marine Park.

Feedback:

If you have any feedback on these activities, please respond to Woodside at: Feedback@woodside.com.au or 1800 442 977.

Your feedback and our response will be included in our Environment Plan which will be submitted to NOPSEMA for acceptance in accordance with the *Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2009* (Cth).

Stybarrow Plug and Abandonment Environment Plan

Please let us know if your feedback for this activity is sensitive and we will make this known to NOPSEMA upon submission of the Environment Plan in order for this information to remain confidential to NOPSEMA. Please provide your views by **17 March 2023**.

You can also subscribe on our website to receive Consultation Information Sheets for proposed activities: www.woodside.com/sustainability/consultation-activities.

2.23.1 Email sent to DNP (10 March 2023)

Dear DNP

Woodside previously consulted you (see email below) on Woodside's proposed activities for the progressive decommissioning of the Griffin and Stybarrow fields.

We provided this information to ensure relevant persons are informed about the status of proposed activities, as there have been changes to activity scope and supporting consultation information since consultation commenced for these decommissioning projects in 2021.

We would appreciate any feedback you may have by **17 March 2023** to support the development of our proposed Environment Plans.

Any feedback provided previously on proposed activities will remain current where Environment Plans are under assessment by the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA).

For reference:

- The **Griffin Field** is in Commonwealth waters in Petroleum Licence WA-10-L, 65 km northwest of Onslow and 94 km northeast of Exmouth, Western Australia and in water depths of approximately 120 m.
- The **Stybarrow Field** is in Commonwealth waters in Petroleum Licence WA-32-L, approximately 53 km northwest of Exmouth, Western Australia and in water depths of approximately 810 – 850 m.

Consultation Information Sheets for the proposed activities are attached, which provide a summary of potential key risks and associated management measures. The Information Sheets are also available on our [website](#).

Regards

Woodside Feedback

2.24 Email sent to the Department of Biodiversity, Conservation and Attractions (DBCA) (16 February 2023)

Dear DBCA

Stybarrow Plug and Abandonment Environment Plan

Woodside is planning to undertake subsea decommissioning activities for the Griffin and Stybarrow fields (previously operated by BHP Petroleum Pty Ltd (BHP).

The **Griffin Field** is in Commonwealth waters in Petroleum Licence WA-10-L, 65 km northwest of Onslow and 94 km northeast of Exmouth, Western Australia and in water depths of approximately 120 m.

The **Stybarrow Field** is in Commonwealth waters in Petroleum Licence WA-32-L, approximately 53 km northwest of Exmouth, Western Australia and in water depths of approximately 810 – 850 m.

A summary of proposed activities is outlined below, and more detailed information is provided in the attached Consultation Information Sheets. The Information Sheets provide details on activities proposed to be managed under a number of Environment Plans for each Field, including a summary of potential key risks and associated management measures. The Information Sheets are also available on our [website](#).

Any feedback provided previously on proposed activities will remain current where Environment Plans are under assessment by the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA).

Please let us know if you would like to update previous feedback or have any additional views by **17 March 2023**.

Activity:

	Griffin Field Decommissioning Activities	Stybarrow Field Decommissioning Activities
Summary:	<p>Removal Activities</p> <ul style="list-style-type: none"> Removal of subsea equipment (wellheads, trees, distribution skids, risers, flexible flowlines, rigid flowlines, umbilicals, and the pipeline end module (PLEM)). Removal of the Riser Turret Mooring (RTM) and its moorings. Depending on the vessel utilised, recovery of the RTM may require sections of it to be towed to shallower water out of the title. Removal of an exploration wellhead (Ramillies-1 in neighbouring petroleum title WA-12-L). Ongoing field management activities. 	<p>Plugging and Abandonment (P&A) Activities</p> <ul style="list-style-type: none"> Pre-execution activities associated with the well P&A, such as barrier testing and removal of marine growth. Well P&A of the 10 productions/injection wells by placing cement plugs in the wells to permanently prevent hydrocarbon release. Cutting and removal of the wellhead and subsea tree assembly. Unblocking of the H4 flowline, if deemed feasible. <p>Removal Activities</p> <ul style="list-style-type: none"> Removal of subsea equipment (wellheads, trees, manifolds, risers, flexible flowlines, and umbilicals).

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	<ul style="list-style-type: none"> • Pigging and subsequent removal of the 26 km of Griffin Gas Export Pipeline (GEP) within Commonwealth waters. <p>In Situ Activities</p> <ul style="list-style-type: none"> • Proposal to leave in situ 12 RTM drag anchors (buried), 6 concrete gravity bases and 5 piled foundations for the PLEM and 4 distribution skids. 	<ul style="list-style-type: none"> • Removal of the Disconnectable Turret Mooring (DTM) and its moorings. Recovery of the DTM may require it to be towed to shallower water outside of permit area WA-32-L to support the DTM removal from the marine environment. • Ongoing field management activities (equipment monitoring and inspection). <p>In Situ Activities</p> <ul style="list-style-type: none"> • Proposed leave in situ of the 9 DTM drag anchors (buried), nine suction piles for the riser holdbacks and the historical exploration wellhead, Eskdale-1, which was unable to be removed following its drilling and abandonment in 2003.
<p>Location:</p>	<ul style="list-style-type: none"> • 94 km northeast of Exmouth, Western Australia. 	<ul style="list-style-type: none"> • 53 km northwest of Exmouth, Western Australia.
<p>Approx. Water Depth (m):</p>	<ul style="list-style-type: none"> • Approx. 120 m. 	<ul style="list-style-type: none"> • Approx. 810 – 850 m.
<p>Schedule:</p>	<p>Removal Activities</p> <ul style="list-style-type: none"> • Earliest proposed removal activity start is estimated to be Q4 2023, subject to approvals, vessel availability and weather constraints. • Facilities removal must be completed no later than 31 December 2024, pursuant to General Direction 832. 	<p>Plugging and Abandonment (P&A) Activities</p> <ul style="list-style-type: none"> • Earliest P&A start is estimated to be Q4 2023, subject to approvals, MODU and vessel availability and weather constraints. • P&A activities must be completed no later than 30 September 2024, pursuant to General Direction 833. <p>Removal Activities</p> <ul style="list-style-type: none"> • Earliest facilities and DTM removal is estimated to be Q4 2023, subject to approvals, vessel availability and weather constraints. • Equipment removal must be completed no later than 31 March 2025, pursuant to General Direction 833.

Stybarrow Plug and Abandonment Environment Plan

<p>Duration:</p>	<p>Removal Activities</p> <ul style="list-style-type: none"> Removal activities are anticipated to take approximately 6 months to complete and GEP removal activities are anticipated to take approximately 2 months to complete. 	<p>Plugging and Abandonment (P&A) Activities</p> <ul style="list-style-type: none"> P&A activities are anticipated to take approximately 6 – 9 months. <p>Removal Activities</p> <ul style="list-style-type: none"> Removal activities are anticipated to take approximately 4-6 months to complete and DTM removal activities are anticipated to take approximately 1 month to complete.
<p>Exclusionary/Cautious Zone:</p>	<p>Removal Activities</p> <ul style="list-style-type: none"> The temporary Operational Area includes the area encompassing an approximate 1,500 m radius around the equipment. A temporary 500 m exclusion zone will apply around the project vessels during removal and potential tow activities. 	<p>P&A Activities</p> <ul style="list-style-type: none"> The Operational Area includes the area encompassing an approximate 3,000 m radius around each of the four drill centers within WA-32-L. A temporary 500 m exclusion zone will apply around the MODU and the associated project vessels during P&A activities. <p>Removal Activities</p> <ul style="list-style-type: none"> The temporary Operational Area includes the area encompassing an approximate 1,500 m radius around the subsea infrastructure and wellheads. The DTM has an existing 1200 m radius petroleum safety zone which will continue to be in place until it is removed. A temporary 500 m exclusion zone will apply around the CSV and the associated project vessels during removal activities. A temporary 500 m exclusion zone will apply around the HLV and the associated project vessels during the removal of the DTM.

Stybarrow Plug and Abandonment Environment Plan

Vessels:	Removal Activities <ul style="list-style-type: none"> • Construction support vessel (CSV) and Heavy Lift Vessel (HLV) for recovery and pipeline removal activities. • An anchor handling tug (AHT) to support the towing of the RTM to sheltered water. 	P&A activities <ul style="list-style-type: none"> • Semi-Submersible Mobile Offshore Drilling Unit (MODU) • The MODU will be supported by 2 to 3 offshore support vessels. Removal Activities <ul style="list-style-type: none"> • CSV and HLV for recovery and activities. • AHTs to support the towing of the DTM to the shallower water location (if required).
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Protected Area implications:

We note Australian Government Guidance on consultation activities and confirm that:

Griffin Field Decommissioning Activities	Stybarrow Field Decommissioning Activities
<ul style="list-style-type: none"> • Proposed activities are outside the boundaries of a proclaimed Australian Marine Park. • Nearest protected areas are: <ul style="list-style-type: none"> ○ ~76 km to Gascoyne Commonwealth Marine Park ○ ~59 km to Ningaloo Marine Park (Commonwealth) ○ ~41 km to Ningaloo Marine Park (State) ○ ~42km to Muiron Islands Marine Management Area 	<ul style="list-style-type: none"> • Proposed activities are outside the boundaries of a proclaimed Australian Marine Park. • Nearest protected areas are: <ul style="list-style-type: none"> ○ ~5 km to Gascoyne Commonwealth Marine Park ○ ~24 km to Ningaloo Marine Park (Commonwealth) ○ ~36 km to Ningaloo Marine Park (State) ○ ~45 km to Muiron Islands Marine Management Area

We have assessed potential risks to Protected Areas in the development of the proposed Environment Plan and believe that there are no credible risks as part of planned activities that have potential to impact the values of Western Australian Protected Areas.

However, we note a number of State-managed Protected Areas within the Environments that May be Affected for the Griffin and Stybarrow decommissioning activities, in particular the EMBA for proposed plugging and abandonment activities at the Stybarrow Field. We have attached a separate information sheet for these activities and would be pleased to provide additional information on Conservation Parks, Marine Management Areas, Marine Parks, National Parks and Nature Reserves that may be potentially affected by activity risks.

A Commonwealth Government-approved oil spill response plan will be in place for the duration of the activities, which will include notification to relevant agencies and organisations as to the nature and scale of the event, as soon as practicable following an occurrence. DBCA will be advised if an environmental incident occurs that may impact on the values of State Managed Protected Areas.

Feedback:

Stybarrow Plug and Abandonment Environment Plan

If you have any feedback on these activities, please respond to Woodside at: Feedback@woodside.com.au or 1800 442 977.

Your feedback and our response will be included in our Environment Plan which will be submitted to NOPSEMA for acceptance in accordance with the *Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2009* (Cth).

Please let us know if your feedback for this activity is sensitive and we will make this known to NOPSEMA upon submission of the Environment Plan in order for this information to remain confidential to NOPSEMA. Please provide your views by **17 March 2023**.

You can also subscribe on our website to receive Consultation Information Sheets for proposed activities: www.woodside.com/sustainability/consultation-activities.

2.24.1 Email sent to DBCA - (10 March 2023)

Dear DBCA

Woodside previously consulted you (see email below) on Woodside's proposed activities for the progressive decommissioning of the Griffin and Stybarrow fields.

We provided this information to ensure relevant persons are informed about the status of proposed activities, as there have been changes to activity scope and supporting consultation information since consultation commenced for these decommissioning projects in 2021.

We would appreciate any feedback you may have by **17 March 2023** to support the development of our proposed Environment Plans.

Any feedback provided previously on proposed activities will remain current where Environment Plans are under assessment by the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA).

For reference:

- The **Griffin Field** is in Commonwealth waters in Petroleum Licence WA-10-L, 65 km northwest of Onslow and 94 km northeast of Exmouth, Western Australia and in water depths of approximately 120 m.
- The **Stybarrow Field** is in Commonwealth waters in Petroleum Licence WA-32-L, approximately 53 km northwest of Exmouth, Western Australia and in water depths of approximately 810 – 850 m.

Consultation Information Sheets for the proposed activities are attached, which provide a summary of potential key risks and associated management measures. The Information Sheets are also available on our [website](#).

Regards

Woodside Feedback

2.25 Email sent to the Exmouth Community Liaison Group (16 February 2023)

Dear Exmouth Community Liaison Group,

Woodside is providing this update on the progressive decommissioning of the Griffin and Stybarrow fields, previously operated by BHP Petroleum Pty Ltd (BHP).

We are providing this information to ensure relevant persons are informed about the status of proposed activities, as there have been changes to activity scope and supporting consultation information since consultation commenced for these decommissioning projects in 2021.

The **Griffin Field** is in Commonwealth waters in Petroleum Licence WA-10-L, 65 km northwest of Onslow and 94 km northeast of Exmouth, Western Australia and in water depths of approximately 120 m.

The **Stybarrow Field** is in Commonwealth waters in Petroleum Licence WA-32-L, approximately 53 km northwest of Exmouth, Western Australia and in water depths of approximately 810 – 850 m.

A summary of proposed activities is outlined below, and more detailed information is provided in the attached Consultation Information Sheets. The Information Sheets provide details on activities proposed to be managed under a number of Environment Plans for each Field, including a summary of potential key risks and associated management measures. The Information Sheets are also available on our [website](#).

Any feedback provided previously on proposed activities will remain current where Environment Plans are under assessment by the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA). Please let us know if you would like to update previous feedback or have any additional views by **17 March 2023**.

Activity:

	Griffin Field Decommissioning Activities	Stybarrow Field Decommissioning Activities
Summary:	<p>Removal Activities</p> <ul style="list-style-type: none"> Removal of subsea equipment (wellheads, trees, distribution skids, risers, flexible flowlines, rigid flowlines, umbilicals, and the pipeline end module (PLEM)). Removal of the Riser Turret Mooring (RTM) and its moorings. Depending on the vessel utilised, recovery of the RTM may require sections of 	<p>Plugging and Abandonment (P&A) Activities</p> <ul style="list-style-type: none"> Pre-execution activities associated with the well P&A, such as barrier testing and removal of marine growth. Well P&A of the 10 productions/injection wells by placing cement plugs in the wells to permanently prevent hydrocarbon release.

Stybarrow Plug and Abandonment Environment Plan

	<p>it to be towed to shallower water out of the title.</p> <ul style="list-style-type: none"> • Removal of an exploration wellhead (Ramillies-1 in neighbouring petroleum title WA-12-L). • Ongoing field management activities. • Pigging and subsequent removal of the 26 km of Griffin Gas Export Pipeline (GEP) within Commonwealth waters. <p>In Situ Activities</p> <ul style="list-style-type: none"> • Proposal to leave in situ 12 RTM drag anchors (buried), 6 concrete gravity bases and 5 piled foundations for the PLEM and 4 distribution skids. 	<ul style="list-style-type: none"> • Cutting and removal of the wellhead and subsea tree assembly. • Unblocking of the H4 flowline, if deemed feasible. <p>Removal Activities</p> <ul style="list-style-type: none"> • Removal of subsea equipment (wellheads, trees, manifolds, risers, flexible flowlines, and umbilicals). • Removal of the Disconnectable Turret Mooring (DTM) and its moorings. Recovery of the DTM may require it to be towed to shallower water outside of permit area WA-32-L to support the DTM removal from the marine environment. • Ongoing field management activities (equipment monitoring and inspection). <p>In Situ Activities</p> <ul style="list-style-type: none"> • Proposed leave in situ of the 9 DTM drag anchors (buried), nine suction piles for the riser holdbacks and the historical exploration wellhead, Eskdale-1, which was unable to be removed following its drilling and abandonment in 2003.
Location:	<ul style="list-style-type: none"> • 94 km northeast of Exmouth, Western Australia. 	<ul style="list-style-type: none"> • 53 km northwest of Exmouth, Western Australia.
Approx. Water Depth (m):	<ul style="list-style-type: none"> • Approx. 120 m. 	<ul style="list-style-type: none"> • Approx. 810 – 850 m.

Stybarrow Plug and Abandonment Environment Plan

<p>Schedule:</p>	<p>Removal Activities</p> <ul style="list-style-type: none"> • Earliest proposed removal activity start is estimated to be Q4 2023, subject to approvals, vessel availability and weather constraints. • Facilities removal must be completed no later than 31 December 2024, pursuant to General Direction 832. 	<p>Plugging and Abandonment (P&A) Activities</p> <ul style="list-style-type: none"> • Earliest P&A start is estimated to be Q4 2023, subject to approvals, MODU and vessel availability and weather constraints. • P&A activities must be completed no later than 30 September 2024, pursuant to General Direction 833. <p>Removal Activities</p> <ul style="list-style-type: none"> • Earliest facilities and DTM removal is estimated to be Q4 2023, subject to approvals, vessel availability and weather constraints. • Equipment removal must be completed no later than 31 March 2025, pursuant to General Direction 833.
<p>Duration:</p>	<p>Removal Activities</p> <ul style="list-style-type: none"> • Removal activities are anticipated to take approximately 6 months to complete and GEP removal activities are anticipated to take approximately 2 months to complete. 	<p>Plugging and Abandonment (P&A) Activities</p> <ul style="list-style-type: none"> • P&A activities are anticipated to take approximately 6 – 9 months. <p>Removal Activities</p> <ul style="list-style-type: none"> • Removal activities are anticipated to take approximately 4-6 months to complete and DTM removal activities are anticipated to take approximately 1 month to complete.

Stybarrow Plug and Abandonment Environment Plan

<p>Exclusionary/Cautious Zone:</p>	<p>Removal Activities</p> <ul style="list-style-type: none"> • The temporary Operational Area includes the area encompassing an approximate 1,500 m radius around the equipment. • A temporary 500 m exclusion zone will apply around the project vessels during removal and potential tow activities. 	<p>P&A Activities</p> <ul style="list-style-type: none"> • The Operational Area includes the area encompassing an approximate 3,000 m radius around each of the four drill centres within WA-32-L. • A temporary 500 m exclusion zone will apply around the MODU and the associated project vessels during P&A activities. <p>Removal Activities</p> <ul style="list-style-type: none"> • The temporary Operational Area includes the area encompassing an approximate 1,500 m radius around the subsea infrastructure and wellheads. • The DTM has an existing 1200 m radius petroleum safety zone which will continue to be in place until it is removed. • A temporary 500 m exclusion zone will apply around the CSV and the associated project vessels during removal activities. • A temporary 500 m exclusion zone will apply around the HLV and the associated project vessels during the removal of the DTM.
<p>Vessels:</p>	<p>Removal Activities</p> <ul style="list-style-type: none"> • Construction support vessel (CSV) and Heavy Lift Vessel (HLV) for 	<p>P&A activities</p> <ul style="list-style-type: none"> • Semi-Submersible Mobile Offshore Drilling Unit (MODU)

Stybarrow Plug and Abandonment Environment Plan

	<ul style="list-style-type: none">recovery and pipeline removal activities.An anchor handling tug (AHT) to support the towing of the RTM to sheltered water.	<ul style="list-style-type: none">The MODU will be supported by 2 to 3 offshore support vessels. <p>Removal Activities</p> <ul style="list-style-type: none">CSV and HLV for recovery and activities.AHTs to support the towing of the DTM to the shallower water location (if required).
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Feedback:

If you have any feedback on these activities, please respond to Woodside at: Feedback@woodside.com.au or 1800 442 977.

Your feedback and our response will be included in our Environment Plan which will be submitted to NOPSEMA for acceptance in accordance with the *Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2009* (Cth).

Please let us know if your feedback for this activity is sensitive and we will make this known to NOPSEMA upon submission of the Environment Plan in order for this information to remain confidential to NOPSEMA. Please provide your views by **17 March 2023**.

You can also subscribe on our website to receive Consultation Information Sheets for proposed activities: www.woodside.com/sustainability/consultation-activities.

2.25.1 Email sent to Exmouth Community Liaison Group (10 March 2023)

Dear Exmouth Community Liaison Group

Woodside previously consulted you (see email below) on Woodside's proposed activities for the progressive decommissioning of the Griffin and Stybarrow fields.

We provided this information to ensure relevant persons are informed about the status of proposed activities, as there have been changes to activity scope and supporting consultation information since consultation commenced for these decommissioning projects in 2021.

We would appreciate any feedback you may have by **17 March 2023** to support the development of our proposed Environment Plans.

Any feedback provided previously on proposed activities will remain current where Environment Plans are under assessment by the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA).

For reference:

Stybarrow Plug and Abandonment Environment Plan

- The **Griffin Field** is in Commonwealth waters in Petroleum Licence WA-10-L, 65 km northwest of Onslow and 94 km northeast of Exmouth, Western Australia and in water depths of approximately 120 m.
- The **Stybarrow Field** is in Commonwealth waters in Petroleum Licence WA-32-L, approximately 53 km northwest of Exmouth, Western Australia and in water depths of approximately 810 – 850 m.

Consultation Information Sheets for the proposed activities are attached, which provide a summary of potential key risks and associated management measures. The Information Sheets are also available on our [website](#).

Regards

[REDACTED]

Senior Corporate Affairs Adviser

2.26 Email sent to the Cape Conservation Group (CCG) (17 February 2023)

Dear [REDACTED]

Woodside is providing this update on the progressive decommissioning of the Griffin and Stybarrow fields, previously operated by BHP Petroleum Pty Ltd (BHP).

We are providing this information to ensure relevant persons are informed about the status of proposed activities, as there have been changes to activity scope and supporting consultation information since consultation commenced for these decommissioning projects in 2021.

The **Griffin Field** is in Commonwealth waters in Petroleum Licence WA-10-L, 65 km northwest of Onslow and 94 km northeast of Exmouth, Western Australia and in water depths of approximately 120 m.

The **Stybarrow Field** is in Commonwealth waters in Petroleum Licence WA-32-L, approximately 53 km northwest of Exmouth, Western Australia and in water depths of approximately 810 – 850 m.

A summary of proposed activities is outlined below, and more detailed information is provided in the attached Consultation Information Sheets. The Information Sheets provide details on activities proposed to be managed under a number of Environment Plans for each Field, including a summary of potential key risks and associated management measures. The Information Sheets are also available on our [website](#).

Any feedback provided previously on proposed activities will remain current where Environment Plans are under assessment by the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA). Please let us know if you would like to update previous feedback or have any additional views by **17 March 2023**.

Activity:

	Griffin Field Decommissioning Activities	Stybarrow Field Decommissioning Activities

<p>Summary:</p>	<p>Removal Activities</p> <ul style="list-style-type: none"> • Removal of subsea equipment (wellheads, trees, distribution skids, risers, flexible flowlines, rigid flowlines, umbilicals, and the pipeline end module (PLEM)). • Removal of the Riser Turret Mooring (RTM) and its moorings. Depending on the vessel utilised, recovery of the RTM may require sections of it to be towed to shallower water out of the title. • Removal of an exploration wellhead (Ramillies-1 in neighbouring petroleum title WA-12-L). • Ongoing field management activities. • Pigging and subsequent removal of the 26 km of Griffin Gas Export Pipeline (GEP) within Commonwealth waters. <p>In Situ Activities</p> <ul style="list-style-type: none"> • Proposal to leave in situ 12 RTM drag anchors (buried), 6 concrete gravity bases and 5 piled foundations for the PLEM and 4 distribution skids. 	<p>Plugging and Abandonment (P&A) Activities</p> <ul style="list-style-type: none"> • Pre-execution activities associated with the well P&A, such as barrier testing and removal of marine growth. • Well P&A of the 10 productions/injection wells by placing cement plugs in the wells to permanently prevent hydrocarbon release. • Cutting and removal of the wellhead and subsea tree assembly. • Unblocking of the H4 flowline, if deemed feasible. <p>Removal Activities</p> <ul style="list-style-type: none"> • Removal of subsea equipment (wellheads, trees, manifolds, risers, flexible flowlines, and umbilicals). • Removal of the Disconnectable Turret Mooring (DTM) and its moorings. Recovery of the DTM may require it to be towed to shallower water outside of permit area WA-32-L to support the DTM removal from the marine environment. • Ongoing field management activities (equipment monitoring and inspection). <p>In Situ Activities</p> <ul style="list-style-type: none"> • Proposed leave in situ of the 9 DTM drag anchors (buried), nine
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Stybarrow Plug and Abandonment Environment Plan

		suction piles for the riser holdbacks and the historical exploration wellhead, Eskdale-1, which was unable to be removed following its drilling and abandonment in 2003.
Location:	<ul style="list-style-type: none"> 94 km northeast of Exmouth, Western Australia. 	<ul style="list-style-type: none"> 53 km northwest of Exmouth, Western Australia.
Approx. Water Depth (m):	<ul style="list-style-type: none"> Approx. 120 m. 	<ul style="list-style-type: none"> Approx. 810 – 850 m.
Schedule:	<p>Removal Activities</p> <ul style="list-style-type: none"> Earliest proposed removal activity start is estimated to be Q4 2023, subject to approvals, vessel availability and weather constraints. Facilities removal must be completed no later than 31 December 2024, pursuant to General Direction 832. 	<p>Plugging and Abandonment (P&A) Activities</p> <ul style="list-style-type: none"> Earliest P&A start is estimated to be Q4 2023, subject to approvals, MODU and vessel availability and weather constraints. P&A activities must be completed no later than 30 September 2024, pursuant to General Direction 833. <p>Removal Activities</p> <ul style="list-style-type: none"> Earliest facilities and DTM removal is estimated to be Q4 2023, subject to approvals, vessel availability and weather constraints. Equipment removal must be completed no later than 31 March 2025, pursuant to General Direction 833.
Duration:	<p>Removal Activities</p> <ul style="list-style-type: none"> Removal activities are anticipated to take approximately 6 months to complete and GEP removal 	<p>Plugging and Abandonment (P&A) Activities</p> <ul style="list-style-type: none"> P&A activities are anticipated to take

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	<p>activities are anticipated to take approximately 2 months to complete.</p>	<p>approximately 6 – 9 months.</p> <p>Removal Activities</p> <ul style="list-style-type: none"> Removal activities are anticipated to take approximately 4-6 months to complete and DTM removal activities are anticipated to take approximately 1 month to complete.
<p>Exclusionary/Cautionary Zone:</p>	<p>Removal Activities</p> <ul style="list-style-type: none"> The temporary Operational Area includes the area encompassing an approximate 1,500 m radius around the equipment. A temporary 500 m exclusion zone will apply around the project vessels during removal and potential tow activities. 	<p>P&A Activities</p> <ul style="list-style-type: none"> The Operational Area includes the area encompassing an approximate 3,000 m radius around each of the four drill centres within WA-32-L. A temporary 500 m exclusion zone will apply around the MODU and the associated project vessels during P&A activities. <p>Removal Activities</p> <ul style="list-style-type: none"> The temporary Operational Area includes the area encompassing an approximate 1,500 m radius around the subsea infrastructure and wellheads. The DTM has an existing 1200 m radius petroleum safety zone which will continue to be in place until it is removed. A temporary 500 m exclusion zone will apply around the CSV and the associated

Stybarrow Plug and Abandonment Environment Plan

		<p>project vessels during removal activities.</p> <ul style="list-style-type: none"> • A temporary 500 m exclusion zone will apply around the HLV and the associated project vessels during the removal of the DTM.
Vessels:	<p>Removal Activities</p> <ul style="list-style-type: none"> • Construction support vessel (CSV) and Heavy Lift Vessel (HLV) for recovery and pipeline removal activities. • An anchor handling tug (AHT) to support the towing of the RTM to sheltered water. 	<p>P&A activities</p> <ul style="list-style-type: none"> • Semi-Submersible Mobile Offshore Drilling Unit (MODU) • The MODU will be supported by 2 to 3 offshore support vessels. <p>Removal Activities</p> <ul style="list-style-type: none"> • CSV and HLV for recovery and activities. • AHTs to support the towing of the DTM to the shallower water location (if required).

Feedback:

If you have any feedback on these activities, please respond to Woodside at: Feedback@woodside.com.au or 1800 442 977.

Your feedback and our response will be included in our Environment Plan which will be submitted to NOPSEMA for acceptance in accordance with the *Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2009* (Cth).

Please let us know if your feedback for this activity is sensitive and we will make this known to NOPSEMA upon submission of the Environment Plan in order for this information to remain confidential to NOPSEMA. Please provide your views by **17 March 2023**.

You can also subscribe on our website to receive Consultation Information Sheets for proposed activities: www.woodside.com/sustainability/consultation-activities.

2.26.1 Email sent to CCG (10 March 2023)

Dear [REDACTED]

Woodside previously consulted you (see email below) on Woodside's proposed activities for the progressive decommissioning of the Griffin and Stybarrow fields.

Stybarrow Plug and Abandonment Environment Plan

We provided this information to ensure relevant persons are informed about the status of proposed activities, as there have been changes to activity scope and supporting consultation information since consultation commenced for these decommissioning projects in 2021.

We would appreciate any feedback you may have by **17 March 2023** to support the development of our proposed Environment Plans.

Any feedback provided previously on proposed activities will remain current where Environment Plans are under assessment by the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA).

For reference:

- The **Griffin Field** is in Commonwealth waters in Petroleum Licence WA-10-L, 65 km northwest of Onslow and 94 km northeast of Exmouth, Western Australia and in water depths of approximately 120 m.
- The **Stybarrow Field** is in Commonwealth waters in Petroleum Licence WA-32-L, approximately 53 km northwest of Exmouth, Western Australia and in water depths of approximately 810 – 850 m.

Consultation Information Sheets for the proposed activities are attached, which provide a summary of potential key risks and associated management measures. The Information Sheets are also available on our [website](#).

Regards

2.27 Email sent to Protect Ningaloo (17 February 2023)

Dear Stakeholder

Woodside is providing this update on the progressive decommissioning of the Griffin and Stybarrow fields, previously operated by BHP Petroleum Pty Ltd (BHP).

We are providing this information to ensure relevant persons are informed about the status of proposed activities, as there have been changes to activity scope and supporting consultation information since consultation commenced for these decommissioning projects in 2021.

The **Griffin Field** is in Commonwealth waters in Petroleum Licence WA-10-L, 65 km northwest of Onslow and 94 km northeast of Exmouth, Western Australia and in water depths of approximately 120 m.

The **Stybarrow Field** is in Commonwealth waters in Petroleum Licence WA-32-L, approximately 53 km northwest of Exmouth, Western Australia and in water depths of approximately 810 – 850 m.

A summary of proposed activities is outlined below, and more detailed information is provided in the attached Consultation Information Sheets. The Information Sheets provide details on activities proposed to be managed under a number of Environment Plans for each Field, including a summary of potential key risks and associated management measures. The Information Sheets are also available on our [website](#).

Stybarrow Plug and Abandonment Environment Plan

Any feedback provided previously on proposed activities will remain current where Environment Plans are under assessment by the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA). Please let us know if you would like to update previous feedback or have any additional views by **17 March 2023**.

Activity:

	Griffin Field Decommissioning Activities	Stybarrow Field Decommissioning Activities
Summary:	<p>Removal Activities</p> <ul style="list-style-type: none"> • Removal of subsea equipment (wellheads, trees, distribution skids, risers, flexible flowlines, rigid flowlines, umbilicals, and the pipeline end module (PLEM)). • Removal of the Riser Turret Mooring (RTM) and its moorings. Depending on the vessel utilised, recovery of the RTM may require sections of it to be towed to shallower water out of the title. • Removal of an exploration wellhead (Ramillies-1 in neighbouring petroleum title WA-12-L). • Ongoing field management activities. • Pigging and subsequent removal of the 26 km of Griffin Gas Export Pipeline (GEP) within Commonwealth waters. <p>In Situ Activities</p>	<p>Plugging and Abandonment (P&A) Activities</p> <ul style="list-style-type: none"> • Pre-execution activities associated with the well P&A, such as barrier testing and removal of marine growth. • Well P&A of the 10 productions/injection wells by placing cement plugs in the wells to permanently prevent hydrocarbon release. • Cutting and removal of the wellhead and subsea tree assembly. • Unblocking of the H4 flowline, if deemed feasible. <p>Removal Activities</p> <ul style="list-style-type: none"> • Removal of subsea equipment (wellheads, trees, manifolds, risers, flexible flowlines, and umbilicals). • Removal of the Disconnectable Turret Mooring (DTM) and its moorings. Recovery of the DTM may require it to be towed to shallower water outside of permit area WA-32-L to support the

Stybarrow Plug and Abandonment Environment Plan

	<ul style="list-style-type: none"> Proposal to leave in situ 12 RTM drag anchors (buried), 6 concrete gravity bases and 5 piled foundations for the PLEM and 4 distribution skids. 	<p>DTM removal from the marine environment.</p> <ul style="list-style-type: none"> Ongoing field management activities (equipment monitoring and inspection). <p>In Situ Activities</p> <ul style="list-style-type: none"> Proposed leave in situ of the 9 DTM drag anchors (buried), nine suction piles for the riser holdbacks and the historical exploration wellhead, Eskdale-1, which was unable to be removed following its drilling and abandonment in 2003.
Location:	<ul style="list-style-type: none"> 94 km northeast of Exmouth, Western Australia. 	<ul style="list-style-type: none"> 53 km northwest of Exmouth, Western Australia.
Approx. Water Depth (m):	<ul style="list-style-type: none"> Approx. 120 m. 	<ul style="list-style-type: none"> Approx. 810 – 850 m.
Schedule:	<p>Removal Activities</p> <ul style="list-style-type: none"> Earliest proposed removal activity start is estimated to be Q4 2023, subject to approvals, vessel availability and weather constraints. Facilities removal must be completed no later than 31 December 2024, pursuant to General Direction 832. 	<p>Plugging and Abandonment (P&A) Activities</p> <ul style="list-style-type: none"> Earliest P&A start is estimated to be Q4 2023, subject to approvals, MODU and vessel availability and weather constraints. P&A activities must be completed no later than 30 September 2024, pursuant to General Direction 833. <p>Removal Activities</p> <ul style="list-style-type: none"> Earliest facilities and DTM removal is estimated to be Q4 2023, subject to approvals, vessel availability and weather constraints.

Stybarrow Plug and Abandonment Environment Plan

		<ul style="list-style-type: none"> Equipment removal must be completed no later than 31 March 2025, pursuant to General Direction 833.
Duration:	<p>Removal Activities</p> <ul style="list-style-type: none"> Removal activities are anticipated to take approximately 6 months to complete and GEP removal activities are anticipated to take approximately 2 months to complete. 	<p>Plugging and Abandonment (P&A) Activities</p> <ul style="list-style-type: none"> P&A activities are anticipated to take approximately 6 – 9 months. <p>Removal Activities</p> <ul style="list-style-type: none"> Removal activities are anticipated to take approximately 4-6 months to complete and DTM removal activities are anticipated to take approximately 1 month to complete.
Exclusionary/Cautionary Zone:	<p>Removal Activities</p> <ul style="list-style-type: none"> The temporary Operational Area includes the area encompassing an approximate 1,500 m radius around the equipment. A temporary 500 m exclusion zone will apply around the project vessels during removal and potential tow activities. 	<p>P&A Activities</p> <ul style="list-style-type: none"> The Operational Area includes the area encompassing an approximate 3,000 m radius around each of the four drill centres within WA-32-L. A temporary 500 m exclusion zone will apply around the MODU and the associated project vessels during P&A activities. <p>Removal Activities</p> <ul style="list-style-type: none"> The temporary Operational Area includes the area encompassing an approximate 1,500 m radius around the subsea infrastructure and wellheads.

Stybarrow Plug and Abandonment Environment Plan

		<ul style="list-style-type: none"> • The DTM has an existing 1200 m radius petroleum safety zone which will continue to be in place until it is removed. • A temporary 500 m exclusion zone will apply around the CSV and the associated project vessels during removal activities. • A temporary 500 m exclusion zone will apply around the HLV and the associated project vessels during the removal of the DTM.
<p>Vessels:</p>	<p>Removal Activities</p> <ul style="list-style-type: none"> • Construction support vessel (CSV) and Heavy Lift Vessel (HLV) for recovery and pipeline removal activities. • An anchor handling tug (AHT) to support the towing of the RTM to sheltered water. 	<p>P&A activities</p> <ul style="list-style-type: none"> • Semi-Submersible Mobile Offshore Drilling Unit (MODU) • The MODU will be supported by 2 to 3 offshore support vessels. <p>Removal Activities</p> <ul style="list-style-type: none"> • CSV and HLV for recovery and activities. • AHTs to support the towing of the DTM to the shallower water location (if required).

Feedback:

If you have any feedback on these activities, please respond to Woodside at: Feedback@woodside.com.au or 1800 442 977.

Your feedback and our response will be included in our Environment Plan which will be submitted to NOPSEMA for acceptance in accordance with the *Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2009* (Cth).

Please let us know if your feedback for this activity is sensitive and we will make this known to NOPSEMA upon submission of the Environment Plan in order for this information to remain confidential to NOPSEMA. Please provide your views by **17 March 2023**.

Stybarrow Plug and Abandonment Environment Plan

You can also subscribe on our website to receive Consultation Information Sheets for proposed activities: www.woodside.com/sustainability/consultation-activities.

2.27.1 Email sent to Protect Ningaloo (10 March 2023)

Dear Stakeholder

Woodside previously consulted you (see email below) on Woodside's proposed activities for the progressive decommissioning of the Griffin and Stybarrow fields.

We provided this information to ensure relevant persons are informed about the status of proposed activities, as there have been changes to activity scope and supporting consultation information since consultation commenced for these decommissioning projects in 2021.

We would appreciate any feedback you may have by **17 March 2023** to support the development of our proposed Environment Plans.

Any feedback provided previously on proposed activities will remain current where Environment Plans are under assessment by the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA).

For reference:

- The **Griffin Field** is in Commonwealth waters in Petroleum Licence WA-10-L, 65 km northwest of Onslow and 94 km northeast of Exmouth, Western Australia and in water depths of approximately 120 m.
- The **Stybarrow Field** is in Commonwealth waters in Petroleum Licence WA-32-L, approximately 53 km northwest of Exmouth, Western Australia and in water depths of approximately 810 – 850 m.

Consultation Information Sheets for the proposed activities are attached, which provide a summary of potential key risks and associated management measures. The Information Sheets are also available on our [website](#).

Regards

Woodside Feedback

2.28 Email sent to the Shire of Exmouth (17 February 2023)

Dear [REDACTED]

Woodside is providing this update on the progressive decommissioning of the Griffin and Stybarrow fields, previously operated by BHP Petroleum Pty Ltd (BHP).

Stybarrow Plug and Abandonment Environment Plan

We are providing this information to ensure relevant persons are informed about the status of proposed activities, as there have been changes to activity scope and supporting consultation information since consultation commenced for these decommissioning projects in 2021.

The **Griffin Field** is in Commonwealth waters in Petroleum Licence WA-10-L, 65 km northwest of Onslow and 94 km northeast of Exmouth, Western Australia and in water depths of approximately 120 m.

The **Stybarrow Field** is in Commonwealth waters in Petroleum Licence WA-32-L, approximately 53 km northwest of Exmouth, Western Australia and in water depths of approximately 810 – 850 m.

A summary of proposed activities is outlined below, and more detailed information is provided in the attached Consultation Information Sheets. The Information Sheets provide details on activities proposed to be managed under a number of Environment Plans for each Field, including a summary of potential key risks and associated management measures. The Information Sheets are also available on our [website](#).

Any feedback provided previously on proposed activities will remain current where Environment Plans are under assessment by the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA). Please let us know if you would like to update previous feedback or have any additional views by **17 March 2023**.

Activity:

	Griffin Field Decommissioning Activities	Stybarrow Field Decommissioning Activities
Summary:	<p>Removal Activities</p> <ul style="list-style-type: none"> • Removal of subsea equipment (wellheads, trees, distribution skids, risers, flexible flowlines, rigid flowlines, umbilicals, and the pipeline end module (PLEM)). • Removal of the Riser Turret Mooring (RTM) and its moorings. Depending on the vessel utilised, recovery of the RTM may require sections of it to be towed to shallower water out of the title. • Removal of an exploration wellhead (Ramillies-1 in neighbouring 	<p>Plugging and Abandonment (P&A) Activities</p> <ul style="list-style-type: none"> • Pre-execution activities associated with the well P&A, such as barrier testing and removal of marine growth. • Well P&A of the 10 productions/injection wells by placing cement plugs in the wells to permanently prevent hydrocarbon release. • Cutting and removal of the wellhead and subsea tree assembly. • Unblocking of the H4 flowline, if deemed feasible.

Stybarrow Plug and Abandonment Environment Plan

	<p>petroleum title WA-12-L).</p> <ul style="list-style-type: none"> • Ongoing field management activities. • Pigging and subsequent removal of the 26 km of Griffin Gas Export Pipeline (GEP) within Commonwealth waters. <p>In Situ Activities</p> <ul style="list-style-type: none"> • Proposal to leave in situ 12 RTM drag anchors (buried), 6 concrete gravity bases and 5 piled foundations for the PLEM and 4 distribution skids. 	<p>Removal Activities</p> <ul style="list-style-type: none"> • Removal of subsea equipment (wellheads, trees, manifolds, risers, flexible flowlines, and umbilicals). • Removal of the Disconnectable Turret Mooring (DTM) and its moorings. Recovery of the DTM may require it to be towed to shallower water outside of permit area WA-32-L to support the DTM removal from the marine environment. • Ongoing field management activities (equipment monitoring and inspection). <p>In Situ Activities</p> <ul style="list-style-type: none"> • Proposed leave in situ of the 9 DTM drag anchors (buried), nine suction piles for the riser holdbacks and the historical exploration wellhead, Eskdale-1, which was unable to be removed following its drilling and abandonment in 2003.
Location:	<ul style="list-style-type: none"> • 94 km northeast of Exmouth, Western Australia. 	<ul style="list-style-type: none"> • 53 km northwest of Exmouth, Western Australia.
Approx. Water Depth (m):	<ul style="list-style-type: none"> • Approx. 120 m. 	<ul style="list-style-type: none"> • Approx. 810 – 850 m.
Schedule:	<p>Removal Activities</p> <ul style="list-style-type: none"> • Earliest proposed removal activity start is estimated to be Q4 2023, subject to approvals, vessel availability and weather constraints. 	<p>Plugging and Abandonment (P&A) Activities</p> <ul style="list-style-type: none"> • Earliest P&A start is estimated to be Q4 2023, subject to approvals, MODU and

Stybarrow Plug and Abandonment Environment Plan

	<ul style="list-style-type: none"> Facilities removal must be completed no later than 31 December 2024, pursuant to General Direction 832. 	<p>vessel availability and weather constraints.</p> <ul style="list-style-type: none"> P&A activities must be completed no later than 30 September 2024, pursuant to General Direction 833. <p>Removal Activities</p> <ul style="list-style-type: none"> Earliest facilities and DTM removal is estimated to be Q4 2023, subject to approvals, vessel availability and weather constraints. Equipment removal must be completed no later than 31 March 2025, pursuant to General Direction 833.
Duration:	<p>Removal Activities</p> <ul style="list-style-type: none"> Removal activities are anticipated to take approximately 6 months to complete and GEP removal activities are anticipated to take approximately 2 months to complete. 	<p>Plugging and Abandonment (P&A) Activities</p> <ul style="list-style-type: none"> P&A activities are anticipated to take approximately 6 – 9 months. <p>Removal Activities</p> <ul style="list-style-type: none"> Removal activities are anticipated to take approximately 4-6 months to complete and DTM removal activities are anticipated to take approximately 1 month to complete.
Exclusionary/Cautionary Zone:	<p>Removal Activities</p> <ul style="list-style-type: none"> The temporary Operational Area includes the area encompassing an approximate 1,500 m radius around the equipment. 	<p>P&A Activities</p> <ul style="list-style-type: none"> The Operational Area includes the area encompassing an approximate 3,000 m radius around each of the four drill centres within WA-32-L.

Stybarrow Plug and Abandonment Environment Plan

	<ul style="list-style-type: none"> • A temporary 500 m exclusion zone will apply around the project vessels during removal and potential tow activities. 	<ul style="list-style-type: none"> • A temporary 500 m exclusion zone will apply around the MODU and the associated project vessels during P&A activities. <p>Removal Activities</p> <ul style="list-style-type: none"> • The temporary Operational Area includes the area encompassing an approximate 1,500 m radius around the subsea infrastructure and wellheads. • The DTM has an existing 1200 m radius petroleum safety zone which will continue to be in place until it is removed. • A temporary 500 m exclusion zone will apply around the CSV and the associated project vessels during removal activities. • A temporary 500 m exclusion zone will apply around the HLV and the associated project vessels during the removal of the DTM.
<p>Vessels:</p>	<p>Removal Activities</p> <ul style="list-style-type: none"> • Construction support vessel (CSV) and Heavy Lift Vessel (HLV) for recovery and pipeline removal activities. • An anchor handling tug (AHT) to support the towing of the RTM to sheltered water. 	<p>P&A activities</p> <ul style="list-style-type: none"> • Semi-Submersible Mobile Offshore Drilling Unit (MODU) • The MODU will be supported by 2 to 3 offshore support vessels. <p>Removal Activities</p> <ul style="list-style-type: none"> • CSV and HLV for recovery and activities.

Stybarrow Plug and Abandonment Environment Plan

		<ul style="list-style-type: none">• AHTs to support the towing of the DTM to the shallower water location (if required).
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Feedback:

If you have any feedback on these activities, please respond to Woodside at: Feedback@woodside.com.au or 1800 442 977.

Your feedback and our response will be included in our Environment Plan which will be submitted to NOPSEMA for acceptance in accordance with the *Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2009* (Cth).

Please let us know if your feedback for this activity is sensitive and we will make this known to NOPSEMA upon submission of the Environment Plan in order for this information to remain confidential to NOPSEMA. Please provide your views by **17 March 2023**.

You can also subscribe on our website to receive Consultation Information Sheets for proposed activities: www.woodside.com/sustainability/consultation-activities.

2.28.1 Email sent to the Shire of Exmouth (10 March 2023)

Dear [REDACTED]

Woodside previously consulted you (see email below) on Woodside's proposed activities for the progressive decommissioning of the Griffin and Stybarrow fields.

We provided this information to ensure relevant persons are informed about the status of proposed activities, as there have been changes to activity scope and supporting consultation information since consultation commenced for these decommissioning projects in 2021.

We would appreciate any feedback you may have by **17 March 2023** to support the development of our proposed Environment Plans.

Any feedback provided previously on proposed activities will remain current where Environment Plans are under assessment by the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA).

For reference:

- The **Griffin Field** is in Commonwealth waters in Petroleum Licence WA-10-L, 65 km northwest of Onslow and 94 km northeast of Exmouth, Western Australia and in water depths of approximately 120 m.
- The **Stybarrow Field** is in Commonwealth waters in Petroleum Licence WA-32-L, approximately 53 km northwest of Exmouth, Western Australia and in water depths of approximately 810 – 850 m.

Stybarrow Plug and Abandonment Environment Plan

Consultation Information Sheets for the proposed activities are attached, which provide a summary of potential key risks and associated management measures. The Information Sheets are also available on our [website](#).

Regards



2.29 Email sent to the Shire of Ashburton (17 February 2023)

Dear 

Woodside is providing this update on the progressive decommissioning of the Griffin and Stybarrow fields, previously operated by BHP Petroleum Pty Ltd (BHP).

We are providing this information to ensure relevant persons are informed about the status of proposed activities, as there have been changes to activity scope and supporting consultation information since consultation commenced for these decommissioning projects in 2021.

The **Griffin Field** is in Commonwealth waters in Petroleum Licence WA-10-L, 65 km northwest of Onslow and 94 km northeast of Exmouth, Western Australia and in water depths of approximately 120 m.

The **Stybarrow Field** is in Commonwealth waters in Petroleum Licence WA-32-L, approximately 53 km northwest of Exmouth, Western Australia and in water depths of approximately 810 – 850 m.

A summary of proposed activities is outlined below, and more detailed information is provided in the attached Consultation Information Sheets. The Information Sheets provide details on activities proposed to be managed under a number of Environment Plans for each Field, including a summary of potential key risks and associated management measures. The Information Sheets are also available on our [website](#).

Any feedback provided previously on proposed activities will remain current where Environment Plans are under assessment by the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA). Please let us know if you would like to update previous feedback or have any additional views by **17 March 2023**.

Activity:

	Griffin Field Decommissioning Activities	Stybarrow Field Decommissioning Activities
Summary:	Removal Activities <ul style="list-style-type: none">Removal of subsea equipment (wellheads, trees, distribution skids, risers, flexible flowlines, rigid	Plugging and Abandonment (P&A) Activities <ul style="list-style-type: none">Pre-execution activities associated with the well P&A, such as

	<p>flowlines, umbilicals, and the pipeline end module (PLEM)).</p> <ul style="list-style-type: none"> • Removal of the Riser Turret Mooring (RTM) and its moorings. Depending on the vessel utilised, recovery of the RTM may require sections of it to be towed to shallower water out of the title. • Removal of an exploration wellhead (Ramillies-1 in neighbouring petroleum title WA-12-L). • Ongoing field management activities. • Pigging and subsequent removal of the 26 km of Griffin Gas Export Pipeline (GEP) within Commonwealth waters. <p>In Situ Activities</p> <ul style="list-style-type: none"> • Proposal to leave in situ 12 RTM drag anchors (buried), 6 concrete gravity bases and 5 piled foundations for the PLEM and 4 distribution skids. 	<p>barrier testing and removal of marine growth.</p> <ul style="list-style-type: none"> • Well P&A of the 10 productions/injection wells by placing cement plugs in the wells to permanently prevent hydrocarbon release. • Cutting and removal of the wellhead and subsea tree assembly. • Unblocking of the H4 flowline, if deemed feasible. <p>Removal Activities</p> <ul style="list-style-type: none"> • Removal of subsea equipment (wellheads, trees, manifolds, risers, flexible flowlines, and umbilicals). • Removal of the Disconnectable Turret Mooring (DTM) and its moorings. Recovery of the DTM may require it to be towed to shallower water outside of permit area WA-32-L to support the DTM removal from the marine environment. • Ongoing field management activities (equipment monitoring and inspection). <p>In Situ Activities</p> <ul style="list-style-type: none"> • Proposed leave in situ of the 9 DTM drag anchors (buried), nine suction piles for the riser holdbacks and the historical exploration wellhead, Eskdale-1, which was unable to be removed following its
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Stybarrow Plug and Abandonment Environment Plan

		drilling and abandonment in 2003.
Location:	<ul style="list-style-type: none"> 94 km northeast of Exmouth, Western Australia. 	<ul style="list-style-type: none"> 53 km northwest of Exmouth, Western Australia.
Approx. Water Depth (m):	<ul style="list-style-type: none"> Approx. 120 m. 	<ul style="list-style-type: none"> Approx. 810 – 850 m.
Schedule:	<p>Removal Activities</p> <ul style="list-style-type: none"> Earliest proposed removal activity start is estimated to be Q4 2023, subject to approvals, vessel availability and weather constraints. Facilities removal must be completed no later than 31 December 2024, pursuant to General Direction 832. 	<p>Plugging and Abandonment (P&A) Activities</p> <ul style="list-style-type: none"> Earliest P&A start is estimated to be Q4 2023, subject to approvals, MODU and vessel availability and weather constraints. P&A activities must be completed no later than 30 September 2024, pursuant to General Direction 833. <p>Removal Activities</p> <ul style="list-style-type: none"> Earliest facilities and DTM removal is estimated to be Q4 2023, subject to approvals, vessel availability and weather constraints. Equipment removal must be completed no later than 31 March 2025, pursuant to General Direction 833.
Duration:	<p>Removal Activities</p> <ul style="list-style-type: none"> Removal activities are anticipated to take approximately 6 months to complete and GEP removal activities are anticipated to take approximately 2 months to complete. 	<p>Plugging and Abandonment (P&A) Activities</p> <ul style="list-style-type: none"> P&A activities are anticipated to take approximately 6 – 9 months. <p>Removal Activities</p> <ul style="list-style-type: none"> Removal activities are anticipated to take approximately 4-6

		<p>months to complete and DTM removal activities are anticipated to take approximately 1 month to complete.</p>
<p>Exclusionary/Cautious Zone:</p>	<p>Removal Activities</p> <ul style="list-style-type: none"> • The temporary Operational Area includes the area encompassing an approximate 1,500 m radius around the equipment. • A temporary 500 m exclusion zone will apply around the project vessels during removal and potential tow activities. 	<p>P&A Activities</p> <ul style="list-style-type: none"> • The Operational Area includes the area encompassing an approximate 3,000 m radius around each of the four drill centres within WA-32-L. • A temporary 500 m exclusion zone will apply around the MODU and the associated project vessels during P&A activities. <p>Removal Activities</p> <ul style="list-style-type: none"> • The temporary Operational Area includes the area encompassing an approximate 1,500 m radius around the subsea infrastructure and wellheads. • The DTM has an existing 1200 m radius petroleum safety zone which will continue to be in place until it is removed. • A temporary 500 m exclusion zone will apply around the CSV and the associated project vessels during removal activities. • A temporary 500 m exclusion zone will apply around the HLV and the associated project vessels during

		the removal of the DTM.
Vessels:	<p>Removal Activities</p> <ul style="list-style-type: none"> • Construction support vessel (CSV) and Heavy Lift Vessel (HLV) for recovery and pipeline removal activities. • An anchor handling tug (AHT) to support the towing of the RTM to sheltered water. 	<p>P&A activities</p> <ul style="list-style-type: none"> • Semi-Submersible Mobile Offshore Drilling Unit (MODU) • The MODU will be supported by 2 to 3 offshore support vessels. <p>Removal Activities</p> <ul style="list-style-type: none"> • CSV and HLV for recovery and activities. • AHTs to support the towing of the DTM to the shallower water location (if required).

Feedback:

If you have any feedback on these activities, please respond to Woodside at: Feedback@woodside.com.au or 1800 442 977.

Your feedback and our response will be included in our Environment Plan which will be submitted to NOPSEMA for acceptance in accordance with the *Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2009* (Cth).

Please let us know if your feedback for this activity is sensitive and we will make this known to NOPSEMA upon submission of the Environment Plan in order for this information to remain confidential to NOPSEMA. Please provide your views by **17 March 2023**.

You can also subscribe on our website to receive Consultation Information Sheets for proposed activities: www.woodside.com/sustainability/consultation-activities.

2.30 Email sent to the University of Western Australia (UWA) (21 February 2023)

Dear ■

Woodside is providing this update on the progressive decommissioning of the Griffin and Stybarrow fields, previously operated by BHP Petroleum Pty Ltd (BHP).

We are providing this information to ensure relevant persons are informed about the status of proposed activities, as there have been changes to activity scope and supporting consultation information since consultation commenced for these decommissioning projects in 2021.

Stybarrow Plug and Abandonment Environment Plan

The **Griffin Field** is in Commonwealth waters in Petroleum Licence WA-10-L, 65 km northwest of Onslow and 94 km northeast of Exmouth, Western Australia and in water depths of approximately 120 m.

The **Stybarrow Field** is in Commonwealth waters in Petroleum Licence WA-32-L, approximately 53 km northwest of Exmouth, Western Australia and in water depths of approximately 810 – 850 m.

A summary of proposed activities is outlined below, and more detailed information is provided in the attached Consultation Information Sheets. The Information Sheets provide details on activities proposed to be managed under a number of Environment Plans for each Field, including a summary of potential key risks and associated management measures. The Information Sheets are also available on our [website](#).

Woodside is seeking your advice regarding any research activities that UWA may be undertaking that may overlap with our proposed activities.

Any feedback provided previously on proposed activities will remain current where Environment Plans are under assessment by the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA).

Please let us know if you would like to update previous feedback or have any additional views by **17 March 2023**.

Activity:

	Griffin Field Decommissioning Activities	Stybarrow Field Decommissioning Activities
Summary:	<p>Removal Activities</p> <ul style="list-style-type: none"> Removal of subsea equipment (wellheads, trees, distribution skids, risers, flexible flowlines, rigid flowlines, umbilicals, and the pipeline end module (PLEM)). Removal of the Riser Turret Mooring (RTM) and its moorings. Depending on the vessel utilised, recovery of the RTM may require sections of it to be towed to shallower water out of the title. Removal of an exploration wellhead (Ramillies-1 in neighbouring petroleum title WA-12-L). Ongoing field management activities. 	<p>Plugging and Abandonment (P&A) Activities</p> <ul style="list-style-type: none"> Pre-execution activities associated with the well P&A, such as barrier testing and removal of marine growth. Well P&A of the 10 productions/injection wells by placing cement plugs in the wells to permanently prevent hydrocarbon release. Cutting and removal of the wellhead and subsea tree assembly. Unblocking of the H4 flowline, if deemed feasible. <p>Removal Activities</p> <ul style="list-style-type: none"> Removal of subsea equipment (wellheads, trees, manifolds, risers, flexible flowlines, and umbilicals).

Stybarrow Plug and Abandonment Environment Plan

	<ul style="list-style-type: none"> Pigging and subsequent removal of the 26 km of Griffin Gas Export Pipeline (GEP) within Commonwealth waters. <p>In Situ Activities</p> <ul style="list-style-type: none"> Proposal to leave in situ 12 RTM drag anchors (buried), 6 concrete gravity bases and 5 piled foundations for the PLEM and 4 distribution skids. 	<ul style="list-style-type: none"> Removal of the Disconnectable Turret Mooring (DTM) and its moorings. Recovery of the DTM may require it to be towed to shallower water outside of permit area WA-32-L to support the DTM removal from the marine environment. Ongoing field management activities (equipment monitoring and inspection). <p>In Situ Activities</p> <ul style="list-style-type: none"> Proposed leave in situ of the 9 DTM drag anchors (buried), nine suction piles for the riser holdbacks and the historical exploration wellhead, Eskdale-1, which was unable to be removed following its drilling and abandonment in 2003.
Location:	<ul style="list-style-type: none"> 94 km northeast of Exmouth, Western Australia. 	<ul style="list-style-type: none"> 53 km northwest of Exmouth, Western Australia.
Approx. Water Depth (m):	<ul style="list-style-type: none"> Approx. 120 m. 	<ul style="list-style-type: none"> Approx. 810 – 850 m.
Schedule:	<p>Removal Activities</p> <ul style="list-style-type: none"> Earliest proposed removal activity start is estimated to be Q4 2023, subject to approvals, vessel availability and weather constraints. Facilities removal must be completed no later than 31 December 2024, pursuant to General Direction 832. 	<p>Plugging and Abandonment (P&A) Activities</p> <ul style="list-style-type: none"> Earliest P&A start is estimated to be Q4 2023, subject to approvals, MODU and vessel availability and weather constraints. P&A activities must be completed no later than 30 September 2024, pursuant to General Direction 833. <p>Removal Activities</p> <ul style="list-style-type: none"> Earliest facilities and DTM removal is estimated to be Q4 2023, subject to approvals, vessel availability and weather constraints. Equipment removal must be completed no later than 31 March 2025, pursuant to General Direction 833.

Stybarrow Plug and Abandonment Environment Plan

<p>Duration:</p>	<p>Removal Activities</p> <ul style="list-style-type: none"> Removal activities are anticipated to take approximately 6 months to complete and GEP removal activities are anticipated to take approximately 2 months to complete. 	<p>Plugging and Abandonment (P&A) Activities</p> <ul style="list-style-type: none"> P&A activities are anticipated to take approximately 6 – 9 months. <p>Removal Activities</p> <ul style="list-style-type: none"> Removal activities are anticipated to take approximately 4-6 months to complete and DTM removal activities are anticipated to take approximately 1 month to complete.
<p>Exclusionary/Cautious Zone:</p>	<p>Removal Activities</p> <ul style="list-style-type: none"> The temporary Operational Area includes the area encompassing an approximate 1,500 m radius around the equipment. A temporary 500 m exclusion zone will apply around the project vessels during removal and potential tow activities. 	<p>P&A Activities</p> <ul style="list-style-type: none"> The Operational Area includes the area encompassing an approximate 3,000 m radius around each of the four drill centers within WA-32-L. A temporary 500 m exclusion zone will apply around the MODU and the associated project vessels during P&A activities. <p>Removal Activities</p> <ul style="list-style-type: none"> The temporary Operational Area includes the area encompassing an approximate 1,500 m radius around the subsea infrastructure and wellheads. The DTM has an existing 1200 m radius petroleum safety zone which will continue to be in place until it is removed. A temporary 500 m exclusion zone will apply around the CSV and the associated project vessels during removal activities. A temporary 500 m exclusion zone will apply around the HLV and the associated project vessels during the removal of the DTM.

Stybarrow Plug and Abandonment Environment Plan

Vessels:	Removal Activities <ul style="list-style-type: none">• Construction support vessel (CSV) and Heavy Lift Vessel (HLV) for recovery and pipeline removal activities.• An anchor handling tug (AHT) to support the towing of the RTM to sheltered water.	P&A activities <ul style="list-style-type: none">• Semi-Submersible Mobile Offshore Drilling Unit (MODU)• The MODU will be supported by 2 to 3 offshore support vessels. Removal Activities <ul style="list-style-type: none">• CSV and HLV for recovery and activities.• AHTs to support the towing of the DTM to the shallower water location (if required).
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Feedback:

If you have any feedback on these activities, please respond to Woodside at: Feedback@woodside.com.au or 1800 442 977.

Your feedback and our response will be included in our Environment Plan which will be submitted to NOPSEMA for acceptance in accordance with the *Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2009* (Cth).

Please let us know if your feedback for this activity is sensitive and we will make this known to NOPSEMA upon submission of the Environment Plan in order for this information to remain confidential to NOPSEMA.

Please provide your views by **17 March 2023**.

You can also subscribe on our website to receive Consultation Information Sheets for proposed activities: www.woodside.com/sustainability/consultation-activities.

2.30.1 Email sent to UWA (10 March 2023)

Dear ■■■

Woodside previously consulted you (see email below) on Woodside's proposed activities for the progressive decommissioning of the Griffin and Stybarrow fields.

We provided this information to ensure relevant persons are informed about the status of proposed activities, as there have been changes to activity scope and supporting consultation information since consultation commenced for these decommissioning projects in 2021.

We would appreciate any feedback you may have by **17 March 2023** to support the development of our proposed Environment Plans.

Any feedback provided previously on proposed activities will remain current where Environment Plans are under assessment by the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA).

Stybarrow Plug and Abandonment Environment Plan

For reference:

- The **Griffin Field** is in Commonwealth waters in Petroleum Licence WA-10-L, 65 km northwest of Onslow and 94 km northeast of Exmouth, Western Australia and in water depths of approximately 120 m.
- The **Stybarrow Field** is in Commonwealth waters in Petroleum Licence WA-32-L, approximately 53 km northwest of Exmouth, Western Australia and in water depths of approximately 810 – 850 m.

Consultation Information Sheets for the proposed activities are attached, which provide a summary of potential key risks and associated management measures. The Information Sheets are also available on our [website](#).

Regards

Woodside Feedback

2.31 Email sent to the Western Australian Marine Science Institution (WAMSI) (21 February 2023)

Dear [REDACTED]

Woodside is providing this update on the progressive decommissioning of the Griffin and Stybarrow fields, previously operated by BHP Petroleum Pty Ltd (BHP).

We are providing this information to ensure relevant persons are informed about the status of proposed activities, as there have been changes to activity scope and supporting consultation information since consultation commenced for these decommissioning projects in 2021.

The **Griffin Field** is in Commonwealth waters in Petroleum Licence WA-10-L, 65 km northwest of Onslow and 94 km northeast of Exmouth, Western Australia and in water depths of approximately 120 m.

The **Stybarrow Field** is in Commonwealth waters in Petroleum Licence WA-32-L, approximately 53 km northwest of Exmouth, Western Australia and in water depths of approximately 810 – 850 m.

A summary of proposed activities is outlined below, and more detailed information is provided in the attached Consultation Information Sheets. The Information Sheets provide details on activities proposed to be managed under a number of Environment Plans for each Field, including a summary of potential key risks and associated management measures. The Information Sheets are also available on our [website](#).

Woodside is seeking your advice regarding any research activities that WAMSI may be undertaking that may overlap with our proposed activities.

Any feedback provided previously on proposed activities will remain current where Environment Plans are under assessment by the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA).

Stybarrow Plug and Abandonment Environment Plan

Please let us know if you would like to update previous feedback or have any additional views by **17 March 2023**.

Activity:

	Griffin Field Decommissioning Activities	Stybarrow Field Decommissioning Activities
Summary:	<p>Removal Activities</p> <ul style="list-style-type: none"> • Removal of subsea equipment (wellheads, trees, distribution skids, risers, flexible flowlines, rigid flowlines, umbilicals, and the pipeline end module (PLEM)). • Removal of the Riser Turret Mooring (RTM) and its moorings. Depending on the vessel utilised, recovery of the RTM may require sections of it to be towed to shallower water out of the title. • Removal of an exploration wellhead (Ramillies-1 in neighbouring petroleum title WA-12-L). • Ongoing field management activities. • Pigging and subsequent removal of the 26 km of Griffin Gas Export Pipeline (GEP) within Commonwealth waters. <p>In Situ Activities</p> <ul style="list-style-type: none"> • Proposal to leave in situ 12 RTM drag anchors (buried), 6 concrete gravity bases and 5 piled foundations for the PLEM and 4 distribution skids. 	<p>Plugging and Abandonment (P&A) Activities</p> <ul style="list-style-type: none"> • Pre-execution activities associated with the well P&A, such as barrier testing and removal of marine growth. • Well P&A of the 10 productions/injection wells by placing cement plugs in the wells to permanently prevent hydrocarbon release. • Cutting and removal of the wellhead and subsea tree assembly. • Unblocking of the H4 flowline, if deemed feasible. <p>Removal Activities</p> <ul style="list-style-type: none"> • Removal of subsea equipment (wellheads, trees, manifolds, risers, flexible flowlines, and umbilicals). • Removal of the Disconnectable Turret Mooring (DTM) and its moorings. Recovery of the DTM may require it to be towed to shallower water outside of permit area WA-32-L to support the DTM removal from the marine environment. • Ongoing field management activities (equipment monitoring and inspection). <p>In Situ Activities</p> <ul style="list-style-type: none"> • Proposed leave in situ of the 9 DTM drag anchors (buried), nine suction piles for the riser holdbacks and the historical

Stybarrow Plug and Abandonment Environment Plan

		exploration wellhead, Eskdale-1, which was unable to be removed following its drilling and abandonment in 2003.
Location:	<ul style="list-style-type: none"> 94 km northeast of Exmouth, Western Australia. 	<ul style="list-style-type: none"> 53 km northwest of Exmouth, Western Australia.
Approx. Water Depth (m):	<ul style="list-style-type: none"> Approx. 120 m. 	<ul style="list-style-type: none"> Approx. 810 – 850 m.
Schedule:	<p>Removal Activities</p> <ul style="list-style-type: none"> Earliest proposed removal activity start is estimated to be Q4 2023, subject to approvals, vessel availability and weather constraints. Facilities removal must be completed no later than 31 December 2024, pursuant to General Direction 832. 	<p>Plugging and Abandonment (P&A) Activities</p> <ul style="list-style-type: none"> Earliest P&A start is estimated to be Q4 2023, subject to approvals, MODU and vessel availability and weather constraints. P&A activities must be completed no later than 30 September 2024, pursuant to General Direction 833. <p>Removal Activities</p> <ul style="list-style-type: none"> Earliest facilities and DTM removal is estimated to be Q4 2023, subject to approvals, vessel availability and weather constraints. Equipment removal must be completed no later than 31 March 2025, pursuant to General Direction 833.
Duration:	<p>Removal Activities</p> <ul style="list-style-type: none"> Removal activities are anticipated to take approximately 6 months to complete and GEP removal activities are anticipated to take approximately 2 months to complete. 	<p>Plugging and Abandonment (P&A) Activities</p> <ul style="list-style-type: none"> P&A activities are anticipated to take approximately 6 – 9 months. <p>Removal Activities</p> <ul style="list-style-type: none"> Removal activities are anticipated to take approximately 4-6 months to complete and DTM removal activities are anticipated to take approximately 1 month to complete.
Exclusionary/Cautionary Zone:	<p>Removal Activities</p> <ul style="list-style-type: none"> The temporary Operational Area includes the area 	<p>P&A Activities</p> <ul style="list-style-type: none"> The Operational Area includes the area encompassing an

	<p>encompassing an approximate 1,500 m radius around the equipment.</p> <ul style="list-style-type: none"> • A temporary 500 m exclusion zone will apply around the project vessels during removal and potential tow activities. 	<p>approximate 3,000 m radius around each of the four drill centers within WA-32-L.</p> <ul style="list-style-type: none"> • A temporary 500 m exclusion zone will apply around the MODU and the associated project vessels during P&A activities. <p>Removal Activities</p> <ul style="list-style-type: none"> • The temporary Operational Area includes the area encompassing an approximate 1,500 m radius around the subsea infrastructure and wellheads. • The DTM has an existing 1200 m radius petroleum safety zone which will continue to be in place until it is removed. • A temporary 500 m exclusion zone will apply around the CSV and the associated project vessels during removal activities. • A temporary 500 m exclusion zone will apply around the HLV and the associated project vessels during the removal of the DTM.
<p>Vessels:</p>	<p>Removal Activities</p> <ul style="list-style-type: none"> • Construction support vessel (CSV) and Heavy Lift Vessel (HLV) for recovery and pipeline removal activities. • An anchor handling tug (AHT) to support the towing of the RTM to sheltered water. 	<p>P&A activities</p> <ul style="list-style-type: none"> • Semi-Submersible Mobile Offshore Drilling Unit (MODU) • The MODU will be supported by 2 to 3 offshore support vessels. <p>Removal Activities</p> <ul style="list-style-type: none"> • CSV and HLV for recovery and activities. • AHTs to support the towing of the DTM to the shallower water location (if required).

Feedback:

If you have any feedback on these activities, please respond to Woodside at: Feedback@woodside.com.au or 1800 442 977.

Stybarrow Plug and Abandonment Environment Plan

Your feedback and our response will be included in our Environment Plan which will be submitted to NOPSEMA for acceptance in accordance with the *Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2009* (Cth).

Please let us know if your feedback for this activity is sensitive and we will make this known to NOPSEMA upon submission of the Environment Plan in order for this information to remain confidential to NOPSEMA.

Please provide your views by **17 March 2023**.

You can also subscribe on our website to receive Consultation Information Sheets for proposed activities: www.woodside.com/sustainability/consultation-activities.

2.31.1 Email sent to WAMSI (10 March 2023)

Dear [REDACTED]

Woodside previously consulted you (see email below) on Woodside's proposed activities for the progressive decommissioning of the Griffin and Stybarrow fields.

We provided this information to ensure relevant persons are informed about the status of proposed activities, as there have been changes to activity scope and supporting consultation information since consultation commenced for these decommissioning projects in 2021.

We would appreciate any feedback you may have by **17 March 2023** to support the development of our proposed Environment Plans.

Any feedback provided previously on proposed activities will remain current where Environment Plans are under assessment by the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA).

For reference:

- The **Griffin Field** is in Commonwealth waters in Petroleum Licence WA-10-L, 65 km northwest of Onslow and 94 km northeast of Exmouth, Western Australia and in water depths of approximately 120 m.
- The **Stybarrow Field** is in Commonwealth waters in Petroleum Licence WA-32-L, approximately 53 km northwest of Exmouth, Western Australia and in water depths of approximately 810 – 850 m.

Consultation Information Sheets for the proposed activities are attached, which provide a summary of potential key risks and associated management measures. The Information Sheets are also available on our [website](#).

Regards

Woodside Feedback

2.32 Email sent to the Maritime Union of Australia (MUA) (21 February 2023)

Dear [REDACTED]

Woodside is providing this update on the progressive decommissioning of the Griffin and Stybarrow fields, previously operated by BHP Petroleum Pty Ltd (BHP).

We are providing this information to ensure relevant persons are informed about the status of proposed activities, as there have been changes to activity scope and supporting consultation information since consultation commenced for these decommissioning projects in 2021.

The **Griffin Field** is in Commonwealth waters in Petroleum Licence WA-10-L, 65 km northwest of Onslow and 94 km northeast of Exmouth, Western Australia and in water depths of approximately 120 m.

The **Stybarrow Field** is in Commonwealth waters in Petroleum Licence WA-32-L, approximately 53 km northwest of Exmouth, Western Australia and in water depths of approximately 810 – 850 m.

A summary of proposed activities is outlined below, and more detailed information is provided in the attached Consultation Information Sheets. The Information Sheets provide details on activities proposed to be managed under a number of Environment Plans for each Field, including a summary of potential key risks and associated management measures. The Information Sheets are also available on our [website](#).

Any feedback provided previously on proposed activities will remain current where Environment Plans are under assessment by the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA).

Please let us know if you would like to update previous feedback or have any additional views by **17 March 2023**.

Activity:

	Griffin Field Decommissioning Activities	Stybarrow Field Decommissioning Activities
Summary:	<p>Removal Activities</p> <ul style="list-style-type: none"> Removal of subsea equipment (wellheads, trees, distribution skids, risers, flexible flowlines, rigid flowlines, umbilicals, and the pipeline end module (PLEM)). Removal of the Riser Turret Mooring (RTM) and its moorings. Depending on the vessel utilised, recovery of the RTM may require 	<p>Plugging and Abandonment (P&A) Activities</p> <ul style="list-style-type: none"> Pre-execution activities associated with the well P&A, such as barrier testing and removal of marine growth. Well P&A of the 10 productions/injection wells by placing cement plugs in the wells to permanently prevent hydrocarbon release.

Stybarrow Plug and Abandonment Environment Plan

	<p>sections of it to be towed to shallower water out of the title.</p> <ul style="list-style-type: none"> • Removal of an exploration wellhead (Ramillies-1 in neighbouring petroleum title WA-12-L). • Ongoing field management activities. • Pigging and subsequent removal of the 26 km of Griffin Gas Export Pipeline (GEP) within Commonwealth waters. <p>In Situ Activities</p> <ul style="list-style-type: none"> • Proposal to leave in situ 12 RTM drag anchors (buried), 6 concrete gravity bases and 5 piled foundations for the PLEM and 4 distribution skids. 	<ul style="list-style-type: none"> • Cutting and removal of the wellhead and subsea tree assembly. • Unblocking of the H4 flowline, if deemed feasible. <p>Removal Activities</p> <ul style="list-style-type: none"> • Removal of subsea equipment (wellheads, trees, manifolds, risers, flexible flowlines, and umbilicals). • Removal of the Disconnectable Turret Mooring (DTM) and its moorings. Recovery of the DTM may require it to be towed to shallower water outside of permit area WA-32-L to support the DTM removal from the marine environment. • Ongoing field management activities (equipment monitoring and inspection). <p>In Situ Activities</p> <ul style="list-style-type: none"> • Proposed leave in situ of the 9 DTM drag anchors (buried), nine suction piles for the riser holdbacks and the historical exploration wellhead, Eskdale-1, which was unable to be removed following its drilling and abandonment in 2003.
Location:	<ul style="list-style-type: none"> • 94 km northeast of Exmouth, Western Australia. 	<ul style="list-style-type: none"> • 53 km northwest of Exmouth, Western Australia.
Approx. Water Depth (m):	<ul style="list-style-type: none"> • Approx. 120 m. 	<ul style="list-style-type: none"> • Approx. 810 – 850 m.
Schedule:	<p>Removal Activities</p> <ul style="list-style-type: none"> • Earliest proposed removal activity start is estimated to be Q4 2023, subject to approvals, vessel availability and weather constraints. • Facilities removal must be completed no later than 31 December 2024, pursuant to General Direction 832. 	<p>Plugging and Abandonment (P&A) Activities</p> <ul style="list-style-type: none"> • Earliest P&A start is estimated to be Q4 2023, subject to approvals, MODU and vessel availability and weather constraints. • P&A activities must be completed no later than 30 September 2024, pursuant to General Direction 833.

		<p>Removal Activities</p> <ul style="list-style-type: none"> • Earliest facilities and DTM removal is estimated to be Q4 2023, subject to approvals, vessel availability and weather constraints. • Equipment removal must be completed no later than 31 March 2025, pursuant to General Direction 833.
<p>Duration:</p>	<p>Removal Activities</p> <ul style="list-style-type: none"> • Removal activities are anticipated to take approximately 6 months to complete and GEP removal activities are anticipated to take approximately 2 months to complete. 	<p>Plugging and Abandonment (P&A) Activities</p> <ul style="list-style-type: none"> • P&A activities are anticipated to take approximately 6 – 9 months. <p>Removal Activities</p> <ul style="list-style-type: none"> • Removal activities are anticipated to take approximately 4-6 months to complete and DTM removal activities are anticipated to take approximately 1 month to complete.
<p>Exclusionary/Cautionary Zone:</p>	<p>Removal Activities</p> <ul style="list-style-type: none"> • The temporary Operational Area includes the area encompassing an approximate 1,500 m radius around the equipment. • A temporary 500 m exclusion zone will apply around the project vessels during removal and potential tow activities. 	<p>P&A Activities</p> <ul style="list-style-type: none"> • The Operational Area includes the area encompassing an approximate 3,000 m radius around each of the four drill centers within WA-32-L. • A temporary 500 m exclusion zone will apply around the MODU and the associated project vessels during P&A activities. <p>Removal Activities</p> <ul style="list-style-type: none"> • The temporary Operational Area includes the area encompassing an approximate 1,500 m radius around the subsea infrastructure and wellheads. • The DTM has an existing 1200 m radius petroleum safety zone which will continue to be in place until it is removed.

Stybarrow Plug and Abandonment Environment Plan

		<ul style="list-style-type: none"> • A temporary 500 m exclusion zone will apply around the CSV and the associated project vessels during removal activities. • A temporary 500 m exclusion zone will apply around the HLV and the associated project vessels during the removal of the DTM.
Vessels:	Removal Activities <ul style="list-style-type: none"> • Construction support vessel (CSV) and Heavy Lift Vessel (HLV) for recovery and pipeline removal activities. • An anchor handling tug (AHT) to support the towing of the RTM to sheltered water. 	P&A activities <ul style="list-style-type: none"> • Semi-Submersible Mobile Offshore Drilling Unit (MODU) • The MODU will be supported by 2 to 3 offshore support vessels. Removal Activities <ul style="list-style-type: none"> • CSV and HLV for recovery and activities. • AHTs to support the towing of the DTM to the shallower water location (if required).

Feedback:

If you have any feedback on these activities, please respond to Woodside at: Feedback@woodside.com.au or 1800 442 977.

Your feedback and our response will be included in our Environment Plan which will be submitted to NOPSEMA for acceptance in accordance with the *Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2009* (Cth).

Please let us know if your feedback for this activity is sensitive and we will make this known to NOPSEMA upon submission of the Environment Plan in order for this information to remain confidential to NOPSEMA.

Please provide your views by **17 March 2023**.

You can also subscribe on our website to receive Consultation Information Sheets for proposed activities: www.woodside.com/sustainability/consultation-activities.

2.32.1 Email sent to MUA (10 March 2023)

Dear [REDACTED]

Woodside previously consulted you (see email below) on Woodside's proposed activities for the progressive decommissioning of the Griffin and Stybarrow fields.

Stybarrow Plug and Abandonment Environment Plan

We provided this information to ensure relevant persons are informed about the status of proposed activities, as there have been changes to activity scope and supporting consultation information since consultation commenced for these decommissioning projects in 2021.

We would appreciate any feedback you may have by **17 March 2023** to support the development of our proposed Environment Plans.

Any feedback provided previously on proposed activities will remain current where Environment Plans are under assessment by the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA).

For reference:

- The **Griffin Field** is in Commonwealth waters in Petroleum Licence WA-10-L, 65 km northwest of Onslow and 94 km northeast of Exmouth, Western Australia and in water depths of approximately 120 m.
- The **Stybarrow Field** is in Commonwealth waters in Petroleum Licence WA-32-L, approximately 53 km northwest of Exmouth, Western Australia and in water depths of approximately 810 – 850 m.

Consultation Information Sheets for the proposed activities are attached, which provide a summary of potential key risks and associated management measures. The Information Sheets are also available on our [website](#).

Regards
Woodside Feedback

Woodside Feedback

2.33 Letter sent to the following relevant State Fishery licence holders (17 February 2023)

- *Beche-de-mer Fishery / West Australian Sea Cucumber Fishery (6 licence holders)*
- *Exmouth Gulf Prawn (15 licence holders)*
- *Gascoyne Demersal Scalefish (53 licence holders)*
- *Mackerel (52 licence holders)*
- *Marine Aquarium (12 licence holders)*
- *Nickol Bay Prawn (14 licence holders)*
- *Onslow Prawn (30 licence holders)*
- *Pilbara Crab (1 licence holder)*
- *Pilbara Line (8 licence holders)*
- *Pilbara Trap (6 licence holders)*
- *Pilbara Trawl (12 licence holders)*
- *Shark Bay Crab (31 licence holders)*
- *Shark Bay Prawn (18 licence holders)*
- *Shark Bay Scallop (29 licence holders)*

Stybarrow Plug and Abandonment Environment Plan

- *West Coast Deep Sea Crustacean (7 licence holders)*
- *West Coast Demersal Scalefish (48 licence holders)*
- *West Coast Rock Lobster Managed Fishery (727 licence holders)*

17 February 2023



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Dear Serenella Scaffidi,

Woodside is providing this update on the progressive decommissioning of the Griffin and Stybarrow fields, previously operated by BHP Petroleum Pty Ltd (BHP).

We are providing this information to ensure relevant persons are informed about the status of proposed activities, as there have been changes to activity scope and supporting consultation information since consultation commenced for these decommissioning projects in 2021.

The Griffin Field is in Commonwealth waters in Petroleum Licence WA-10-L, 65 km northwest of Onslow and 94 km northeast of Exmouth, Western Australia and in water depths of approximately 120 m.

The Stybarrow Field is in Commonwealth waters in Petroleum Licence WA-32-L, approximately 53 km northwest of Exmouth, Western Australia and in water depths of approximately 810 – 850 m.

Please see the relevant QR codes below which link directly to consultation Information Sheets which provide additional background on the proposed activities, including summaries of potential key impacts and risks, and associated management measures. These are also available on our website www.woodside.com. You can also subscribe to receive updates on our consultation activities by subscribing through our Consultation Activities page.

Activity Update: Griffin Decommissioning EP



Activity Update: Stybarrow Decommissioning EP



Activity Update: Stybarrow Plug & Abandonment EP



Operational Areas and Exclusion Zones will apply around a range of vessels that will support plugging and abandonment and infrastructure recovery and removal activities, which are outlined in the activity summaries below.

A summary of proposed activities is outlined below and more detailed information is provided in the attached Consultation Information Sheets, including a summary of potential key risks and associated management measures. The Information Sheets are also available and be accessed via the QR Code in this letter.

Fisheries have been identified as being relevant based on fishing licence overlap with the activity area, assessment of government fishing effort data (including Fishcube and AFMA) from recent years, fishing methods and water depth.

Any feedback provided previously on proposed activities will remain current where Environment Plans are under assessment by the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA). Please let us know if you would like to update previous feedback or have any additional views by 17 March 2023.

Activity:

	Griffin Field Decommissioning Activities	Stybarrow Field Decommissioning Activities
Summary:	<p>Removal Activities</p> <ul style="list-style-type: none"> • Removal of subsea equipment (wellheads, trees, distribution skids, risers, flexible flowlines, rigid flowlines, umbilicals, and the pipeline end module (PLEM)). • Removal of the Riser Turret Mooring (RTM) and its moorings. Depending on the vessel utilised, recovery of the RTM may require sections of it to be towed to shallower water out of the title. • Removal of an exploration wellhead (Ramillies-1 in neighbouring petroleum title WA-12-L). • Ongoing field management activities. • Pigging and subsequent removal of the 26 km of Griffin Gas Export Pipeline (GEP) within Commonwealth waters. <p>In Situ Activities</p> <ul style="list-style-type: none"> • Proposal to leave <i>in situ</i> 12 RTM drag anchors (buried), 6 concrete gravity bases and 5 piled foundations for the PLEM and 4 distribution skids. 	<p>Plugging and Abandonment (P&A) Activities</p> <ul style="list-style-type: none"> • Pre-execution activities associated with the well P&A, such as barrier testing and removal of marine growth. • Well P&A of the 10 productions/injection wells by placing cement plugs in the wells to permanently prevent hydrocarbon release. • Cutting and removal of the wellhead and subsea tree assembly. • Unblocking of the H4 flowline, if deemed feasible. <p>Removal Activities</p> <ul style="list-style-type: none"> • Removal of subsea equipment (wellheads, trees, manifolds, risers, flexible flowlines, and umbilicals). • Removal of the Disconnectable Turret Mooring (DTM) and its moorings. Recovery of the DTM may require it to be towed to shallower water outside of permit area WA-32-L to support the DTM removal from the marine environment. • Ongoing field management activities (equipment monitoring and inspection). <p>In Situ Activities</p> <ul style="list-style-type: none"> • Proposed leave <i>in situ</i> of the 9 DTM drag anchors (buried), nine suction piles for the riser holdbacks and the historical exploration wellhead, Eskdale-1, which was unable to be removed following its drilling and abandonment in 2003.



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Location:	<ul style="list-style-type: none"> 94 km northeast of Exmouth, Western Australia. 	<ul style="list-style-type: none"> 53 km northwest of Exmouth, Western Australia.
Approx. Water Depth (m):	<ul style="list-style-type: none"> Approx. 120 m. 	<ul style="list-style-type: none"> Approx. 810 – 850 m.
Schedule:	<p>Removal Activities</p> <ul style="list-style-type: none"> Earliest proposed removal activity start is estimated to be Q4 2023, subject to approvals, vessel availability and weather constraints. Facilities removal must be completed no later than 31 December 2024, pursuant to General Direction 832. 	<p>Plugging and Abandonment (P&A) Activities</p> <ul style="list-style-type: none"> Earliest P&A start is estimated to be Q4 2023, subject to approvals, MODU and vessel availability and weather constraints. P&A activities must be completed no later than 30 September 2024, pursuant to General Direction 833. <p>Removal Activities</p> <ul style="list-style-type: none"> Earliest facilities and DTM removal is estimated to be Q4 2023, subject to approvals, vessel availability and weather constraints. Equipment removal must be completed no later than 31 March 2025, pursuant to General Direction 833.
Duration:	<p>Removal Activities</p> <ul style="list-style-type: none"> Removal activities are anticipated to take approximately 6 months to complete and GEP removal activities are anticipated to take approximately 2 months to complete. 	<p>Plugging and Abandonment (P&A) Activities</p> <ul style="list-style-type: none"> P&A activities are anticipated to take approximately 6 – 9 months. <p>Removal Activities</p> <ul style="list-style-type: none"> Removal activities are anticipated to take approximately 4-6 months to complete and DTM removal activities are anticipated to take approximately 1 month to complete.
Exclusionary/Cautionary Zone:	<p>Removal Activities</p> <ul style="list-style-type: none"> The temporary Operational Area includes the area encompassing an approximate 1,500 m radius around the equipment. A temporary 500 m exclusion zone will apply around the 	<p>P&A Activities</p> <ul style="list-style-type: none"> The Operational Area includes the area encompassing an approximate 3,000 m radius around each of the four drill centers within WA-32-L. A temporary 500 m exclusion zone will apply around the

	project vessels during removal and potential tow activities.	<p>MODU and the associated project vessels during P&A activities.</p> <p>Removal Activities</p> <ul style="list-style-type: none"> • The temporary Operational Area includes the area encompassing an approximate 1,500 m radius around the subsea infrastructure and wellheads. • The DTM has an existing 1200 m radius petroleum safety zone which will continue to be in place until it is removed. • A temporary 500 m exclusion zone will apply around the CSV and the associated project vessels during removal activities. • A temporary 500 m exclusion zone will apply around the HLV and the associated project vessels during the removal of the DTM.
Vessels:	<p>Removal Activities</p> <ul style="list-style-type: none"> • Construction support vessel (CSV) and Heavy Lift Vessel (HLV) for recovery and pipeline removal activities. • An anchor handling tug (AHT) to support the towing of the RTM to sheltered water. 	<p>P&A activities</p> <ul style="list-style-type: none"> • Semi-Submersible Mobile Offshore Drilling Unit (MODU) • The MODU will be supported by 2 to 3 offshore support vessels. <p>Removal Activities</p> <ul style="list-style-type: none"> • CSV and HLV for recovery and activities. • AHTs to support the towing of the DTM to the shallower water location (if required).

State-managed fisheries implications:

We note that there are 20 overlapping State managed fisheries in the EMBA listed below.

- Exmouth Gulf Beach Seine and Mesh Net Managed Fish
- Exmouth Gulf Prawn Managed Fishery
- Gascoyne Demersal Scalefish Managed Fishery
- Mackerel Managed Fishery (Area 2)
- Mackerel Managed Fishery (Area 3)
- Marine Aquarium Fish Managed Fishery
- Nickol Bay Prawn Managed Fishery



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- Onslow Prawn Managed Fishery
- Pilbara Crab Managed Fishery
- Pilbara Fish Trawl (Interim) Managed Fishery
- Pilbara Line Fishery (Condition)
- Pilbara Trap Managed Fishery
- Shark Bay Crab Managed Fishery
- Shark Bay Prawn Managed Fishery
- Shark Bay Scallop Managed Fishery
- West Australian Sea Cucumber Fishery
- West Coast Deep Sea Crustacean Managed Fishery
- West Coast Demersal Scalefish (Interim) Managed Fishery
- West Coast Rock Lobster Managed Fishery

Of these State-managed fisheries, the following may have been active in the Operational Area in recent years.

Griffin Field Decommissioning	Stybarrow Field Decommissioning
<ul style="list-style-type: none"> • Exmouth Gulf Prawn Managed Fishery • Mackerel Managed Fishery (Area 2) • Marine Aquarium Fish Managed Fishery • Onslow Prawn Managed Fishery • Pilbara Line Fishery (Condition) • Pilbara Trap Managed Fishery • Tour Operators • West Coast Deep Sea Crustacean Managed Fishery 	<ul style="list-style-type: none"> • Tour Operators • West Coast Deep Sea Crustacean Managed Fishery

Feedback:

If you have any feedback on these activities, please respond to Woodside at: Feedback@woodside.com.au or 1800 442 977.

Your feedback and our response will be included in our Environment Plan which will be submitted to NOPSEMA for acceptance in accordance with the *Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2009* (Cth).

Please let us know if your feedback for this activity is sensitive and we will make this known to NOPSEMA upon submission of the Environment Plan in order for this information to remain confidential to NOPSEMA.

Please provide your views by **17 March 2023**.

Attachment A: Feedback Form

- 2.34 Letter sent to Gascoyne (65 licence holders) and Pilbara / Kimberley recreational marine users (95 licence holders) (17 February 2023)**

17 February 2023

1



Dear Silverado Charters Pty Ltd,

Woodside is providing this update on the progressive decommissioning of the Griffin and Stybarrow fields, previously operated by BHP Petroleum Pty Ltd (BHP).

We are providing this information to ensure relevant persons are informed about the status of proposed activities, as there have been changes to activity scope and supporting consultation information since consultation commenced for these decommissioning projects in 2021.

The **Griffin Field** is in Commonwealth waters in Petroleum Licence WA-10-L, 65 km northwest of Onslow and 94 km northeast of Exmouth, Western Australia and in water depths of approximately 120 m.

The **Stybarrow Field** is in Commonwealth waters in Petroleum Licence WA-32-L, approximately 53 km northwest of Exmouth, Western Australia and in water depths of approximately 810 – 850 m.

Please see the relevant QR codes below which link directly to consultation Information Sheets which provide additional background on the proposed activities, including summaries of potential key impacts and risks, and associated management measures. These are also available on our website www.woodside.com. You can also subscribe to receive updates on our consultation activities by subscribing through our Consultation Activities page.

Activity Update: Griffin
Decommissioning EP



Activity Update: Stybarrow
Decommissioning EP



Activity Update: Stybarrow
Plug & Abandonment EP



Operational Areas and Exclusion Zones will apply around a range of vessels that will support plugging and abandonment and infrastructure recovery and removal activities, which are outlined in the activity summaries below.

Any feedback provided previously on proposed activities will remain current where Environment Plans are under assessment by the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA).

Please let us know if you would like to update previous feedback or have any additional views by 17 March 2023.

Activity:

	Griffin Field Decommissioning Activities	Stybarrow Field Decommissioning Activities
Summary:	<p>Removal Activities</p> <ul style="list-style-type: none"> • Removal of subsea equipment (wellheads, trees, distribution skids, risers, flexible flowlines, rigid flowlines, umbilicals, and the pipeline end module (PLEM)). • Removal of the Riser Turret Mooring (RTM) and its moorings. Depending on the vessel utilised, recovery of the RTM may require sections of it to be towed to shallower water out of the title. • Removal of an exploration wellhead (Ramillies-1 in neighbouring petroleum title WA-12-L). • Ongoing field management activities. • Pigging and subsequent removal of the 26 km of Griffin Gas Export Pipeline (GEP) within Commonwealth waters. <p>In Situ Activities</p> <ul style="list-style-type: none"> • Proposal to leave <i>in situ</i> 12 RTM drag anchors (buried), 6 concrete gravity bases and 5 piled foundations for the PLEM and 4 distribution skids. 	<p>Plugging and Abandonment (P&A) Activities</p> <ul style="list-style-type: none"> • Pre-execution activities associated with the well P&A, such as barrier testing and removal of marine growth. • Well P&A of the 10 productions/injection wells by placing cement plugs in the wells to permanently prevent hydrocarbon release. • Cutting and removal of the wellhead and subsea tree assembly. • Unblocking of the H4 flowline, if deemed feasible. <p>Removal Activities</p> <ul style="list-style-type: none"> • Removal of subsea equipment (wellheads, trees, manifolds, risers, flexible flowlines, and umbilicals). • Removal of the Disconnectable Turret Mooring (DTM) and its moorings. Recovery of the DTM may require it to be towed to shallower water outside of permit area WA-32-L to support the DTM removal from the marine environment. • Ongoing field management activities (equipment monitoring and inspection). <p>In Situ Activities</p> <ul style="list-style-type: none"> • Proposed leave <i>in situ</i> of the 9 DTM drag anchors (buried), nine suction piles for the riser holdbacks and the historical exploration wellhead, Eskdale-1, which was unable to be removed following its drilling and abandonment in 2003.

Stybarrow Plug and Abandonment Environment Plan

Location:	<ul style="list-style-type: none"> 94 km northeast of Exmouth, Western Australia. 	<ul style="list-style-type: none"> 53 km northwest of Exmouth, Western Australia.
Approx. Water Depth (m):	<ul style="list-style-type: none"> Approx. 120 m. 	<ul style="list-style-type: none"> Approx. 810 – 850 m.
Schedule:	<p>Removal Activities</p> <ul style="list-style-type: none"> Earliest proposed removal activity start is estimated to be Q4 2023, subject to approvals, vessel availability and weather constraints. Facilities removal must be completed no later than 31 December 2024, pursuant to General Direction 832. 	<p>Plugging and Abandonment (P&A) Activities</p> <ul style="list-style-type: none"> Earliest P&A start is estimated to be Q4 2023, subject to approvals, MODU and vessel availability and weather constraints. P&A activities must be completed no later than 30 September 2024, pursuant to General Direction 833. <p>Removal Activities</p> <ul style="list-style-type: none"> Earliest facilities and DTM removal is estimated to be Q4 2023, subject to approvals, vessel availability and weather constraints. Equipment removal must be completed no later than 31 March 2025, pursuant to General Direction 833.
Duration:	<p>Removal Activities</p> <ul style="list-style-type: none"> Removal activities are anticipated to take approximately 6 months to complete and GEP removal activities are anticipated to take approximately 2 months to complete. 	<p>Plugging and Abandonment (P&A) Activities</p> <ul style="list-style-type: none"> P&A activities are anticipated to take approximately 6 – 9 months. <p>Removal Activities</p> <ul style="list-style-type: none"> Removal activities are anticipated to take approximately 4-6 months to complete and DTM removal activities are anticipated to take approximately 1 month to complete.
Exclusionary/Cautionary Zone:	<p>Removal Activities</p> <ul style="list-style-type: none"> The temporary Operational Area includes the area encompassing an approximate 1,500 m radius around the equipment. A temporary 500 m exclusion zone will apply around the project vessels during removal and potential tow activities. 	<p>P&A Activities</p> <ul style="list-style-type: none"> The Operational Area includes the area encompassing an approximate 3,000 m radius around each of the four drill centers within WA-32-L. A temporary 500 m exclusion zone will apply around the MODU and the associated project vessels during P&A activities.

		<p>Removal Activities</p> <ul style="list-style-type: none"> • The temporary Operational Area includes the area encompassing an approximate 1,500 m radius around the subsea infrastructure and wellheads. • The DTM has an existing 1200 m radius petroleum safety zone which will continue to be in place until it is removed. • A temporary 500 m exclusion zone will apply around the CSV and the associated project vessels during removal activities. • A temporary 500 m exclusion zone will apply around the HLV and the associated project vessels during the removal of the DTM.
Vessels:	<p>Removal Activities</p> <ul style="list-style-type: none"> • Construction support vessel (CSV) and Heavy Lift Vessel (HLV) for recovery and pipeline removal activities. • An anchor handling tug (AHT) to support the towing of the RTM to sheltered water. 	<p>P&A activities</p> <ul style="list-style-type: none"> • Semi-Submersible Mobile Offshore Drilling Unit (MODU) • The MODU will be supported by 2 to 3 offshore support vessels. <p>Removal Activities</p> <ul style="list-style-type: none"> • CSV and HLV for recovery and activities. • AHTs to support the towing of the DTM to the shallower water location (if required).

Feedback:

If you have any feedback on these activities, please respond to Woodside at: Feedback@woodside.com.au or 1800 442 977.

Your feedback and our response will be included in our Environment Plan which will be submitted to NOPSEMA for acceptance in accordance with the *Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2009* (Cth).

Please let us know if your feedback for this activity is sensitive and we will make this known to NOPSEMA upon submission of the Environment Plan in order for this information to remain confidential to NOPSEMA.

Please provide your views by **17 March 2023**.

Attachment A: Feedback Form

Attachment A: Feedback Form

FEEDBACK	GRIFFIN DECOMMISSIONING EP	STYBARROW DECOMMISSIONING EP	STYBARROW PLUG & ABANDONMENT EP

2.34.1 Email sent to Carnarvon Fishing Club (17 February 2023)

Dear Carnarvon Fishing Club

Woodside is providing this update on the progressive decommissioning of the Griffin and Stybarrow fields, previously operated by BHP Petroleum Pty Ltd (BHP).

We are providing this information to ensure relevant persons are informed about the status of proposed activities, as there have been changes to activity scope and supporting consultation information since consultation commenced for these decommissioning projects in 2021.

The **Griffin Field** is in Commonwealth waters in Petroleum Licence WA-10-L, 65 km northwest of Onslow and 94 km northeast of Exmouth, Western Australia and in water depths of approximately 120 m.

The **Stybarrow Field** is in Commonwealth waters in Petroleum Licence WA-32-L, approximately 53 km northwest of Exmouth, Western Australia and in water depths of approximately 810 – 850 m.

A summary of proposed activities is outlined below, and more detailed information is provided in the attached Consultation Information Sheets. The Information Sheets provide details on activities proposed to be managed under a number of Environment Plans for each Field, including a summary of potential key risks and associated management measures. The Information Sheets are also available on our [website](#).

Any feedback provided previously on proposed activities will remain current where Environment Plans are under assessment by the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA).

Please let us know if you would like to update previous feedback or have any additional views by **17 March 2023**.

Activity:

	Griffin Field Decommissioning Activities	Stybarrow Field Decommissioning Activities
Summary:	<p>Removal Activities</p> <ul style="list-style-type: none"> • Removal of subsea equipment (wellheads, trees, distribution skids, risers, flexible flowlines, rigid flowlines, umbilicals, and the pipeline end module (PLEM)). • Removal of the Riser Turret Mooring (RTM) and its moorings. Depending on the vessel utilised, recovery of the RTM may 	<p>Plugging and Abandonment (P&A) Activities</p> <ul style="list-style-type: none"> • Pre-execution activities associated with the well P&A, such as barrier testing and removal of marine growth. • Well P&A of the 10 productions/injection wells by placing cement plugs in the wells to permanently prevent hydrocarbon release.

	<p>require sections of it to be towed to shallower water out of the title.</p> <ul style="list-style-type: none"> • Removal of an exploration wellhead (Ramillies-1 in neighbouring petroleum title WA-12-L). • Ongoing field management activities. • Pigging and subsequent removal of the 26 km of Griffin Gas Export Pipeline (GEP) within Commonwealth waters. <p>In Situ Activities</p> <ul style="list-style-type: none"> • Proposal to leave in situ 12 RTM drag anchors (buried), 6 concrete gravity bases and 5 piled foundations for the PLEM and 4 distribution skids. 	<ul style="list-style-type: none"> • Cutting and removal of the wellhead and subsea tree assembly. • Unblocking of the H4 flowline, if deemed feasible. <p>Removal Activities</p> <ul style="list-style-type: none"> • Removal of subsea equipment (wellheads, trees, manifolds, risers, flexible flowlines, and umbilicals). • Removal of the Disconnectable Turret Mooring (DTM) and its moorings. Recovery of the DTM may require it to be towed to shallower water outside of permit area WA-32-L to support the DTM removal from the marine environment. • Ongoing field management activities (equipment monitoring and inspection). <p>In Situ Activities</p> <ul style="list-style-type: none"> • Proposed leave in situ of the 9 DTM drag anchors (buried), nine suction piles for the riser holdbacks and the historical exploration wellhead, Eskdale-1, which was unable to be removed following its drilling and abandonment in 2003.
Location:	<ul style="list-style-type: none"> • 94 km northeast of Exmouth, Western Australia. 	<ul style="list-style-type: none"> • 53 km northwest of Exmouth, Western Australia.
Approx. Water Depth (m):	<ul style="list-style-type: none"> • Approx. 120 m. 	<ul style="list-style-type: none"> • Approx. 810 – 850 m.
Schedule:	<p>Removal Activities</p> <ul style="list-style-type: none"> • Earliest proposed removal activity start is estimated 	<p>Plugging and Abandonment (P&A) Activities</p>

	<p>to be Q4 2023, subject to approvals, vessel availability and weather constraints.</p> <ul style="list-style-type: none"> Facilities removal must be completed no later than 31 December 2024, pursuant to General Direction 832. 	<ul style="list-style-type: none"> Earliest P&A start is estimated to be Q4 2023, subject to approvals, MODU and vessel availability and weather constraints. P&A activities must be completed no later than 30 September 2024, pursuant to General Direction 833. <p>Removal Activities</p> <ul style="list-style-type: none"> Earliest facilities and DTM removal is estimated to be Q4 2023, subject to approvals, vessel availability and weather constraints. Equipment removal must be completed no later than 31 March 2025, pursuant to General Direction 833.
Duration:	<p>Removal Activities</p> <ul style="list-style-type: none"> Removal activities are anticipated to take approximately 6 months to complete and GEP removal activities are anticipated to take approximately 2 months to complete. 	<p>Plugging and Abandonment (P&A) Activities</p> <ul style="list-style-type: none"> P&A activities are anticipated to take approximately 6 – 9 months. <p>Removal Activities</p> <ul style="list-style-type: none"> Removal activities are anticipated to take approximately 4-6 months to complete and DTM removal activities are anticipated to take approximately 1 month to complete.
Exclusionary/Cautious Zone:	<p>Removal Activities</p> <ul style="list-style-type: none"> The temporary Operational Area includes the area encompassing an approximate 1,500 m radius around the equipment. A temporary 500 m exclusion zone will apply 	<p>P&A Activities</p> <ul style="list-style-type: none"> The Operational Area includes the area encompassing an approximate 3,000 m radius around each of the four drill centers within WA-32-L. A temporary 500 m exclusion zone will apply

	<p>around the project vessels during removal and potential tow activities.</p>	<p>around the MODU and the associated project vessels during P&A activities.</p> <p>Removal Activities</p> <ul style="list-style-type: none"> • The temporary Operational Area includes the area encompassing an approximate 1,500 m radius around the subsea infrastructure and wellheads. • The DTM has an existing 1200 m radius petroleum safety zone which will continue to be in place until it is removed. • A temporary 500 m exclusion zone will apply around the CSV and the associated project vessels during removal activities. • A temporary 500 m exclusion zone will apply around the HLV and the associated project vessels during the removal of the DTM.
<p>Vessels:</p>	<p>Removal Activities</p> <ul style="list-style-type: none"> • Construction support vessel (CSV) and Heavy Lift Vessel (HLV) for recovery and pipeline removal activities. • An anchor handling tug (AHT) to support the towing of the RTM to sheltered water. 	<p>P&A activities</p> <ul style="list-style-type: none"> • Semi-Submersible Mobile Offshore Drilling Unit (MODU) • The MODU will be supported by 2 to 3 offshore support vessels. <p>Removal Activities</p> <ul style="list-style-type: none"> • CSV and HLV for recovery and activities. • AHTs to support the towing of the DTM to the shallower water location (if required).

Feedback:

Stybarrow Plug and Abandonment Environment Plan

If you have any feedback on these activities, please respond to Woodside at: Feedback@woodside.com.au or 1800 442 977.

Your feedback and our response will be included in our Environment Plan which will be submitted to NOPSEMA for acceptance in accordance with the *Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2009* (Cth).

Please let us know if your feedback for this activity is sensitive and we will make this known to NOPSEMA upon submission of the Environment Plan in order for this information to remain confidential to NOPSEMA.

Please provide your views by **17 March 2023**.

You can also subscribe on our website to receive Consultation Information Sheets for proposed activities: www.woodside.com/sustainability/consultation-activities.

2.34.2 Email sent to Ashburton Anglers (17 February 2023)

Hi [REDACTED]

Hope you're well.

Woodside is providing this update on the progressive decommissioning of the Griffin and Stybarrow fields, previously operated by BHP Petroleum Pty Ltd (BHP).

We are providing this information to ensure relevant persons, including the Ashburton Anglers, are informed about the status of proposed activities, as there have been changes to activity scope and supporting consultation information since consultation commenced for these decommissioning projects in 2021.

The **Griffin Field** is in Commonwealth waters in Petroleum Licence WA-10-L, 65 km northwest of Onslow and 94 km northeast of Exmouth, Western Australia and in water depths of approximately 120 m.

The **Stybarrow Field** is in Commonwealth waters in Petroleum Licence WA-32-L, approximately 53 km northwest of Exmouth, Western Australia and in water depths of approximately 810 – 850 m.

A summary of proposed activities is outlined below, and more detailed information is provided in the attached Consultation Information Sheets. The Information Sheets provide details on activities proposed to be managed under a number of Environment Plans for each Field, including a summary of potential key risks and associated management measures. The Information Sheets are also available on our [website](#).

Any feedback provided previously on proposed activities will remain current where Environment Plans are under assessment by the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA). Please let us know if you would like to update previous feedback or have any additional views by **17 March 2023**.

Activity:

Stybarrow Plug and Abandonment Environment Plan

	Griffin Field Decommissioning Activities	Stybarrow Field Decommissioning Activities
<p>Summary:</p>	<p>Removal Activities</p> <ul style="list-style-type: none"> ● Removal of subsea equipment (wellheads, trees, distribution skids, risers, flexible flowlines, rigid flowlines, umbilicals, and the pipeline end module (PLEM)). ● Removal of the Riser Turret Mooring (RTM) and its moorings. Depending on the vessel utilised, recovery of the RTM may require sections of it to be towed to shallower water out of the title. ● Removal of an exploration wellhead (Ramillies-1 in neighbouring petroleum title WA-12-L). ● Ongoing field management activities. ● Pigging and subsequent removal of the 26 km of Griffin Gas Export Pipeline (GEP) within Commonwealth waters. <p>In Situ Activities</p> <ul style="list-style-type: none"> ● Proposal to leave in situ 12 RTM drag anchors (buried), 6 concrete gravity bases and 5 piled foundations for the PLEM and 4 distribution skids. 	<p>Plugging and Abandonment (P&A) Activities</p> <ul style="list-style-type: none"> ● Pre-execution activities associated with the well P&A, such as barrier testing and removal of marine growth. ● Well P&A of the 10 productions/injection wells by placing cement plugs in the wells to permanently prevent hydrocarbon release. ● Cutting and removal of the wellhead and subsea tree assembly. ● Unblocking of the H4 flowline, if deemed feasible. <p>Removal Activities</p> <ul style="list-style-type: none"> ● Removal of subsea equipment (wellheads, trees, manifolds, risers, flexible flowlines, and umbilicals). ● Removal of the Disconnectable Turret Mooring (DTM) and its moorings. Recovery of the DTM may require it to be towed to shallower water outside of permit area WA-32-L to support the DTM removal from the marine environment. ● Ongoing field management activities (equipment monitoring and inspection). <p>In Situ Activities</p> <ul style="list-style-type: none"> ● Proposed leave in situ of the 9 DTM drag anchors (buried), nine suction piles for the riser holdbacks and the historical exploration wellhead, Eskdale-1, which was unable to be removed following its drilling and abandonment in 2003.
<p>Location:</p>	<ul style="list-style-type: none"> ● 94 km northeast of Exmouth, Western Australia. 	<ul style="list-style-type: none"> ● 53 km northwest of Exmouth, Western Australia.

Stybarrow Plug and Abandonment Environment Plan

<p>Approx. Water Depth (m):</p>	<ul style="list-style-type: none"> • Approx. 120 m. 	<ul style="list-style-type: none"> • Approx. 810 – 850 m.
<p>Schedule:</p>	<p>Removal Activities</p> <ul style="list-style-type: none"> • Earliest proposed removal activity start is estimated to be Q4 2023, subject to approvals, vessel availability and weather constraints. • Facilities removal must be completed no later than 31 December 2024, pursuant to General Direction 832. 	<p>Plugging and Abandonment (P&A) Activities</p> <ul style="list-style-type: none"> • Earliest P&A start is estimated to be Q4 2023, subject to approvals, MODU and vessel availability and weather constraints. • P&A activities must be completed no later than 30 September 2024, pursuant to General Direction 833. <p>Removal Activities</p> <ul style="list-style-type: none"> • Earliest facilities and DTM removal is estimated to be Q4 2023, subject to approvals, vessel availability and weather constraints. • Equipment removal must be completed no later than 31 March 2025, pursuant to General Direction 833.
<p>Duration:</p>	<p>Removal Activities</p> <ul style="list-style-type: none"> • Removal activities are anticipated to take approximately 6 months to complete and GEP removal activities are anticipated to take approximately 2 months to complete. 	<p>Plugging and Abandonment (P&A) Activities</p> <ul style="list-style-type: none"> • P&A activities are anticipated to take approximately 6 – 9 months. <p>Removal Activities</p> <ul style="list-style-type: none"> • Removal activities are anticipated to take approximately 4-6 months to complete and DTM removal activities are anticipated to take approximately 1 month to complete.
<p>Exclusionary/Cautionary Zone:</p>	<p>Removal Activities</p> <ul style="list-style-type: none"> • The temporary Operational Area includes the area encompassing an approximate 1,500 m radius around the equipment. • A temporary 500 m exclusion zone will apply around the project vessels during 	<p>P&A Activities</p> <ul style="list-style-type: none"> • The Operational Area includes the area encompassing an approximate 3,000 m radius around each of the four drill centers within WA-32-L. • A temporary 500 m exclusion zone will apply around the MODU and the associated

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	<p>removal and potential tow activities.</p>	<p>project vessels during P&A activities.</p> <p>Removal Activities</p> <ul style="list-style-type: none"> • The temporary Operational Area includes the area encompassing an approximate 1,500 m radius around the subsea infrastructure and wellheads. • The DTM has an existing 1200 m radius petroleum safety zone which will continue to be in place until it is removed. • A temporary 500 m exclusion zone will apply around the CSV and the associated project vessels during removal activities. • A temporary 500 m exclusion zone will apply around the HLV and the associated project vessels during the removal of the DTM.
<p>Vessels:</p>	<p>Removal Activities</p> <ul style="list-style-type: none"> • Construction support vessel (CSV) and Heavy Lift Vessel (HLV) for recovery and pipeline removal activities. • An anchor handling tug (AHT) to support the towing of the RTM to sheltered water. 	<p>P&A activities</p> <ul style="list-style-type: none"> • Semi-Submersible Mobile Offshore Drilling Unit (MODU) • The MODU will be supported by 2 to 3 offshore support vessels. <p>Removal Activities</p> <ul style="list-style-type: none"> • CSV and HLV for recovery and activities. • AHTs to support the towing of the DTM to the shallower water location (if required).

Feedback:

If you have any feedback on these activities, please respond to Woodside at: Feedback@woodside.com.au or 1800 442 977.

Your feedback and our response will be included in our Environment Plan which will be submitted to NOPSEMA for acceptance in accordance with the *Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2009* (Cth).

Stybarrow Plug and Abandonment Environment Plan

Please let us know if your feedback for this activity is sensitive and we will make this known to NOPSEMA upon submission of the Environment Plan in order for this information to remain confidential to NOPSEMA. Please provide your views by **17 March 2023**.

You can also subscribe on our website to receive Consultation Information Sheets for proposed activities: www.woodside.com/sustainability/consultation-activities.

2.34.3 Email sent to Shark Bay Salt (17 February 2023)

Hi [REDACTED]

Hope you're well.

Woodside is providing this update on the progressive decommissioning of the Griffin and Stybarrow fields, previously operated by BHP Petroleum Pty Ltd (BHP).

We are providing this information to ensure relevant persons, including the Ashburton Anglers, are informed about the status of proposed activities, as there have been changes to activity scope and supporting consultation information since consultation commenced for these decommissioning projects in 2021.

The **Griffin Field** is in Commonwealth waters in Petroleum Licence WA-10-L, 65 km northwest of Onslow and 94 km northeast of Exmouth, Western Australia and in water depths of approximately 120 m.

The **Stybarrow Field** is in Commonwealth waters in Petroleum Licence WA-32-L, approximately 53 km northwest of Exmouth, Western Australia and in water depths of approximately 810 – 850 m.

A summary of proposed activities is outlined below, and more detailed information is provided in the attached Consultation Information Sheets. The Information Sheets provide details on activities proposed to be managed under a number of Environment Plans for each Field, including a summary of potential key risks and associated management measures. The Information Sheets are also available on our [website](#).

Any feedback provided previously on proposed activities will remain current where Environment Plans are under assessment by the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA). Please let us know if you would like to update previous feedback or have any additional views by **17 March 2023**.

Activity:

	Griffin Field Decommissioning Activities	Stybarrow Field Decommissioning Activities
Summary:	Removal Activities <ul style="list-style-type: none">Removal of subsea equipment (wellheads, trees, distribution skids, risers, flexible flowlines, rigid flowlines, umbilicals, and the	Plugging and Abandonment (P&A) Activities <ul style="list-style-type: none">Pre-execution activities associated with the well P&A, such as barrier testing and removal of marine growth.

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	<p>pipeline end module (PLEM)).</p> <ul style="list-style-type: none"> • Removal of the Riser Turret Mooring (RTM) and its moorings. Depending on the vessel utilised, recovery of the RTM may require sections of it to be towed to shallower water out of the title. • Removal of an exploration wellhead (Ramillies-1 in neighbouring petroleum title WA-12-L). • Ongoing field management activities. • Pigging and subsequent removal of the 26 km of Griffin Gas Export Pipeline (GEP) within Commonwealth waters. <p>In Situ Activities</p> <ul style="list-style-type: none"> • Proposal to leave in situ 12 RTM drag anchors (buried), 6 concrete gravity bases and 5 piled foundations for the PLEM and 4 distribution skids. 	<ul style="list-style-type: none"> • Well P&A of the 10 productions/injection wells by placing cement plugs in the wells to permanently prevent hydrocarbon release. • Cutting and removal of the wellhead and subsea tree assembly. • Unblocking of the H4 flowline, if deemed feasible. <p>Removal Activities</p> <ul style="list-style-type: none"> • Removal of subsea equipment (wellheads, trees, manifolds, risers, flexible flowlines, and umbilicals). • Removal of the Disconnectable Turret Mooring (DTM) and its moorings. Recovery of the DTM may require it to be towed to shallower water outside of permit area WA-32-L to support the DTM removal from the marine environment. • Ongoing field management activities (equipment monitoring and inspection). <p>In Situ Activities</p> <ul style="list-style-type: none"> • Proposed leave in situ of the 9 DTM drag anchors (buried), nine suction piles for the riser holdbacks and the historical exploration wellhead, Eskdale-1, which was unable to be removed following its drilling and abandonment in 2003.
Location:	<ul style="list-style-type: none"> • 94 km northeast of Exmouth, Western Australia. 	<ul style="list-style-type: none"> • 53 km northwest of Exmouth, Western Australia.
Approx. Water Depth (m):	<ul style="list-style-type: none"> • Approx. 120 m. 	<ul style="list-style-type: none"> • Approx. 810 – 850 m.
Schedule:	<p>Removal Activities</p> <ul style="list-style-type: none"> • Earliest proposed removal activity start is estimated to be Q4 2023, subject to approvals, vessel availability and weather constraints. 	<p>Plugging and Abandonment (P&A) Activities</p> <ul style="list-style-type: none"> • Earliest P&A start is estimated to be Q4 2023, subject to approvals, MODU and vessel

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	<ul style="list-style-type: none"> Facilities removal must be completed no later than 31 December 2024, pursuant to General Direction 832. 	<p>availability and weather constraints.</p> <ul style="list-style-type: none"> P&A activities must be completed no later than 30 September 2024, pursuant to General Direction 833. <p>Removal Activities</p> <ul style="list-style-type: none"> Earliest facilities and DTM removal is estimated to be Q4 2023, subject to approvals, vessel availability and weather constraints. Equipment removal must be completed no later than 31 March 2025, pursuant to General Direction 833.
Duration:	<p>Removal Activities</p> <ul style="list-style-type: none"> Removal activities are anticipated to take approximately 6 months to complete and GEP removal activities are anticipated to take approximately 2 months to complete. 	<p>Plugging and Abandonment (P&A) Activities</p> <ul style="list-style-type: none"> P&A activities are anticipated to take approximately 6 – 9 months. <p>Removal Activities</p> <ul style="list-style-type: none"> Removal activities are anticipated to take approximately 4-6 months to complete and DTM removal activities are anticipated to take approximately 1 month to complete.
Exclusionary/Cautionary Zone:	<p>Removal Activities</p> <ul style="list-style-type: none"> The temporary Operational Area includes the area encompassing an approximate 1,500 m radius around the equipment. A temporary 500 m exclusion zone will apply around the project vessels during removal and potential tow activities. 	<p>P&A Activities</p> <ul style="list-style-type: none"> The Operational Area includes the area encompassing an approximate 3,000 m radius around each of the four drill centers within WA-32-L. A temporary 500 m exclusion zone will apply around the MODU and the associated project vessels during P&A activities. <p>Removal Activities</p> <ul style="list-style-type: none"> The temporary Operational Area includes the area encompassing an approximate 1,500 m radius around the

Stybarrow Plug and Abandonment Environment Plan

		<p>subsea infrastructure and wellheads.</p> <ul style="list-style-type: none"> • The DTM has an existing 1200 m radius petroleum safety zone which will continue to be in place until it is removed. • A temporary 500 m exclusion zone will apply around the CSV and the associated project vessels during removal activities. • A temporary 500 m exclusion zone will apply around the HLV and the associated project vessels during the removal of the DTM.
<p>Vessels:</p>	<p>Removal Activities</p> <ul style="list-style-type: none"> • Construction support vessel (CSV) and Heavy Lift Vessel (HLV) for recovery and pipeline removal activities. • An anchor handling tug (AHT) to support the towing of the RTM to sheltered water. 	<p>P&A activities</p> <ul style="list-style-type: none"> • Semi-Submersible Mobile Offshore Drilling Unit (MODU) • The MODU will be supported by 2 to 3 offshore support vessels. <p>Removal Activities</p> <ul style="list-style-type: none"> • CSV and HLV for recovery and activities. • AHTs to support the towing of the DTM to the shallower water location (if required).

Feedback:

If you have any feedback on these activities, please respond to Woodside at: Feedback@woodside.com.au or 1800 442 977.

Your feedback and our response will be included in our Environment Plan which will be submitted to NOPSEMA for acceptance in accordance with the *Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2009* (Cth).

Please let us know if your feedback for this activity is sensitive and we will make this known to NOPSEMA upon submission of the Environment Plan in order for this information to remain confidential to NOPSEMA. Please provide your views by **17 March 2023**.

You can also subscribe on our website to receive Consultation Information Sheets for proposed activities: www.woodside.com/sustainability/consultation-activities.

2.34.4 Email sent to the Port Hedland Fishing Club (16 February 2023)

Stybarrow Plug and Abandonment Environment Plan

Dear Port Hedland Fishing Club

Woodside is providing this update on the progressive decommissioning of the Griffin and Stybarrow fields, previously operated by BHP Petroleum Pty Ltd (BHP).

We are providing this information to ensure relevant persons are informed about the status of proposed activities, as there have been changes to activity scope and supporting consultation information since consultation commenced for these decommissioning projects in 2021.

The **Griffin Field** is in Commonwealth waters in Petroleum Licence WA-10-L, 65 km northwest of Onslow and 94 km northeast of Exmouth, Western Australia and in water depths of approximately 120 m.

The **Stybarrow Field** is in Commonwealth waters in Petroleum Licence WA-32-L, approximately 53 km northwest of Exmouth, Western Australia and in water depths of approximately 810 – 850 m.

A summary of proposed activities is outlined below, and more detailed information is provided in the attached Consultation Information Sheets. The Information Sheets provide details on activities proposed to be managed under a number of Environment Plans for each Field, including a summary of potential key risks and associated management measures. The Information Sheets are also available on our [website](#).

Any feedback provided previously on proposed activities will remain current where Environment Plans are under assessment by the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA).

Please let us know if you would like to update previous feedback or have any additional views by **17 March 2023**.

Activity:

	Griffin Field Decommissioning Activities	Stybarrow Field Decommissioning Activities
Summary:	Removal Activities <ul style="list-style-type: none">• Removal of subsea equipment (wellheads, trees, distribution skids, risers, flexible flowlines, rigid flowlines, umbilicals, and the pipeline end module (PLEM)).• Removal of the Riser Turret Mooring (RTM) and its moorings. Depending on the vessel utilised, recovery of the RTM may require sections of it to be	Plugging and Abandonment (P&A) Activities <ul style="list-style-type: none">• Pre-execution activities associated with the well P&A, such as barrier testing and removal of marine growth.• Well P&A of the 10 productions/injection wells by placing cement plugs in the wells to permanently prevent hydrocarbon release.

	<p>towed to shallower water out of the title.</p> <ul style="list-style-type: none"> • Removal of an exploration wellhead (Ramillies-1 in neighbouring petroleum title WA-12-L). • Ongoing field management activities. • Pigging and subsequent removal of the 26 km of Griffin Gas Export Pipeline (GEP) within Commonwealth waters. <p>In Situ Activities</p> <ul style="list-style-type: none"> • Proposal to leave in situ 12 RTM drag anchors (buried), 6 concrete gravity bases and 5 piled foundations for the PLEM and 4 distribution skids. 	<ul style="list-style-type: none"> • Cutting and removal of the wellhead and subsea tree assembly. • Unblocking of the H4 flowline, if deemed feasible. <p>Removal Activities</p> <ul style="list-style-type: none"> • Removal of subsea equipment (wellheads, trees, manifolds, risers, flexible flowlines, and umbilicals). • Removal of the Disconnectable Turret Mooring (DTM) and its moorings. Recovery of the DTM may require it to be towed to shallower water outside of permit area WA-32-L to support the DTM removal from the marine environment. • Ongoing field management activities (equipment monitoring and inspection). <p>In Situ Activities</p> <ul style="list-style-type: none"> • Proposed leave in situ of the 9 DTM drag anchors (buried), nine suction piles for the riser holdbacks and the historical exploration wellhead, Eskdale-1, which was unable to be removed following its drilling and abandonment in 2003.
Location:	<ul style="list-style-type: none"> • 94 km northeast of Exmouth, Western Australia. 	<ul style="list-style-type: none"> • 53 km northwest of Exmouth, Western Australia.
Approx. Water Depth (m):	<ul style="list-style-type: none"> • Approx. 120 m. 	<ul style="list-style-type: none"> • Approx. 810 – 850 m.
Schedule:	<p>Removal Activities</p> <ul style="list-style-type: none"> • Earliest proposed removal activity start is estimated 	<p>Plugging and Abandonment (P&A) Activities</p>

	<p>to be Q4 2023, subject to approvals, vessel availability and weather constraints.</p> <ul style="list-style-type: none"> Facilities removal must be completed no later than 31 December 2024, pursuant to General Direction 832. 	<ul style="list-style-type: none"> Earliest P&A start is estimated to be Q4 2023, subject to approvals, MODU and vessel availability and weather constraints. P&A activities must be completed no later than 30 September 2024, pursuant to General Direction 833. <p>Removal Activities</p> <ul style="list-style-type: none"> Earliest facilities and DTM removal is estimated to be Q4 2023, subject to approvals, vessel availability and weather constraints. Equipment removal must be completed no later than 31 March 2025, pursuant to General Direction 833.
<p>Duration:</p>	<p>Removal Activities</p> <ul style="list-style-type: none"> Removal activities are anticipated to take approximately 6 months to complete and GEP removal activities are anticipated to take approximately 2 months to complete. 	<p>Plugging and Abandonment (P&A) Activities</p> <ul style="list-style-type: none"> P&A activities are anticipated to take approximately 6 – 9 months. <p>Removal Activities</p> <ul style="list-style-type: none"> Removal activities are anticipated to take approximately 4-6 months to complete and DTM removal activities are anticipated to take approximately 1 month to complete.
<p>Exclusionary/Cautious Zone:</p>	<p>Removal Activities</p> <ul style="list-style-type: none"> The temporary Operational Area includes the area encompassing an approximate 1,500 m radius around the equipment. A temporary 500 m exclusion zone will apply 	<p>P&A Activities</p> <ul style="list-style-type: none"> The Operational Area includes the area encompassing an approximate 3,000 m radius around each of the four drill centers within WA-32-L. A temporary 500 m exclusion zone will apply

	<p>around the project vessels during removal and potential tow activities.</p>	<p>around the MODU and the associated project vessels during P&A activities.</p> <p>Removal Activities</p> <ul style="list-style-type: none"> • The temporary Operational Area includes the area encompassing an approximate 1,500 m radius around the subsea infrastructure and wellheads. • The DTM has an existing 1200 m radius petroleum safety zone which will continue to be in place until it is removed. • A temporary 500 m exclusion zone will apply around the CSV and the associated project vessels during removal activities. • A temporary 500 m exclusion zone will apply around the HLV and the associated project vessels during the removal of the DTM.
<p>Vessels:</p>	<p>Removal Activities</p> <ul style="list-style-type: none"> • Construction support vessel (CSV) and Heavy Lift Vessel (HLV) for recovery and pipeline removal activities. • An anchor handling tug (AHT) to support the towing of the RTM to sheltered water. 	<p>P&A activities</p> <ul style="list-style-type: none"> • Semi-Submersible Mobile Offshore Drilling Unit (MODU) • The MODU will be supported by 2 to 3 offshore support vessels. <p>Removal Activities</p> <ul style="list-style-type: none"> • CSV and HLV for recovery and activities. • AHTs to support the towing of the DTM to the shallower water location (if required).

Feedback:

Stybarrow Plug and Abandonment Environment Plan

If you have any feedback on these activities, please respond to Woodside at:
Feedback@woodside.com.au or 1800 442 977.

Your feedback and our response will be included in our Environment Plan which will be submitted to NOPSEMA for acceptance in accordance with the *Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2009* (Cth).

Please let us know if your feedback for this activity is sensitive and we will make this known to NOPSEMA upon submission of the Environment Plan in order for this information to remain confidential to NOPSEMA.

Please provide your views by **17 March 2023**.

You can also subscribe on our website to receive Consultation Information Sheets for proposed activities: www.woodside.com/sustainability/consultation-activities.

2.34.1 Letter sent to Gascoyne (65 licence holders) and Pilbara / Kimberley recreational marine users (95 licence holders) and Gascoyne recreational marine users (8 March 2023)

Stybarrow Plug and Abandonment Environment Plan

Please direct all responses/queries to:
Woodside Feedback
T: 1800 442 977
E: feedback@woodside.com

08 March 2023

Attn: [Stakeholder]
[Company]
[Address]



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 Stakeholder

Woodside previously consulted you (correspondence dated 17 February 2023) on Woodside's proposed activities for the decommissioning of the Griffin and Stybarrow fields.

The **Griffin Field** is in Commonwealth waters in Petroleum Licence WA-10-L, 65 km northwest of Onslow and 94 km northeast of Exmouth, Western Australia and in water depths of approximately 120 m.

The **Stybarrow Field** is in Commonwealth waters in Petroleum Licence WA-32-L, approximately 53 km northwest of Exmouth, Western Australia and in water depths of approximately 810 – 850 m.

The below QR codes link to our Consultation Information Sheets for the proposed activities, which provide a summary of potential key risks and associated management measures. Should the information be easier for you to access, the Information Sheets are also available on our [website](#).

**Activity Update: Griffin
Decommissioning EP**



**Activity Update:
Stybarrow
Decommissioning EP**



**Activity Update:
Stybarrow Plug &
Abandonment EP**



We would appreciate any feedback you may have by **17 March 2023** to support the development of our proposed environment plans.

You can also subscribe on our website to receive Consultation Information Sheets for proposed activities: www.woodside.com/sustainability/consultation-activities.

Kind regards,

Woodside Feedback



Woodside Energy
Mia Yellagonga
Karlak, 11 Mount Street
Perth WA 6000
Australia

T: 1800 442 977
E: feedback@woodside.com.au
www.woodside.com
f t in y @

2.34.1.1 Email sent to Carnarvon Fishing Club (10 March 2023)

Dear Carnarvon Fishing Club

Stybarrow Plug and Abandonment Environment Plan

Woodside previously consulted you (see email below) on Woodside's proposed activities for the progressive decommissioning of the Griffin and Stybarrow fields.

We provided this information to ensure relevant persons are informed about the status of proposed activities, as there have been changes to activity scope and supporting consultation information since consultation commenced for these decommissioning projects in 2021.

We would appreciate any feedback you may have by **17 March 2023** to support the development of our proposed Environment Plans.

Any feedback provided previously on proposed activities will remain current where Environment Plans are under assessment by the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA).

For reference:

- The **Griffin Field** is in Commonwealth waters in Petroleum Licence WA-10-L, 65 km northwest of Onslow and 94 km northeast of Exmouth, Western Australia and in water depths of approximately 120 m.
- The **Stybarrow Field** is in Commonwealth waters in Petroleum Licence WA-32-L, approximately 53 km northwest of Exmouth, Western Australia and in water depths of approximately 810 – 850 m.

Consultation Information Sheets for the proposed activities are attached, which provide a summary of potential key risks and associated management measures. The Information Sheets are also available on our [website](#).

Regards

Woodside Feedback

2.34.1.2 Email sent to Port Hedland Game Fishing Club (10 March 2023)

Dear Port Hedland Fishing Club

Woodside previously consulted you (see email below) on Woodside's proposed activities for the progressive decommissioning of the Griffin and Stybarrow fields.

We provided this information to ensure relevant persons are informed about the status of proposed activities, as there have been changes to activity scope and supporting consultation information since consultation commenced for these decommissioning projects in 2021.

We would appreciate any feedback you may have by **17 March 2023** to support the development of our proposed Environment Plans.

Any feedback provided previously on proposed activities will remain current where Environment Plans are under assessment by the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA).

For reference:

Stybarrow Plug and Abandonment Environment Plan

- The **Griffin Field** is in Commonwealth waters in Petroleum Licence WA-10-L, 65 km northwest of Onslow and 94 km northeast of Exmouth, Western Australia and in water depths of approximately 120 m.
- The **Stybarrow Field** is in Commonwealth waters in Petroleum Licence WA-32-L, approximately 53 km northwest of Exmouth, Western Australia and in water depths of approximately 810 – 850 m.

Consultation Information Sheets for the proposed activities are attached, which provide a summary of potential key risks and associated management measures. The Information Sheets are also available on our [website](#).

Regards

Woodside Feedback

2.35 Email sent to Karajarri Traditional Lands Association (KTLA) (24 February 2023)

Good afternoon

In follow up to email correspondence sent to you on 27 January regarding the Environmental Plan (EP) information shared to date for the Scarborough project activity and the Nganhurra Riser Turret Mooring (RTM) removal, please can you advise if you have any queries relating to this activity at your earliest convenience.

This email provides further information on Woodside's decommissioning and drilling activities that we are seeking to understand if Karajarri Traditional Lands Association (KTLA) has any interests in the Environment that may be affected (EMBA) relative to the attached information sheets and if the KTLA would like us to consult further on these EPs.

With the exception of removing the Nganhurra RTM and the Scarborough project, for which Woodside is seeking KTLA's feedback as soon as possible, Woodside is also seeking KTLA's feedback on these decommissioning and drilling activities by **17 March 2023**.

The plain English summary of each of these activities is attached, and I have provided a link to the more detailed consultation information sheets below. These activities are:

Decommissioning Activities:

- Stybarrow. Plug and abandonment (P&A) of the wells.
 - [consultation-information-sheet---stybarrow-plug-and-abandonment-environment-plan.pdf \(woodside.com\)](#)

Drilling Activities:

- WA-34-L Pyxis Drilling and Subsea Installation.
 - [Consultation Information Sheet - WA-34-L Pyxis Drilling and Subsea Installation Environment Plan \(woodside.com\)](#)

If there is anything else, Woodside can do at this time to facilitate consultation, if the directors of KTLA make an assessment that this is required to provide more information about these planned work activities, please let me know.

Stybarrow Plug and Abandonment Environment Plan

Thank you for your time in considering these matters.

Please feel free to contact me on the details below if you require further information or assistance.

Kind regards

2.35.1 Follow up Email to Karajarri Traditional Lands Association (24 March 2023)

Good morning

I'm wondering if you are able to please advise if you have received this email and a separate email regarding our decommissioning activity sent on 24/2.

If you have any questions or would like to discuss further I can make myself available to discuss via phone or in person at a time that is suitable to you and/or an organisation representative.

I look forward to hearing from you.

Kind regards

██████████

2.36 Email sent to Balanggarra Aboriginal Corporation (23 February 2023)

Hi ██████████

Thankyou for providing the contact information and taking my telephone call. I will call again next week just as a follow up and to make sure you received my email.

I hope this message finds you well.

As per our telephone conversation, I am contacting you regarding Woodside's plans in relation to activities:

1. The Stybarrow plug and abandonment (P&A) of the wells as part of the decommissioning, the Summary Information sheet is attached and further information can be found here on Woodside's website - [consultation-information-sheet---stybarrow-plug-and-abandonment-environment-plan.pdf \(woodside.com\)](https://www.woodside.com.au/consultation-information-sheet---stybarrow-plug-and-abandonment-environment-plan.pdf);

In preparation for the activities, Woodside has undertaken assessments to identify potential impacts and risks to the marine environment arising from both planned and unplanned activities. Mitigation and management measures have been developed for each of the risks identified and will be outlined in the Environmental Plan (EP).

Woodside is seeking to understand the nature of the interests that Balanggarra Aboriginal Corporation and its members may have in the 'environment that may be affected' (EMBA) by this activity. The EMBA is the total area over which unplanned events could have environmental impacts, as set out in the Summary Information sheet attached.

If you would like to speak with us, please let us know by **15 March 2023**. Please also let us know how you would like us to engage with you as soon as possible.

If there is any support or specific information that you require as part of our engagement, please let me know.

Stybarrow Plug and Abandonment Environment Plan

You can also provide feedback directly to me on the details below, to Feedback@woodside.com.au or by calling 1800 442 977, or directly to the Australian Government's National Offshore Petroleum Safety and Environmental Management Authority to communications@nopsema.gov.au or (08) 6188 8700.

Please feel free to forward this email and, the attached documents to Balangarra Aboriginal Corporation members as required. Woodside would be pleased to speak with Balangarra Aboriginal Corporation members in addition to the Balangarra Aboriginal Corporation Board / office holders.

Kind regards

■

2.37 Email sent to Kimberley Land Council (KLC) (16 February 2023)

Good afternoon ■

Thank you for your time the other day and your offer of assistance in relation to the Woodside environmental consultations.

I undertook to provide you with a forward plan for EPs for this year, however, I currently only have the first quarter. In the first quarter there are three EPs where Traditional Owners in the KLC region appear to be adjacent to the "the environment that may be affected" (EMBA). Please refer to the below.

As discussed, we are not seeking to consult with the KLC but seeking to consult with Traditional Owners adjacent to the EMBA. We would appreciate any guidance on how best to reach out to the various groups who may also be currently impacted by floods.

The three EPs below are:

Scarborough Seabed Installation and Trunkline Installation (SCA SITI). In relation to this I have attached an overview sheet in relation to the Scarborough project and the SCA SITI specific information sheet. I understand Shanine Ryan from Woodside has already reached out to the 3 groups indicated for that EP;

Drill and complete one new Pluto production well (PLA08) and may also carry out maintenance activities on existing production wells. This work will take place in Commonwealth waters, approximately 170 km north-west of Dampier. The proposed PLA08 production well will be located at a water depth of approximately 820m. We will provide information sheets on this shortly.

The decommissioning Stybarrow subsea development wells and removal of infrastructure. We will provide information sheets on this shortly.

As discussed, ■ will commence calling out to the groups for PLA08 and Stybarrow shortly and may be in contact to determine best way forward.

□

	SCA SITI	PLA08 Drilling and subsea intervention	Stybarrow P&A
Traditional Owner Corporations			

Stybarrow Plug and Abandonment Environment Plan

Yawoorroong Miriwoong Gajirrawoong Yirrgeb...			
Wilinggin Aboriginal Corporation			
Balanggarra Aboriginal Corporation			
Wunambal Gaambera Aboriginal Corporation			
Dambimangari Aboriginal Corporation			
Wanjina-Wunggurr (Native Title) Aboriginal Corporation			
Mayala Inninalang Aboriginal Corporation			
Nyul Nyul PBC Aboriginal Corporation			
Bardi and Jawi Niimidiman Aboriginal Corporation			
Nimanburr Aboriginal Corporation			
Gogolanyngor Aboriginal Corporation			
Yawuru Native Title Holders Aboriginal Corporation			
Karajarri Traditional Lands Association			
Nyangumarta Karajarri Aboriginal Corporation			
Nyangumarta Warrarn Aboriginal Corporation			

Please let me know if you have any questions or concerns. I can be contacted on the number below and [REDACTED].

Kind regards

2.38 Email to Bundi Yamatji Aboriginal Corporation (BYAC) (17 March 2023)

Dear [REDACTED]

I hope this email finds you well.

I am contacting you to discuss Woodside's environmental plans in relation to the following activities:

Stybarrow. This involves two work activities that are subject to separate environment plans; plug and abandonment (P&A) of the wells and decommissioning the infrastructure. [consultation-information-sheet---stybarrow-plug-and-abandonment-environment-plan.pdf](#) (woodside.com)
Consultation Information Sheet - Stybarrow Decommissioning Environment Plans (woodside.com)
Griffin decommissioning.

Stybarrow Plug and Abandonment Environment Plan

consultation-information-sheet--griffin-decommissioning-environment-plans.pdf
(woodside.com)

Julimar Appraisal Drilling.

Consultation Information Sheet - Julimar Appraisal Drilling and Survey Environment Plan
(woodside.com)

In preparing for this work, Woodside has undertaken an assessment to identify potential impacts and risks to the marine environment arising from both planned and unplanned activities. Mitigation and management measures have been developed for each of the risks identified and will be outlined in each EP. The attached documents provide further information about this work, including a summary of the potential risks and the management measures Woodside plans to implement for this work.

Woodside is seeking to understand the nature of the interests that Bundi Yamatj Aboriginal Corporation (BYAC) and its members may have in relation to these activities by 17 April 2023. If there are other methods of consultation that BYAC would like Woodside to undertake, we would be pleased to work with BYAC to accommodate these.

Please feel free to contact me if you require further information or assistance in relation to this matter. Feedback can be provided directly to me on the details below, to Feedback@woodside.com.au, by calling Woodside's feedback number 1800 442 977, or directly to the Australian Government's National Offshore Petroleum Safety and Environmental Management Authority to communications@nopsema.gov.au or (08) 6188 8700.

Please feel free to forward this email and the attached document to BYAC members as required. Woodside would be pleased to speak with BYAC members in addition to the BYAC Board/office holders.

Kind regards

2.38.1 Email sent to Bundi Yamatji Aboriginal Corporation (BYAC) (30 March 2023)

Good afternoon [REDACTED]

Thank you for our conversation today. As discussed, Woodside is seeking to consult with Bundi Yamatji Aboriginal Corporation in relation to the proposed activities outlined below. We are seeking to understand whether the Bundi Yamatji Aboriginal Corporation believe they may have interests that may be impacted by the proposed activities or simply wish to understand more, we would appreciate a time to meet to discuss, or we can engage with the Bundi Yamatji Aboriginal Corporation's preferred form of consultation.

Please feel free to call me should you wish to discuss or require further information.

Kind regards

2.38.2 Email sent to Bundi Yamatji Aboriginal Corporation (BYAC) (2 April 2023)

Hello [REDACTED]

I am just checking to see if this email made it through to you.

Kind regards

[REDACTED]

2.39 Email sent to Buurabalayji Thalanyji Aboriginal Corporation (BTAC) (22 February 2023)

Dear [REDACTED]

Firstly, thank you for your correspondence of 20 February regarding consultations about the Scarborough project. We will respond to this correspondence in the coming days and would be most grateful for the opportunity to meet with you to discuss the matters raised in your letter and our relationship more broadly.

Further to my correspondence of 18 January regarding Woodside's plan to remove the Nganhurra Riser Turret Mooring (RTM), and of 20 January regarding Woodside's Scarborough project, please find attached information about Woodside's decommissioning and drilling activities that we are seeking to consult with Buurabalayji Thalanyji Aboriginal Corporation (BTAC) about.

With the exception of removing the Nganhurra RTM and the Scarborough project, for which Woodside is seeking BTAC's feedback as soon as possible, Woodside is seeking BTAC's feedback on these decommissioning and drilling activities by 17 March. The plain English summary of each of these activities is attached, and I have provided a link to the more detailed consultation information sheets below. These activities are:

Decommissioning Activities:

Removal of the Nganhurra Riser Turret Mooring (RTM). Information about the RTM was previously emailed on 18 January. For ease of reference, the summary information is attached and the consultation information sheet for the RTM can be found at the link below.

[consultation-information-sheet---nganhurra-operations-cessation-environment-plan-revision.pdf \(woodside.com\)](#)

Stybarrow. This involves two work activities that are subject to separate environment plans; plug and abandonment (P&A) of the wells and decommissioning the infrastructure. [consultation-information-sheet---stybarrow-plug-and-abandonment-environment-plan.pdf \(woodside.com\)](#)

Consultation Information Sheet - Stybarrow Decommissioning Environment Plans [\(woodside.com\)](#)

Griffin decommissioning.

[consultation-information-sheet---griffin-decommissioning-environment-plans.pdf \(woodside.com\)](#)

Drilling Activities:

TPA03 Well Intervention.

Consultation Information Sheet - TPA03 Well Intervention Environment Plan [\(woodside.com\)](#)

WA-34-L Pyxis Drilling and Subsea Installation.

Consultation Information Sheet - WA-34-L Pyxis Drilling and Subsea Installation Environment Plan [\(woodside.com\)](#)

Julimar Appraisal Drilling.

Consultation Information Sheet - Julimar Appraisal Drilling and Survey Environment Plan [\(woodside.com\)](#)

We look forward to meeting with you to discuss and respond to the matters raised in your letter, this correspondence, and to discuss other matters important to BTAC and Woodside.

Stybarrow Plug and Abandonment Environment Plan

Thank you, [REDACTED] for yours and [REDACTED] consideration and work to progress these important consultations. We are looking forward to working with BTAC.

As always, please feel free to contact me on the details below if you require further information or assistance.

Yours sincerely

2.40 Email sent to Dambimangari Aboriginal Corporation (23 February 2023)

Hi [REDACTED]

I hope this message finds you well.

I spoke with [REDACTED] this afternoon and she pointed me to yourself to provide information on some planned activities south of Dampier.

As per my telephone conversation with [REDACTED], I am contacting you regarding Woodside's plans in relation to activities:

- The Stybarrow plug and abandonment (P&A) of the wells as part of the decommissioning, the Summary Information sheet is attached and further information can be found here on Woodside's website - consultation-information-sheet---stybarrow-plug-and-abandonment-environment-plan.pdf (woodside.com);
- The Pyxis drilling and subsea installation activity the Summary Information sheet is attached and ad further information can be found here on Woodside's website - Consultation Information Sheet - WA-34-L Pyxis Drilling and Subsea Installation Environment Plan (woodside.com)

In preparation for the activities, Woodside has undertaken assessments to identify potential impacts and risks to the marine environment arising from both planned and unplanned activities. Mitigation and management measures have been developed for each of the risks identified and will be outlined in the Environmental Plan (EP).

Woodside is seeking to understand the nature of the interests that Dambimangari Aboriginal Corporation and its members may have in the 'environment that may be affected' (EMBA) by this activity. The EMBA is the total area over which unplanned events could have environmental impacts, as set out in the Summary Information sheet attached.

If you would like to speak with us, please let us know by 15 March 2023. Please also let us know how you would like us to engage with you as soon as possible.

If there is any support or specific information that you require as part of our engagement, please let me know.

You can also provide feedback directly to me on the details below, to Feedback@woodside.com.au or by calling 1800 442 977, or directly to the Australian Government's National Offshore Petroleum Safety and Environmental Management Authority to communications@nopsema.gov.au or (08) 6188 8700.

Stybarrow Plug and Abandonment Environment Plan

Please feel free to forward this email and, the attached documents to Dambimangari Aboriginal Corporation members as required. Woodside would be pleased to speak with Dambimangari Aboriginal Corporation members in addition to the Dambimangari Aboriginal Corporation Board / office holders if desired.

Kind regards

2.40.1 Follow up Email to Dambimangari Aboriginal Corporation (8 March 2023)

Dear [REDACTED]

I am following up on my email sent 23.02.23 with the information fact sheets, firstly to make sure you received them and if there were any initial concerns.

If you or any members would like to speak with us, please let us know by 15 March 2023.

You can provide feedback directly to me by email, to Feedback@woodside.com.au or by calling 1800 442 977, or directly to the Australian Government's National Offshore Petroleum Safety and Environmental Management Authority to communications@nopsema.gov.au or (08) 6188 8700.

Regards

2.41 Email sent to Gogolanyngor Aboriginal Corporation via Kimberley Land Council (KLC) (28 February 2023)

Hi

After speaking with [REDACTED], I am sending through 5 individual emails to be passed on by KLC to the respective PBC's, in relation to activities planned by Woodside Energy. We would appreciate if these emails and information sheets could be passed on at your earliest to provide information to the individual Aboriginal Corporations and their members.

Could I please ask, that I am notified once all the five Aboriginal Groups have been sent the email and information sheets.

Thank you

Info for Gogolanyngor Aboriginal Corporation

Dear XXXXXX

I hope this message finds you well.

We are contacting you regarding Woodside's plans in relation to near future activities:

- The Stybarrow plug and abandonment (P&A) of the wells as part of the decommissioning, the Summary Information sheet is attached and further information can be found here on Woodside's website - [consultation-information-sheet---stybarrow-plug-and-abandonment-environment-plan.pdf](#) (woodside.com);
- The Pyxis drilling and subsea installation activity the Summary Information sheet is attached and ad further information can be found here on Woodside's website -

Stybarrow Plug and Abandonment Environment Plan

Consultation Information Sheet - WA-34-L Pyxis Drilling and Subsea Installation Environment Plan (woodside.com)

In preparation for the activities, Woodside has undertaken assessments to identify potential impacts and risks to the marine environment arising from both planned and unplanned activities. Mitigation and management measures have been developed for each of the risks identified and will be outlined in the Environmental Plan (EP).

Woodside is seeking to understand the nature of the interests that Gogolanyngor Aboriginal Corporation and its members may have in the 'environment that may be affected' (EMBA) by this activity. The EMBA is the total area over which unplanned events could have environmental impacts, as set out in the Summary Information sheet attached.

If you would like to speak with us, please let us know by 15 March 2023. Please also let us know how you would like us to engage with you as soon as possible.

If there is any support or specific information that you require as part of our engagement, please let me know.

You can also provide feedback directly to me on the details below, to Feedback@woodside.com.au or by calling 1800 442 977, or directly to the Australian Government's National Offshore Petroleum Safety and Environmental Management Authority to communications@nopsema.gov.au or (08) 6188 8700.

Please feel free to forward this email and, the attached documents to Gogolanyngor Aboriginal Corporation members as required. Woodside would be pleased to speak with Gogolanyngor Aboriginal Corporation members in addition to the Gogolanyngor Aboriginal Corporation Board / office holders if desired.

Kind regards

2.42 Email sent to Yawoorroong Miriuwung Gajerrong Yirrgeb Noong Dawang Corporation (MG Corp) (23 February 2023)

Dear [REDACTED]

Nice talking to you today, although only by telephone and I will call again next week just to make sure you received my email.

I hope this message finds you well.

As per our telephone conversation, I am contacting you regarding Woodside's plans in relation to activities:

The Stybarrow plug and abandonment (P&A) of the wells as part of the decommissioning, the Summary Information sheet is attached and further information can be found here on Woodside's website - [consultation-information-sheet---stybarrow-plug-and-abandonment-environment-plan.pdf](https://www.woodside.com.au/consultation-information-sheet---stybarrow-plug-and-abandonment-environment-plan.pdf) (woodside.com);

In preparation for the activities, Woodside has undertaken assessments to identify potential impacts and risks to the marine environment arising from both planned and unplanned activities. Mitigation and management measures have been developed for each of the risks identified and will be outlined in the Environmental Plan (EP).

Stybarrow Plug and Abandonment Environment Plan

Woodside is seeking to understand the nature of the interests that MG Corporation and its members may have in the 'environment that may be affected' (EMBA) by this activity. The EMBA is the total area over which unplanned events could have environmental impacts, as set out in the Summary Information sheet attached.

If you would like to speak with us, please let us know by 15 March 2023. Please also let us know how you would like us to engage with you as soon as possible.

If there is any support or specific information that you require as part of our engagement, please let me know.

You can also provide feedback directly to me on the details below, to Feedback@woodside.com.au or by calling 1800 442 977, or directly to the Australian Government's National Offshore Petroleum Safety and Environmental Management Authority to communications@nopsema.gov.au or (08) 6188 8700.

Please feel free to forward this email and, the attached documents to MG corporation members as required. Woodside would be pleased to speak with MG corporation members in addition to the MG corporation Board / office holders.

Kind regards

2.42.1 Follow up email sent to Yawoorroong Miriuwung Gajerrong Yirrgeb Noong Dawang Corporation (MG Corp) (8 March 2023)

Dear [REDACTED]

I am following up on my email sent 24.02.23 with the information fact sheets, firstly to make sure you received them and if there were any initial concerns.

If you or any members would like to speak with us, please let us know by **15 March 2023**.

You can provide feedback directly to me by email, to Feedback@woodside.com.au or by calling 1800 442 977, or directly to the Australian Government's National Offshore Petroleum Safety and Environmental Management Authority to communications@nopsema.gov.au or (08) 6188 8700.

Regards

2.43 Email sent to Kariyarra Aboriginal Corporation (24 February 2023)

Hello [REDACTED]

In follow up to our telephone conversation on the 27th January please let me know if you have any questions regarding the Environmental Plan (EP) information shared with you to date for Scarborough and Nganghurra RTM.

This email provides further information on Woodside's decommissioning and drilling activities that we are seeking to understand if Kariyarra has any interests in the Environment that may be affected (EMBA) relative to the attached information sheets and if Kariyarra would like us to consult further on these EPs.

Stybarrow Plug and Abandonment Environment Plan

With the exception of removing the Nganhurra RTM and the Scarborough project, for which Woodside is seeking Kariyarra's feedback as soon as possible, Woodside is also seeking Kariyarra's feedback on these decommissioning and drilling activities by **17 March 2023**. The plain English summary of each of these activities is attached, and I have provided a link to the more detailed consultation information sheets below. These activities are:

Decommissioning Activities:

- Stybarrow. This involves two work activities that are subject to separate environment plans; plug and abandonment (P&A) of the wells and decommissioning the infrastructure.
 - [consultation-information-sheet---stybarrow-plug-and-abandonment-environment-plan.pdf \(woodside.com\)](#)
 - [Consultation Information Sheet - Stybarrow Decommissioning Environment Plans \(woodside.com\)](#)
- Griffin decommissioning.
 - [consultation-information-sheet---griffin-decommissioning-environment-plans.pdf \(woodside.com\)](#)

Drilling Activities:

- TPA03 Well Intervention.
 - [Consultation Information Sheet - TPA03 Well Intervention Environment Plan \(woodside.com\)](#)
- WA-34-L Pyxis Drilling and Subsea Installation.
 - [Consultation Information Sheet - WA-34-L Pyxis Drilling and Subsea Installation Environment Plan \(woodside.com\)](#)
- Julimar Appraisal Drilling.
 - [Consultation Information Sheet - Julimar Appraisal Drilling and Survey Environment Plan \(woodside.com\)](#)

If there is anything else, Woodside can do at this time to facilitate consultation if Kariyarra make an assessment that this is required to provide more information about these planned work activities please let me know.

Thank you for your time in considering these matters.

Please feel free to contact me on the details below if you require further information or assistance.

Kind regards

2.43.1 Follow up email sent to Kariyarra Aboriginal Corporation (24 March 2023)

Good afternoon [REDACTED]

Just a courtesy follow up to check if you have had the chance to review the emails I've shared on respective activity and if I can assist with any questions you may have.

We welcome the opportunity to provide further detail to you and your board if that is of interest.

Please don't hesitate to contact me if you have any queries.

Kind regards

██████████

2.43.2 Follow up email sent to Kariyarra Aboriginal Corporation (24 March 2023)

Good morning ██████████

I hope you are well. I tried reaching out via phone this morning but seem to be having some trouble with the mobile connection so I've also left a message on ██████████ mobile to check that I have your current number. In any case please feel free to call me at any stage on 0459845021.

I just wanted to check in again on the information we have shared with you to date and to seek your guidance on whether or not you would like to arrange a meeting either in-person or online so that we can clarify anything you may have questions on – we are very happy to accommodate what works for you.

If you could let me know at your earliest convenience that would be most appreciated.

Kind regards

██████████

2.44 Email sent to Karri Karrak Aboriginal Corporation (KKAC) (17 March 2023)

Good afternoon ██████████

I am reaching out on the understanding you are the point of contact for the Karri Karrak Aboriginal Corporation (KKAC). I have attached information in relation to Woodside's proposal to plug and abandon (P&A) a former production well that was used for the Stybarrow project approximately 50km North West of Exmouth. The Stybarrow project is no longer operating and Woodside is in the process of completing the decommissioning of this project.

In preparation for this P&A work, Woodside has undertaken an assessment to identify potential impacts and risks to the marine environment arising from both planned and unplanned activities. Mitigation and management measures have been developed for each of the risks identified and will be outlined in the Environmental Plan (EP).

Please find below a link to the Consultation Information Sheet for this activity, and attached a plain English overview. These documents provide further background on this proposed work, including a summary of potential key risks and associated management measures.

- [consultation-information-sheet---stybarrow-plug-and-abandonment-environment-plan.pdf \(woodside.com\)](#)

Woodside is seeking to understand the nature of the interests that Karri Karrak Aboriginal Corporation (KKAC) and its members may have in relation to this P&A activity, and particularly in relation to the highly unlikely event that a loss of well containment may cause an accumulation of hydrocarbons on parts of the shoreline on KKAC country. Woodside is seeking KKAC's feedback by 17 April 2023.

Please feel free to contact me if you require further information or assistance in relation to this matter. We are also happy to discuss appropriate mechanisms for consultation.

Stybarrow Plug and Abandonment Environment Plan

KKAC can provide feedback directly to me on the details below, to Feedback@woodside.com.au, by calling Woodside's feedback number 1800 442 977, or directly to the Australian Government's National Offshore Petroleum Safety and Environmental Management Authority to communications@nopsema.gov.au or (08) 6188 8700.

Please feel free to forward this email and, the attached document to KKAC members as required. Woodside would be pleased to speak with KKAC members in addition to the KKAC Board/office holders.

I look forward to hearing from you.

Sincerely

2.45 Email sent to Malgana Aboriginal Corporation (17 March 2023)

Dear [REDACTED]

Further to our recent conversations and plans to meet, please additional decommissioning and drilling activities for consideration at the meeting. The plain English summary of each of these activities is attached, and I have provided a link to the more detailed consultation information sheets below. These activities are:

Decommissioning Activities:

- Stybarrow. This involves two work activities that are subject to separate environment plans; plug and abandonment (P&A) of the wells and decommissioning the infrastructure.
 - [consultation-information-sheet---stybarrow-plug-and-abandonment-environment-plan.pdf \(woodside.com\)](#)
 - [Consultation Information Sheet - Stybarrow Decommissioning Environment Plans \(woodside.com\)](#)
- Griffin decommissioning.
 - [consultation-information-sheet---griffin-decommissioning-environment-plans.pdf \(woodside.com\)](#)

Drilling Activities:

- WA-34-L Pyxis Drilling and Subsea Installation.
 - [Consultation Information Sheet - WA-34-L Pyxis Drilling and Subsea Installation Environment Plan \(woodside.com\)](#)
- Julimar Appraisal Drilling.
 - [Consultation Information Sheet - Julimar Appraisal Drilling and Survey Environment Plan \(woodside.com\)](#)

We look forward to meeting with you and receiving feedback from Malgana about these activities.

Kind regards

[REDACTED]

2.46 Email sent to Mayala Inninalang Aboriginal Corporation via Kimberley Land Council (KLC) (28 February 2023)

Hi
Info for Myala Inninalang Aboriginal Corporation.

Dear [REDACTED]

I hope this message finds you well.

We are contacting you regarding Woodside's plans in relation to near future activities:

- The Stybarrow plug and abandonment (P&A) of the wells as part of the decommissioning, the Summary Information sheet is attached and further information can be found here on Woodside's website - consultation-information-sheet---stybarrow-plug-and-abandonment-environment-plan.pdf (woodside.com);
- The Pyxis drilling and subsea installation activity the Summary Information sheet is attached and ad further information can be found here on Woodside's website - Consultation Information Sheet - WA-34-L Pyxis Drilling and Subsea Installation Environment Plan (woodside.com)

In preparation for the activities, Woodside has undertaken assessments to identify potential impacts and risks to the marine environment arising from both planned and unplanned activities. Mitigation and management measures have been developed for each of the risks identified and will be outlined in the Environmental Plan (EP).

Woodside is seeking to understand the nature of the interests that Mayala Inninalang Aboriginal Corporation and its members may have in the 'environment that may be affected' (EMBA) by this activity. The EMBA is the total area over which unplanned events could have environmental impacts, as set out in the Summary Information sheet attached.

If you would like to speak with us, please let us know by 15 March 2023. Please also let us know how you would like us to engage with you as soon as possible.

If there is any support or specific information that you require as part of our engagement, please let me know.

You can also provide feedback directly to me on the details below, to Feedback@woodside.com.au or by calling 1800 442 977, or directly to the Australian Government's National Offshore Petroleum Safety and Environmental Management Authority to communications@nopsema.gov.au or (08) 6188 8700.

Please feel free to forward this email and, the attached documents to Mayala Inninalang Aboriginal Corporation members as required. Woodside would be pleased to speak with Mayala Inninalang Aboriginal Corporation members in addition to the Mayala Inninalang Aboriginal Corporation Board / office holders if desired.

Kind regards

2.46.1 Follow up email sent to Mayala Inninalang Aboriginal Corporation via Kimberley Land Council (KLC) (8 March 2023)

Hi [REDACTED]

Stybarrow Plug and Abandonment Environment Plan

We are required to follow up with the Native Titleholders just to check in and make sure they have no concerns and to re-iterate to contact us if they do. Below is what I have sent out to other groups and asking if you could please send out to the 5 groups KLC manage and when sending, could you please cc feedback@woodside.com.au

Dear [REDACTED]

I am following up on my email sent 23.02.23 with the information fact sheets, firstly to make sure you received them and if there were any initial concerns. If you or any members would like to speak with us, please let us know by 15 March 2023.

You can provide feedback, to Feedback@woodside.com.au or by calling 1800 442 977, or directly to the Australian Government's National Offshore Petroleum Safety and Environmental Management Authority to communications@nopsema.gov.au or (08) 6188 8700.

Thanks

2.47 Email sent to Nanda Aboriginal Corporation (NAC) (17 March 2023)

Hi [REDACTED]

Thank you for the meeting with YMAC legal on 13 March. It was a pleasure to meet you all.

I am following up to see whether you have a date and budget for a meeting with Nanda AC (NAC) and to notify you of additional EPs for consideration by the NAC Board outlined below.

1. Woodside's proposal to plug and abandon (P&A) a former production well that was used for the Stybarrow project approximately 50km North West of Exmouth. The Stybarrow project is no longer operating and Woodside is in the process of completing the decommissioning of this project. In preparation for this P&A work, Woodside has undertaken an assessment to identify potential impacts and risks to the marine environment arising from both planned and unplanned activities. Mitigation and management measures have been developed for each of the risks identified and will be outlined in the Environmental Plan (EP).

Please see link to the Consultation Information Sheet for this activity, and attached plain English overview. These documents provide further background on this proposed work, including a summary of potential key risks and associated management measures.

2. Woodside plans to drill and complete one new Pluto gas production well called PLA08. Subsea equipment will be installed to connect this well to the existing Pluto subsea infrastructure. It may also carry out maintenance activities on existing Pluto, Pyxis and Xena gas production wells as required. This work will take place in Commonwealth waters, approximately 170 km north-west of Dampier in title area WA-34-L. The proposed PLA08 production well will be located at a water depth of approximately 820m.WA-34-L Pyxis Drilling and Subsea Installation.

Please see link to the Consultation Information Sheet for this activity, and

attached plain English overview. These documents provide further background on this proposed work, including a summary of potential key risks and associated management measures.

Woodside is seeking to understand the nature of the interests that NAC and its members may have in relation to these activities. Please feel free to contact me if you require further information or assistance in relation to this matter. We are also happy to discuss appropriate mechanisms for consultation.

NAC can provide feedback directly to me on the details below, to Feedback@woodside.com.au, by calling Woodside's feedback number 1800 442 977, or directly to the Australian Government's National Offshore Petroleum Safety and Environmental Management Authority to communications@nopsema.gov.au or (08) 6188 8700.

Please feel free to forward this email and the attached document to NAC members as required. Woodside would be pleased to speak with NAC members in addition to the NAC Board/office holders.

Kind regards

2.48 Email sent to Nganhurra Thanardi Garrbu Aboriginal Corporation (NTGAC) via Yamatji Marlpa Aboriginal Corporation (YMAC) (21 February 2023)

Dear [REDACTED]

Firstly, thank you for your assistance in arranging the meeting between NTGAC and Woodside on 16 February. It was a pleasure to meet the NTGAC Board and YMAC staff. We were most grateful for the opportunity to provide information about our plans and to learn of NTGAC's questions. We will write separately to thank the NTGAC Board for the meeting.

As was discussed during our meeting, please find attached information about Woodside's decommissioning and drilling activities. With the exception of removing the Nganhurra Riser Turret Mooring, for which Woodside seeks NTGAC's feedback soonest, Woodside is seeking feedback on these decommissioning and drilling activities by 17 March. The plain English summary of each of these activities is attached, and I have provided a link to the more detailed consultation information sheets below. To recap, these activities are:

Decommissioning Activities:

Removal of the Nganhurra Riser Turret Mooring (RTM). Information about the RTM was previously emailed on 18 January. For ease of reference, the summary information is attached and the consultation information sheet for the RTM can be found at the link below.

[consultation-information-sheet---nganhurra-operations-cessation-environment-plan-revision.pdf](#) (woodside.com)

Stybarrow. This involves two work activities that are subject to separate environment plans; plug and abandonment (P&A), and decommissioning.

[consultation-information-sheet---stybarrow-plug-and-abandonment-environment-plan.pdf](#) (woodside.com)

Consultation Information Sheet - Stybarrow Decommissioning Environment Plans (woodside.com)

Stybarrow Plug and Abandonment Environment Plan

Griffin decommissioning.
consultation-information-sheet---griffin-decommissioning-environment-plans.pdf
(woodside.com)

Drilling Activities:
TPA03 Well Intervention.
Consultation Information Sheet - TPA03 Well Intervention Environment Plan
(woodside.com)
WA-34-L Pyxis Drilling and Subsea Installation.
Consultation Information Sheet - WA-34-L Pyxis Drilling and Subsea Installation
Environment Plan (woodside.com)
Julimar Appraisal Drilling.
Consultation Information Sheet - Julimar Appraisal Drilling and Survey Environment Plan
(woodside.com)

Woodside also looks forward to receiving NTGAC's feedback on the four Scarborough project activities as soon as is possible.

In providing this information and requests for feedback, I acknowledge [REDACTED] email of 20 February outlining NTGAC's request of Woodside to provide funding for YMAC's in-house environmental scientist to undertake a review of the RTM environmental plan. [REDACTED] [REDACTED] will be in contact with [REDACTED] directly about this in the coming days.

Thanks again [REDACTED] for your assistance last week, your consideration of these matters and for your work to progress these important consultations.

Yours sincerely

2.49 Email to Yamatji Marlpa Aboriginal Corporation (YMAC) (21 February 2023)

Dear [REDACTED]

Firstly, thank you for your assistance in arranging the meeting between NTGAC and Woodside on 16 February. It was a pleasure to meet the NTGAC Board and YMAC staff. We were most grateful for the opportunity to provide information about our plans and to learn of NTGAC's questions. We will write separately to thank the NTGAC Board for the meeting.

As was discussed during our meeting, please find attached information about Woodside's decommissioning and drilling activities. With the exception of removing the Nganhurra Riser Turret Mooring, for which Woodside seeks NTGAC's feedback soonest, Woodside is seeking feedback on these decommissioning and drilling activities by 17 March. The plain English summary of each of these activities is attached, and I have provided a link to the more detailed consultation information sheets below. To recap, these activities are:
Decommissioning Activities:

Removal of the Nganhurra Riser Turret Mooring (RTM). Information about the RTM was previously emailed on 18 January. For ease of reference, the summary information is attached and the consultation information sheet for the RTM can be found at the link below.

consultation-information-sheet---nganhurra-operations-cessation-environment-plan-revision.pdf
(woodside.com)

Stybarrow. This involves two work activities that are subject to separate environment plans; plug and abandonment (P&A), and decommissioning.

consultation-information-sheet---stybarrow-plug-and-abandonment-environment-plan.pdf
(woodside.com)

Consultation Information Sheet - Stybarrow Decommissioning Environment Plans
(woodside.com)

Stybarrow Plug and Abandonment Environment Plan

Griffin decommissioning.

consultation-information-sheet---griffin-decommissioning-environment-plans.pdf
(woodside.com)

Drilling Activities:

TPA03 Well Intervention.

Consultation Information Sheet - TPA03 Well Intervention Environment Plan (woodside.com)

WA-34-L Pyxis Drilling and Subsea Installation.

Consultation Information Sheet - WA-34-L Pyxis Drilling and Subsea Installation Environment Plan
(woodside.com)

Julimar Appraisal Drilling.

Consultation Information Sheet - Julimar Appraisal Drilling and Survey Environment Plan
(woodside.com)

Woodside also looks forward to receiving NTGAC's feedback on the four Scarborough project activities as soon as is possible.

In providing this information and requests for feedback, I acknowledge [REDACTED] email of 20 February outlining NTGAC's request of Woodside to provide funding for YMAC's in-house environmental scientist to undertake a review of the RTM environmental plan. [REDACTED]

[REDACTED] will be in contact with [REDACTED] directly about this in the coming days.

Thanks again [REDACTED] for your assistance last week, your consideration of these matters and for your work to progress these important consultations.

Yours sincerely

[REDACTED]

2.50 Email sent to Ngarluma Aboriginal Corporation (NAC) (24 February 2023)

Good morning [REDACTED] and [REDACTED]

I mentioned I would be sharing more information when we met on Friday 17 February, to discuss the Environmental Plan (EP) information shared with you to date for Scarborough and Nganghurra RTM. This is the email with further information for NAC to consider if they have any interests in the EMBA (Environment that may be affected) relative to the attached information sheets.

It would be greatly appreciated if you could please acknowledge receipt and confirm the opportunity to meet with the NAC board when they are next due to meet on 29 or 30 March. We welcome the opportunity to spend a whole day with the board on a different day if that works.

This email provides information on Woodside's decommissioning and drilling activities that we are seeking to consult with NAC about.

With the exception of removing the Nganghurra RTM and the Scarborough project, for which Woodside is seeking NAC's feedback as soon as possible, Woodside is seeking NAC's feedback on these decommissioning and drilling activities by **17 March 2023**. The plain English summary of each of these activities is attached, and I have provided a link to the more detailed consultation information sheets below. These activities are:

Decommissioning Activities:

- Removal of the Nganghurra Riser Turret Mooring (RTM). Information about the RTM was previously emailed on 20 January. For ease of reference, the summary information is attached and the consultation information sheet for the RTM can be found at the link below.
 - [consultation-information-sheet---nganghurra-operations-cessation-environment-plan-revision.pdf \(woodside.com\)](#)

Stybarrow Plug and Abandonment Environment Plan

- Stybarrow. This involves two work activities that are subject to separate environment plans; plug and abandonment (P&A) of the wells and decommissioning the infrastructure.
 - [consultation-information-sheet---stybarrow-plug-and-abandonment-environment-plan.pdf \(woodside.com\)](#)
 - [Consultation Information Sheet - Stybarrow Decommissioning Environment Plans \(woodside.com\)](#)
- Griffin decommissioning.
 - [consultation-information-sheet---griffin-decommissioning-environment-plans.pdf \(woodside.com\)](#)

Drilling Activities:

- TPA03 Well Intervention.
 - [Consultation Information Sheet - TPA03 Well Intervention Environment Plan \(woodside.com\)](#)
- WA-34-L Pyxis Drilling and Subsea Installation.
 - [Consultation Information Sheet - WA-34-L Pyxis Drilling and Subsea Installation Environment Plan \(woodside.com\)](#)
- Julimar Appraisal Drilling.
 - [Consultation Information Sheet - Julimar Appraisal Drilling and Survey Environment Plan \(woodside.com\)](#)

In providing this information and requests for feedback, I acknowledge that we are working towards presenting to the NAC board at their next board meeting in March. Woodside would be most grateful for the opportunity to meet with NAC, at NAC's earliest convenience, and at a location suitable to NAC. Woodside would also be pleased to provide the resources necessary to hold this meeting and we look forward to receiving a budget for consideration. If there is anything else, we can do at this time to facilitate consultation about these planned work activities please let me know.

Thank you [REDACTED] and [REDACTED] for consideration of these matters and work to progress these important consultations.

Please feel free to contact me on the details below if you require further information or assistance.

Regards

2.51 Email sent to Nimanburr Aboriginal Corporation via Kimberley Land Council (KLC) (28 February 2023)

Hi

Infor for Nimanburr Aboriginal Corporation

Dear XXXXXX

I hope this message finds you well.

We are contacting you regarding Woodside's plans in relation to near future activities:

- The Stybarrow plug and abandonment (P&A) of the wells as part of the decommissioning, the Summary Information sheet is attached and further information can be found here on Woodside's website - consultation-

Stybarrow Plug and Abandonment Environment Plan

- information-sheet---stybarrow-plug-and-abandonment-environment-plan.pdf (woodside.com);
- The Pyxis drilling and subsea installation activity the Summary Information sheet is attached and ad further information can be found here on Woodside's website - Consultation Information Sheet - WA-34-L Pyxis Drilling and Subsea Installation Environment Plan (woodside.com)

In preparation for the activities, Woodside has undertaken assessments to identify potential impacts and risks to the marine environment arising from both planned and unplanned activities. Mitigation and management measures have been developed for each of the risks identified and will be outlined in the Environmental Plan (EP).

Woodside is seeking to understand the nature of the interests that Nimanburr Aboriginal Corporation and its members may have in the 'environment that may be affected' (EMBA) by this activity. The EMBA is the total area over which unplanned events could have environmental impacts, as set out in the Summary Information sheet attached.

If you would like to speak with us, please let us know by 15 March 2023. Please also let us know how you would like us to engage with you as soon as possible.

If there is any support or specific information that you require as part of our engagement, please let me know.

You can also provide feedback directly to me on the details below, to Feedback@woodside.com.au or by calling 1800 442 977, or directly to the Australian Government's National Offshore Petroleum Safety and Environmental Management Authority to communications@nopsema.gov.au or (08) 6188 8700.

Please feel free to forward this email and, the attached documents to Nimanburr Aboriginal Corporation members as required. Woodside would be pleased to speak with Nimanburr Aboriginal Corporation members in addition to the Nimanburr Aboriginal Corporation Board / office holders if desired.

Kind regards

2.51.1 Follow up email sent to Nimanburr Aboriginal Corporation via Kimberley Land Council (KLC) (8 March 2023)

Hi [REDACTED]

We are required to follow up with the Native Titleholders just to check in and make sure they have no concerns and to re-iterate to contact us if they do. Below is what I have sent out to other groups and asking if you could please send out to the 5 groups KLC manage and when sending, could you please cc feedback@woodside.com.au

Dear XXX

I am following up on my email sent 23.02.23 with the information fact sheets, firstly to make sure you received them and if there were any initial concerns.

If you or any members would like to speak with us, please let us know by 15 March 2023.

Stybarrow Plug and Abandonment Environment Plan

You can provide feedback, to Feedback@woodside.com.au or by calling 1800 442 977, or directly to the Australian Government's National Offshore Petroleum Safety and Environmental Management Authority to communications@nopsema.gov.au or (08) 6188 8700.

Thanks



2.52 Email sent to Nyul Nyul Aboriginal Corporation via Kimberley Land Council (KLC) (28 February 2023)

Hi
Info for Nyul Nyul PBC Aboriginal Corporation.

Dear XXXXXX

I hope this message finds you well.

We are contacting you regarding Woodside's plans in relation to near future activities:

- The Stybarrow plug and abandonment (P&A) of the wells as part of the decommissioning, the Summary Information sheet is attached and further information can be found here on Woodside's website - [consultation-information-sheet---stybarrow-plug-and-abandonment-environment-plan.pdf](#) (woodside.com);
- The Pyxis drilling and subsea installation activity the Summary Information sheet is attached and ad further information can be found here on Woodside's website - [Consultation Information Sheet - WA-34-L Pyxis Drilling and Subsea Installation Environment Plan](#) (woodside.com)

In preparation for the activities, Woodside has undertaken assessments to identify potential impacts and risks to the marine environment arising from both planned and unplanned activities. Mitigation and management measures have been developed for each of the risks identified and will be outlined in the Environmental Plan (EP).

Woodside is seeking to understand the nature of the interests that Nyul Nyul Aboriginal Corporation and its members may have in the 'environment that may be affected' (EMBA) by this activity. The EMBA is the total area over which unplanned events could have environmental impacts, as set out in the Summary Information sheet attached.

If you would like to speak with us, please let us know by 15 March 2023. Please also let us know how you would like us to engage with you as soon as possible.

If there is any support or specific information that you require as part of our engagement, please let me know.

You can also provide feedback directly to me on the details below, to Feedback@woodside.com.au or by calling 1800 442 977, or directly to the Australian Government's National Offshore Petroleum Safety and Environmental Management Authority to communications@nopsema.gov.au or (08) 6188 8700.

Please feel free to forward this email and, the attached documents to Nyul Nyul Aboriginal Corporation members as required. Woodside would be pleased to speak

Stybarrow Plug and Abandonment Environment Plan

with Nyul Nyul Aboriginal Corporation members in addition to the Nyul Nyul Aboriginal Corporation Board / office holders if desired.

Kind regards

2.53 Email sent to Nyangumarta Karajarri Aboriginal Corporation (NKAC) via Kimberley Land Council (KLC) (24 February 2023)

Hello [REDACTED]

Thankyou for your email received on 30 January advising that you have forwarded the Environmental Plan (EP) information shared to date for Scarborough and the Nganghurra RTM on to the respective Nyangumarta Karajarri Aboriginal Corporation (NKAC) directors.

This email provides further information on Woodside's decommissioning and drilling activities that we are seeking to understand if NKAC has any interests in the Environment that may be affected (EMBA) relative to the attached information sheets and if the NKAC directors would like us to consult further on these EPs.

With the exception of removing the Nganhurra RTM and the Scarborough project, for which Woodside is seeking NKAC's feedback as soon as possible, Woodside is also seeking NKAC's feedback on these decommissioning and drilling activities by 17 March 2023.

The plain English summary of each of these activities is attached, and I have provided a link to the more detailed consultation information sheets below. These activities are:

Decommissioning Activities:

- Stybarrow. Plug and abandonment (P&A) of the wells.
 - [consultation-information-sheet---stybarrow-plug-and-abandonment-environment-plan.pdf](#) (woodside.com)

Drilling Activities:

- WA-34-L Pyxis Drilling and Subsea Installation.
 - [Consultation Information Sheet - WA-34-L Pyxis Drilling and Subsea Installation Environment Plan](#) (woodside.com)

If there is anything else, Woodside can do at this time to facilitate consultation, if the directors of NKAC make an assessment that this is required to provide more information about these planned work activities, please let me know.

Thank you for your time in considering these matters.

Please feel free to contact me on the details below if you require further information or assistance.

Kind regards

2.53.1 Follow up Email sent to Nyangumarta Karajarri Aboriginal Corporation (NGAC) via Kimberley Land Council (KLC) (24 March 2023)

Hello [REDACTED]

Stybarrow Plug and Abandonment Environment Plan

I hope you are well. I thought I would reach out in follow up to the information on Scarborough and other decommissioning activity that has been sent for sharing with the directors and whether any questions or interest in meeting with Woodside to discuss the information further may have arisen.

Please don't hesitate to contact me if you have any queries on this as we welcome the opportunity to meet should the directors wish to do so.

Kind regards

2.54 Email sent to Nyangumarta Warrarn Aboriginal Corporation (NWAC) (24 February 2023)

Dear [REDACTED]

I thought I would take this opportunity to follow up on our previous email correspondence sent to you on 27 January regarding the Environmental Plan (EP) information shared to date for the Scarborough project activity and the Nganhurra Riser Turret Mooring (RTM) removal. If you have any queries relating to this activity please let me know at your earliest convenience.

This email provides further information on Woodside's decommissioning and drilling activities that we are seeking to understand if Nyangumarta Warrarn Aboriginal Corporation (NWAC) has any interests in the Environment that may be affected (EMBA) relative to the attached information sheets and if the NWAC directors would like us to consult further on these EPs.

With the exception of removing the Nganhurra RTM and the Scarborough project, for which Woodside is seeking NWAC's feedback as soon as possible, Woodside is also seeking NWAC's feedback on these decommissioning and drilling activities by 17 March 2023.

The plain English summary of each of these activities is attached, and I have provided a link to the more detailed consultation information sheets below. These activities are:

Decommissioning Activities:

- Stybarrow. Plug and abandonment (P&A) of the wells.
 - [consultation-information-sheet---stybarrow-plug-and-abandonment-environment-plan.pdf \(woodside.com\)](#)

Drilling Activities:

- WA-34-L Pyxis Drilling and Subsea Installation.
 - [Consultation Information Sheet - WA-34-L Pyxis Drilling and Subsea Installation Environment Plan \(woodside.com\)](#)

If there is anything else, Woodside can do at this time to facilitate consultation, if the directors of NWAC make an assessment that this is required to provide more information about these planned work activities, please let me know.

Thank you for your time in considering these matters.

Please feel free to contact me on the details below if you require further information or assistance.

Kind regards

2.55 Email sent to Bardi and Jawi Niimidiman Aboriginal Corporation (24 February 2023)

Hi [REDACTED]

Nice talking to you earlier and as per our conversation, please find attached Fact Sheets and relevant info below.

I am contacting you regarding Woodside's plans in relation to near future activities:

- The Stybarrow plug and abandonment (P&A) of the wells as part of the decommissioning, the Summary Information sheet is attached and further information can be found here on Woodside's website - [consultation-information-sheet---stybarrow-plug-and-abandonment-environment-plan.pdf](#) (woodside.com);
- The Pyxis drilling and subsea installation activity the Summary Information sheet is attached and ad further information can be found here on Woodside's website - [Consultation Information Sheet - WA-34-L Pyxis Drilling and Subsea Installation Environment Plan](#) (woodside.com)

In preparation for the activities, Woodside has undertaken assessments to identify potential impacts and risks to the marine environment arising from both planned and unplanned activities. Mitigation and management measures have been developed for each of the risks identified and will be outlined in the Environmental Plan (EP).

Woodside is seeking to understand the nature of the interests that Bardi Jawi Niimidiman Aboriginal Corporation and its members may have in the 'environment that may be affected' (EMBA) by this activity. The EMBA is the total area over which unplanned events could have environmental impacts, as set out in the Summary Information sheet attached.

If you would like to speak with us, please let us know by 15 March 2023. Please also let us know how you would like us to engage with you as soon as possible.

If there is any support or specific information that you require as part of our engagement, please let me know.

You can also provide feedback directly to me on the details below, to Feedback@woodside.com.au or by calling 1800 442 977, or directly to the Australian Government's National Offshore Petroleum Safety and Environmental Management Authority to communications@nopsema.gov.au or (08) 6188 8700.

Please feel free to forward this email and, the attached documents to Bardi Jawi Niimidiman Aboriginal Corporation members as required. Woodside would be pleased to speak with Bardi Jawi Niimidiman Aboriginal Corporation members in addition to the Bardi Jawi Niimidiman Aboriginal Corporation Board / office holders if desired.

Kind regards

2.55.1 Follow up email sent to Bardi Jawi Niimidiman Aboriginal Corporation (8 March 2023)

Dear [REDACTED]

I am following up on my email sent 24.02.23 with the information fact sheets, firstly to make sure you received documents and if there were any initial concerns. If you or any members would like to speak with us, please let us know by 15 March 2023.

You can provide feedback directly to me by email, to Feedback@woodside.com.au or by calling 1800 442 977, or directly to the Australian Government's National Offshore Petroleum Safety and Environmental Management Authority to communications@nopsema.gov.au or (08) 6188 8700.

Regards
[REDACTED]

2.56 Email sent to Wanparta Aboriginal Corporation (24 February 2023)

Hello [REDACTED]

In follow up to your email received on 31 January please let me know if you have received any questions from the Wanparta Directors regarding the Environmental Plan (EP) information shared with you to date for Scarborough and Nganhurra RTM.

This email provides further information on Woodside's decommissioning and drilling activities that we are seeking to understand if Wanparta has any interests in the Environment that may be affected (EMBA) relative to the attached information sheets and if Wanparta would like us to consult further on these EPs.

With the exception of removing the Nganhurra RTM and the Scarborough project, for which Woodside is seeking Wanparta's feedback as soon as possible, Woodside is also seeking Wanparta's feedback on these decommissioning and drilling activities by 17 March 2023.

The plain English summary of each of these activities is attached, and I have provided a link to the more detailed consultation information sheets below. These activities are:

Decommissioning Activities:

- Stybarrow. Plug and abandonment (P&A) of the wells.
 - [consultation-information-sheet---stybarrow-plug-and-abandonment-environment-plan.pdf](#) (woodside.com)
- Griffin decommissioning.
 - [consultation-information-sheet---griffin-decommissioning-environment-plans.pdf](#) (woodside.com)

Drilling Activities:

- WA-34-L Pyxis Drilling and Subsea Installation.
 - [Consultation Information Sheet - WA-34-L Pyxis Drilling and Subsea Installation Environment Plan](#) (woodside.com)
- Julimar Appraisal Drilling.

Stybarrow Plug and Abandonment Environment Plan

- Consultation Information Sheet - Julimar Appraisal Drilling and Survey Environment Plan (woodside.com)

If there is anything else, Woodside can do at this time to facilitate consultation, if Wanparta make an assessment that this is required to provide more information about these planned work activities, please let me know.

Thank you for your time in considering these matters.

Please feel free to contact me on the details below if you require further information or assistance.

Kind regards

2.57 Email sent to Wilinggin Aboriginal Corporation (24 February 2023)

Dear Wilinggin Aboriginal Corporation

I hope this message finds you well.

I am contacting you regarding Woodside's plans in relation to near future activities:

1. The Stybarrow plug and abandonment (P&A) of the wells as part of the decommissioning, the Summary Information sheet is attached and further information can be found here on Woodside's website - [consultation-information-sheet--stybarrow-plug-and-abandonment-environment-plan.pdf \(woodside.com\)](#);

In preparation for the activities, Woodside has undertaken assessments to identify potential impacts and risks to the marine environment arising from both planned and unplanned activities. Mitigation and management measures have been developed for each of the risks identified and will be outlined in the Environmental Plan (EP).

Woodside is seeking to understand the nature of the interests that Wilinggin Aboriginal Corporation and its members may have in the 'environment that may be affected' (EMBA) by this activity. The EMBA is the total area over which unplanned events could have environmental impacts, as set out in the Summary Information sheet attached.

If you would like to speak with us, please let us know by **15 March 2023**. Please also let us know how you would like us to engage with you as soon as possible.

If there is any support or specific information that you require as part of our engagement, please let me know.

You can also provide feedback directly to me on the details below, to Feedback@woodside.com.au or by calling 1800 442 977, or directly to the Australian Government's National Offshore Petroleum Safety and Environmental Management Authority to communications@nopsema.gov.au or (08) 6188 8700.

Please feel free to forward this email and, the attached documents to Wilinggin Aboriginal Corporation members as required. Woodside would be pleased to speak with Wilinggin Aboriginal Corporation members in addition to the Wilinggin Aboriginal Corporation Board / office holders.

Kind regards



2.57.1 Follow up email sent to Wilinggin Aboriginal Corporation (8 March 2023)

Dear Wilinggin Aboriginal Corporation

I am following up on my email sent 24.02.23 with the information fact sheets, to see if there were any initial concerns.

If you or any members would like to speak with us, please let us know by 15 March 2023.

You can provide feedback directly to me by email, to Feedback@woodside.com.au or by calling 1800 442 977, or directly to the Australian Government's National Offshore Petroleum Safety and Environmental Management Authority to communications@nopsema.gov.au or (08) 6188 8700.

Regards

■

2.58 Email sent to Wirrawandi Aboriginal Corporation (WAC) (24 February 2023)

Good morning, ■

I hope your Friday is going well.

I mentioned I would be sharing more information when we met on Tuesday 21 February, to discuss the Environmental Plan (EP) information shared with you to date for Scarborough and Nganhurra RTM. This is the email with further information for Wirrawandi to consider if they have any interests in the Environment that may be affected (EMBA) relative to the attached information sheets.

It would be greatly appreciated if you could please acknowledge receipt and confirm the opportunity to meet with the Wirrawandi board when they are next due to meet in Perth in March.

This email provides information on Woodside's decommissioning and drilling activities that we are seeking to consult with Wirrawandi about.

With the exception of removing the Nganhurra RTM and the Scarborough project, for which Woodside is seeking Wirrawandi's feedback as soon as possible, Woodside is seeking Wirrawandi's feedback on these decommissioning and drilling activities by **17 March** 2023. The plain English summary of each of these activities is attached, and I have provided a link to the more detailed consultation information sheets below. These activities are:

Decommissioning Activities:

- Removal of the Nganhurra Riser Turret Mooring (RTM). Information about the RTM was previously emailed on 18 January. For ease of reference, the summary information is attached and the consultation information sheet for the RTM can be found at the link below.
 - [consultation-information-sheet---nganhurra-operations-cessation-environment-plan-revision.pdf \(woodside.com\)](#)
- Stybarrow. This involves two work activities that are subject to separate environment plans; plug and abandonment (P&A) of the wells and decommissioning the infrastructure.

Stybarrow Plug and Abandonment Environment Plan

- [consultation-information-sheet---stybarrow-plug-and-abandonment-environment-plan.pdf \(woodside.com\)](#)
- [Consultation Information Sheet - Stybarrow Decommissioning Environment Plans \(woodside.com\)](#)
- Griffin decommissioning.
 - [consultation-information-sheet---griffin-decommissioning-environment-plans.pdf \(woodside.com\)](#)

Drilling Activities:

- TPA03 Well Intervention.
 - [Consultation Information Sheet - TPA03 Well Intervention Environment Plan \(woodside.com\)](#)
- WA-34-L Pyxis Drilling and Subsea Installation.
 - [Consultation Information Sheet - WA-34-L Pyxis Drilling and Subsea Installation Environment Plan \(woodside.com\)](#)
- Julimar Appraisal Drilling.
 - [Consultation Information Sheet - Julimar Appraisal Drilling and Survey Environment Plan \(woodside.com\)](#)

In providing this information and requests for feedback, I acknowledge that we are working towards presenting to the Wirrawandi board at their next board meeting in March. Woodside would be most grateful for the opportunity to meet at Wirrawandi's earliest convenience, and at a location suitable to Wirrawandi. Woodside would also be pleased to provide the resources necessary to hold this meeting and we look forward to receiving a budget for consideration. If there is anything else, we can do at this time to facilitate consultation about these planned work activities please let me know.

Thank you, [REDACTED] for consideration of these matters and work to progress these important consultations.

Please feel free to contact me on the details below if you require further information or assistance.

Kind regards

2.59 Email sent to Wanjina-Wunggurr Aboriginal Corporation via Kimberley Land Council (KLC) (28 February 2023)

Hi

After speaking with [REDACTED], I am sending through 5 individual emails to be passed on by KLC to the respective PBC's, in relation to activities planned by Woodside. We would appreciate if these emails and information could be passed on at your earliest to provide information to the individual Aboriginal Corporations and their members.

Dear XXXXXX

I hope this message finds you well.

We are contacting you regarding Woodside's plans in relation to near future activities:

- The Stybarrow plug and abandonment (P&A) of the wells as part of the decommissioning, the Summary Information sheet is attached and further

information can be found here on Woodside's website - [consultation-information-sheet---stybarrow-plug-and-abandonment-environment-plan.pdf \(woodside.com\)](https://www.woodside.com.au/consultation-information-sheet---stybarrow-plug-and-abandonment-environment-plan.pdf);

- The Pyxis drilling and subsea installation activity the Summary Information sheet is attached and ad further information can be found here on Woodside's website - [Consultation Information Sheet - WA-34-L Pyxis Drilling and Subsea Installation Environment Plan \(woodside.com\)](https://www.woodside.com.au/consultation-information-sheet-wa-34-l-pyxis-drilling-and-subsea-installation-environment-plan)

In preparation for the activities, Woodside has undertaken assessments to identify potential impacts and risks to the marine environment arising from both planned and unplanned activities. Mitigation and management measures have been developed for each of the risks identified and will be outlined in the Environmental Plan (EP).

Woodside is seeking to understand the nature of the interests that Wunjina-Wunggurr Aboriginal Corporation and its members may have in the 'environment that may be affected' (EMBA) by this activity. The EMBA is the total area over which unplanned events could have environmental impacts, as set out in the Summary Information sheet attached.

If you would like to speak with us, please let us know by **15 March 2023**. Please also let us know how you would like us to engage with you as soon as possible.

If there is any support or specific information that you require as part of our engagement, please let me know.

You can also provide feedback directly to me on the details below, to Feedback@woodside.com.au or by calling 1800 442 977, or directly to the Australian Government's National Offshore Petroleum Safety and Environmental Management Authority to communications@nopsema.gov.au or (08) 6188 8700.

Please feel free to forward this email and, the attached documents to Wunjina-Wunggurr Aboriginal Corporation members as required. Woodside would be pleased to speak with Wunjina-Wunggurr Aboriginal Corporation members in addition to the Wunjina-Wunggurr Aboriginal Corporation Board / office holders if desired.

Kind regards

2.59.1 Follow up email to Wanjina-Wunggurr Aboriginal Corporation via Kimberley Land Council (KLC) (5 April 2023)

Dear [REDACTED]

I am contacting you as the nominated contact person for Wanjina-Wuggurr Aboriginal Corporation.

Information was sent out 28/02/23 in relation to activities planned by Woodside Energy (Stybarrow plug and abandonment and Pyxis drilling and subsea installation activity) to Wanjina-Wunggurr Aboriginal Corporation and since we did not hear back, we are wanting to check that there are no concerns or questions so as we can these concerns addressed by the appropriate subject matter experts.

Could I please ask, if Wanjina-Wunggurr Aboriginal Corporation board or members have any concerns or questions, they contact me by email with these to [REDACTED]@woodside.com.au or to yourself.

Stybarrow Plug and Abandonment Environment Plan

Alternatively, if there are no concerns, could they also contact myself or yourself to inform us that there are no concerns or questions relating to the above mentioned activities.

Thanks and regards

██████

2.60 Email sent to Wunambal Gaambera Aboriginal Corporation (WGAC) (24 February 2023)

Dear ██████

I tried calling yesterday and today I was given your email address and phone number.

I hope this message finds you well.

I am contacting you regarding Woodside's plans in relation to near future activities:

1. The Stybarrow plug and abandonment (P&A) of the wells as part of the decommissioning, the Summary Information sheet is attached and further information can be found here on Woodside's website - [consultation-information-sheet---stybarrow-plug-and-abandonment-environment-plan.pdf \(woodside.com\)](https://www.woodside.com.au/consultation-information-sheet---stybarrow-plug-and-abandonment-environment-plan.pdf);

In preparation for the activities, Woodside has undertaken assessments to identify potential impacts and risks to the marine environment arising from both planned and unplanned activities. Mitigation and management measures have been developed for each of the risks identified and will be outlined in the Environmental Plan (EP).

Woodside is seeking to understand the nature of the interests that Wunambal Gaambera Aboriginal Corporation and its members may have in the 'environment that may be affected' (EMBA) by this activity. The EMBA is the total area over which unplanned events could have environmental impacts, as set out in the Summary Information sheet attached.

If you would like to speak with us, please let us know by **15 March 2023**. Please also let us know how you would like us to engage with you as soon as possible.

If there is any support or specific information that you require as part of our engagement, please let me know.

You can also provide feedback directly to me on the details below, to Feedback@woodside.com.au or by calling 1800 442 977, or directly to the Australian Government's National Offshore Petroleum Safety and Environmental Management Authority to communications@nopsema.gov.au or (08) 6188 8700.

Please feel free to forward this email and, the attached documents to Wunambal Gaambera Aboriginal Corporation members as required. Woodside would be pleased to speak with Wunambal Gaambera Aboriginal Corporation members in addition to the Wunambal Gaambera Aboriginal Corporation Board / office holders.

Kind regards

██████

2.60.1 Follow up Email to Wunambal Gaambera Aboriginal Corporation (WGAC) (8 March 2023)

Dear [REDACTED]

I am following up on my email sent 24.02.23 with the information fact sheets, firstly to make sure you received them and if there were any initial concerns. If you or any members would like to speak with us, please let us know by 15 March 2023.

You can provide feedback directly to me by email, to Feedback@woodside.com.au or by calling 1800 442 977, or directly to the Australian Government's National Offshore Petroleum Safety and Environmental Management Authority to communications@nopsema.gov.au or (08) 6188 8700.

Regards

[REDACTED]

2.61 Email sent to Yamatiji Marlpa Aboriginal Corporation (YMAC) (21 February 2023)

Dear [REDACTED]

Firstly, thank you for your assistance in arranging the meeting between NTGAC and Woodside on 16 February. It was a pleasure to meet the NTGAC Board and YMAC staff. We were most grateful for the opportunity to provide information about our plans and to learn of NTGAC's questions. We will write separately to thank the NTGAC Board for the meeting.

As was discussed during our meeting, please find attached information about Woodside's decommissioning and drilling activities. With the exception of removing the Nganhurra Riser Turret Mooring, for which Woodside seeks NTGAC's feedback soonest, Woodside is seeking feedback on these decommissioning and drilling activities by 17 March. The plain English summary of each of these activities is attached, and I have provided a link to the more detailed consultation information sheets below. To recap, these activities are:

Decommissioning Activities:

- Removal of the Nganhurra Riser Turret Mooring (RTM). Information about the RTM was previously emailed on 18 January. For ease of reference, the summary information is attached and the consultation information sheet for the RTM can be found at the link below.
 - [consultation-information-sheet---nganhurra-operations-cessation-environment-plan-revision.pdf \(woodside.com\)](#)
- Stybarrow. This involves two work activities that are subject to separate environment plans; plug and abandonment (P&A), and decommissioning.
 - [consultation-information-sheet---stybarrow-plug-and-abandonment-environment-plan.pdf \(woodside.com\)](#)
 - [Consultation Information Sheet - Stybarrow Decommissioning Environment Plans \(woodside.com\)](#)
- Griffin decommissioning.
 - [consultation-information-sheet---griffin-decommissioning-environment-plans.pdf \(woodside.com\)](#)

Drilling Activities:

Stybarrow Plug and Abandonment Environment Plan

- TPA03 Well Intervention.
 - [Consultation Information Sheet - TPA03 Well Intervention Environment Plan \(woodside.com\)](#)
- WA-34-L Pyxis Drilling and Subsea Installation.
 - [Consultation Information Sheet - WA-34-L Pyxis Drilling and Subsea Installation Environment Plan \(woodside.com\)](#)
- Julimar Appraisal Drilling.
 - [Consultation Information Sheet - Julimar Appraisal Drilling and Survey Environment Plan \(woodside.com\)](#)

Woodside also looks forward to receiving NTGAC's feedback on the four Scarborough project activities as soon as is possible.

In providing this information and requests for feedback, I acknowledge Radhika's email of 20 February outlining NTGAC's request of Woodside to provide funding for YMAC's in-house environmental scientist to undertake a review of the RTM environmental plan. [REDACTED] will be in contact with Radhika directly about this in the coming days.

Thanks again [REDACTED] for your assistance last week, your consideration of these matters and for your work to progress these important consultations.

Yours sincerely

[REDACTED]

2.62 Email sent to Yawuru Title Holders Aboriginal Corporation (23 February 2023)

Hi [REDACTED]

As per our conversation, please find attached fact sheets and below some information and contact points. I will follow up next week to see if there are any immediate concerns and to check you received info.

I am contacting Yawuru Aboriginal Corporation regarding Woodside's plans in relation to activities:

- The Stybarrow plug and abandonment (P&A) of the wells as part of the decommissioning, the Summary Information sheet is attached and further information can be found here on Woodside's website - [consultation-information-sheet---stybarrow-plug-and-abandonment-environment-plan.pdf \(woodside.com\)](#);
- The Pyxis drilling and subsea installation activity the Summary Information sheet is attached and ad further information can be found here on Woodside's website - [Consultation Information Sheet - WA-34-L Pyxis Drilling and Subsea Installation Environment Plan \(woodside.com\)](#)

In preparation for the activities, Woodside has undertaken assessments to identify potential impacts and risks to the marine environment arising from both planned and unplanned activities. Mitigation and management measures have been developed for each of the risks identified and will be outlined in the Environmental Plan (EP).

Woodside is seeking to understand the nature of the interests that Yawuru Native Title Holders Aboriginal Corporation and its members may have in the 'environment that may be

Stybarrow Plug and Abandonment Environment Plan

affected' (EMBA) by this activity. The EMBA is the total area over which unplanned events could have environmental impacts, as set out in the Summary Information sheet attached.

If you would like to speak with us, please let us know by **15 March 2023**. Please also let us know how you would like us to engage with you as soon as possible.

If there is any support or specific information that you require as part of our engagement, please let me know.

You can also provide feedback directly to me on the details below, to Feedback@woodside.com.au or by calling 1800 442 977, or directly to the Australian Government's National Offshore Petroleum Safety and Environmental Management Authority to communications@nopsema.gov.au or (08) 6188 8700.

Please feel free to forward this email and, the attached documents to Yawuru Native Title Holders Aboriginal Corporation members as required. Woodside would be pleased to speak with Yawuru Native Title Holders Aboriginal Corporation members in addition to the Yawuru Native Title Holders Aboriginal Corporation Board / office holders if desired.

Regards

2.63 Email sent to Yindjibarndi Aboriginal Corporation (YAC) (24 February 2023)

Hello [REDACTED]

I understand you last spoke with [REDACTED] on 25 January regarding the Environmental Plan (EP) information shared with YAC for the Scarborough project activity and Nganhurra RTM.

This email provides further information on Woodside's decommissioning and drilling activities that we are seeking to understand if YAC has any interests in the Environment that may be affected (EMBA) relative to the attached information sheets and if YAC would like us to consult further on these EPs.

With the exception of removing the Nganhurra RTM and the Scarborough project, for which I understand YAC has verbally advised they have no interests, Woodside is also seeking YAC's feedback on these decommissioning and drilling activities by **17 March 2023**.

The plain English summary of each of these activities is attached, and I have provided a link to the more detailed consultation information sheets below. These activities are:

Decommissioning Activities:

- Stybarrow. This involves two work activities that are subject to separate environment plans; plug and abandonment (P&A) of the wells and decommissioning the infrastructure.
 - [consultation-information-sheet---stybarrow-plug-and-abandonment-environment-plan.pdf \(woodside.com\)](#)
 - [Consultation Information Sheet - Stybarrow Decommissioning Environment Plans \(woodside.com\)](#)
- Griffin decommissioning.
 - [consultation-information-sheet---griffin-decommissioning-environment-plans.pdf \(woodside.com\)](#)

Stybarrow Plug and Abandonment Environment Plan

Drilling Activities:

- TPA03 Well Intervention.
 - [Consultation Information Sheet - TPA03 Well Intervention Environment Plan \(woodside.com\)](#)
- WA-34-L Pyxis Drilling and Subsea Installation.
 - [Consultation Information Sheet - WA-34-L Pyxis Drilling and Subsea Installation Environment Plan \(woodside.com\)](#)
- Julimar Appraisal Drilling.
 - [Consultation Information Sheet - Julimar Appraisal Drilling and Survey Environment Plan \(woodside.com\)](#)

Thank you for your time in considering these matters. We look forward to hearing from you.

Please feel free to contact me on the details below if you require further information or assistance.

Kind regards

2.64 Email sent to Yinggarda Aboriginal Corporation via Yamatji Marlpa Aboriginal Corporation (YMAC) (22 February 2023)

Dear [REDACTED]

I hope this message finds you well.

Further to my correspondence of 18 January regarding Woodside's plan to remove the Nghanurra Riser Turret Mooring (RTM), and [REDACTED] correspondence of 20 January regarding Woodside's Scarborough project, please find attached information about Woodside's decommissioning and drilling activities that we are seeking to consult with Yinggarda Aboriginal Corporation (YAC) about.

With the exception of removing the Nghanurra RTM and the Scarborough project, for which Woodside is seeking YAC's feedback as soon as possible, Woodside is seeking YAC's feedback on these decommissioning and drilling activities by 17 March. The plain English summary of each of these activities is attached, and I have provided a link to the more detailed consultation information sheets below. These activities are:

Decommissioning Activities:

- Removal of the Nghanurra Riser Turret Mooring (RTM). Information about the RTM was previously emailed on 18 January. For ease of reference, the summary information is attached and the consultation information sheet for the RTM can be found at the link below.
 - [consultation-information-sheet---nganhurra-operations-cessation-environment-plan-revision.pdf \(woodside.com\)](#)
- Stybarrow. This involves two work activities that are subject to separate environment plans; plug and abandonment (P&A) of the wells and decommissioning the infrastructure.
 - [consultation-information-sheet---stybarrow-plug-and-abandonment-environment-plan.pdf \(woodside.com\)](#)
 - [Consultation Information Sheet - Stybarrow Decommissioning Environment Plans \(woodside.com\)](#)
- Griffin decommissioning.

- [consultation-information-sheet--griffin-decommissioning-environment-plans.pdf \(woodside.com\)](#)

Drilling Activities:

- TPA03 Well Intervention.
 - [Consultation Information Sheet - TPA03 Well Intervention Environment Plan \(woodside.com\)](#)
- WA-34-L Pyxis Drilling and Subsea Installation.
 - [Consultation Information Sheet - WA-34-L Pyxis Drilling and Subsea Installation Environment Plan \(woodside.com\)](#)
- Julimar Appraisal Drilling.
 - [Consultation Information Sheet - Julimar Appraisal Drilling and Survey Environment Plan \(woodside.com\)](#)

In providing this information and requests for feedback, I acknowledge [REDACTED] correspondence of 6 February and my response of 10 February in which we discussed arrangements for a meeting between YAC and Woodside. Woodside would be most grateful for the opportunity to meet with YAC, at YAC's earliest convenience, and at a location suitable to YAC. Woodside would also be pleased to provide the resources necessary to hold this meeting and we look forward to receiving a budget for consideration. If there is anything else, we can do at this time to facilitate consultation about these planned work activities please let me know.

Thank you, [REDACTED] for yours, YAC's and YMAC's consideration of these matters and work to progress these important consultations.

As always, please feel free to contact me on the details below if you require further information or assistance.

Yours sincerely

2.64.1 Follow up email sent to Yinggarda Aboriginal Corporation (YAC) via Yamatji Marlpa Aboriginal Corporation (YMAC) (20 March 2023)

Dear [REDACTED] and [REDACTED]

I hope this message finds you both well.

Further to our earlier correspondence about Woodside's Scarborough, decommissioning and drilling activities and a potential meeting with Yinggarda Aboriginal Corporation (YAC), and further to the meeting between Woodside and YMAC legal representatives on 13 March, I am following up to see whether you have a date and budget for a meeting with YAC to discuss these matters and whether you require any assistance at this time to organise such a meeting. We would be most grateful for the opportunity to meet with YAC and to assist with the meeting arrangements and resourcing.

As always, please feel free to call me on 0439 464 093 if you require any assistance or have any questions about these matters and thank you again for your work on these important matters.

Sincerely

2.65 Email sent to Yued Aboriginal Corporation (17 March 2023)

Stybarrow Plug and Abandonment Environment Plan

Dear Yued Aboriginal Corporation

Please find below and attached information concerning Woodside's proposal to plug and abandon (P&A) a former production well that was used for the Stybarrow project approximately 50km North West of Exmouth. The Stybarrow project is no longer operating and Woodside is in the process of completing the decommissioning of this project.

In preparation for this P&A work, Woodside has undertaken an assessment to identify potential impacts and risks to the marine environment arising from both planned and unplanned activities. Mitigation and management measures have been developed for each of the risks identified and will be outlined in the Environmental Plan (EP).

Please find below a link to the Consultation Information Sheet for this activity, and attached a plain English overview. These documents provide further background on this proposed work, including a summary of potential key risks and associated management measures.

[consultation-information-sheet---stybarrow-plug-and-abandonment-environment-plan.pdf \(woodside.com\)](#)

Woodside is seeking to understand the nature of the interests that YAC and its members may have in relation to this P&A activity, and particularly in relation to the highly unlikely event that a loss of well containment may cause an accumulation of hydrocarbons on parts of the shoreline on YAC country. Woodside is seeking YAC's feedback by 17 April 2023.

Please feel free to contact me if you require further information or assistance in relation to this matter. We are also happy to discuss appropriate mechanisms for consultation.

YAC can provide feedback directly to me on the details below, to Feedback@woodside.com.au, by calling Woodside's feedback number 1800 442 977, or directly to the Australian Government's National Offshore Petroleum Safety and Environmental Management Authority to communications@nopsema.gov.au or (08) 6188 8700.

Please feel free to forward this email and the attached document to YAC members as required. Woodside would be pleased to speak with YAC members in addition to the YAC Board/office holders.

I look forward to hearing from you.

Sincerely


Consultant to First Nations & Communities | Corporate Affairs

2.66 Email sent to Robe River Kuruma Aboriginal Corporation (RRKAC) (24 February 2023)

Hello 

I understand you met with  on 31 January regarding the Environmental Plan (EP) information shared with Robe River Kuruma Aboriginal Corporation (RRKAC) for the Scarborough project activity and Nganghurra RTM and that this information was to

Stybarrow Plug and Abandonment Environment Plan

be presented at the RRKAC Board meeting this week 21-22 February. [REDACTED] advised we have a number of EPs we will reach out to RRKAC on.

This email provides further information on Woodside's decommissioning and drilling activities that we are seeking to understand if RRKAC has any interests in the Environment that may be affected (EMBA) relative to the attached information sheets and if RRKAC would like us to consult further on these EPs.

With the exception of removing the Nganhurra RTM and the Scarborough project, for which Woodside would appreciate feedback on as soon as possible, Woodside is also seeking RRKAC's feedback on these decommissioning and drilling activities by **17 March 2023**.

The plain English summary of each of these activities is attached, and I have provided a link to the more detailed consultation information sheets below. These activities are:

Decommissioning Activities:

- Stybarrow. This involves two work activities that are subject to separate environment plans; plug and abandonment (P&A) of the wells and decommissioning the infrastructure.
 - [consultation-information-sheet---stybarrow-plug-and-abandonment-environment-plan.pdf \(woodside.com\)](#)
 - [Consultation Information Sheet - Stybarrow Decommissioning Environment Plans \(woodside.com\)](#)
- Griffin decommissioning.
 - [consultation-information-sheet---griffin-decommissioning-environment-plans.pdf \(woodside.com\)](#)

Drilling Activities:

- TPA03 Well Intervention.
 - [Consultation Information Sheet - TPA03 Well Intervention Environment Plan \(woodside.com\)](#)
- WA-34-L Pyxis Drilling and Subsea Installation.
 - [Consultation Information Sheet - WA-34-L Pyxis Drilling and Subsea Installation Environment Plan \(woodside.com\)](#)
- Julimar Appraisal Drilling.
 - [Consultation Information Sheet - Julimar Appraisal Drilling and Survey Environment Plan \(woodside.com\)](#)

Thank you for your time in considering these matters. We look forward to hearing from you.

Please feel free to contact me on the details below if you require further information or assistance.

Kind regards

2.67 Email sent to Murujuga Aboriginal Corporation (MAC) (24 February 2023)

Wayiba [REDACTED]

I understand that you met with Woodside on Monday 20 February to further discuss the information shared to date on the Nganhurra RTM decommissioning and Scarborough

Stybarrow Plug and Abandonment Environment Plan

project activity Environmental Plans (EPs). I believe you have been made aware of other EPs we also request your feedback on.

With the exception of removing the Nganhurra RTM and the Scarborough project, for which Woodside is seeking MAC's feedback as soon as possible, Woodside is also seeking MAC's feedback on these decommissioning and drilling activities by **17 March 2023**.

The plain English summary of each of these activities is attached, and I have provided a link to the more detailed consultation information sheets below. These activities are:

Decommissioning Activities:

- Stybarrow. This involves two work activities that are subject to separate environment plans; plug and abandonment (P&A) of the wells and decommissioning the infrastructure.
 - [consultation-information-sheet---stybarrow-plug-and-abandonment-environment-plan.pdf \(woodside.com\)](#)
 - [Consultation Information Sheet - Stybarrow Decommissioning Environment Plans \(woodside.com\)](#)
- Griffin decommissioning.
 - [consultation-information-sheet---griffin-decommissioning-environment-plans.pdf \(woodside.com\)](#)

Drilling Activities:

- TPA03 Well Intervention.
 - [Consultation Information Sheet - TPA03 Well Intervention Environment Plan \(woodside.com\)](#)
- WA-34-L Pyxis Drilling and Subsea Installation.
 - [Consultation Information Sheet - WA-34-L Pyxis Drilling and Subsea Installation Environment Plan \(woodside.com\)](#)
- Julimar Appraisal Drilling.
 - [Consultation Information Sheet - Julimar Appraisal Drilling and Survey Environment Plan \(woodside.com\)](#)

Thank you for your time in considering these matters and please feel free to contact me on the details below if you require further information or assistance.

Kind regards

2.68 Email sent to Department of Foreign Affairs and Trade (DFAT) (15 March 2023)

Dear Department of Foreign Affairs and Trade (DFAT)

Woodside is planning to undertake the following activities in Commonwealth waters under the following environment plans:

- drilling and subsea infrastructure installation activities for one well (PLA08) and contingent well intervention activities for current production wells, under the WA-34-L Pyxis Drilling and Subsea Installation Environment Plan Revision (**PLA08 EP**).
- plug and abandonment (P&A) activities in the Stybarrow field, under the Stybarrow P&A Environment Plan (**Stybarrow P&A EP**).

An overview of the proposed activities in the PLA08 EP and the Stybarrow P&A EP is set out below.

Following recent changes to Commonwealth Environment Plan consultation requirements, Woodside is now consulting stakeholders who are located within the environment that may be affected (EMBA) by a proposed petroleum activity.

Stybarrow Plug and Abandonment Environment Plan

The EMBA is the largest spatial extent where unplanned events could potentially have an environmental consequence. For these environment plans, the broadest extent of the EMBA has been determined by the highly unlikely event of a hydrocarbon release from activities within the scope of the EP. The worst-case credible spill scenario for the PLA08 EP and Stybarrow P&A EP is a well loss of integrity.

The EMBA for the PLA08 EP and Stybarrow P&A EP traverse international waters and modelling has indicated that there may be a potential for hydrocarbons to accumulate on Indonesian shorelines. Therefore, these EPs may require international consultation and oil spill response requirements. The PLA08 EP Operational Area is located approximately 315 km from international waters and the Stybarrow P&A EP Operational Area is located approximately 313 km from international waters.

Due to the distance of the Operational Area from international waters, any hydrocarbons that reach those waters and/or Indonesian shorelines would likely result in coverage which is fragmented (with low concentrations) and weathered hydrocarbons.

Updated Consultation Information Sheets are attached, which provide additional background on the proposed activities, including summaries of potential key impacts and risks, and associated management measures. These are also available on our [website](#). You can also subscribe to receive updates on our consultation activities by subscribing [here](#).

Input for DFAT:

With respect to the proposed activities under the PLA08 EP and Stybarrow P&A EP, Woodside requests the following information from DFAT:

- Feedback from DFAT specific to the proposed activities described under the relevant EPs.
- Management of vessels (for example, fishing or shipping vessels), should these vessels be present in the EMBA.
- Confirmation as to whether there are any specific persons or organisations that Woodside should contact whose functions, interests or activities may be affected by the proposed activities in foreign countries and, if so, the relevant contact details
- Implications for oil spill planning and response in international waters. This includes any specific persons or organisations Woodside should contact in the event of unplanned activities where the interests of foreign countries may be impacted to assist with our response planning.

Oil Spill Response Planning and Marine Pollution:

We note DFAT's previous advice (correspondence dated 29 July 2021) during EP consultation regarding oil spill response planning in international waters. In finalising our marine pollution notifications for the PLA08 EP and Stybarrow P&A EP, **Woodside seeks confirmation that the following notifications meet DFAT's requirements:**

- Woodside will verbally notify AMSA and Western Australian departments responsible for marine pollution as soon as possible after the incident.
- Woodside will follow up its AMSA notification by way of an online report via AMSA's web site.
- Woodside will notify other relevant government departments as soon as practicable. These notifications include DFAT via the sea.law@dfat.gov.au email address if a spill is likely to enter international waters.

Woodside may have proposed activities in the future which may also have EMBA's that reach international waters. These environment plans might have similar international consultation and spill response requirements as well.

We would be grateful for DFAT's feedback and advice by **14 April 2023**. Please respond to Woodside at Feedback@woodside.com.au or 1800 442 977.

Activity:

	PLA08 EP	Stybarrow P&A EP
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Stybarrow Plug and Abandonment Environment Plan

Summary:	Drill and develop the proposed PLA08 production well. Contingent activities including well intervention workover or re-drill the Pluto, Pyxis, and Xena production wells (PLA01 to PLA08, PYA01 and PL-PYA02, and XNA01 and XNA02) to monitor and maintain their integrity, if required.	<ul style="list-style-type: none"> • Pre-execution activities associated with the well P&A, such as barrier testing and removal of marine growth. • Well P&A of the 10 productions/injection wells by placing cement plugs in the wells to permanently prevent hydrocarbon release. • Cutting and removal of the wellhead and subsea tree assembly. • Unblocking of the H4 flowline, if deemed feasible.
Permit area:	WA-34-L	WA-32-L
Location:	~170 km north-west of Dampier	~53 km northwest of Exmouth, Western Australia.
Operational Area distance to international waters:	~ 315 km	~ 313 km
Approx. Water Depth (m):	PLA08: ~820 m	~ 810 – 850 m.
Schedule:	Planned drilling, completions, subsea installation and pre-commissioning activities for the proposed PLA08 well are anticipated around Q2 – Q4 2023. Timing of activities is subject to approvals, project schedule requirements, vessel availability, weather or unforeseen circumstances.	Earliest P&A start is estimated to be Q4 2023, subject to approvals, MODU and vessel availability and weather constraints. P&A activities must be completed no later than 30 September 2024, pursuant to General Direction 833.
Duration:	Drilling activities for the proposed PLA08 well are currently expected to take approximately 50 days to complete. Installation of subsea infrastructure and pre-commissioning will commence on completion of drilling and is expected to take up to approximately 30 days. If required, well intervention activities will take up to 70 days per well to complete. Activities may occur intermittently over a two-year period.	P&A activities are anticipated to take approximately 6 – 9 months.
Exclusionary / Cautionary Zone:	A 500 m radius Operational Area will be applied around the dynamically positioned MODU. A 1500 m radius Operational Area will be applied around the PLA08 well location and subsea installation locations (PLA08 to Pluto manifold) whilst activities are taking place. A 4000 m radius Operational Area will apply around a moored MODU, if used. A temporary 500 m petroleum safety exclusion zone will apply during MODU activities.	The Operational Area includes the area encompassing an approximate 3,000 m radius around each of the four drill centers within WA-32-L. A temporary 500 m exclusion zone will apply around the MODU and the associated project vessels during P&A activities.
Vessels:	A dynamically positioned MODU is intended to be used for the drilling activities.	Semi-Submersible Mobile Offshore Drilling Unit (MODU)

Stybarrow Plug and Abandonment Environment Plan

	The MODU may be supported by subsea installation and light well intervention vessels. Support vessels may be used including, anchor handling vessels and activity support vessels. The vessels will operate on dynamic positioning and will not anchor/moor on the seabed. Vessels will operate 24 hours per day for the duration of the activities.	The MODU will be supported by 2 to 3 offshore support vessels.
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Feedback:

Your feedback and our response will be included in our Environment Plans which will be submitted to the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA) for acceptance in accordance with the *Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2009* (Cth).

Please let us know if your feedback for any of the activities proposed under an Environment Plan is sensitive and we will make this known to NOPSEMA upon submission of the Environment Plan to ensure this information remains confidential to NOPSEMA.

Please provide your views by **14 April 2023**.

Regards,

Woodside Feedback

2.68.1 Email sent to DFAT (31 March 2023)

Dear Department of Foreign Affairs and Trade (DFAT)

Woodside previously consulted you (email below) on its plans to undertake the following activities in Commonwealth waters under the following environment plans:

- drilling and subsea infrastructure installation activities for one well (PLA08) and contingent well intervention activities for current production wells, under the WA-34-L Pyxis Drilling and Subsea Installation Environment Plan Revision (**PLA08 EP**).
- plug and abandonment (P&A) activities in the Stybarrow field, under the Stybarrow P&A Environment Plan (**Stybarrow P&A EP**).

An overview of the proposed activities in the PLA08 EP and the Stybarrow P&A EP is set out below.

Input for DFAT:

With respect to the proposed activities under the PLA08 EP and Stybarrow P&A EP, Woodside requests the following information from DFAT:

- Feedback from DFAT specific to the proposed activities described under the relevant EPs.
- Management of vessels (for example, fishing or shipping vessels), should these vessels be present in the EMBA.
- Confirmation as to whether there are any specific persons or organisations that Woodside should contact whose functions, interests or activities may be affected by the proposed activities in foreign countries and, if so, the relevant contact details
- Implications for oil spill planning and response in international waters. This includes any specific persons or organisations Woodside should contact in the event of unplanned activities where the interests of foreign countries may be impacted to assist with our response planning.

Stybarrow Plug and Abandonment Environment Plan

Oil Spill Response Planning and Marine Pollution:

We note DFAT's previous advice (correspondence dated 29 July 2021) during EP consultation regarding oil spill response planning in international waters. In finalising our marine pollution notifications for the PLA08 EP and Stybarrow P&A EP, **Woodside seeks confirmation that the following notifications meet DFAT's requirements:**

- Woodside will verbally notify AMSA and Western Australian departments responsible for marine pollution as soon as possible after the incident.
- Woodside will follow up its AMSA notification by way of an online report via AMSA's web site.
- Woodside will notify other relevant government departments as soon as practicable. These notifications include DFAT via the sea.law@dfat.gov.au email address if a spill is likely to enter international waters.

We would be grateful for DFAT's feedback and advice by **14 April 2023**.

Kind regards,
Woodside Feedback

2.68.2 Email sent to DFAT (19 April 2023)

Dear Department of Foreign Affairs and Trade (DFAT)

Woodside is following up on its below environment plan consultation with regard to the following activities in Commonwealth waters:

- drilling and subsea infrastructure installation activities for one well (PLA08) and contingent well intervention activities for current production wells, under the WA-34-L Pyxis Drilling and Subsea Installation Environment Plan Revision (**PLA08 EP**); and
- plug and abandonment (P&A) activities in the Stybarrow field, under the Stybarrow P&A Environment Plan (**Stybarrow P&A EP**).

In particular, Woodside requests the following information from DFAT:

- Feedback from DFAT specific to the proposed activities described under the relevant EPs.
- Management of vessels (for example, fishing or shipping vessels), should these vessels be present in the EMBA.
- Confirmation as to whether there are any specific persons or organisations that Woodside should contact whose functions, interests or activities may be affected by the proposed activities in foreign countries and, if so, the relevant contact details
- Implications for oil spill planning and response in international waters. This includes any specific persons or organisations Woodside should contact in the event of unplanned activities where the interests of foreign countries may be impacted to assist with our response planning.

We would be grateful for your feedback and advice at your earliest convenience, and by **28 April 2023**.

Kind regards,

Woodside Feedback

2.69 Email sent to Australian Institute of Marine Science (AIMS) (21 February 2023)

Dear [REDACTED]

Woodside is providing this update on the progressive decommissioning of the Griffin and Stybarrow fields, previously operated by BHP Petroleum Pty Ltd (BHP).

Stybarrow Plug and Abandonment Environment Plan

We are providing this information to ensure relevant persons are informed about the status of proposed activities, as there have been changes to activity scope and supporting consultation information since consultation commenced for these decommissioning projects in 2021.

The **Griffin Field** is in Commonwealth waters in Petroleum Licence WA-10-L, 65 km northwest of Onslow and 94 km northeast of Exmouth, Western Australia and in water depths of approximately 120 m.

The **Stybarrow Field** is in Commonwealth waters in Petroleum Licence WA-32-L, approximately 53 km northwest of Exmouth, Western Australia and in water depths of approximately 810 – 850 m.

A summary of proposed activities is outlined below, and more detailed information is provided in the attached Consultation Information Sheets. The Information Sheets provide details on activities proposed to be managed under a number of Environment Plans for each Field, including a summary of potential key risks and associated management measures. The Information Sheets are also available on our [website](#).

Woodside is seeking your advice regarding any research activities that AIMS may be undertaking that may overlap with our proposed activities.

Any feedback provided previously on proposed activities will remain current where Environment Plans are under assessment by the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA).

Please let us know if you would like to update previous feedback or have any additional views by **17 March 2023**.

Activity:

	Griffin Field Decommissioning Activities	Stybarrow Field Decommissioning Activities
Summary:	<p>Removal Activities</p> <ul style="list-style-type: none"> Removal of subsea equipment (wellheads, trees, distribution skids, risers, flexible flowlines, rigid flowlines, umbilicals, and the pipeline end module (PLEM)). Removal of the Riser Turret Mooring (RTM) and its moorings. Depending on the vessel utilised, recovery of the RTM may require sections of it to be towed to shallower water out of the title. Removal of an exploration wellhead (Ramillies-1 in 	<p>Plugging and Abandonment (P&A) Activities</p> <ul style="list-style-type: none"> Pre-execution activities associated with the well P&A, such as barrier testing and removal of marine growth. Well P&A of the 10 productions/injection wells by placing cement plugs in the wells to permanently prevent hydrocarbon release. Cutting and removal of the wellhead and subsea tree assembly. Unblocking of the H4 flowline, if deemed feasible. <p>Removal Activities</p>

Stybarrow Plug and Abandonment Environment Plan

	<p>neighbouring petroleum title WA-12-L).</p> <ul style="list-style-type: none"> • Ongoing field management activities. • Pigging and subsequent removal of the 26 km of Griffin Gas Export Pipeline (GEP) within Commonwealth waters. <p>In Situ Activities</p> <ul style="list-style-type: none"> • Proposal to leave in situ 12 RTM drag anchors (buried), 6 concrete gravity bases and 5 piled foundations for the PLEM and 4 distribution skids. 	<ul style="list-style-type: none"> • Removal of subsea equipment (wellheads, trees, manifolds, risers, flexible flowlines, and umbilicals). • Removal of the Disconnectable Turret Mooring (DTM) and its moorings. Recovery of the DTM may require it to be towed to shallower water outside of permit area WA-32-L to support the DTM removal from the marine environment. • Ongoing field management activities (equipment monitoring and inspection). <p>In Situ Activities</p> <ul style="list-style-type: none"> • Proposed leave in situ of the 9 DTM drag anchors (buried), nine suction piles for the riser holdbacks and the historical exploration wellhead, Eskdale-1, which was unable to be removed following its drilling and abandonment in 2003.
Location:	<ul style="list-style-type: none"> • 94 km northeast of Exmouth, Western Australia. 	<ul style="list-style-type: none"> • 53 km northwest of Exmouth, Western Australia.
Approx. Water Depth (m):	<ul style="list-style-type: none"> • Approx. 120 m. 	<ul style="list-style-type: none"> • Approx. 810 – 850 m.
Schedule:	<p>Removal Activities</p> <ul style="list-style-type: none"> • Earliest proposed removal activity start is estimated to be Q4 2023, subject to approvals, vessel availability and weather constraints. • Facilities removal must be completed no later than 31 December 2024, pursuant to General Direction 832. 	<p>Plugging and Abandonment (P&A) Activities</p> <ul style="list-style-type: none"> • Earliest P&A start is estimated to be Q4 2023, subject to approvals, MODU and vessel availability and weather constraints. • P&A activities must be completed no later than 30 September 2024, pursuant to General Direction 833. <p>Removal Activities</p> <ul style="list-style-type: none"> • Earliest facilities and DTM removal is estimated to be Q4 2023, subject to approvals, vessel availability and weather constraints.

Stybarrow Plug and Abandonment Environment Plan

		<ul style="list-style-type: none"> Equipment removal must be completed no later than 31 March 2025, pursuant to General Direction 833.
<p>Duration:</p>	<p>Removal Activities</p> <ul style="list-style-type: none"> Removal activities are anticipated to take approximately 6 months to complete and GEP removal activities are anticipated to take approximately 2 months to complete. 	<p>Plugging and Abandonment (P&A) Activities</p> <ul style="list-style-type: none"> P&A activities are anticipated to take approximately 6 – 9 months. <p>Removal Activities</p> <ul style="list-style-type: none"> Removal activities are anticipated to take approximately 4-6 months to complete and DTM removal activities are anticipated to take approximately 1 month to complete.
<p>Exclusionary/Cautionary Zone:</p>	<p>Removal Activities</p> <ul style="list-style-type: none"> The temporary Operational Area includes the area encompassing an approximate 1,500 m radius around the equipment. A temporary 500 m exclusion zone will apply around the project vessels during removal and potential tow activities. 	<p>P&A Activities</p> <ul style="list-style-type: none"> The Operational Area includes the area encompassing an approximate 3,000 m radius around each of the four drill centers within WA-32-L. A temporary 500 m exclusion zone will apply around the MODU and the associated project vessels during P&A activities. <p>Removal Activities</p> <ul style="list-style-type: none"> The temporary Operational Area includes the area encompassing an approximate 1,500 m radius around the subsea infrastructure and wellheads. The DTM has an existing 1200 m radius petroleum safety zone which will continue to be in place until it is removed. A temporary 500 m exclusion zone will apply around the CSV and the associated project vessels during removal activities. A temporary 500 m exclusion zone will apply around the HLW

		and the associated project vessels during the removal of the DTM.
Vessels:	<p>Removal Activities</p> <ul style="list-style-type: none"> • Construction support vessel (CSV) and Heavy Lift Vessel (HLV) for recovery and pipeline removal activities. • An anchor handling tug (AHT) to support the towing of the RTM to sheltered water. 	<p>P&A activities</p> <ul style="list-style-type: none"> • Semi-Submersible Mobile Offshore Drilling Unit (MODU) • The MODU will be supported by 2 to 3 offshore support vessels. <p>Removal Activities</p> <ul style="list-style-type: none"> • CSV and HLV for recovery and activities. • AHTs to support the towing of the DTM to the shallower water location (if required).

Feedback:

If you have any feedback on these activities, please respond to Woodside at: Feedback@woodside.com.au or 1800 442 977.

Your feedback and our response will be included in our Environment Plan which will be submitted to NOPSEMA for acceptance in accordance with the *Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2009* (Cth).

Please let us know if your feedback for this activity is sensitive and we will make this known to NOPSEMA upon submission of the Environment Plan in order for this information to remain confidential to NOPSEMA.

Please provide your views by **17 March 2023**.

You can also subscribe on our website to receive Consultation Information Sheets for proposed activities: www.woodside.com/sustainability/consultation-activities.

Woodside Feedback

2.69.1 Email sent to AIMS (10 March 2023)

Dear [REDACTED]

Woodside previously consulted you (see email below) on Woodside's proposed activities for the progressive decommissioning of the Griffin and Stybarrow fields.

We provided this information to ensure relevant persons are informed about the status of proposed activities, as there have been changes to activity scope and supporting consultation information since consultation commenced for these decommissioning projects in 2021.

Stybarrow Plug and Abandonment Environment Plan

We would appreciate any feedback you may have by **17 March 2023** to support the development of our proposed Environment Plans.

Any feedback provided previously on proposed activities will remain current where Environment Plans are under assessment by the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA).

For reference:

- The **Griffin Field** is in Commonwealth waters in Petroleum Licence WA-10-L, 65 km northwest of Onslow and 94 km northeast of Exmouth, Western Australia and in water depths of approximately 120 m.
- The **Stybarrow Field** is in Commonwealth waters in Petroleum Licence WA-32-L, approximately 53 km northwest of Exmouth, Western Australia and in water depths of approximately 810 – 850 m.

Consultation Information Sheets for the proposed activities are attached, which provide a summary of potential key risks and associated management measures. The Information Sheets are also available on our [website](#).

Regards

Woodside Feedback

2.70 Email sent to Australian Maritime Safety Authority (AMSA) – Marine Pollution (22 February 2023)

Hi [REDACTED]

As part of Woodside's ongoing consultation for its current and planned activities, I would like to advise the Australian Maritime Safety Authority (AMSA) that Woodside is preparing the Stybarrow Plug and Abandonment Environment Plan (EP). The EP will support P&A activities required as part of the progressive decommissioning of the Stybarrow field, which is in Commonwealth waters in Production Licence WA-32-L, approximately 53 km north-west of Exmouth, Western Australia and in water depths of approximately ~810-850 m.

Woodside would like to offer AMSA the opportunity to review or provide comment on the activity.

For reference, AMSA would have received OPEPs for other Stybarrow decommissioning activities from the former titleholder, BHP Petroleum.

Information is presented as follows:

- A Consultation Information Sheet providing information on the proposed activities is available here: [Link](#)
- The *Stybarrow Plug and Abandonment Oil Pollution First Strike Plan* is also attached. This will form part of the approval submission in accordance with the *Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2009* (Cth).

Stybarrow Plug and Abandonment Environment Plan

Woodside anticipates submitting the proposed EP in early June 2023 to support these activities.

If you have any feedback on these activities, please respond to Woodside at: Feedback@woodside.com.au or 1800 442 977 by **Monday 22 May 2023**.

Your feedback and our response will be included in our Environment Plan which will be submitted to the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA) for acceptance in accordance with the *Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2009* (Cth).

Please let us know if your feedback for this activity is sensitive and we will make this known to NOPSEMA upon submission of the Environment Plan in order for this information to remain confidential to NOPSEMA.

Many thanks,

■

■

Adviser | Corporate HSE

2.70.1 Email sent to AMSA – Marine Pollution (AMSA) (8 May 2023)

Dear ■

Woodside previously consulted the Australian Maritime Safety Authority (AMSA) (email below) on its plans for the decommissioning of the Stybarrow fields, previously operated by BHP Petroleum Pty Ltd (BHP).

The Consultation Information Sheet providing information on the proposed activities is available here: [Link](#), and the *Stybarrow Plug and Abandonment Oil Pollution First Strike Plan* is attached.

Should you have any feedback relating to the proposed activities, please let us know by 22 May 2023. Thank you.

Best regards,

■

2.71 Email sent to City of Karratha (17 February 2023)

Dear ■

Woodside has previously consulted the City of Karratha on its plans to undertake the following activities in Commonwealth waters:

- Activities on the TPA03 production well to remediate a down-hole valve and continue production from the lower reservoir, under the TPA03 Well Intervention Environment Plan (**TPA03 EP**);

Stybarrow Plug and Abandonment Environment Plan

- Geotechnical and geophysical surveys, drilling and appraisal of the Julimar South-1 well (previously called JULA-P) and, plug and abandonment of Julimar South-1, if required, under the Julimar Drilling and Surveys Environment Plan (**Julimar EP**); and
- Drilling and subsea infrastructure installation activities for one well (PLA08) and contingent well intervention activities for current production wells, under the WA-34-L Pyxis Drilling and Subsea Installation Environment Plan Revision (**PLA08 EP**).

Updated consultation Information Sheets are attached, which provide additional background on the proposed activities, including summaries of potential key impacts and risks, and associated management measures.

Woodside has previously submitted Revision 0 of the TPA03 EP to NOPSEMA which has been available on the NOPSEMA website since August 2022

(https://info.nopsema.gov.au/environment_plans/606/show_public).

Woodside is preparing to submit a further revision of the TPA03 EP to NOPSEMA with recent changes. We confirm the location and duration described in these revisions remain the same, with no material changes.

The Julimar EP and revised PLA08 EP have not yet been submitted to NOPSEMA.

Woodside would also like to provide an update on the progressive decommissioning of the Griffin and Stybarrow fields, previously operated by BHP Petroleum Pty Ltd (BHP).

We are providing this information on progressive decommissioning of Griffin and Stybarrow fields to ensure relevant persons are informed about the status of proposed activities, as there have been changes to activity scope and supporting consultation information since consultation commenced for these decommissioning projects in 2021. The Griffin Field is in Commonwealth waters in Petroleum Licence WA-10-L, 65 km northwest of Onslow and 94 km northeast of Exmouth, Western Australia and in water depths of approximately 120 m. The Stybarrow Field is in Commonwealth waters in Petroleum Licence WA-32-L, approximately 53 km northwest of Exmouth, Western Australia and in water depths of approximately 810 – 850 m.

Updated consultation Information Sheets for each of the activities listed above are attached, which provide additional background on the proposed activities, including summaries of potential key impacts and risks, and associated management measures. These are also available on our [website](#). You can also subscribe to receive updates on our consultation activities by subscribing [here](#).

As we are inviting consultation with you on each of the EPs above, for ease of reference, we have attached the information in this one email. In an effort to simplify feedback, we have also included a feedback template (Appendix A) at the bottom of this email which you may wish to use to provide your feedback specific to the proposed EPs.

If you have feedback specific to each of the proposed activities described under the relevant EPs, please respond to Woodside at Feedback@woodside.com.au or 1800 442 977 by **17 March 2023**.

1. Activity:

	TPA03 EP	Julimar EP	PLA08 EP	Griffin Field Decommissioning Activities	Stybarrow Field Decommissioning Activities
Summary:	Well intervention activities on the TPA03 production well to remediate a down-hole valve and continue	2. One new appraisal-keeper well, Julimar South-1, will be drilled to further understand reservoir properties. 3. Prior to drilling, anchor hold tests will occur around the Julimar South-1 well	Drill and develop the proposed PLA08 production well. Contingent activities including well	Removal Activities <ul style="list-style-type: none"> • Removal of subsea equipment (wellheads, trees, distribution 	Plugging and Abandonment (P&A) Activities <ul style="list-style-type: none"> • Pre-execution activities associated with the well P&A, such as barrier

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<p>production from the lower reservoir. The TPA03 production well is a dual zone well connected to the Tidepole manifold and forms part of the subsea production infrastructure for the Goodwyn Alpha Platform. Once the TPA03 well intervention has been completed, the well will be shut-in until production is required. The shut-in and subsequent return to production of the well will be managed under the accepted Goodwyn Alpha (GWA) Facility Operations EP (March 2022).</p>	<p>location. The well will then be drilled, appraisal activities undertaken and then the reservoir section cemented and suspended pending a development decision.</p> <p>4. Geotechnical and geophysical surveys will be conducted to support Julimar South-1 well activities and future drilling mooring designs.</p> <p>5.</p> <p>6. Development of the Julimar South-1 well is subject to future development decisions</p> <ul style="list-style-type: none"> • If the well is not developed, it will be plugged and abandoned (P&A) under this EP (during the three year period). • If the well is selected for development, completions and end of field life (EOFL) P&A activities would be subject to a future EP. 	<p>intervention workover or re-drill the Pluto, Pyxis, and Xena production wells (PLA01 to PLA08, PYA01 and PL-PYA02, and XNA01 and XNA02) to monitor and maintain their integrity, if required.</p>	<ul style="list-style-type: none"> • skids, risers, flexible flowlines, rigid flowlines, umbilicals, and the pipeline end module (PLEM)). • Removal of the Riser Turret Mooring (RTM) and its moorings. Depending on the vessel utilised, recovery of the RTM may require sections of it to be towed to shallower water out of the title. • Removal of an exploration wellhead (Ramillies-1 in neighbouring petroleum title WA-12-L). • Ongoing field management activities. • Pigging and subsequent removal of the 26 km of Griffin Gas Export Pipeline (GEP) within Commonwealth waters. <p>In Situ Activities Proposal to leave in situ 12 RTM drag anchors (buried), 6 concrete gravity bases and 5 piled foundations for the PLEM and 4 distribution skids.</p>	<ul style="list-style-type: none"> • testing and removal of marine growth. • Well P&A of the 10 productions/injection wells by placing cement plugs in the wells to permanently prevent hydrocarbon release. • Cutting and removal of the wellhead and subsea tree assembly. • Unblocking of the H4 flowline, if deemed feasible. <p>Removal Activities</p> <ul style="list-style-type: none"> • Removal of subsea equipment (wellheads, trees, manifolds, risers, flexible flowlines, and umbilicals). • Removal of the Disconnectable Turret Mooring (DTM) and its moorings. Recovery of the DTM may require it to be towed to shallower water outside of permit area WA-32-L to support the DTM removal from the marine environment. • Ongoing field management activities (equipment monitoring and inspection). <p>In Situ Activities</p> <ul style="list-style-type: none"> • Proposed leave in situ of the 9 DTM drag anchors (buried), nine suction piles for the riser holdbacks and the historical exploration wellhead, Eskdale-1,
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Stybarrow Plug and Abandonment Environment Plan

					which was unable to be removed following its drilling and abandonment in 2003.
Permit area:	WA-5-L	Drilling: WA-49-L Geotechnical and geophysical surveys: Within the WA-49-L title area and neighbouring Chevron operated title areas WA-5-R, WA-76-R and WA-526-P	WA-34-L	WA-10-L	WA-32-L
Location:	~138 km north-west of Dampier	~160 km north-west of Dampier	~170 km north-west of Dampier	94 km northeast of Exmouth, Western Australia.	53 km northwest of Exmouth, Western Australia.
Approx. Water Depth (m):	~113 m	Operational Area ~ 130-240 m Proposed Julimar South-1 well location ~ 163 m	PLA08: ~820 m	Approx. 120 m.	Approx. 810 – 850 m.
Schedule:	Planned well intervention activities are anticipated to be completed around Q1 2023 – Q3 2023 Timing of activities is subject to approvals, project schedule requirements, vessel availability, weather or unforeseen circumstances.	Drilling is currently anticipated in Q3 2023. However, drilling may be performed at any point within three years of EP acceptance. Anchor hold testing will occur prior to this drilling campaign. Geophysical and Geotechnical survey activities are planned to be performed by the end of 2024 but may be performed at any point during the life of the EP (3 years). Timing of activities is subject to approvals, project schedule requirements, vessel availability, weather or unforeseen circumstances.	Planned drilling, completions, subsea installation and pre-commissioning activities for the proposed PLA08 well are anticipated around Q2 – Q4 2023. Timing of activities is subject to approvals, project schedule requirements, vessel availability, weather or unforeseen circumstances.	Removal Activities <ul style="list-style-type: none"> • Earliest proposed removal activity start is estimated to be Q4 2023, subject to approvals, vessel availability and weather constraints. • Facilities removal must be completed no later than 31 December 2024, pursuant to General Direction 832. 	Plugging and Abandonment (P&A) Activities <ul style="list-style-type: none"> • Earliest P&A start is estimated to be Q4 2023, subject to approvals, MODU and vessel availability and weather constraints. • P&A activities must be completed no later than 30 September 2024, pursuant to General Direction 833. Removal Activities <ul style="list-style-type: none"> • Earliest facilities and DTM removal is estimated to be Q4 2023, subject to approvals, vessel availability and weather constraints. Equipment removal must be completed no later than 31 March 2025, pursuant to General Direction 833.
Duration:	Well intervention activities are expected to	Drilling, appraisal and suspension activities are currently anticipated to take	Drilling activities for the proposed PLA08 well	Removal Activities Removal activities are anticipated to	Plugging and Abandonment (P&A) Activities

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	<p>take approximately 1-2 weeks to complete.</p>	<p>approximately 40 days to complete. Geophysical and geotechnical survey activities are currently anticipated to take approximately 45 days to complete. Well P&A activities are currently anticipated to take approximately 21 days to complete, if required.</p>	<p>are currently expected to take approximately 50 days to complete. Installation of subsea infrastructure and pre-commissioning will commence on completion of drilling and is expected to take up to approximately 30 days. If required, well intervention activities will take up to 70 days per well to complete. Activities may occur intermittently over a two-year period.</p>	<p>take approximately 6 months to complete and GEP removal activities are anticipated to take approximately 2 months to complete.</p>	<ul style="list-style-type: none"> P&A activities are anticipated to take approximately 6 – 9 months. <p>Removal Activities Removal activities are anticipated to take approximately 4-6 months to complete and DTM removal activities are anticipated to take approximately 1 month to complete.</p>
<p>Exclusionary / Cautionary Zone:</p>	<p>A 1 km radius Operational Area will be applied around the TPA03 drill centre. A temporary 500 m safety exclusion zone will apply around the HWIV to manage vessel movements.</p>	<p>An approximate 50 km² Operational Area will apply during geophysical and geotechnical survey activities. A 4 km radius Operational Area will apply around the JULA-P well whilst the MODU is on location. A 500 m safety exclusion zone will apply around the MODU to manage vessel movements.</p>	<p>A 500 m radius Operational Area will be applied around the dynamically positioned MODU. A 1500 m radius Operational Area will be applied around the PLA08 well location and subsea installation locations (PLA08 to Pluto manifold) whilst activities are taking place. A 4000 m radius Operational Area will apply around a moored</p>	<p>Removal Activities</p> <ul style="list-style-type: none"> The temporary Operational Area includes the area encompassing an approximate 1,500 m radius around the equipment. <ul style="list-style-type: none"> A temporary 500 m exclusion zone will apply around the project vessels during removal and potential tow activities. 	<p>P&A Activities</p> <ul style="list-style-type: none"> The Operational Area includes the area encompassing an approximate 3,000 m radius around each of the four drill centers within WA-32-L. A temporary 500 m exclusion zone will apply around the MODU and the associated project vessels during P&A activities. <p>Removal Activities</p> <ul style="list-style-type: none"> The temporary Operational Area includes the area encompassing an approximate 1,500 m radius around the subsea infrastructure and wellheads.

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			<p>MODU, if used. A temporary 500 m petroleum safety exclusion zone will apply during MODU activities.</p>		<ul style="list-style-type: none"> The DTM has an existing 1200 m radius petroleum safety zone which will continue to be in place until it is removed. A temporary 500 m exclusion zone will apply around the CSV and the associated project vessels during removal activities. <p>A temporary 500 m exclusion zone will apply around the HLV and the associated project vessels during the removal of the DTM.</p>
Vessels:	<p>Well Intervention Vessel (WIV) General supply/support vessels The vessels will operate on dynamic positioning and will not anchor/moor on the seabed. Vessels will operate 24 hours per day for the duration of the activities.</p>	<p>MODU General supply/support vessels Survey / AHT vessel The vessels will operate on dynamic positioning and will not anchor/moor on the seabed. Vessels will operate 24 hours per day for the duration of the activities.</p>	<p>A dynamically positioned MODU is intended to be used for the drilling activities. The MODU may be supported by subsea installation and light well intervention vessels. Support vessels may be used including, anchor handling vessels and activity support vessels. The vessels will operate on dynamic positioning and will not anchor/moor on the seabed. Vessels will operate 24 hours per day for the duration of the activities.</p>	<p>Removal Activities</p> <ul style="list-style-type: none"> Construction support vessel (CSV) and Heavy Lift Vessel (HLV) for recovery and pipeline removal activities. <p>An anchor handling tug (AHT) to support the towing of the RTM to sheltered water.</p>	<p>P&A activities</p> <ul style="list-style-type: none"> Semi-Submersible Mobile Offshore Drilling Unit (MODU) The MODU will be supported by 2 to 3 offshore support vessels. <p>Removal Activities</p> <ul style="list-style-type: none"> CSV and HLV for recovery and activities. <ul style="list-style-type: none"> AHTs to support the towing of the DTM to the shallower water location (if required).

Feedback:

Stybarrow Plug and Abandonment Environment Plan

If you have any issues or concerns with these activities, or any other issues relevant to these locations, please respond to Woodside at: Feedback@woodside.com.au or 1800 442 977.

Your feedback and our response will be included in our Environment Plans which will be submitted to the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA) for acceptance in accordance with the *Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2009* (Cth).

Please let us know if your feedback for any of the activities proposed under an Environment Plan is sensitive and we will make this known to NOPSEMA upon submission of the Environment Plan to ensure this information remains confidential to NOPSEMA.

Please provide your views by **17 March 2023**.

Best regards,

██████████
Manager Corporate Affairs | North West

2.71.1 Email sent to City of Karratha (8 March 2023)

Hi ██████████

Woodside is sending this email by way of a reminder that the consultation period to provide feedback on the following proposed activities in Commonwealth waters, is closing soon:

- Activities on the TPA03 production well to remediate a down-hole valve and continue production from the lower reservoir, under the TPA03 Well Intervention Environment Plan (TPA03 EP);
- Geotechnical and geophysical surveys, drilling and appraisal of the Julimar South-1 well (previously called JULA-P) and, plug and abandonment of Julimar South-1, if required, under the Julimar Drilling and Surveys Environment Plan (Julimar EP);
- Drilling and subsea infrastructure installation activities for one well (PLA08) and contingent well intervention activities for current production wells, under the WA-34-L Pyxis Drilling and Subsea Installation Environment Plan Revision (PLA08 EP);
- Decommissioning of the Griffin field under the Griffin Decommissioning and Field Management EP, Griffin Gas Export Pipeline EP and Griffin Field Deviation EP; and
- Decommissioning of the Stybarrow field under the Stybarrow Plug and Abandonment EP, Stybarrow Decommissioning and Field Management EP and Stybarrow Field Deviation EP.

We would appreciate any feedback you may have by 17 March 2023 to support our development of the proposed environment plans.

Best regards,

2.72 Email to Department of Transport (DoT) (22 February 2023)

Hi ██████████

Stybarrow Plug and Abandonment Environment Plan

As part of Woodside's ongoing consultation for its current and planned activities, I would like to advise WA Department of Transport (DoT) that Woodside is preparing the Stybarrow Plug and Abandonment Environment Plan (EP). The EP will support P&A activities required as part of the progressive decommissioning of the Stybarrow field, which is in Commonwealth waters in Production Licence WA-32-L, approximately 53 km north-west of Exmouth, Western Australia and in water depths of approximately ~810-850 m.

Woodside would like to offer DoT the opportunity to review or provide comment on the activity.

For reference, the DoT would have received OPEPs for other Stybarrow decommissioning activities from the former titleholder, BHP Petroleum.

Information is presented as follows:

- A Consultation Information Sheet providing information on the proposed activities is available here: [Link](#)
- The *Stybarrow Plug and Abandonment Oil Pollution First Strike Plan* is also attached. This will form part of the approval submission in accordance with the *Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2009* (Cth).
- In the table below, as requested in the *Offshore Petroleum Industry Guidance Note* (July 2020) and from recent engagement activities between DoT and Woodside, responses to the information requirements are presented in a succinct summary.

Woodside anticipates submitting the proposed EP in early June 2023 to support these activities.

If you have any feedback on these activities, please respond to Woodside at: Feedback@woodside.com.au or 1800 442 977 by **Monday 22 May 2023**.

Your feedback and our response will be included in our Environment Plan which will be submitted to the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA) for acceptance in accordance with the *Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2009* (Cth).

Please let us know if your feedback for this activity is sensitive and we will make this known to NOPSEMA upon submission of the Environment Plan in order for this information to remain confidential to NOPSEMA.

Many thanks,



Information Requested in the Offshore Petroleum Industry Guidance Note (July 2020)

Information Provided & Reference

Description of activity, including the

Included in the consultation information sheet

Stybarrow Plug and Abandonment Environment Plan

intended schedule, location (including coordinates), distance to nearest landfall and map.		
Worst case spill volumes.	Included in Annex 1 of the First Strike Plan	
Known or indicative oil type/properties	Included in Annex 1 of the First Strike Plan	
Amenability of oil to dispersants and window of opportunity for dispersant efficacy.	Modelling for the Stybarrow Crude LOWC scenario does not predict floating hydrocarbons at feasible response thresholds of >50 g/m ² therefore dispersant is not deemed a suitable response technique. Surface dispersant is also not deemed to be suitable for spills of marine diesel oil (MDO).	
Description of existing environment and protection priorities.	Included in Section 3 of the First Strike Plan	
Details of the environmental risk assessment related to marine oil pollution - describe the process and key outcomes around risk identification, risk analysis, risk evaluation and risk treatment. For further information see the Oil Pollution Risk Management Information Paper (NOPSEMA 2021).	<p>Unplanned loss of containment events from the Petroleum Activities Program have been identified during the risk assessment process (presented in Section 8 of the EP). Further descriptions of risk, impacts and mitigation measures (which are not related to hydrocarbon preparedness and response) are provided in Section 8 of the EP. Two unplanned events or credible spill scenario for the Petroleum Activities Program have been selected as representative across types, sources and incident/response levels, up to and including the WCCS.</p> <p>Annex 1 of the First Strike Plan present the credible scenarios for the Petroleum Activities Program. Two worst-case credible scenarios (CS-01 – LOWC (Stybarrow Crude) and CS-02 – vessel collision (MDO)) have been used for response planning purposes for the activity as all other scenarios are of a lesser scale and extent. By demonstrating capability to meet and manage events of this size and timescale, Woodside assumes relevant scenarios that are smaller in nature and scale can also be managed by the same capability.</p> <p>Response performance outcomes have been defined based on a response to the WCCS.</p>	
Outcomes of oil spill trajectory modelling, including predicted times to enter State waters and	<p>Credible Scenario 1 – Loss of well containment at Stybarrow H2 well (Stybarrow Crude)</p> <p>Instantaneous release of 10,264 m³. 42% residue of 4,372 m³</p> <p>Minimum time to shoreline contact (above 100 g/m²) in days – based upon deterministic modelling runs for both fastest time to contact and greatest shoreline accumulations</p>	<p>Credible Scenario 2 – loss of containment due to vessel collision close to disconnectable turret mooring (DTM) buoy (MDO)</p> <p>Instantaneous release of 1,000 m³. 5% residue of 50 m³</p> <p>Minimum time to shoreline contact (above 100 g/m²) in days – based on stochastic modelling</p>

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contact shorelines.	Exmouth	Day 5, 26.1 m ³ (minimum time) Day 58, 297.1 m ³ (maximum volume)
	Between Day 35 and Day 56 (Month 2)	Peak accumulations (>100 g/m ²) total 622.6 m ³ across 26 sites Maximum single accumulation of 226 m ³ at Ashburton on Day 40
	Between Day 57 and Day 103 (Months 3 and 4)	Peak accumulations (>100 g/m ²) total 623.3 m ³ across 5 additional sites Maximum single accumulation of 297 m ³ at Exmouth on Day 58.

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Stochastic modelling for the LOWC scenario was undertaken by RPS in July 2022 using NOPSEMA's contemporary modelling thresholds. The white EMBA below shows the 'low' floating threshold i.e. at or above 1 g/m². The summer season was selected as it shows a greater overlap with State waters.

State waters contact at the low, floating threshold (1 g/m²) is predicted from day 3:

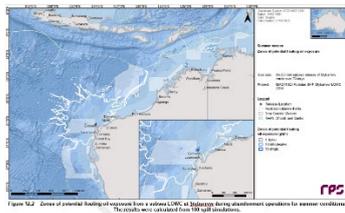


Figure 11.2 Zones of potential floating oil exposure from a vessel based spill at the DTM buoy during summer conditions. The results were calculated from 100 spill simulations.

Stochastic modelling for the MDO scenario was undertaken by RPS in February 2022 using NOPSEMA's contemporary modelling thresholds. The white EMBA below shows the 'low' threshold i.e. floating hydrocarbon concentrations at or above 1 g/m². The transitional season was selected as it shows the shortest distance to State waters.

Floating hydrocarbons at the low threshold (1 g/m²) are not predicted to cross into State waters – see inset:

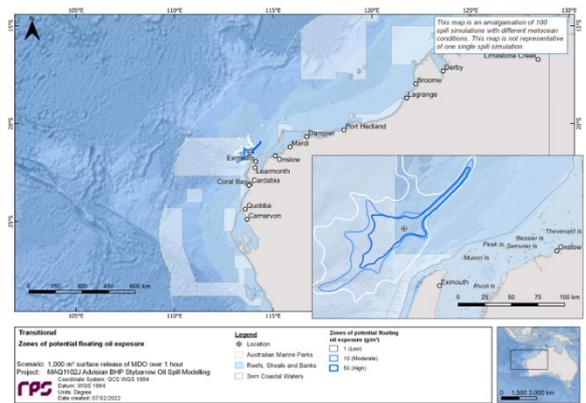


Figure 11.3 Zones of potential floating oil exposure from a vessel based spill at the DTM buoy during transitional conditions. The results were calculated from 100 spill simulations.

Details on initial response actions and key activation timeframes.	Included in Section 2 of the First Strike Plan
Potential Incident Control Centre arrangements.	Included in Annex 4 and 5 of the First Strike Plan
Potential staging areas / Forward Operating Base.	A Forward Operating Base can be established at Exmouth and/ or Dampier.
Details on response strategies.	Included in Section 2 of the First Strike Plan
Use of DoT equipment resources	Woodside has access to its own and contracted stockpiles of response equipment and acknowledges that potential use of DoT resources cannot be assumed and is at the discretion of DoT.
Details and diagrams on proposed IMT structure including integration of DoT arrangements	Included in Annex 5, 6 and 7 the First Strike Plan

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<p>as per this IGN.</p>	
<p>Details on testing of arrangements of OPEP/OSCP.</p>	<p>Level 1 Response – one Level 1 ‘First Strike’ drill conducted within two weeks of commencing activity. For campaigns with an operational duration of greater than one month this will occur within the first two weeks of commencing the activity and then at least every 6 month hire period thereafter.</p> <p>Level 2 Response – A minimum of one Emergency Management exercise per MODU per campaign. For campaigns with an operational duration of greater than one month this will occur within the first month of commencing the activity and then at least every 6 month hire period thereafter.</p> <p>Level 3 Response – 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.</p> <p>Testing of Oil Spill Response Arrangements</p> <p>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 ensure that Woodside maintains an ability to respond to a hydrocarbon spill, specifically to:</p> <p>Ensure relevant responders, contractors and key personnel understand and practise their assigned roles and responsibilities.</p> <p>Test response arrangements and actions to validate response plans.</p> <p>Ensure lessons learned are incorporated into Woodside’s processes and procedures and improvements are made where required.</p> <p>Woodside’s Testing of Arrangements Schedule aligns with international good practice for spill preparedness and response management; the testing is compatible with the IPIECA Good Practice Guide and the Australian Institute for Disaster Resilience (AIDR) Australian Emergency Management Arrangements Handbook. If a spill occurs, enacting these arrangements will underpin Woodside’s ability to implement a response across its petroleum activities.</p> <p>The hydrocarbon spill arrangements included within 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.</p> <p>If new response arrangements are introduced, or existing arrangements significantly amended, additional testing is undertaken accordingly.</p>

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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 within the schedule, up to eight formal exercises are planned annually, across Woodside, to specifically test arrangements for responding to a hydrocarbon spill to the marine environment.

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).

Additional comments

Please note some of the links in the document are still being finalised, and as such may show a reference error in the attached version.

The final version will include a CRN and Doc ID number.



Hydrocarbon Spill Adviser | Corporate HSE

2.73 Email sent to Karratha Community Liaison Group (17 February 2023)

Dear Stakeholder,

Woodside is providing this update on the progressive decommissioning of the Griffin and Stybarrow fields, previously operated by BHP Petroleum Pty Ltd (BHP).

We are providing this information to ensure relevant persons are informed about the status of proposed activities, as there have been changes to activity scope and supporting consultation information since consultation commenced for these decommissioning projects in 2021.

The **Griffin Field** is in Commonwealth waters in Petroleum Licence WA-10-L, 65 km northwest of Onslow and 94 km northeast of Exmouth, Western Australia and in water depths of approximately 120 m.

The **Stybarrow Field** is in Commonwealth waters in Petroleum Licence WA-32-L, approximately 53 km northwest of Exmouth, Western Australia and in water depths of approximately 810 – 850 m.

A summary of proposed activities is outlined below, and more detailed information is provided in the attached Consultation Information Sheets. The Information Sheets provide details on activities proposed to be managed under a number of Environment Plans for each Field, including a summary of potential key risks and associated management measures. The Information Sheets are also available on our [website](#).

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Any feedback provided previously on proposed activities will remain current where Environment Plans are under assessment by the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA). Please let us know if you would like to update previous feedback or have any additional views by **17 March 2023**.

Activity:

	Griffin Field Decommissioning Activities	Stybarrow Field Decommissioning Activities
Summary:	<p>Removal Activities</p> <ul style="list-style-type: none"> Removal of subsea equipment (wellheads, trees, distribution skids, risers, flexible flowlines, rigid flowlines, umbilicals, and the pipeline end module (PLEM)). Removal of the Riser Turret Mooring (RTM) and its moorings. Depending on the vessel utilised, recovery of the RTM may require sections of it to be towed to shallower water out of the title. Removal of an exploration wellhead (Ramillies-1 in neighbouring petroleum title WA-12-L). Ongoing field management activities. Pigging and subsequent removal of the 26 km of Griffin Gas Export Pipeline (GEP) within Commonwealth waters. <p>In Situ Activities</p> <ul style="list-style-type: none"> Proposal to leave in situ 12 RTM drag anchors (buried), 6 concrete gravity bases and 5 piled foundations for the PLEM and 4 distribution skids. 	<p>Plugging and Abandonment (P&A) Activities</p> <ul style="list-style-type: none"> Pre-execution activities associated with the well P&A, such as barrier testing and removal of marine growth. Well P&A of the 10 productions/injection wells by placing cement plugs in the wells to permanently prevent hydrocarbon release. Cutting and removal of the wellhead and subsea tree assembly. Unblocking of the H4 flowline, if deemed feasible. <p>Removal Activities</p> <ul style="list-style-type: none"> Removal of subsea equipment (wellheads, trees, manifolds, risers, flexible flowlines, and umbilicals). Removal of the Disconnectable Turret Mooring (DTM) and its moorings. Recovery of the DTM may require it to be towed to shallower water outside of permit area WA-32-L to support the DTM removal from the marine environment. Ongoing field management activities (equipment monitoring and inspection). <p>In Situ Activities</p> <ul style="list-style-type: none"> Proposed leave in situ of the 9 DTM drag anchors (buried), nine suction piles for the riser holdbacks and the historical

Stybarrow Plug and Abandonment Environment Plan

		exploration wellhead, Eskdale-1, which was unable to be removed following its drilling and abandonment in 2003.
Location:	<ul style="list-style-type: none"> 94 km northeast of Exmouth, Western Australia. 	<ul style="list-style-type: none"> 53 km northwest of Exmouth, Western Australia.
Approx. Water Depth (m):	<ul style="list-style-type: none"> Approx. 120 m. 	<ul style="list-style-type: none"> Approx. 810 – 850 m.
Schedule:	<p>Removal Activities</p> <ul style="list-style-type: none"> Earliest proposed removal activity start is estimated to be Q4 2023, subject to approvals, vessel availability and weather constraints. Facilities removal must be completed no later than 31 December 2024, pursuant to General Direction 832. 	<p>Plugging and Abandonment (P&A) Activities</p> <ul style="list-style-type: none"> Earliest P&A start is estimated to be Q4 2023, subject to approvals, MODU and vessel availability and weather constraints. P&A activities must be completed no later than 30 September 2024, pursuant to General Direction 833. <p>Removal Activities</p> <ul style="list-style-type: none"> Earliest facilities and DTM removal is estimated to be Q4 2023, subject to approvals, vessel availability and weather constraints. Equipment removal must be completed no later than 31 March 2025, pursuant to General Direction 833.
Duration:	<p>Removal Activities</p> <ul style="list-style-type: none"> Removal activities are anticipated to take approximately 6 months to complete and GEP removal activities are anticipated to take approximately 2 months to complete. 	<p>Plugging and Abandonment (P&A) Activities</p> <ul style="list-style-type: none"> P&A activities are anticipated to take approximately 6 – 9 months. <p>Removal Activities</p> <ul style="list-style-type: none"> Removal activities are anticipated to take approximately 4-6 months to complete and DTM removal activities are anticipated to take approximately 1 month to complete.
Exclusionary/Cautious Zone:	<p>Removal Activities</p> <ul style="list-style-type: none"> The temporary Operational Area includes the area encompassing an 	<p>P&A Activities</p> <ul style="list-style-type: none"> The Operational Area includes the area encompassing an approximate 3,000 m radius

Stybarrow Plug and Abandonment Environment Plan

	<p>approximate 1,500 m radius around the equipment.</p> <ul style="list-style-type: none"> • A temporary 500 m exclusion zone will apply around the project vessels during removal and potential tow activities. 	<p>around each of the four drill centers within WA-32-L.</p> <ul style="list-style-type: none"> • A temporary 500 m exclusion zone will apply around the MODU and the associated project vessels during P&A activities. <p>Removal Activities</p> <ul style="list-style-type: none"> • The temporary Operational Area includes the area encompassing an approximate 1,500 m radius around the subsea infrastructure and wellheads. • The DTM has an existing 1200 m radius petroleum safety zone which will continue to be in place until it is removed. • A temporary 500 m exclusion zone will apply around the CSV and the associated project vessels during removal activities. • A temporary 500 m exclusion zone will apply around the HLV and the associated project vessels during the removal of the DTM.
<p>Vessels:</p>	<p>Removal Activities</p> <ul style="list-style-type: none"> • Construction support vessel (CSV) and Heavy Lift Vessel (HLV) for recovery and pipeline removal activities. • An anchor handling tug (AHT) to support the towing of the RTM to sheltered water. 	<p>P&A activities</p> <ul style="list-style-type: none"> • Semi-Submersible Mobile Offshore Drilling Unit (MODU) • The MODU will be supported by 2 to 3 offshore support vessels. <p>Removal Activities</p> <ul style="list-style-type: none"> • CSV and HLV for recovery and activities. • AHTs to support the towing of the DTM to the shallower water location (if required).

Feedback:

If you have any feedback on these activities, please respond to Woodside at: Feedback@woodside.com.au or 1800 442 977.

Stybarrow Plug and Abandonment Environment Plan

Your feedback and our response will be included in our Environment Plan which will be submitted to NOPSEMA for acceptance in accordance with the *Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2009* (Cth).

Please let us know if your feedback for this activity is sensitive and we will make this known to NOPSEMA upon submission of the Environment Plan in order for this information to remain confidential to NOPSEMA. Please provide your views by **17 March 2023**.

You can also subscribe on our website to receive Consultation Information Sheets for proposed activities: www.woodside.com/sustainability/consultation-activities.

██████████
Manager Corporate Affairs – North West

2.73.1 Email sent to Karratha Community Liaison Group (8 March 2023)

Dear CLG members,

Woodside is sending this email by way of a reminder that the consultation period to provide feedback on the following proposed activities in Commonwealth waters, is closing soon:

- Activities on the TPA03 production well to remediate a down-hole valve and continue production from the lower reservoir, under the TPA03 Well Intervention Environment Plan (**TPA03 EP**);
- Geotechnical and geophysical surveys, drilling and appraisal of the Julimar South-1 well (previously called JULA-P) and, plug and abandonment of Julimar South-1, if required, under the Julimar Drilling and Surveys Environment Plan (**Julimar EP**);
- Drilling and subsea infrastructure installation activities for one well (PLA08) and contingent well intervention activities for current production wells, under the WA-34-L Pyxis Drilling and Subsea Installation Environment Plan Revision (**PLA08 EP**);
- Decommissioning of the Griffin field under the Griffin Decommissioning and Field Management EP, Griffin Gas Export Pipeline EP and Griffin Field Deviation EP; and
- Decommissioning of the Stybarrow field under the Stybarrow Plug and Abandonment EP, Stybarrow Decommissioning and Field Management EP and Stybarrow Field Deviation EP.

We would appreciate any feedback you may have by **17 March 2023** to support our development of the proposed environment plans.

Best regards,

2.74 Email sent to Commonwealth Scientific and Industrial Research Organisation (CSIRO) (21 February 2023)

Dear ██████

Woodside is providing this update on the progressive decommissioning of the Griffin and Stybarrow fields, previously operated by BHP Petroleum Pty Ltd (BHP).

Stybarrow Plug and Abandonment Environment Plan

We are providing this information to ensure relevant persons are informed about the status of proposed activities, as there have been changes to activity scope and supporting consultation information since consultation commenced for these decommissioning projects in 2021.

The **Griffin Field** is in Commonwealth waters in Petroleum Licence WA-10-L, 65 km northwest of Onslow and 94 km northeast of Exmouth, Western Australia and in water depths of approximately 120 m.

The **Stybarrow Field** is in Commonwealth waters in Petroleum Licence WA-32-L, approximately 53 km northwest of Exmouth, Western Australia and in water depths of approximately 810 – 850 m.

A summary of proposed activities is outlined below, and more detailed information is provided in the attached Consultation Information Sheets. The Information Sheets provide details on activities proposed to be managed under a number of Environment Plans for each Field, including a summary of potential key risks and associated management measures. The Information Sheets are also available on our [website](#).

Woodside is seeking your advice regarding any research activities that UWA may be undertaking that may overlap with our proposed activities.

Any feedback provided previously on proposed activities will remain current where Environment Plans are under assessment by the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA).

Please let us know if you would like to update previous feedback or have any additional views by **17 March 2023**.

Activity:

	Griffin Field Decommissioning Activities	Stybarrow Field Decommissioning Activities
Summary:	<p>Removal Activities</p> <ul style="list-style-type: none"> Removal of subsea equipment (wellheads, trees, distribution skids, risers, flexible flowlines, rigid flowlines, umbilicals, and the pipeline end module (PLEM)). Removal of the Riser Turret Mooring (RTM) and its moorings. Depending on the vessel utilised, recovery of the RTM may require sections of it to be towed to shallower water out of the title. Removal of an exploration wellhead (Ramillies-1 in 	<p>Plugging and Abandonment (P&A) Activities</p> <ul style="list-style-type: none"> Pre-execution activities associated with the well P&A, such as barrier testing and removal of marine growth. Well P&A of the 10 productions/injection wells by placing cement plugs in the wells to permanently prevent hydrocarbon release. Cutting and removal of the wellhead and subsea tree assembly. Unblocking of the H4 flowline, if deemed feasible. <p>Removal Activities</p>

Stybarrow Plug and Abandonment Environment Plan

	<p>neighbouring petroleum title WA-12-L).</p> <ul style="list-style-type: none"> • Ongoing field management activities. • Pigging and subsequent removal of the 26 km of Griffin Gas Export Pipeline (GEP) within Commonwealth waters. <p>In Situ Activities</p> <ul style="list-style-type: none"> • Proposal to leave in situ 12 RTM drag anchors (buried), 6 concrete gravity bases and 5 piled foundations for the PLEM and 4 distribution skids. 	<ul style="list-style-type: none"> • Removal of subsea equipment (wellheads, trees, manifolds, risers, flexible flowlines, and umbilicals). • Removal of the Disconnectable Turret Mooring (DTM) and its moorings. Recovery of the DTM may require it to be towed to shallower water outside of permit area WA-32-L to support the DTM removal from the marine environment. • Ongoing field management activities (equipment monitoring and inspection). <p>In Situ Activities</p> <ul style="list-style-type: none"> • Proposed leave in situ of the 9 DTM drag anchors (buried), nine suction piles for the riser holdbacks and the historical exploration wellhead, Eskdale-1, which was unable to be removed following its drilling and abandonment in 2003.
Location:	<ul style="list-style-type: none"> • 94 km northeast of Exmouth, Western Australia. 	<ul style="list-style-type: none"> • 53 km northwest of Exmouth, Western Australia.
Approx. Water Depth (m):	<ul style="list-style-type: none"> • Approx. 120 m. 	<ul style="list-style-type: none"> • Approx. 810 – 850 m.
Schedule:	<p>Removal Activities</p> <ul style="list-style-type: none"> • Earliest proposed removal activity start is estimated to be Q4 2023, subject to approvals, vessel availability and weather constraints. • Facilities removal must be completed no later than 31 December 2024, pursuant to General Direction 832. 	<p>Plugging and Abandonment (P&A) Activities</p> <ul style="list-style-type: none"> • Earliest P&A start is estimated to be Q4 2023, subject to approvals, MODU and vessel availability and weather constraints. • P&A activities must be completed no later than 30 September 2024, pursuant to General Direction 833. <p>Removal Activities</p> <ul style="list-style-type: none"> • Earliest facilities and DTM removal is estimated to be Q4 2023, subject to approvals, vessel availability and weather constraints.

Stybarrow Plug and Abandonment Environment Plan

		<ul style="list-style-type: none"> Equipment removal must be completed no later than 31 March 2025, pursuant to General Direction 833.
<p>Duration:</p>	<p>Removal Activities</p> <ul style="list-style-type: none"> Removal activities are anticipated to take approximately 6 months to complete and GEP removal activities are anticipated to take approximately 2 months to complete. 	<p>Plugging and Abandonment (P&A) Activities</p> <ul style="list-style-type: none"> P&A activities are anticipated to take approximately 6 – 9 months. <p>Removal Activities</p> <ul style="list-style-type: none"> Removal activities are anticipated to take approximately 4-6 months to complete and DTM removal activities are anticipated to take approximately 1 month to complete.
<p>Exclusionary/Cautionary Zone:</p>	<p>Removal Activities</p> <ul style="list-style-type: none"> The temporary Operational Area includes the area encompassing an approximate 1,500 m radius around the equipment. A temporary 500 m exclusion zone will apply around the project vessels during removal and potential tow activities. 	<p>P&A Activities</p> <ul style="list-style-type: none"> The Operational Area includes the area encompassing an approximate 3,000 m radius around each of the four drill centers within WA-32-L. A temporary 500 m exclusion zone will apply around the MODU and the associated project vessels during P&A activities. <p>Removal Activities</p> <ul style="list-style-type: none"> The temporary Operational Area includes the area encompassing an approximate 1,500 m radius around the subsea infrastructure and wellheads. The DTM has an existing 1200 m radius petroleum safety zone which will continue to be in place until it is removed. A temporary 500 m exclusion zone will apply around the CSV and the associated project vessels during removal activities. A temporary 500 m exclusion zone will apply around the HLW

		and the associated project vessels during the removal of the DTM.
Vessels:	<p>Removal Activities</p> <ul style="list-style-type: none"> • Construction support vessel (CSV) and Heavy Lift Vessel (HLV) for recovery and pipeline removal activities. • An anchor handling tug (AHT) to support the towing of the RTM to sheltered water. 	<p>P&A activities</p> <ul style="list-style-type: none"> • Semi-Submersible Mobile Offshore Drilling Unit (MODU) • The MODU will be supported by 2 to 3 offshore support vessels. <p>Removal Activities</p> <ul style="list-style-type: none"> • CSV and HLV for recovery and activities. • AHTs to support the towing of the DTM to the shallower water location (if required).

Feedback:

If you have any feedback on these activities, please respond to Woodside at: Feedback@woodside.com.au or 1800 442 977.

Your feedback and our response will be included in our Environment Plan which will be submitted to NOPSEMA for acceptance in accordance with the *Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2009* (Cth).

Please let us know if your feedback for this activity is sensitive and we will make this known to NOPSEMA upon submission of the Environment Plan in order for this information to remain confidential to NOPSEMA.

Please provide your views by **17 March 2023**.

You can also subscribe on our website to receive Consultation Information Sheets for proposed activities: www.woodside.com/sustainability/consultation-activities.

Woodside Feedback

2.74.1 Email sent to CSIRO (4 June 2023)

Dear ■

Woodside previously consulted you (see email below) on Woodside's proposed activities for the progressive decommissioning of the Griffin and Stybarrow fields.

Any feedback provided previously on proposed activities will remain current where Environment Plans are under assessment by the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA).

Stybarrow Plug and Abandonment Environment Plan

For reference:

- The **Griffin Field** is in Commonwealth waters in Petroleum Licence WA-10-L, 65 km northwest of Onslow and 94 km northeast of Exmouth, Western Australia and in water depths of approximately 120 m.
- The **Stybarrow Field** is in Commonwealth waters in Petroleum Licence WA-32-L, approximately 53 km northwest of Exmouth, Western Australia and in water depths of approximately 810 – 850 m.

Consultation Information Sheets for the proposed activities are attached, which provide a summary of potential key risks and associated management measures. The Information Sheets are also available on our [website](#).

Should CSIRO have any feedback on the proposed activities, please let us know.

Regards

Woodside Feedback

2.75 Email sent to Broome Chamber of Commerce and Industry (17 May 2023)

Dear BCCI

Woodside is planning to undertake the following activities in Commonwealth waters under the following environment plans:

- Plug and abandonment (P&A) activities in the Stybarrow field, under the Stybarrow P&A Environment Plan (**Stybarrow P&A EP**).

An overview of the proposed activities under the Stybarrow P&A EP is set out below.

Following recent changes to Commonwealth Environment Plan consultation requirements, Woodside is now consulting stakeholders who are located within the environment that may be affected (EMBA) by a proposed petroleum activity.

The EMBA is the largest spatial extent where unplanned events could potentially have an environmental consequence. For these environment plans, the broadest extent of the EMBA has been determined by the highly unlikely event of a hydrocarbon release from activities within the scope the EP. The worst-case credible spill scenario for the Stybarrow P&A EP is a well loss of integrity.

An updated Consultation Information Sheet is attached, which provides additional background on the proposed activities, including summaries of potential key impacts and risks, and associated management measures. These are also available on our [website](#). You can also subscribe to receive updates on our consultation activities by subscribing [here](#).

We would welcome feedback on the proposed activities by **16 June 2023** at Feedback@woodside.com.au or 1800 442 977.

Activity:

Stybarrow P&A EP	
Summary:	<ul style="list-style-type: none"> · Pre-execution activities associated with the well P&A, such as barrier testing and removal of marine growth. · Well P&A of the 10 productions/injection wells by placing cement plugs in the wells to permanently prevent hydrocarbon release. · Cutting and removal of the wellhead and subsea tree assembly. · Unblocking of the H4 flowline, if deemed feasible.
Permit area:	WA-32-L
Location:	~53 km northwest of Exmouth, Western Australia.
Operational Area distance to international waters:	~ 313 km
Approx. Water Depth (m):	~ 810 – 850 m.
Schedule:	<p>Earliest P&A start is estimated to be Q4 2023, subject to approvals, MODU and vessel availability and weather constraints.</p> <p>P&A activities must be completed no later than 30 September 2024, pursuant to General Direction 833.</p>
Duration:	P&A activities are anticipated to take approximately 6 – 9 months.
Exclusionary / Cautionary Zone:	<p>The Operational Area includes the area encompassing an approximate 3,000 m radius around each of the four drill centers within WA-32-L.</p> <p>A temporary 500 m exclusion zone will apply around the MODU and the associated project vessels during P&A activities.</p>
Vessels:	<p>Semi-Submersible Mobile Offshore Drilling Unit (MODU)</p> <p>The MODU will be supported by 2 to 3 offshore support vessels.</p>

Feedback:

Your feedback and our response will be included in our Environment Plans which will be submitted to the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA) for acceptance in accordance with the *Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2009* (Cth).

Please let us know if your feedback for any of the activities proposed under an Environment Plan is sensitive and we will make this known to NOPSEMA upon submission of the Environment Plan to ensure this information remains confidential to NOPSEMA.

Regards

Woodside Feedback

2.76 Email sent to Pilbara Ports Authority (1 June 2023)

Dear [REDACTED]

Woodside is providing this update on the progressive decommissioning of the Griffin and Stybarrow fields, previously operated by BHP Petroleum Pty Ltd (BHP).

We are providing this information to ensure relevant persons are informed about the status of proposed activities, as there have been changes to activity scope and supporting consultation information since consultation commenced for these decommissioning projects in 2021.

The **Griffin Field** is in Commonwealth waters in Petroleum Licence WA-10-L, 65 km northwest of Onslow and 94 km northeast of Exmouth, Western Australia and in water depths of approximately 120 m.

The **Stybarrow Field** is in Commonwealth waters in Petroleum Licence WA-32-L, approximately 53 km northwest of Exmouth, Western Australia and in water depths of approximately 810 – 850 m.

A summary of proposed activities is outlined below, and more detailed information is provided in the attached Consultation Information Sheets. The Information Sheets provide details on activities proposed to be managed under a number of environment plans (EPs) for each field, including a summary of potential key risks and associated management measures. The Information Sheets are also available on our [website](#).

Following recent changes to Commonwealth EP consultation requirements, Woodside is now consulting stakeholders whom are located within the environment that may be affected (EMBA) by a proposed petroleum activity. The EMBA is the largest spatial extent where unplanned events could potentially have an environmental consequence.

The National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA) has published a brochure entitled [Consultation on offshore petroleum environment plans – Information for the Community](#) to help community members understand consultation requirements for Commonwealth EPs and how to participate in consultation.

Any feedback provided previously on proposed activities will remain current where EPs are under assessment by the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA).

Please let us know if you would like to update previous feedback or have any additional views by **1 July 2023**.

Activity:

	Griffin Field Decommissioning Activities	Stybarrow Field Decommissioning Activities
Summary:	Removal Activities <ul style="list-style-type: none">Removal of subsea equipment (wellheads, trees, distribution skids,	Plugging and Abandonment (P&A) Activities <ul style="list-style-type: none">Pre-execution activities associated with the well P&A,

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	<p>risers, flexible flowlines, rigid flowlines, umbilicals, and the pipeline end module (PLEM)).</p> <ul style="list-style-type: none"> • Removal of the Riser Turret Mooring (RTM) and its moorings. Depending on the vessel utilised, recovery of the RTM may require sections of it to be towed to shallower water out of the title. • Removal of an exploration wellhead (Ramillies-1 in neighbouring petroleum title WA-12-L). • Ongoing field management activities. • Pigging and subsequent removal of the 26 km of Griffin Gas Export Pipeline (GEP) within Commonwealth waters. <p>In Situ Activities</p> <ul style="list-style-type: none"> • Proposal to leave in situ 12 RTM drag anchors (buried), 6 concrete gravity bases and 5 piled foundations for the PLEM and 4 distribution skids. 	<p>such as barrier testing and removal of marine growth.</p> <ul style="list-style-type: none"> • Well P&A of the 10 productions/injection wells by placing cement plugs in the wells to permanently prevent hydrocarbon release. • Cutting and removal of the wellhead and subsea tree assembly. • Unblocking of the H4 flowline, if deemed feasible. <p>Removal Activities</p> <ul style="list-style-type: none"> • Removal of subsea equipment (wellheads, trees, manifolds, risers, flexible flowlines, and umbilicals). • Removal of the Disconnectable Turret Mooring (DTM) and its moorings. Recovery of the DTM may require it to be towed to shallower water outside of permit area WA-32-L to support the DTM removal from the marine environment. • Ongoing field management activities (equipment monitoring and inspection). <p>In Situ Activities</p> <ul style="list-style-type: none"> • Proposed leave in situ of the 9 DTM drag anchors (buried), nine suction piles for the riser holdbacks and the historical exploration wellhead, Eskdale-1, which was unable to be removed following its drilling and abandonment in 2003.
Location:	<ul style="list-style-type: none"> • 94 km northeast of Exmouth, Western Australia. 	<ul style="list-style-type: none"> • 53 km northwest of Exmouth, Western Australia.
Approx. Water Depth (m):	<ul style="list-style-type: none"> • Approx. 120 m. 	<ul style="list-style-type: none"> • Approx. 810 – 850 m.
Schedule:	<p>Removal Activities</p> <ul style="list-style-type: none"> • Earliest proposed removal activity start is estimated to be Q4 2023, subject to approvals, vessel availability and weather constraints. • Facilities removal must be completed no later than 31 December 2024, pursuant to General Direction 832. 	<p>Plugging and Abandonment (P&A) Activities</p> <ul style="list-style-type: none"> • Earliest P&A start is estimated to be Q4 2023, subject to approvals, MODU and vessel availability and weather constraints. • P&A activities must be completed no later than 30 September 2024, pursuant to General Direction 833.

Stybarrow Plug and Abandonment Environment Plan

		<p>Removal Activities</p> <ul style="list-style-type: none"> • Earliest facilities and DTM removal is estimated to be Q4 2023, subject to approvals, vessel availability and weather constraints. • Equipment removal must be completed no later than 31 March 2025, pursuant to General Direction 833.
Duration:	<p>Removal Activities</p> <ul style="list-style-type: none"> • Removal activities are anticipated to take approximately 6 months to complete and GEP removal activities are anticipated to take approximately 2 months to complete. 	<p>Plugging and Abandonment (P&A) Activities</p> <ul style="list-style-type: none"> • P&A activities are anticipated to take approximately 6 – 9 months. <p>Removal Activities</p> <ul style="list-style-type: none"> • Removal activities are anticipated to take approximately 4-6 months to complete and DTM removal activities are anticipated to take approximately 1 month to complete.
Exclusionary/Cautious Zone:	<p>Removal Activities</p> <ul style="list-style-type: none"> • The temporary Operational Area includes the area encompassing an approximate 1,500 m radius around the equipment. • A temporary 500 m exclusion zone will apply around the project vessels during removal and potential tow activities. 	<p>P&A Activities</p> <ul style="list-style-type: none"> • The Operational Area includes the area encompassing an approximate 3,000 m radius around each of the four drill centers within WA-32-L. • A temporary 500 m exclusion zone will apply around the MODU and the associated project vessels during P&A activities. <p>Removal Activities</p> <ul style="list-style-type: none"> • The temporary Operational Area includes the area encompassing an approximate 1,500 m radius around the subsea infrastructure and wellheads. • The DTM has an existing 1200 m radius petroleum safety zone which will continue to be in place until it is removed. • A temporary 500 m exclusion zone will apply around the CSV and the associated project vessels during removal activities. • A temporary 500 m exclusion zone will apply around the HLV and the associated project vessels during the removal of the DTM.
Vessels:	Removal Activities	P&A activities

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	<ul style="list-style-type: none">• Construction support vessel (CSV) and Heavy Lift Vessel (HLV) for recovery and pipeline removal activities.• An anchor handling tug (AHT) to support the towing of the RTM to sheltered water.	<ul style="list-style-type: none">• Semi-Submersible Mobile Offshore Drilling Unit (MODU)• The MODU will be supported by 2 to 3 offshore support vessels. <p>Removal Activities</p> <ul style="list-style-type: none">• CSV and HLV for recovery and activities.• AHTs to support the towing of the DTM to the shallower water location (if required).
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If you have any feedback specific to the proposed activities described under the proposed EPs, we would welcome your feedback at: Feedback@woodside.com.au or 1800 442 977 by **1 July 2023**.

Your feedback and our response will be included in our Environment Plan which will be submitted to NOPSEMA for acceptance in accordance with the *Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2009* (Cth).

Please let us know if your feedback for this activity is sensitive and we will make this known to NOPSEMA upon submission of the Environment Plan in order for this information to remain confidential to NOPSEMA.

You can also subscribe on our website to receive Consultation Information Sheets for proposed activities: www.woodside.com/sustainability/consultation-activities.

Regards,

Woodside Feedback

2.76.1 Email sent to Pilbara Ports Authority (23 June 2023)

Dear [REDACTED]

Woodside previously consulted you (email below) on its plans to decommission the Griffin and Stybarrow fields.

The **Griffin Field** is in Commonwealth waters in Petroleum Licence WA-10-L, 65 km northwest of Onslow and 94 km northeast of Exmouth, Western Australia and in water depths of approximately 120 m.

The **Stybarrow Field** is in Commonwealth waters in Petroleum Licence WA-32-L, approximately 53 km northwest of Exmouth, Western Australia and in water depths of approximately 810 – 850 m.

A summary of proposed activities is outlined below, and more detailed information is provided in the attached Consultation Information Sheets. The Information Sheets provide details on activities proposed to be managed under a number of environment plans (EPs) for each field, including a summary of potential key risks and associated management measures. The Information Sheets are also available on our [website](#).

Please let us know if you would like to update previous feedback or have any additional views by **1 July 2023**.

Kind regards,
Shannen

2.77 Email sent to Australian Southern Bluefin Tuna Industry Association (ASBTIA) (1 June 2023)

Dear Stakeholder

Woodside is providing this update on the progressive decommissioning of the Griffin and Stybarrow fields, previously operated by BHP Petroleum Pty Ltd (BHP).

We are providing this information to ensure relevant persons are informed about the status of proposed activities, as there have been changes to activity scope and supporting consultation information since consultation commenced for these decommissioning projects in 2021.

The **Griffin Field** is in Commonwealth waters in Petroleum Licence WA-10-L, 65 km northwest of Onslow and 94 km northeast of Exmouth, Western Australia and in water depths of approximately 120 m.

The **Stybarrow Field** is in Commonwealth waters in Petroleum Licence WA-32-L, approximately 53 km northwest of Exmouth, Western Australia and in water depths of approximately 810 – 850 m.

A summary of proposed activities is outlined below, and more detailed information is provided in the attached Consultation Information Sheets. The Information Sheets provide details on activities proposed to be managed under a number of environment plans (EPs) for each field, including a summary of potential key risks and associated management measures. The Information Sheets are also available on our [website](#).

Following recent changes to Commonwealth EP consultation requirements, Woodside is now consulting stakeholders whom are located within the environment that may be affected (EMBA) by a proposed petroleum activity. The EMBA is the largest spatial extent where unplanned events could potentially have an environmental consequence.

The National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA) has published a brochure entitled [Consultation on offshore petroleum environment plans – Information for the Community](#) to help community members understand consultation requirements for Commonwealth EPs and how to participate in consultation.

Any feedback provided previously on proposed activities will remain current where EPs are under assessment by the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA).

Please let us know if you would like to update previous feedback or have any additional views by **1 July 2023**.

Activity:

	Griffin Field Decommissioning Activities	Stybarrow Field Decommissioning Activities
Summary:	Removal Activities <ul style="list-style-type: none"> Removal of subsea equipment (wellheads, trees, distribution skids, risers, flexible flowlines, rigid flowlines, umbilicals, and the pipeline end module (PLEM)). 	Plugging and Abandonment (P&A) Activities <ul style="list-style-type: none"> Pre-execution activities associated with the well P&A, such as barrier testing and removal of marine growth. Well P&A of the 10 productions/injection wells by

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	<ul style="list-style-type: none"> Removal of the Riser Turret Mooring (RTM) and its moorings. Depending on the vessel utilised, recovery of the RTM may require sections of it to be towed to shallower water out of the title. Removal of an exploration wellhead (Ramillies-1 in neighbouring petroleum title WA-12-L). Ongoing field management activities. Pigging and subsequent removal of the 26 km of Griffin Gas Export Pipeline (GEP) within Commonwealth waters. <p>In Situ Activities</p> <ul style="list-style-type: none"> Proposal to leave in situ 12 RTM drag anchors (buried), 6 concrete gravity bases and 5 piled foundations for the PLEM and 4 distribution skids. 	<ul style="list-style-type: none"> placing cement plugs in the wells to permanently prevent hydrocarbon release. Cutting and removal of the wellhead and subsea tree assembly. Unblocking of the H4 flowline, if deemed feasible. <p>Removal Activities</p> <ul style="list-style-type: none"> Removal of subsea equipment (wellheads, trees, manifolds, risers, flexible flowlines, and umbilicals). Removal of the Disconnectable Turret Mooring (DTM) and its moorings. Recovery of the DTM may require it to be towed to shallower water outside of permit area WA-32-L to support the DTM removal from the marine environment. Ongoing field management activities (equipment monitoring and inspection). <p>In Situ Activities</p> <ul style="list-style-type: none"> Proposed leave in situ of the 9 DTM drag anchors (buried), nine suction piles for the riser holdbacks and the historical exploration wellhead, Eskdale-1, which was unable to be removed following its drilling and abandonment in 2003.
Location:	<ul style="list-style-type: none"> 94 km northeast of Exmouth, Western Australia. 	<ul style="list-style-type: none"> 53 km northwest of Exmouth, Western Australia.
Approx. Water Depth (m):	<ul style="list-style-type: none"> Approx. 120 m. 	<ul style="list-style-type: none"> Approx. 810 – 850 m.
Schedule:	<p>Removal Activities</p> <ul style="list-style-type: none"> Earliest proposed removal activity start is estimated to be Q4 2023, subject to approvals, vessel availability and weather constraints. Facilities removal must be completed no later than 31 December 2024, pursuant to General Direction 832. 	<p>Plugging and Abandonment (P&A) Activities</p> <ul style="list-style-type: none"> Earliest P&A start is estimated to be Q4 2023, subject to approvals, MODU and vessel availability and weather constraints. P&A activities must be completed no later than 30 September 2024, pursuant to General Direction 833. <p>Removal Activities</p> <ul style="list-style-type: none"> Earliest facilities and DTM removal is estimated to be Q4 2023, subject to approvals,

Stybarrow Plug and Abandonment Environment Plan

		<p>vessel availability and weather constraints.</p> <ul style="list-style-type: none"> Equipment removal must be completed no later than 31 March 2025, pursuant to General Direction 833.
Duration:	<p>Removal Activities</p> <ul style="list-style-type: none"> Removal activities are anticipated to take approximately 6 months to complete and GEP removal activities are anticipated to take approximately 2 months to complete. 	<p>Plugging and Abandonment (P&A) Activities</p> <ul style="list-style-type: none"> P&A activities are anticipated to take approximately 6 – 9 months. <p>Removal Activities</p> <ul style="list-style-type: none"> Removal activities are anticipated to take approximately 4-6 months to complete and DTM removal activities are anticipated to take approximately 1 month to complete.
Exclusionary/Cautious Zone:	<p>Removal Activities</p> <ul style="list-style-type: none"> The temporary Operational Area includes the area encompassing an approximate 1,500 m radius around the equipment. A temporary 500 m exclusion zone will apply around the project vessels during removal and potential tow activities. 	<p>P&A Activities</p> <ul style="list-style-type: none"> The Operational Area includes the area encompassing an approximate 3,000 m radius around each of the four drill centers within WA-32-L. A temporary 500 m exclusion zone will apply around the MODU and the associated project vessels during P&A activities. <p>Removal Activities</p> <ul style="list-style-type: none"> The temporary Operational Area includes the area encompassing an approximate 1,500 m radius around the subsea infrastructure and wellheads. The DTM has an existing 1200 m radius petroleum safety zone which will continue to be in place until it is removed. A temporary 500 m exclusion zone will apply around the CSV and the associated project vessels during removal activities. A temporary 500 m exclusion zone will apply around the HLV and the associated project vessels during the removal of the DTM.
Vessels:	<p>Removal Activities</p> <ul style="list-style-type: none"> Construction support vessel (CSV) and Heavy Lift Vessel (HLV) for recovery and pipeline removal activities. 	<p>P&A activities</p> <ul style="list-style-type: none"> Semi-Submersible Mobile Offshore Drilling Unit (MODU) The MODU will be supported by 2 to 3 offshore support vessels.

Stybarrow Plug and Abandonment Environment Plan

	<ul style="list-style-type: none">An anchor handling tug (AHT) to support the towing of the RTM to sheltered water.	Removal Activities <ul style="list-style-type: none">CSV and HLV for recovery and activities.AHTs to support the towing of the DTM to the shallower water location (if required).
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If you have any feedback specific to the proposed activities described under the proposed EPs, we would welcome your feedback at: Feedback@woodside.com.au or 1800 442 977 by **1 July 2023**.

Your feedback and our response will be included in our Environment Plan which will be submitted to NOPSEMA for acceptance in accordance with the *Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2009* (Cth).

Please let us know if your feedback for this activity is sensitive and we will make this known to NOPSEMA upon submission of the Environment Plan in order for this information to remain confidential to NOPSEMA.

You can also subscribe on our website to receive Consultation Information Sheets for proposed activities: www.woodside.com/sustainability/consultation-activities.

Regards,

Woodside Feedback

2.77.1 Email sent to ASBTIA (23 June 2023)

Dear Stakeholder,

Woodside previously consulted you (email below) on its plans to decommission the Griffin and Stybarrow fields.

The Griffin Field is in Commonwealth waters in Petroleum Licence WA-10-L, 65 km northwest of Onslow and 94 km northeast of Exmouth, Western Australia and in water depths of approximately 120 m.

The Stybarrow Field is in Commonwealth waters in Petroleum Licence WA-32-L, approximately 53 km northwest of Exmouth, Western Australia and in water depths of approximately 810 – 850 m.

A summary of proposed activities is outlined below, and more detailed information is provided in the attached Consultation Information Sheets. The Information Sheets provide details on activities proposed to be managed under a number of environment plans (EPs) for each field, including a summary of potential key risks and associated management measures. The Information Sheets are also available on our website.

Please let us know if you would like to update previous feedback or have any additional views by 1 July 2023.

Kind regards,

Woodside Feedback

2.78 Email sent to Greenpeace Australia Pacific (GAP) – 2 June 2023

Dear Dr [REDACTED]

Stybarrow Plug and Abandonment Environment Plan

Woodside notes Greenpeace Australia Pacific (GAP) received Woodside's updated consultation information with respect to its proposed decommissioning of the Stybarrow field under the following environment plans (EPs) on 14 February 2023 via Woodside's consultation activities website subscription:

- Stybarrow Plug and Abandonment (P&A) EP
- Stybarrow Decommissioning and Field Management EP
- Stybarrow Field Deviation EP

The Consultation Information Sheet for the proposed activities is re-attached for reference, which includes a summary of potential key risks and associated management measures. The information sheet is also available on our website.

Please let us know if you would like to provide feedback with respect to the above proposed EPs by 9 June 2023.

Regards,

Woodside Feedback

2.78.1 Email sent to GAP (23 June 2023)

Dear Dr [REDACTED]

Woodside previously consulted Greenpeace Australia Pacific (GAP) (email below) on its plans to decommission the Stybarrow field under the following environment plans (EPs) on 14 February 2023 via Woodside's consultation activities website subscription:

- Stybarrow Plug and Abandonment (P&A) EP
- Stybarrow Decommissioning and Field Management EP
- Stybarrow Field Deviation EP

The Consultation Information Sheet for the proposed activities is attached, which includes a summary of potential key risks and associated management measures. The information sheet is also available on our website.

Please let us know if you would like to provide feedback with respect to the above proposed EPs.

Regards,

Woodside Feedback

2.79 Newspaper Advertisements in The Australian, The West Australian, North West Telegraph, Pilbara News, Midwest Times (15 February 2023) and the Geraldton Guardian (17 February 2023)

ENVIRONMENT PLAN NOTICE

Woodside Energy (Australia) Pty Ltd (ACN 006 821 878) is proposing to conduct decommissioning activities in Commonwealth waters, as described below:

Geraldton Decommissioning and Field Management Environment Plan

Activity summary:	Field management and removal of subsurface infrastructure above the seafloor including the Blair Tunnel Mooring (BTM)
Location:	45 km northwest of Onslow
Commencement timing:	Anticipated around second half of 2023, pending approvals, vessel availability and weather constraints
Estimated duration:	Approximately 6 months
Consultation commenced:	Oct 2022 First EP submission to NOPISMA: Dec 2022

Geraldton Gas Export Pipeline Environment Plan

Activity summary:	Preparation for and subsequent removal of ~36 km of gas export pipeline and associated infrastructure
Location:	39-45 km northwest of Onslow
Commencement timing:	Anticipated around second half of 2023, pending approvals, vessel availability and weather constraints
Estimated duration:	Approximately 7 months
Consultation commenced:	Jan 2022 First EP submission to NOPISMA: Mar 2022

Geraldton Field Deviation Environment Plan

Activity summary:	Proposed works in situ (pipe in place) or on/off structure embedded in the seabed to remove seabed disturbance (anchors, piles, concrete gravity bases)
Location:	45 km northwest of Onslow
Commencement timing:	Upon environmental plan acceptance and following completion of removal activities
Estimated duration:	No duration – infrastructure to be set in situ
Consultation commenced:	Jan 2022 First EP submission to NOPISMA: Feb 2022

Stybarrow Plug and Abandonment Environment Plan

Activity summary:	The permanent plugging and abandonment of the 1m Stybarrow subsurface development well by placing cement grout in the well to prevent hydrocarbon release
Location:	42 km northwest of Onslow
Commencement timing:	Anticipated around late 2023 or 2024, pending approvals, vessel availability and weather constraints
Estimated duration:	4 to 6 months
Consultation commenced:	May 2022 First EP submission to NOPISMA: Not yet submitted

Stybarrow Decommissioning and Field Management Environment Plan

Activity summary:	Field management and removal of subsurface infrastructure above the seafloor including the De-convertible Tunnel Mooring (DTM)
Location:	42 km northwest of Onslow
Commencement timing:	Anticipated around Q4 2023, pending approvals, vessel availability and weather constraints
Estimated duration:	4 months
Consultation commenced:	Feb 2022 First EP submission to NOPISMA: Apr 2022

Stybarrow Field Deviation Environment Plan

Activity summary:	Proposed works in situ (pipe in place) or on/off structure embedded in the seabed to remove seabed disturbance (anchors, piles, concrete gravity bases)
Location:	42 km northwest of Onslow
Commencement timing:	Upon environmental plan acceptance and following completion of removal activities
Estimated duration:	No duration – infrastructure to be set in situ
Consultation commenced:	May 2022 First EP submission to NOPISMA: Jul 2022

Figure 1: Stybarrow and Figure 2: Geraldton Describe the Operational Areas and the Environment that May be Affected (PMA) based on a composite of many dispersed paths and furthest distance where a highly unlikely, unplanned event could take an impact based on weather and ocean conditions.

Woodside has undertaken an assessment to identify potential impacts and risks to the marine environment arising from both planned and unplanned activities. Mitigation and management measures have been developed for each of the risks identified and are detailed in the relevant EP.

Impacts associated with routine decommissioning activities include the physical presence of a Mobile Offshore Drilling Unit (MODU) and vessels, interaction with other marine users, decommissioning discharge plumes, gas emissions, hydrocarbon seepage, seabed disturbance, emissions from fuel burning and other vessel impacts (noise, light, air emissions and routine discharges). Impacts that could occur due to an unplanned event include hydrocarbon release (gas, gas, marine diesel or other vessel fuel), vessel collisions with marine fauna, additional seabed disturbance, introduced marine species, acceleration or wash or other discharges.

Figure 1 and Figure 2 include individual DMAs to support persons or organisations under standing to whether their functions, interests or activities may be affected by the proposed activities, with detailed information found in Woodside's Consultation Information Sheets.

Consultation Participation and Feedback

Woodside seeking to consult with relevant persons to inform the preparation of Environment Plans (EPs) for the Stybarrow and Geraldton decommissioning activities. Consultation is designed to notify and obtain input from relevant persons to assist Woodside identify measures to avoid or avoid potential adverse effects of the proposed activity or the environment.

Consultation will inform the development of each EP in accordance with environmental regulations administered by the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA) under the Offshore Petroleum and Greenhouse Gas Storage Act 2004 (OPGSA) and support other regulatory submissions associated with the planned activities.

Detailed consultation information sheets are available at: www.woodside.com.au/sustainability/consultation-activities/ you would like additional information about Stybarrow and Geraldton decommissioning activities. You can also subscribe to our website to receive future information on proposed activities.

If you would like to comment on the proposed activities outlined above, please contact Woodside before Friday, 17 March 2023 via:

E: Feedback@woodside.com
Tel: +61 8 9400 442 877

Figure 2: Geraldton

ENVIRONMENT PLAN NOTICE

Woodside Energy (Australia) Pty Ltd (ACN 606 82 2878) is proposing to conduct decommissioning activities in Commonwealth waters, as described below:

Griffin Deca in relation to a Field Management Environment Plan

Activity a summary:	Field management and removal of subsurface infrastructure above the seafloor, including the River Tunnel Mooring (RTM)
Location:	~65 km northwest of Onslow
Commenced if eligible:	Anticipated around second half of 2023, pending approvals, vessel availability and weather constraints
Estimated duration:	Approximately 6 months
Consentance commenced:	Oct 2021 First EP in Intention to HOPS/DMA Dec 2021

Griffin Gas Export Pipeline Environment Plan

Activity a summary:	Preparation for and subsequent removal of 26 km of gas export pipeline and associated stabilisation
Location:	~30 km northwest of Onslow
Commenced if eligible:	Anticipated around second half of 2023, pending approvals, vessel availability and weather constraints
Estimated duration:	Approximately 2 months
Consentance commenced:	Jan 2022 First EP in Intention to HOPS/DMA Mar 2022

Griffin Field Deca in relation to an Environment Plan

Activity a summary:	Proposed leave in situ (leave in place) of inert, non-toxic infrastructure embedded in the seabed to minimise seabed disturbance (anchors, piles, concrete gravity bases)
Location:	~65 km northwest of Onslow
Commenced if eligible:	Upon environmental acceptance and following completion of other activities
Estimated duration:	No duration - infrastructure to be left in situ
Consentance commenced:	Jan 2022 First EP in Intention to HOPS/DMA Feb 2022

Stybarrow Plug and Abandonment Environment Plan

Activity a summary:	The permanent plugging and abandonment of the Stybarrow subsurface development wells by applying cement plugs in the wells to prevent hydrocarbon release
Location:	~43 km northwest of Demuth
Commenced if eligible:	Anticipated around late 2023 or 2024, pending approvals, vessel availability and weather constraints
Estimated duration:	~4 to 6 months
Consentance commenced:	May 2022 First EP in Intention to HOPS/DMA Not yet submitted

Stybarrow Deca in relation to a Field Management Environment Plan

Activity a summary:	Field management and removal of subsurface infrastructure above the seafloor including the On-connectable Tunnel Mooring (OTM)
Location:	~43 km northwest of Demuth
Commenced if eligible:	Anticipated around Q4 2023, pending approvals, vessel availability and weather constraints
Estimated duration:	~6 months
Consentance commenced:	Feb 2022 First EP in Intention to HOPS/DMA Apr 2022

Stybarrow Field Deca Environment Plan

Activity a summary:	Proposed leave in situ (leave in place) of infrastructure embedded in the seabed to minimise seabed disturbance (anchors, piles)
Location:	~43 km northwest of Demuth
Commenced if eligible:	Upon environmental acceptance and following completion of other activities
Estimated duration:	No duration - infrastructure to be left in situ
Consentance commenced:	May 2022 First EP in Intention to HOPS/DMA Jul 2022

Figure 1 (Stybarrow) and Figure 2 (Griffin) Describe the Operational Areas and the Environment that may be Affected (DMA) based on a composite of many different paths and further distance where highly unlikely, significant seaward could have an impact based on weather and ocean conditions.

Woodside has undertaken an assessment to identify potential impacts and risks to the marine environment arising from both planned and unplanned activities. Mitigation and management measures have been developed for each of the risks identified and will be outlined in the table and EP. Impacts associated with routine decommissioning activities include the physical presence of a Mobile Offshore Drilling Unit (MODU) and vessels.



Figure 1: Stybarrow Field

How activities within the marine area decommissioning discharges (point) discharges (hydrocarbon), seabed disturbance, emissions from flaring/venting and other well impacts (noise, light, air emissions and marine changes). Impacts that could occur due to an unplanned incident (hydrocarbon release, mud/gas, marine diesel) or other vessel traffic, vessel collisions with marine fauna, additional seabed disturbance, introduced marine species, accidental loss of waste or other discharges.

Figure 1 and Figure 2 illustrate the DMA to support persons or organisations understanding of whether their functions, interests or activities may be affected by the proposed activities, with detailed information found in Woodside's Consultation Information Sheets.



Figure 2: Griffin Field

Consentance Part 1 public and Feedback

Woodside is seeking to consult with relevant persons to inform the preparation of Environment Plans (EPs) for the Stybarrow and Griffin decommissioning activities. Consultation is designed to notify and obtain input from relevant persons to assist Woodside identify measures to assess or avoid potential adverse effects of the proposed activity on the seabed environment.

Consultation will inform the development of each EP in accordance with environmental regulations administered by the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA) under the Offshore Petroleum and Greenhouse Gas Storage Act 2020 (OPGSA) and support other regulatory submissions associated with the planned activities.

Detailed consultation information sheets are available at: www.woodside.com.au/sustainability/consultation-activities if you would like additional information about Stybarrow and Griffin decommissioning activities. You can also subscribe to our website to receive future information on proposed activities.

If you would like to comment on the proposed activities outlined above, please contact Woodside before Friday, 17 March 2023 via:

E-Feedback: epc-feedback@woodside.com.au
Tel: 08 9422 8777

EMPLOYMENT

Administration and Finance

LEGAL SECRETARY
 The Attorney General is seeking for an experienced legal secretary to provide support to the Attorney General's office. For more details visit www.wa.gov.au Applications close 02:00pm, 17 February 2023.

Building and Construction

A FLOOR & WALL TIE
 We are seeking a Floor & Wall Tie for the construction of a new building. For more details visit www.wa.gov.au Applications close 02:00pm, 17 February 2023.

Education and Teaching

TEACHERS OF ITALIAN PRIMARY
 The Italo-Australian Welfare & Cultural Centre Inc (IAWCC) is currently recruiting Teachers of ITALIAN to be assigned to Perth metropolitan primary schools, north and south of the river.

General Positions

CLEANING POSITION
 We are seeking a cleaning position for a commercial premises. For more details visit www.wa.gov.au Applications close 02:00pm, 17 February 2023.

RURAL EMPLOYMENT

WELDING POSITION
 We are seeking a welding position for a rural premises. For more details visit www.wa.gov.au Applications close 02:00pm, 17 February 2023.

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Mining and Resources

WESPAZ MINING
 We are seeking a Mining Engineer for a large scale mining project. For more details visit www.wa.gov.au Applications close 02:00pm, 17 February 2023.

Trades and Technical

APPLY FOR EMPLOYMENT
 We are seeking a trades position for a large scale project. For more details visit www.wa.gov.au Applications close 02:00pm, 17 February 2023.

Local Govt Vacancies

City of Melville
 We are seeking a Local Government position for a large scale project. For more details visit www.wa.gov.au Applications close 02:00pm, 17 February 2023.

Local Govt. Tenders

City of Jondalup
 We are seeking a Local Government tender for a large scale project. For more details visit www.wa.gov.au Applications close 02:00pm, 17 February 2023.

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INVITATION FOR TENDERS
 We are seeking a tender for a large scale project. For more details visit www.wa.gov.au Applications close 02:00pm, 17 February 2023.



Invitation to Tender
 We are seeking a tender for a large scale project. For more details visit www.wa.gov.au Applications close 02:00pm, 17 February 2023.



REQUEST FOR QUOTATION
 We are seeking a quotation for a large scale project. For more details visit www.wa.gov.au Applications close 02:00pm, 17 February 2023.



REQUEST FOR TENDER
 We are seeking a tender for a large scale project. For more details visit www.wa.gov.au Applications close 02:00pm, 17 February 2023.

ENVIRONMENT PLAN NOTICE

Woodside Energy (Australia) Pty Ltd (ACN 004 823 876) is proposing to conduct decommissioning activities in Commonwealth waters, as described below:

G of the Decentral release and Field Management Centre west Plan

Activity summary:	Field management and removal of subsurface infrastructure above the mudline, including the River Tornd Moorings (RTM)
Location:	~45 km northwest of Onslow
Commenced/anticipated start:	Anticipated around second half of 2023, pending approvals, vessel availability and weather constraints
Estimated duration:	Approximately 4 months
Commenced/anticipated start:	Oct 2021 First EP submission to NOPSDMA Dec 2021

G of the Gas Export Pipeline on Onslow west Plan

Activity summary:	Preparation for and subsequent removal of ~26 km of gas export pipeline and associated stabilisation
Location:	~39-65 km northwest of Onslow
Commenced/anticipated start:	Anticipated around second half of 2023, pending approvals, vessel availability and weather constraints
Estimated duration:	Approximately 2 months
Commenced/anticipated start:	Jan 2022 First EP submission to NOPSDMA Mar 2022

G of the Field Debris Centre west Plan

Activity summary:	Proposed leave in situ (leave in place) of inert, non-toxic infrastructure embedded in the seabed to minimise seabed disturbance (anchors, piles, concrete gravity bases)
Location:	~45 km northwest of Onslow
Commenced/anticipated start:	Upon environmental plan acceptance and following completion of removal activities
Estimated duration:	No duration - infrastructure to be left in situ
Commenced/anticipated start:	Jan 2022 First EP submission to NOPSDMA Feb 2022

Stybarrow Plug and Abandonment Centre west Plan

Activity summary:	The permanent plugging and abandonment of the Stybarrow subsurface developed wells by placing cement plugs in the wells to prevent hydrocarbon release
Location:	~3 km northwest of Gemouth
Commenced/anticipated start:	Anticipated around late 2023 or 2024, pending approvals, vessel availability and weather constraints
Estimated duration:	4 to 6 months
Commenced/anticipated start:	May 2022 First EP submission to NOPSDMA Not yet submitted

Stybarrow Decommissioning and Field No Gas permit Environment Plan

Activity summary:	Field management and removal of subsurface infrastructure above the mudline including the Onslow-mudline Tornd Moorings (RTM)
Location:	~3 km northwest of Gemouth
Commenced/anticipated start:	Anticipated around Q4 2023, pending approvals, vessel availability and weather constraints
Estimated duration:	4 months
Commenced/anticipated start:	Feb 2022 First EP submission to NOPSDMA Apr 2022

Stybarrow Field Debris Centre west Plan

Activity summary:	Proposed leave in situ (leave in place) of infrastructure embedded in the seabed to minimise seabed disturbance (anchors, piles)
Location:	~3 km northwest of Gemouth
Commenced/anticipated start:	Upon environmental plan acceptance and following completion of removal activities
Estimated duration:	No duration - infrastructure to be left in situ
Commenced/anticipated start:	May 2022 First EP submission to NOPSDMA Jul 2022

Figure 1 (Stybarrow) and Figure 2 (G of the Field) describes the Operational Areas and the Environment. The High Risk Areas (HRAs) based on a composite of many different risks and further distance while a highly visible, unpermitted activity could have an impact based on weather and ocean conditions.

Woodside has undertaken an assessment to identify potential impacts and risks to the marine environment arising from the proposed decommissioning activities. This assessment has been developed for each of the HRAs and will be updated in the relevant EP.

Impacts associated with the proposed decommissioning activities include the physical disturbance of a highly diverse drilling line (NODD), and vessels.

Interaction with other marine users, decommissioning discharges (primary discharges, hydrocarbon spillage, seabed disturbance, emissions from flaring, burning and other vessel impacts, noise, light, air emissions and marine discharges) impacts that could occur due to an unplanned event (including hydrocarbon releases, primary gas, marine diesel or other vessel fuel), vessel collisions with marine fauna, additional seabed disturbance, introduced marine species, accidental loss of waste or other discharges.

Figure Two (G of the Field) indicates HRAs to support marine organisations understanding of whether their functions, interests or activities may be affected by the proposed activities, with detailed information found in Woodside's Consultation Information Sheets.



Figure 1 Stybarrow Field



Figure 2 G of the Field

Consultation Process and Feedback
Woodside is seeking to consult with relevant persons to inform the preparation of Environment Plans (EPs) for the Stybarrow and G of the Field decommissioning activities. Consultation is designed to notify and obtain input from relevant persons to assist Woodside identify measures to lessen or avoid potential adverse effects of the proposed activity on the environment.

Consultation will inform the development of each EP in accordance with environmental regulations administered by the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA) under the Offshore Petroleum and Greenhouse Gas Storage Act 2006 (OPGSA) and support other regulatory submissions associated with the proposed activities.

Detailed consultation information sheets are available at www.woodside.com.au/stybarrow and will be available if you would like additional information about Stybarrow and G of the Field decommissioning activities. You can also subscribe via our website to receive future information on proposed activities.

If you would like to comment on the proposed activities outlined above, please contact Woodside before Friday, 17 March 2023 via: C.Feedback@woodside.com or phone 1800 442 177

PUBLIC NOTICES



The Law Reform Commission of Western Australia

Call for submissions – review of Western Australia's sexual offence laws

The Attorney General, the Hon. John Quigley MLA, asked the Law Reform Commission of Western Australia (LRC) to review WA's sexual offence laws.

The LRC is examining issues including the definition of consent, the defence of mistaken belief in consent, the directions given to juries in sexual offence trials, our substantive sexual offences and their maximum penalties.

The LRC is to provide advice and recommend any necessary reforms to the Attorney General.

The LRC has published Volumes 1 and 2 of a Discussion Paper and a Background Paper. The Discussion Paper outlines options and poses questions about changing our sexual offence laws. The LRC commissioned the Background Paper from experts to help the LRC and the public understand the issues in this area of law. Volumes 1 and 2 of the Discussion Paper and the Background Paper are both available on the LRC's website: www.lrc.justice.wa.gov.au

Individuals and organisations can provide a submission on one or more of the options and questions in the Discussion Paper and Background Paper. Submissions on Volume 1 close on 17 March 2023. Submissions on Volume 2 close on 6 April 2023. For information about the various ways to make a submission please visit www.lrc.justice.wa.gov.au

The Commission will hold consultations with reference groups and any organisation or person who wishes to contribute to the inquiry in this area. To register your interest in attending a consultation please email law@lrc.justice.wa.gov.au before 20 February 2023. For more information visit www.lrc.justice.wa.gov.au

COL 01/23

TENDERS



REQUEST FOR QUOTE RFQ 07/2023 Supply and Construction of Works Depot Storage Shed

The Shire of Exmouth is seeking suitably qualified and experienced builder for the supply and install of a 3 x 4 M storage shed at 17 Welch Street (Works Depot).

A copy of the RFQ document is available from TenderLink, no other provision of documentation is available. Submission must be lodged via TenderLink Portal - portal.tenderlink.com/exmouth

Caravanning of Councilors will disqualify. Submissions must be lodged via the TenderLink Portal no later than 2:00pm, Monday 27th February 2023. Ben Lewis CHIEF EXECUTIVE OFFICER

AUCTIONS

REGISTER AND START BIDDING

COMMERCIAL & MINING FLEET VEHICLES ONLINE AUCTION

109 Badrock Tern, 8ap Ridge, Karatha
Ends Friday 17th February at 1pm
FLEET VEHICLES: 2017 Toyota 200 Landcruiser Series Nacos, 2010 - 15 Toyota Hilux Dual Cab, 2013 - 22 Toyota Proce Nipona, 2013 Toyota 79 Series Single Cab, 2010 Toyota 79 Series 4-CA, 2011 Toyota 76 Series Hilux, 1990 Toyota 15 Series East Single Cab, 2012 - 15 Ford Ranger Dual & Single Cab, 1998-2004 Isuzu Fuso 5 Way Tip Truck & 8.6t Crane, 2007 Mitsubishi Canter Crew Cab Flat Top Truck, 2000 Mitsubishi Canter Truck, 2006 Isuzu Acoo 2250, 864, Flat Top Truck.

Contact: Mark Devonport 0429 085 806
51 Bayan Promba, 687 Coorabie



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EMPLOYMENT



About Us

Boeing Defence Australia is shaping the future of aerospace and delivering some of the nation's most important programs for the Australian Defence Industry. Joining us is a chance to make your mark, working with a diverse team that is united in pushing the boundaries of imagination and excellence.

The Opportunity

We are seeking Multiple Skillsets to support data centre, satellite antenna and facilities infrastructure as a part of the Maintenance and Support Services team located at our Geraldton site. Current Opportunities include:

- Configuration Management Specialist
- ICT Installation Technician
- Drafting & Documentation Officer
- Air Conditioning & Refrigeration Mechanic
- Environment Health & Safety Advisor
- Mechanical Fitter
- Facilities & Grounds Supervisor
- General Hand - Facilities & Grounds
- Cleaner
- Painter / Maintainer - Facilities

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At Boeing, we innovate and collaborate to make the world a better place. From the seabed to outer space, you can contribute to work that matters with a company where diversity, equity and inclusion are core values. We're committed to fostering an environment for every team member that's welcoming, respectful and inclusive, with great opportunity for professional growth. Find your future with us. We're committed to building a diverse and inclusive workplace. Female applicants, people of Aboriginal or Torres Strait Island descent and veterans are encouraged to apply.

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Security Clearance

Applicants must be Australian Citizens to meet Australian Government security requirements. You will be required to successfully undergo an Australian Government positive vetting (PV) security clearance. More information on the security clearance vetting process is available on the Australian Government Security Vetting Agency (AGSVA) website (<https://www.defence.gov.au/secure/vetting>).

Equal Opportunity Employer

Boeing is an Equal Opportunity Employer. Employment decisions are made without regard to race, colour, religion, national origin, gender, sexual orientation, gender identity, age, physical or mental disability, genetic factors, military/veteran status or other characteristics protected by law.

If you are ready to join an innovative industry leader and would like to register your interest in working for Boeing, go to the Boeing Defence Australia Careers web page to apply.

<https://jobs.boeing.com/> (search city: Geraldton, Western Australia)

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Solicitor – Carnarvon Satellite Office

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CLOSING DATE: 4pm, 20/2/23.

LEGAL_AID_WA

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ENVIRONMENT PLANS NOTICE

Woodside Energy (Australia) Pty Ltd (ACN 916 62 2 819), Woodside Energy Julimar Pty Ltd (ACN 100 320 326) and Woodside Group Pty Ltd (ACN 100 27 45) are proposing to conduct activities in Commonwealth waters as described below:

TPA02 Well Intervention Corework Plan (Woodside Energy Ltd)

Activity summary:	Activities on the TPA02 production well to remediate a down-hole valve and continue production from the lower reservoir
Location:	-182 km north-west of Dampier
Commencement date:	Anticipated around mid 2023 pending approvals, vessel availability and weather constraints
Estimated duration:	- 5 to 14 days and will take place 24 hours, 7 days a week
Consentable commenced:	June 2022
Final EP submission to NOPSPMA:	August 2022

Julimar Drilling and Salvage Environment Plan (Woodside Energy Julimar Pty Ltd)

Activity summary:	Geotechnical and geophysical surveys, drilling and appraisal of the Julimar South-1 well and plug and abandonment of Julimar South-1H required
Location:	-182 km north-west of Dampier
Commencement date:	Anticipated around second half of 2023 pending approvals, vessel availability and weather constraints
Estimated duration:	- 40 days for drilling and appraisal, - 45 days for geophysical and geotechnical surveys and 20 days for decommissioning of the Julimar South-1 well. Activities will be conducted 24 hours per day, seven days per week
Consentable commenced:	August 2022
Final EP submission to NOPSPMA:	Not yet Submitted

WA-34-L Pylon Drilling and Salvage (Installable Corework at Sea) (Woodside Group Pty Ltd)

Activity summary:	Drilling and subsurface infrastructure installation activities for one well (PLA02) and contingent well intervention activities for current production wells
Location:	-70 km north-west of Dampier
Commencement date:	Anticipated around second half of 2023 pending approvals, vessel availability and weather constraints
Estimated duration:	- 50 days for the PLA02 well, -70 days per well for well intervention activities and - 20 days for subsurface infrastructure
Consentable commenced:	June 2022
Final EP submission to NOPSPMA:	Not yet Submitted

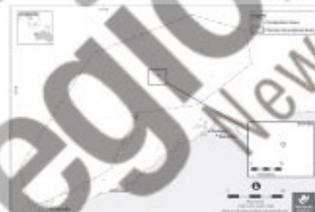


Figure 1 (TPA02), Figure 2 (Julimar) and Figure 3 (WA-34-L Pylon): Diagrams of the Operational Area and the Environment that May be Affected (OWA) based on a composite of many different paths and for both distance when a highly unlikely, unmitigated event could have an impact on weather and ocean conditions. Woodside has undertaken an assessment to identify potential impacts and risks to the marine environment arising from both planned and unplanned activities. Mitigation and management measures have been developed for each of the risks identified and will be outlined in the relevant EP.



Figure 2: Impacts associated with the planned activities include the physical presence of a Mobile Offshore Drilling Unit (MODU) and vessel, interaction with other marine users, seabed disturbance such as infrastructure placement, and other vessel drilling and construction impacts such as noise, light, air emissions and marine discharge. Impacts that could occur due to an unplanned event include hydrocarbon releases (condensates, marine diesel or other vessel fuel), vessel collisions with marine fauna, additional seabed disturbance, introduced marine species, accidental loss of waste or other discharges.

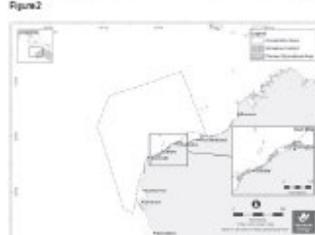


Figure 3: Figure 3 and Figure 3 illustrate OWA to support personnel or operations understanding of whether their functions, interests or activities may be affected by the proposed activities, with detailed information found in Woodside's Consultation Information Sheets.

Core Work Plan Particulars and Feedback

Woodside is seeking to consult with relevant persons to inform the preparation of Environment Plans (EPs) for these activities. Consultation is designed to notify and obtain input from relevant persons to assist Woodside identify measures to lessen or avoid potential adverse effects of the proposed activity on the environment.

Consultation will inform the development of each EP in accordance with environmental regulations administered by the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA) under the Offshore Petroleum and Greenhouse Gas Storage Act 2020 (OPGGSA) and support other regulatory submissions associated with the planned activities. Detailed consultation information and webinars are available at: www.woodside.com/australia/kyocore-work-plan-activities. If you would like additional information about these activities, you can also subscribe to our website to receive future information on proposed activities.

If you would like to comment on the proposed activities outlined above, please contact Woodside before Friday, 17 March 2023 at:

E: Feedback@woodside.com
Tel: 1800 442 877

ENVIRONMENT PLAN NOTICE

Woodside Energy (Australia) Pty Ltd (ACN 001 823 975) is proposing to conduct decommissioning activities in Commonwealth waters, as described below:

Goff's Decommissioning and Field Management Environment Plan

Activity summary:	Field management and removal of subsurface infrastructure above the mudline, including the River Torus Turbine Mooring (RTM)
Location:	~45 km northwest of Orlov
Commencement date:	Anticipated around second half of 2023, pending approvals, vessel availability and weather constraints
Estimated duration:	Approximately 6 months
Commencement date:	Oct 2021
First EP submission to NOPSDMA:	Dec 2021

Goff's Gas Spill & Pipeline Environment Plan

Activity summary:	Preparation for and subsequent removal of ~26 km of gas export pipeline and associated stabilisation
Location:	~39-40 km northwest of Orlov
Commencement date:	Anticipated around second half of 2023, pending approvals, vessel availability and weather constraints
Estimated duration:	Approximately 2 months
Commencement date:	Jan 2022
First EP submission to NOPSDMA:	Mar 2022

Goff's Field Deactivation Environment Plan

Activity summary:	Proposed leave in place (leave in place) of inert, non-toxic infrastructure embedded in the seabed to minimise seabed disturbance (anchors, piles, concrete gravity base)
Location:	~45 km northwest of Orlov
Commencement date:	Upon environment plan acceptance and following completion of removal activities
Estimated duration:	No duration - infrastructure to be left in situ
Commencement date:	Jan 2022
First EP submission to NOPSDMA:	Feb 2022

Stybarrow Plug and Abandonment Environment Plan

Activity summary:	The permanent plugging and abandonment of the Stybarrow subsurface development wells by placing cement plugs in the wells to prevent hydrocarbon release
Location:	~3 km northwest of Semau
Commencement date:	Anticipated around late 2022 or 2023, pending approvals, vessel availability and weather constraints
Estimated duration:	4 to 8 months
Commencement date:	May 2022
First EP submission to NOPSDMA:	Not yet submitted

Stybarrow Decommissioning and Field Management Environment Plan

Activity summary:	Field management and removal of subsurface infrastructure above the mudline including the Dia-connectable Turbine Mooring (DTM)
Location:	~3 km northwest of Semau
Commencement date:	Anticipated around Q4 2022, pending approvals, vessel availability and weather constraints
Estimated duration:	4 months
Commencement date:	Feb 2022
First EP submission to NOPSDMA:	Apr 2022

Stybarrow Field Deactivation Environment Plan

Activity summary:	Proposed leave in place (leave in place) of infrastructure embedded in the seabed to minimise seabed disturbance (anchors, piles)
Location:	~3 km northwest of Semau
Commencement date:	Upon environment plan acceptance and following completion of removal activities
Estimated duration:	No duration - infrastructure to be left in situ
Commencement date:	May 2022
First EP submission to NOPSDMA:	Jul 2022

Figure 1 (Stybarrow) and Figure 2 (Goff's) Describe the Operational Area and the Development Footprint (DMF) based on a composite of many different paths and further distance while a highly sensitive, regulated area could have an impact based on weather and operational data.

Woodside has undertaken an assessment to identify potential impacts and risks to the marine environment arising from both planned and unplanned activities. Mitigation and management measures have been developed for each of the risks identified and will be added in the relevant DR.

Impacts associated with routine decommissioning activities include the physical presence of a floating offshore drilling unit (FODU) and its interaction with other marine users, decommissioning discharges (parent/

chemicals, hydrolytic products, seabed disturbance, emissions from flaring/heating and other well impacts (noise, light, air emissions and marine discharge) impacts that could occur due to an unplanned event including discharges (oil, gas, marine diesel or other well fluids), vessel collisions with marine fauna, accidental seabed disturbance, introduced marine species, accidental loss of waste or other discharges.

Figure 1 and Figure 2 illustrate indicative DMFs to support persons or organisations understanding of whether their functions, interests or activities may be affected by the proposed activities, with detailed information found in Woodside's Consultation Information Sheets.



Figure 1: Stybarrow Field



Figure 2: Goff's Field

Consultation Participation and Feedback

Woodside is seeking to consult with relevant persons to inform the preparation of Environment Plans (EPs) for the Stybarrow and Goff's decommissioning activities. Consultation is designed to verify and obtain input from relevant persons to assist Woodside identify measures to lessen or avoid potential adverse effects of the proposed activities on the environment.

Consultation will inform the development of each EP in accordance with environmental regulations administered by the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA) under the Offshore Petroleum and Greenhouse Gas Storage Act 2004 (OPGSA) and support other regulatory submissions associated with the planned activities.

Detailed consultation information sheets are available at www.woodside.com/sustainability/consultation-activities if you would like additional information about Stybarrow and Goff's decommissioning activities. You can also subscribe via our website for receive future information on proposed activities.

If you would like to comment on the proposed activities outlined above, please contact Woodside before Friday, 17 March 2023 via:

E: Feedback@woodside.com
Toll-free: 1800 440 877

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ENVIRONMENT PLAN NOTICE

Woodside Energy (Australia) Pty Ltd (ACN 004 823 876) (referred to as Woodside) is proposing to conduct decommissioning activities in Commonwealth waters, as described below:

Offshore Decommissioning and Field Management: Conbro area at Plan

Activity summary:	Field management and removal of subsea infrastructure above the mudline, including the Steer Turret Mooring (RTM)
Location:	~45 km northwest of Onslow
Commencement date:	Anticipated around second half of 2023, pending approvals, vessel availability and weather constraints
Estimated duration:	Approximately 4 months
Commencement date:	Oct 2021 First EPA submission to NOPSDMA: Dec 2021

Offshore Gas Export Pipeline and Onshore Well Plan

Activity summary:	Preparation for and subsequent removal of ~30 km of gas export pipeline and associated stabilisation
Location:	~33-65 km northwest of Onslow
Commencement date:	Anticipated around second half of 2023, pending approvals, vessel availability and weather constraints
Estimated duration:	Approximately 2 months
Commencement date:	Jan 2022 First EPA submission to NOPSDMA: Mar 2022

Offshore Field Decommissioning Conbro area at Plan

Activity summary:	Proposed leave in situ (leave in place) of inert, non-toxic infrastructure embedded in the seabed to minimise seabed disturbance (anchors, piles, concrete gravity bases)
Location:	~45 km northwest of Onslow
Commencement date:	Upon environment plan acceptance and following completion of remedial activities
Estimated duration:	No duration - infrastructure to be left in situ
Commencement date:	Jan 2022 First EPA submission to NOPSDMA: Feb 2022

Stybarrow Plug and Abandonment Conbro area at Plan

Activity summary:	The abandonment, plugging and abandonment of the Stybarrow subsea development wells by placing cement plugs in the wells to prevent hydrocarbon release
Location:	~42 km northwest of Onslow
Commencement date:	Anticipated around late 2022 or 2023, pending approvals, vessel availability and weather constraints
Estimated duration:	4 to 6 months
Commencement date:	May 2022 First EPA submission to NOPSDMA: Not yet submitted

Stybarrow Decommissioning and Field Management Environment Plan

Activity summary:	Field management and removal of subsea infrastructure above the mudline including the Onshore connectable Turret Mooring (RTM)
Location:	~42 km northwest of Onslow
Commencement date:	Anticipated around Q4 2022, pending approvals, vessel availability and weather constraints
Estimated duration:	4 months
Commencement date:	Feb 2022 First EPA submission to NOPSDMA: Apr 2022

Stybarrow Field Decommissioning Environment Plan

Activity summary:	Proposed leave in situ (leave in place) of infrastructure embedded in the seabed to minimise seabed disturbance (anchors, piles)
Location:	~42 km northwest of Onslow
Commencement date:	Upon environment plan acceptance and following completion of remedial activities
Estimated duration:	No duration - infrastructure to be left in situ
Commencement date:	May 2022 First EPA submission to NOPSDMA: Jul 2022

Figure 1 (Stybarrow) and Figure 2 (Griffin) describe the Operational Areas and the Environment. The Environmental Effects (EPA) based on a composite of many different effects and their occurrence while highly unlikely, explained which could have an impact based on weather and ocean conditions.

Woodside has undertaken an assessment to identify potential impacts and risks to the marine environment arising from both planned and unplanned activities. Woodside's Environmental Management Plan (EMP) will be developed for each of the activities and will be provided in the relevant EP. Impacts associated with the other decommissioning activities include the physical presence of a Mobile Offshore Drilling Unit (MODU) and vessel.



Figure 1: Stybarrow Field

Interaction with other marine users, decommissioning discharges (primarily hydrocarbon discharges), seabed disturbance, emissions from flaring, lighting and other vessel impacts (noise, light, air emissions and marine discharges) impacts that could occur due to an unplanned event include: discharge releases (prod/gas, marine diesel or other vessel fuels), vessel collisions with marine fauna, additional seabed disturbance, introduced marine species, accidental loss of waste or other discharges.

Figures 1 and 2 illustrate the EMRs to support the assessment for operations understanding of whether their functions, interests or activities may be affected by the proposed activities, with detailed information found in Woodside's Consultation Information Sheets.



Figure 2: Griffin Field

Consultation Participation and Feedback

Woodside is seeking to consult with relevant persons to inform the preparation of Environment Plans (EPs) for the Stybarrow and Griffin decommissioning activities. Consultation is designed to notify and obtain input from relevant persons to assist Woodside identify measures to lessen or avoid potential adverse effects of the proposed activities on the environment.

Consultation will inform the development of each EP in accordance with environmental regulations administered by the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA) under the Offshore Petroleum and Greenhouse Gas Storage Act 2020 (OPGSA) and support other regulatory submissions associated with the proposed activities.

Detailed consultation information documents are available at www.woodside.com.au and you can also contact Woodside before Friday, 17 March 2023 via:

E: Feedback@woodside.com
Toll-free: 1800 442 877

PUBLIC NOTICES



Planning and Development Act 2015 LOCAL PLANNING SCHEME AMENDMENT AVAILABLE FOR INSPECTION STANDARD AMENDMENT

Shire of Northampton Local Planning Scheme No. 10 – Amendment No. 8
Notice is hereby given that the local government of the Shire of Northampton has prepared the above mentioned planning scheme amendment for the purpose of:

- Amending the Scheme Maps as follows:
 - Re zoning a portion of Lot 254 Ganece Street, Horrocks from "Commercial" zone to "Residential R30" zone;
 - Re zoning a portion of Lot 1 Hean Way, Horrocks from "Rural" zone to "Residential R30" zone;
 - Re zoning Lots 20, 21 and 47 Mitchell Street, Horrocks from "Local Scheme Reserve – Public Open Space" zone to "Residential R11.5";
 - Modifying a portion of Lot 10 Clance Street, Horrocks from "Additional Use 3" (A3) to "Additional Use 4" (A4);
 - Re zoning Lots 21 and 22 Mary Street, Northampton from "Special Use 2 to Public Purpose – Emergency Services";
 - Re zoning Lots 505 and 19 North West Coastal Highway Alms, from "Special Use" zone to "Rural – Additional Use 2" (A2) zone; and
 - Remove the SGA3 Public Drinking Water Source Protection over Yelina Springs, Northampton and Port Gregory.

Plans and documents setting out and explaining the scheme amendment have been deposited at the Shire of Northampton Council Offices, Hampden Road, Northampton and the Alms' Centre, Gray Street, Kolbarri and will be open for inspection during office hours up to and including Friday 7th April 2023. Details are also available via the Northampton Website: www.northampton.wa.gov.au

Submissions on the planning scheme amendment may be lodged in writing and should include the amendment number, the property affected and details of the submission and lodged with the undersigned on or before 4.00pm Friday 7th April 2023.

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2.80 Activity Update Bespoke Consultation Information Sheet- Stybarrow P&A



STYBARROW PLUG AND ABANDONMENT – SUMMARY INFORMATION SHEET

This is a summary of the activity in plain English. More detailed information is included in the Stybarrow Plug and Abandonment Environment Plan (EP) Information Sheet.

Overview

Woodside is planning to decommission subsea equipment in the Stybarrow field, which has finished production. The decommissioning activities will be divided into the following parts, each with its own Environment Plan:

1. Well plugging and abandonment
2. Equipment removal
3. Leaving certain equipment in place

This information sheet has information specifically about the plugging and abandonment activities.

When the Stybarrow field stopped production in 2015, the subsea equipment was flushed out with treated seawater as much as practical and the Stybarrow Venture facility departed.

The work will take place in Commonwealth waters, approximately 50km North West of Exmouth in title area WA-32-L and at a water depth of between about 810m to 850m.

Woodside is planning to start the plug and abandoning work upon the acceptance of the EP and the aim is to start work in around the second half of 2023. The activity is expected to take up to about 9 months.

A map showing the location of this work is below.

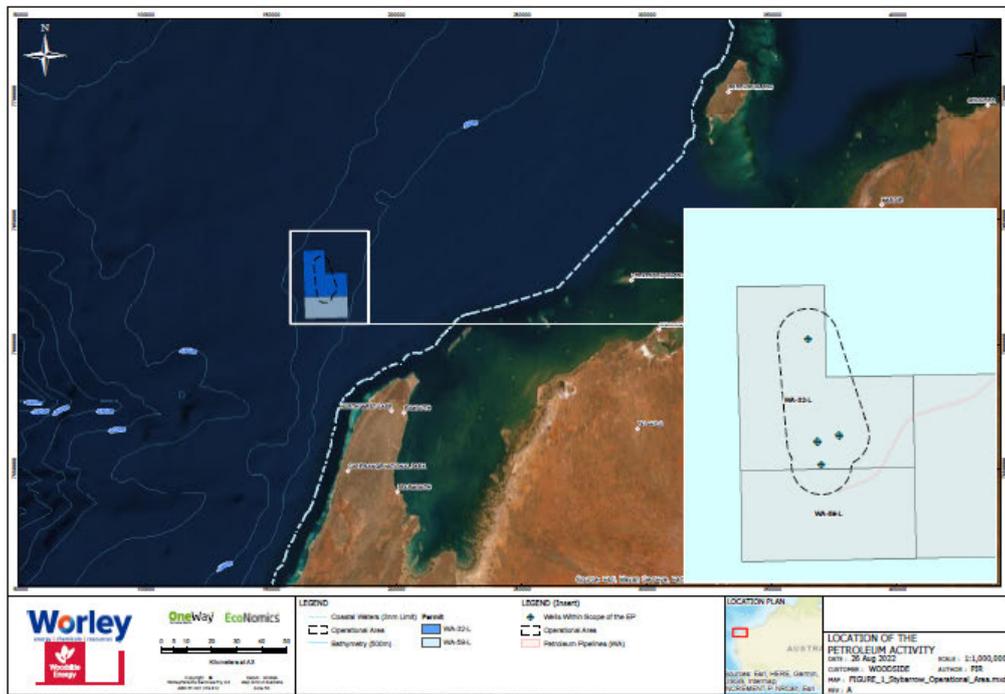


Figure 1. Stybarrow Location Map

Stybarrow Plug and Abandonment Environment Plan

Work Method

Cement plugs will be installed in 10 wells to permanently prevent the risk of potential leaks. This will be done using a mobile drill rig. If it is practical to do so, a sealed flowline may also be unblocked, flushed and removed.

Environmental Impacts and Management

This work program includes Planned Activities but may also result in Unplanned Activities. Both Planned and Unplanned Activities may impact the environment. Woodside manages the work program to reduce impacts and risks to as low as practical.

Planned Activities are activities that Woodside knows will happen as part of this work program. For example, Planned Activities include other marine users being temporarily stopped from accessing the work area, and disturbance to the seabed. Marine vessels used for the work may generate underwater noise, light emissions, atmospheric emissions, and routine discharges (such as sewage, waste, and deck drainage), and other authorised waste. Some seawater with approved chemicals will be released from equipment being removed.

Unplanned Activities are not planned as part of the work program, but may be the result of an accident, incident, or emergency situation. It is highly unlikely that there will be an Unplanned Activity. Unplanned Activities might include a spill of fuel or oil from a vessel collision, a spill on the deck of a vessel (such as during refuelling), or from an oil well, unplanned seabed disturbance, accidental collision with marine animals, waste entering the environment and accidental introduction of invasive species from outside the region. Management measures will be in place to reduce the probability and impacts of these unplanned activities to as low as practical.

A table showing all planned and unplanned activities, potential impacts, and management measures for each is included in the attached Information Sheet, **Table 3**.

The total area over which unplanned events could have environmental impacts is shown in the map below. This is referred to as the environment that may be affected (EMBA). The location in which the Stybarrow Decommissioning activities will occur, known as the Operational Area, is also shown on the map below. In the highly unlikely event such as a fuel spill from a vessel collision, the entire EMBA will not be affected. The part of the EMBA that is affected will only be known at the time of the event.



Figure 2. Environment that may be affected (EMBA) for the proposed activity.

Providing feedback

If you have an interest in the area of the "environment that may be affected" (EMBA) by this work program and would like more information or have any concerns, you can tell Woodside by calling **1800 442 977** or sending an email to **Feedback@woodside.com.au**. Please contact Woodside before **17th March 2023** so your questions or concerns can be considered during the environmental approval process.

If you would prefer to speak to the government directly, they can be contacted on **+61 (0)8 6188 8700** or send an email to **communications@nopsema.gov.au**.

Conclusion

Woodside produces energy that Western Australia, Australia, and the world needs. Woodside has made this energy from its oil and gas projects in Western Australia for over 35 years safely, reliably, and without any major environmental incident. Woodside is very proud of this legacy.

There are always potential risks with projects like this. Woodside has carefully planned this work program so that the risk of environmental impact is reduced to as low as reasonably practical and of an acceptable level. There are also strict government laws in place to protect the environment. Woodside complies with these laws and has systems in place to keep following these laws and rules for each project it undertakes.

If you would like information about Woodside's work to study and care for the environment, you can find it at <https://www.woodside.com/sustainability/environment>.

Further Information

You can find the detailed Consultation Information Sheet for proposed activity on our website: <https://www.woodside.com/sustainability/consultation-activities>.

2.81 Activity Update Bespoke Consultation Information Sheet – Stybarrow Field Decommissioning



STYBARROW DECOMMISSIONING – SUMMARY INFORMATION SHEET

This is a summary of the activity in plain English. More detailed information is included in the Stybarrow Decommissioning Environment Plan (EP) Information Sheet.

Overview

Woodside is planning to decommission subsea equipment in the Stybarrow field, which has finished production. The decommissioning activities will be divided into the following parts, each with its own Environment Plan:

1. Well plugging and abandonment
2. Equipment removal
3. Leaving certain equipment in place

When the Stybarrow field stopped production in 2015, the subsea equipment was flushed out with treated seawater as much as practical and the Stybarrow Venture facility departed. The Disconnectable Turret Mooring (DTM), which the facility attached to, later unintentionally lowered to the seabed.

This work will take place in Commonwealth waters, approximately 53 km North West of Exmouth in title area WA-32-L and at a water depth of between about 810m to 850m.

Woodside is planning to start the decommissioning activities upon the acceptance of each of the EPs summarised under the Work Method. The aim is to start work in around the second half of 2023.

A map showing the location of this work is below.

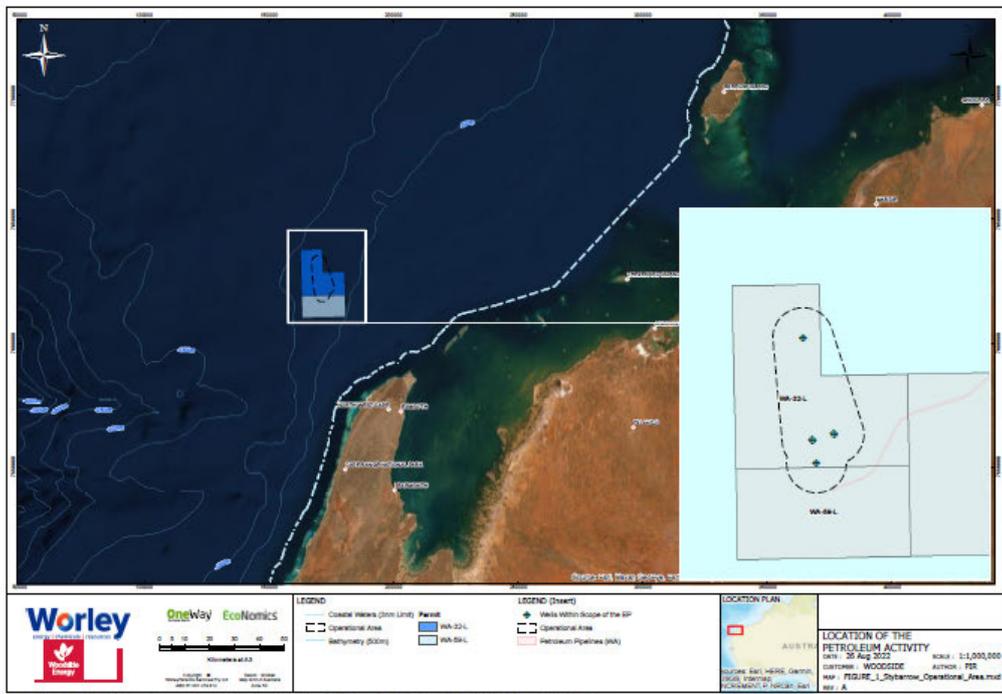


Figure 1. Stybarrow Location Map

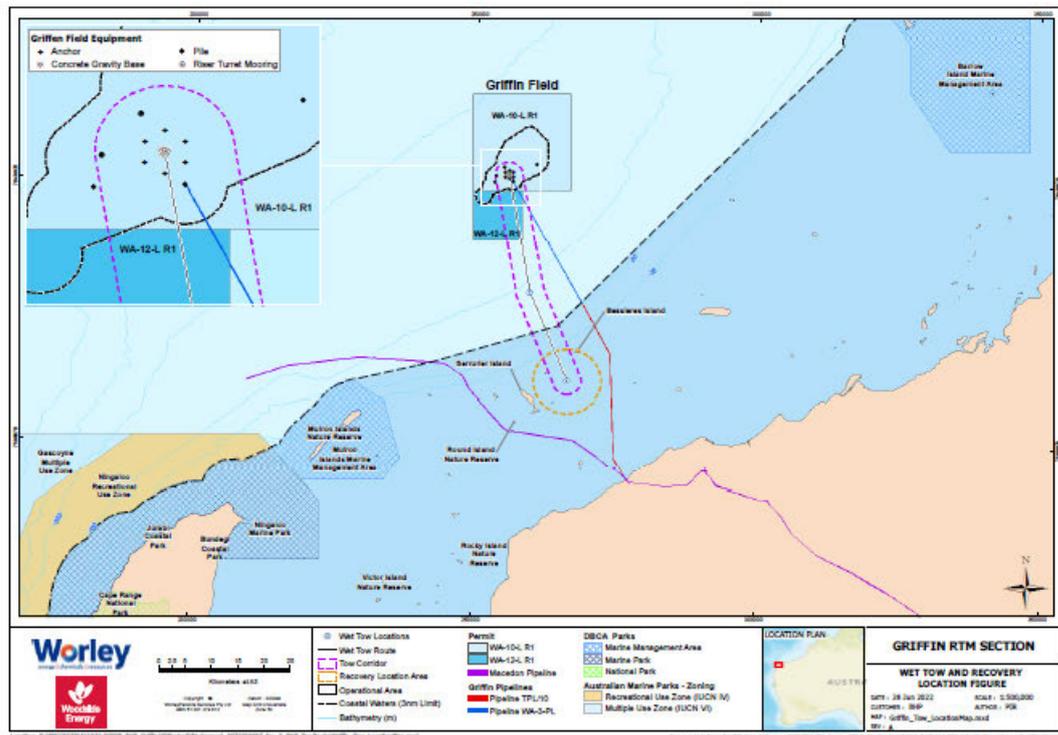


Figure 2. Griffin RTM Tow and Lift Area

Work Method

1. Well plugging and abandonment

Cement plugs will be installed in 10 wells to permanently prevent the risk of potential leaks. This will be done using a mobile drill rig. If it is practical to do so, a sealed flowline may also be unblocked, flushed and removed. The activity is expected to take up to about 9 months.

2. Equipment removal

Taking out subsea equipment, which was used to produce oil from the field, and the DTM which has lowered to the seabed. The plan is to lift the DTM from the water, however if this can't be done in the deep water location, it will be towed to shallower water. All other equipment on the seabed will be recovered in the Stybarrow field by a construction vessel. The activity is expected to take up to about 6 months.

3. Leaving certain equipment in place

Woodside is proposing to leave some equipment in place rather than removing it. This includes already buried anchors, piles and one wellhead which can't be removed. These items are made of steel and cement and are non-toxic, and not harmful to the environment.

Environmental Impacts and Management

This work program includes Planned Activities but may also result in Unplanned Activities. Both Planned and Unplanned Activities may impact the environment. Woodside manages the work program to reduce impacts and risks to as low as practical.

Planned Activities are activities that Woodside knows will happen as part of this work program. For example, Planned Activities include other marine users being temporarily stopped from accessing the work area, and disturbance to the seabed. Marine vessels used for the

work may generate underwater noise, light emissions, atmospheric emissions, and routine discharges (such as sewage, waste, and deck drainage), and other authorised waste. Some seawater with approved chemicals will be released from equipment being removed.

Unplanned Activities are not planned as part of the work program, but may be the result of an accident, incident, or emergency situation. It is highly unlikely that there will be an Unplanned Activity. Unplanned Activities might include a spill of fuel or oil from a vessel collision, a spill on the deck of a vessel (such as during refuelling), unplanned seabed disturbance, accidental collision with marine animals, waste entering the environment and accidental introduction of invasive species from outside the region. Management measures will be in place to reduce the probability and impacts of these unplanned activities to as low as practical.

A table showing all planned and unplanned activities, potential impacts, and management measures for each is included in the attached Information Sheet, **Table 3**.

The total area over which unplanned events could have environmental impacts is shown in the map below. This is referred to as the environment that may be affected (EMBA). The location in which the Stybarrow Decommissioning activities will occur, known as the Operational Area, is also shown on the map below. In the highly unlikely event such as a fuel spill from a vessel collision, the entire EMBA will not be affected. The part of the EMBA that is affected will only be known at the time of the event.



Figure 2. Environment that may be affected (EMBA) for the proposed activity.

Providing feedback

If you have an interest in the area of the "environment that may be affected" (EMBA) by this work program and would like more information or have any concerns, you can tell Woodside by calling **1800 442 977** or sending an email to **Feedback@woodside.com.au**. Please contact Woodside before **17th March 2023** so your questions or concerns can be considered during the environmental approval process.

If you would prefer to speak to the government directly, they can be contacted on **+61 (0)8 6188 8700** or send an email to **communications@nopsema.gov.au**.

Conclusion

Woodside produces energy that Western Australia, Australia, and the world needs. Woodside has made this energy from its oil and gas projects in Western Australia for over 35 years safely, reliably, and without any major environmental incident. Woodside is very proud of this legacy.

There are always potential risks with projects like this. Woodside has carefully planned this work program so that the risk of environmental impact is reduced to as low as reasonably practical and of an acceptable level. There are also strict government laws in place to protect the environment. Woodside complies with these laws and has systems in place to keep following these laws and rules for each project it undertakes.

If you would like information about Woodside's work to study and care for the environment, you can find it at <https://www.woodside.com/sustainability/environment>.

Further Information

You can find the detailed Consultation Information Sheet for proposed activity on our website: <https://www.woodside.com/sustainability/consultation-activities>.

2.82 Activity Update - Information Sheet – Stybarrow Plug and Abandonment Environment Plan (1 June 2023)



STAKEHOLDER CONSULTATION

INFORMATION SHEET

February 2023

ACTIVITY UPDATE – STYBARROW PLUG AND ABANDONMENT ENVIRONMENT PLAN

EXMOUTH PLATEAU SUB-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 activity is carried out in a manner that is consistent with the principles of Ecologically Sustainable Development (ESD), by which the environmental impacts and risks of the activity are reduced to As Low As Reasonably Practicable (ALARP) and of an acceptable level. We want relevant persons whose functions, interests or activities 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 planning to undertake subsea decommissioning activities for the Stybarrow field (previously operated by BHP Petroleum Pty Ltd (BHP)) which is located within Commonwealth waters in Petroleum Licence WA-32-L, approximately 53 km north-west of Exmouth, Western Australia and in water depths of approximately -810 - 850m (Figure 1).

Decommissioning of the Stybarrow field is planned to be undertaken in stages following acceptance of the EP, with work anticipated to start in about Q4 2023.

Regulatory approvals are being sought for the following activities under the **Stybarrow Well Plug and Abandonment (P&A) EP**:

- Pre-execution activities associated with the well P&A, such as barrier testing and removal of marine growth.
- Well P&A of the 10 productions/injection wells by placing cement plugs in the wells to permanently prevent hydrocarbon release.
- Cutting and removal of the wellhead and subsea tree assembly.
- Unblocking of the H4 flowline, if deemed feasible.

Field activities are planned to commence around Q4 2023, subject to approvals, vessel availability and weather constraints. Woodside is preparing the EP for this activity for submission to the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA) under the *Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2009*.

The P&A activities are required to be completed by 30 September 2024, as per NOPSEMA General Direction 833.

Following wellhead removal, Woodside proposes to dispose of equipment onshore in accordance with applicable requirements, assessing all options to reduce waste through reuse or recycling of recovered equipment.

The equipment locations and proposed activity or end state is summarised at **Table 2**.

Stybarrow Decommissioning Background

The Stybarrow development was in production from 2007 until 2015 and consisted of the Stybarrow floating production, storage and offloading (FPSO) facility and its moorings, subsea facilities including 10 subsea wells (production and water/gas injectors), the associated trees, manifolds, risers, flowlines, umbilicals and the disconnectable turret mooring (DTM) buoy which connected the FPSO to the subsea infrastructure.

Since 2015 the following activities have been completed:

- All flowlines and gas lift lines were flushed and filled with treated seawater and production flowlines disconnected, with the exception of the H4 flowline which was blocked by sand and hydrate during production. The flowline is disconnected, sealed and lying on the seabed. Hydrates are ice like solids that form when water and natural gas combine at high pressure and low temperatures. Hydrates are stable and pose no short term or long term impact to the environment.
- All production, gas and water injection wells were shut in and capped.
- The Stybarrow Venture FPSO was disconnected from the DTM and departed the field in August 2015.

Communications with mariners

The Operational Area includes the area encompassing an approximate 3,000 m radius around each of the four drill centers within WA-32-L.

A temporary 500 m exclusion zone will apply around the Mobile Offshore Drilling Unit (MODU) and the associated project vessels during P&A activities.

Commercial fishers and other marine users are permitted to use but should take care when entering the Operational Area and remain clear of the Exclusion Zone.

The wells will continue to be marked on navigation charts following P&A activities.

Decommissioning assessment

Woodside has undertaken an assessment to identify potential risks to the marine environment and relevant persons, considering timing, duration, location and potential impacts arising from the planned activities. A number of mitigation and management measures will be implemented and are summarised in **Table 3**. Further details will be provided in the revised EPs.

In preparing the EP revisions, Woodside's intent is to minimise environmental and social impacts associated with the proposed activities, and we are seeking comments and input from relevant persons to inform our decision making and for the intended outcome of consultation (see above).

Joint Venture

Woodside Energy (Australia) Pty Ltd is sole titleholder and operator of WA-32-L.

We welcome your feedback by 17 March 2023.

1 Stybarrow Decommissioning Environment Plans - update | February 2023

Stybarrow Plug and Abandonment Environment Plan

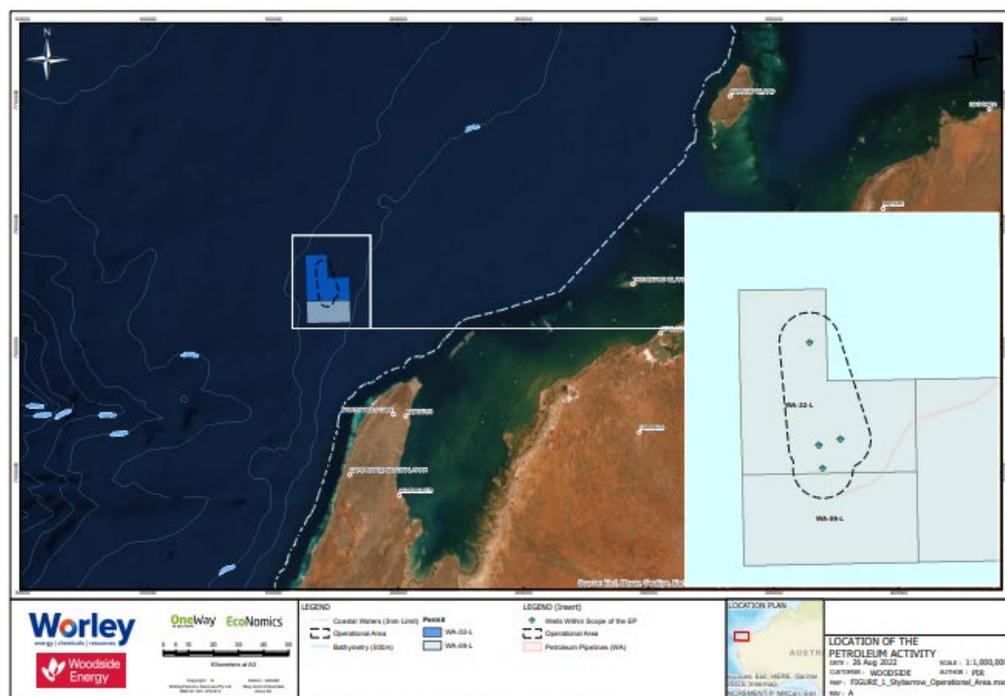


Figure 1. Stybarrow Location Map



Typical well flowbase



Typical subsea equipment recovery activity

Stybarrow Plug and Abandonment Environment Plan

Table 1. Activity summary

Stybarrow Decommissioning activities	Well P&A
Summary	Permanent P&A of 10 wells (6 production wells, 3 water injections wells and 1 gas injection well). Potential removal of wellhead and subsea trees, either by MODU or Construction Support Vessel (CSV).
Earliest expected commencement date	Earliest P&A start is anticipated to be Q4 2023, subject to approvals, MODU vessel availability and weather constraints. P&A must be completed no later than 30 September 2024 pursuant to General Direction 833.
Simultaneous Operations (SIMOPS)	Potential SIMOPs may occur with subsea infrastructure removal activities if vessel and equipment availabilities permit.
Petroleum Title	WA-32-L
Operational Area	The Operational Area includes the area encompassing an approximate 3,000 m radius around each of the four drill centers within WA-32-L.
Exclusion Zones	A temporary 500 m exclusion zone will apply around the MODU and the associated project vessels during P&A activities.
Estimated duration	-6 – 9 months, comprised of: <ul style="list-style-type: none"> • Preparatory activities (-4 – 7 days per well) • P&A (-18 – 24 days per well) • Removal of Well Infrastructure (-1 – 5 days per well) • Recovery of moorings and ancillary equipment (-1 – 2 days per well)
Location and Water depth	-53km north west of Exmouth, -810 – 850 m water depth
Infrastructure	6 x production wells 3 x water injection wells 1 x gas injection well The P&A covers the following optional scopes that may be conducted on the MODU or otherwise be covered during the facilities removal scope: <ul style="list-style-type: none"> • Removal of well infrastructure above the mudline including wellheads and xmas trees. • Intervention to unblock residual sand, hydrates and hydrocarbons from inside the H4 flowline, if determined feasible. Once unblocked, it is intended that the flowline will be recovered by a construction vessel under the Stybarrow Decommissioning and Field Management EP.
Vessels	Semi Submersible Mobile Offshore Drilling Unit MODU supported by 2 – 3 offshore support vessels
Distance to nearest marine park/mature reserve	-5 km to Gascoyne Commonwealth Marine Park -24 km to Ningaloo Marine Park (Commonwealth) -36 km to Ningaloo Marine Park (State) -45 km to Murion Islands Marine Management Area

Table 2. Approximate location and activity/end state

Subsea Infrastructure	Easting	Northing	Activity/End State
Stybarrow 5 (I-3) well	173119.0	7622683.9	P&A of 10 wells. Removal of wellhead and subsea trees, either by MODU or CSV
Stybarrow 6 (I-2) well	173143.9	7622636.2	
Stybarrow 12 (H-5) well	173172.8	76225560.7	
Stybarrow 9 (I-1) well	171032.3	7621985.6	
Stybarrow 10 (H-3) well	170958.1	7621964.1	
Stybarrow 11 (H-4) well	170980.5	7622056.3	
Stybarrow 7 (H-2) well	171413.3	7619728.6	
Stybarrow 8 (H-1) well	171403.1	7619659.9	
Eskdale 3 (EH1) well	170065.1	7632345.3	
Eskdale 4 (EG1) well	170024.5	7632318.3	

Stybarrow Plug and Abandonment Environment Plan

Environment That May Be Affected (EMBA)

The environment that may be affected (EMBA) is the largest spatial extent where unplanned events could potentially have an environmental consequence. For this EP, the broadest extent of the EMBA has been determined by the highly unlikely event of a hydrocarbon release from both the direct and indirect activities the subject of the EP. The worst-case credible spill scenario for this EP is loss of well containment during the well P&A.

The EMBA does not represent the predicted impact of the highly unlikely oil release. Rather, the EMBA represents the merged area of many possible paths that a highly unlikely hydrocarbon release could travel depending on 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 entire EMBA will not be affected and the specific and minimal part of the EMBA that is affected will only be known at the time of the release.

The EMBA for the P&A activity is presented in **Figure 2** below.



Figure 2. Environment that may be affected (EMBA) for the proposed activity.

Stybarrow Plug and Abandonment Environment Plan

Mitigation and Management Measures

Woodside has undertaken an assessment to identify potential impacts and risks to the marine environment arising from the decommissioning activities considering timing, duration, location.

A number of mitigation and management measures for the removal of the RTM are outlined in **Table 3**. Further details will be provided in the EP.

Table 3. Summary of key risks and/or impacts and management measures for the Stybarrow Decommissioning activities. Key risks and/or impacts and management measure apply to activities occurring within the title area and tow location.

Potential Impact/ Risk	Description of Source of Potential Impact/ Risk	Description of Potential Impacts	Proposed Mitigation and/ or Management Measure
Planned			
Physical presence and interactions with other marine users	<ul style="list-style-type: none"> The activities will be undertaken using a range of project vessels, namely a MODU, CSV and a HLV, along with general support project vessels. A 500 m petroleum safety zone will apply around the equipment locations. If the DTM is towed out of title, a 500 m exclusion zone will apply to the DTM and project vessels during tow and lifting. Presence of vessels in the safety and exclusion zones has the potential to result in interaction with third-party marine users. 	<ul style="list-style-type: none"> Interference with commercial shipping. Interference with commercial fishing activity. Displacement of recreational fishing activity. Interaction with existing oil and gas infrastructure. 	<ul style="list-style-type: none"> 500 m petroleum safety zone maintained around equipment until removal. 500 m exclusion zone established around the MODU and project vessels. Activity support vessel(s) to communicate with third-party vessels to assist in maintaining the petroleum safety zone/ exclusion zones. Consultation with relevant persons for the consultation outcomes.
Physical presence of infrastructure on seabed causing seabed disturbance and displacement of other marine users	<ul style="list-style-type: none"> Excess marine growth may need to be removed from the equipment prior to removal using high-pressure water jetting. Equipment deburial and short-term wet parking of infrastructure may be required. 	<ul style="list-style-type: none"> Removal activities may result in localised, temporary seabed disturbance from resuspension of sediments. Marine growth removal may result in highly localised seabed disturbance as debris deposits on the seabed. Interference or displacement of commercial fishing activity. Displacement of recreational fishing activity. 	<ul style="list-style-type: none"> Use controlled recovery techniques to limit seabed disturbance. Equipment to be marked on navigational charts until removal.
Discharges: Project Vessels	<ul style="list-style-type: none"> Sewage, greywater and putrescible waste will be discharged from project vessels. Bilge water, deck drainage and brine and cooling water may also be discharged. 	<ul style="list-style-type: none"> Short-term, localised impacts to water quality i.e. eutrophication from the addition of nutrients from these discharge fluids. 	<ul style="list-style-type: none"> All routine marine discharges will be managed according to legislative and regulatory requirements.
Discharges: Decommissioning Activities	<ul style="list-style-type: none"> During equipment removal, small volumes of treated seawater within the equipment will be released into the surrounding environment. Chemical use may be required to remove marine growth. During recovery of the blocked H4 flowline, it may be necessary to cut and recover rather than unblocking, resulting in a release of up to 14m³ crude oil and sand 	<ul style="list-style-type: none"> Localised short-term impacts to water quality from the release of seawater ballast and residual chemicals and hydrocarbons. 	<ul style="list-style-type: none"> Chemical reviews performed on all previously approved chemicals to confirm potential impacts are reduced to ALARP.

Stybarrow Plug and Abandonment Environment Plan

Potential Impact/ Risk	Description of Source of Potential Impact/ Risk	Description of Potential Impacts	Proposed Mitigation and/ or Management Measure
Light Emissions	<ul style="list-style-type: none"> Project vessels and MODU will use external lighting to navigate and conduct safe operations at night. Vessel lighting will also be used to communicate the vessel's presence to other marine users (i.e. navigation/ warning lights). Light emissions may be generated by flaring during well P&A if required. Flaring is only expected to occur for short durations (hours). 	<ul style="list-style-type: none"> Light emissions have the potential to affect fauna such as marine turtles and birds by influencing changes in behaviour or impacting their orientation. 	<ul style="list-style-type: none"> Implement relevant controls in the National Light Pollution Guidelines for Wildlife including Marine Turtles, Seabirds and Migratory Shorebirds (2020). Lighting will be limited to the minimum required for navigational and safety requirements except in emergency circumstances. Maintain a 12 km buffer from turtle nesting beaches during towing and lifting activities to avoid impacts to turtle hatchlings.
Noise Emissions	<ul style="list-style-type: none"> Project vessels will generate noise both in the air and underwater due to the operation or thruster engines, propellers, and the use of cutting tools subsea. 	<ul style="list-style-type: none"> Noise from project vessels and the MODU will contribute to ambient noise levels. Elevated underwater noise has the potential to affect marine fauna. 	<ul style="list-style-type: none"> Maintain a 12 km buffer from turtle nesting beaches during towing and lifting activities to avoid impacts to turtles. Compliance with legislative and regulatory requirements for interactions with marine fauna to prevent adverse interactions.
Atmospheric Emissions	<ul style="list-style-type: none"> Atmospheric emissions will be generated by the MODU and project vessels from internal combustion engines and incineration activities. Atmospheric emissions will be generated from venting of residual gas and contingent flaring from the MODU during P&A activities 	<ul style="list-style-type: none"> Emissions from project vessels could result in temporary, localised reductions in air quality in the immediate vicinity of the vessels. Venting or flaring of hydrocarbon gas may result in a short-lived localised gas plume and a minor contribution to greenhouse gas emissions 	<ul style="list-style-type: none"> Compliance with legislative and regulatory requirements for marine air pollution. Flaring and venting of hydrocarbons is restricted to a duration necessary to perform the P&A activity.
Unplanned			
Unplanned Hydrocarbon Release – vessel collision or Loss of Well Containment during P&A	<ul style="list-style-type: none"> Project vessels will use marine diesel fuel. In the unlikely event of a vessel collision involving a project vessel or third-party vessels during the activity, there is potential for a release of marine diesel fuel if the collision has enough force to penetrate the vessel hull in the exact location of the fuel tank. In the highly unlikely event of loss of well containment, there is the potential for a release of well fluids. 	<ul style="list-style-type: none"> In the highly unlikely event of a vessel collision causing a release of hydrocarbons, impacts to water quality and marine ecosystems could occur. 	<p>Preventing Vessel Collision</p> <ul style="list-style-type: none"> 500 m exclusion zone established around the equipment and project vessels during removal activities. Compliance with legislative and regulatory requirements for the prevention of vessel collisions and safety and emergency arrangements. Consultation with relevant persons to ensure other marine users are informed and aware, reducing the likelihood of a collision. Develop a management plan for simultaneous operations where multiple campaigns occur concurrently in the same Operational Area. <p>Spill Response Arrangements</p> <ul style="list-style-type: none"> Arrangements supporting the Oil Pollution Emergency Preparation document (OPEP) will be tested to ensure the OPEP can be implemented as planned. Emergency response activities would be implemented in line with the OPEP.

Stybarrow Plug and Abandonment Environment Plan

Potential Impact/ Risk	Description of Source of Potential Impact/ Risk	Description of Potential Impacts	Proposed Mitigation and/ or Management Measure
Deck Spills and Bunkering	<ul style="list-style-type: none"> Accidental deck spills from project vessels can include stored hydrocarbons, chemicals or equipment. 	<ul style="list-style-type: none"> Deck spills could result in short term, localised impacts to water quality or marine fauna in the immediate area surrounding the spill. 	<ul style="list-style-type: none"> Compliance with legislative and regulatory requirements for the prevention of marine pollution. Liquid chemical and fuel storage areas banded or secondarily contained when they are not being handled or temporarily moved. Maintain and locate spill kits in close proximity to hydrocarbon storage and deck areas for use to contain and recover deck spills Appropriate bunkering equipment kept and maintained, and contractors to follow procedures and requirements for bunkering and refuelling to reduce the likelihood of a spill.
Unplanned Discharge of Solid Hazardous/ Non-Hazardous Wastes	<ul style="list-style-type: none"> Accidental, unplanned loss of hazardous solid wastes such as oily rags or paint cans from the project vessels. 	<ul style="list-style-type: none"> Short term, localised impacts to water quality or marine fauna in the area surrounding the release. Incorrect classification of waste can also result in inappropriate disposal of hazardous decommissioning wastes. 	<ul style="list-style-type: none"> Compliance with legislative and regulatory requirements for the prevention of marine pollution and handling of hazardous wastes Project vessel waste arrangements to ensure waste is recorded and segregated and that all non-putrescible waste (excludes all food, greywater or sewage waste) to be disposed of onshore. Lost waste and dropped objects will be recovered, where safe and practicable. Waste contractors engaged to identify potential waste disposal pathways. Infrastructure and resource recovery strategy that ensures waste is handled and disposed of in accordance with applicable legislation, monitors and tracks waste and sets KPIs for recycling and reuse of decommissioned infrastructure.
Vessel Collision with Marine Fauna	<ul style="list-style-type: none"> Vessel movements have the potential to result in collisions between the vessel (hull and propellers) and marine fauna. 	<ul style="list-style-type: none"> Vessel disturbance presents a potential threat to marine mammals, marine reptiles and fish, sharks and rays. 	<ul style="list-style-type: none"> Compliance with legislative and regulatory requirements for interactions with marine fauna to reduce the likelihood of a collision occurring.
Disturbance to Seabed from Dropped Objects	<ul style="list-style-type: none"> Accidental, unplanned dropping of objects overboard from project vessels during recovery operations. 	<ul style="list-style-type: none"> Short term, localised impacts to sediment quality and benthic habitats. 	<ul style="list-style-type: none"> Project vessel inductions include control measures and training for crew in dropped object prevention. Lost waste/ dropped objects will be recovered where safe and practicable to do so. Procedures for lifts, bulk transfers and cargo loading if an unplanned object release does occur.
Accidental Introduction of Invasive Marine Species	<ul style="list-style-type: none"> Vessels transiting to the Operational Area may be subject to marine fouling whereby organisms attach to the vessel hull. Organisms can also be drawn into ballast tanks during onboarding of ballast water IMS could also be present as biofouling on subsea structures. 	<ul style="list-style-type: none"> It is not credible for IMS to be introduced and establish on the seabed or subsea structures in the Operational Area as these deep waters are not conducive to the settlement and establishment of IMS. There is potential for the transfer of IMS between the project vessels and DTM while in its currently location within the Operational Area, or for IMS to be established in the shallower waters of the controlled sinking location or tow route and lift location. 	<ul style="list-style-type: none"> Ballast water will be managed according to legislative and regulatory requirements. Application of Woodside's IMS risk assessment and appropriate management measures to the RTM, project vessels and relevant immersible equipment such as Remotely Operated Vehicles (ROVs), unless exempt.

Stybarrow Plug and Abandonment Environment Plan

Potential Impact/ Risk	Description of Source of Potential Impact/ Risk	Description of Potential Impacts	Proposed Mitigation and/ or Management Measure
Indirect			
Waste generation	<ul style="list-style-type: none"> Removal of the subsea equipment will result in the generation of waste products 	<ul style="list-style-type: none"> Generation of waste products that require appropriate management. 	<ul style="list-style-type: none"> Recovered equipment will be transported onshore by a licensed waste contractor for disposal including recycling and reuse opportunities. Waste generated on the vessels will be managed in accordance with legislative requirements. Wastes will be managed and disposed of in a safe and environmentally responsible manner that prevents accidental loss to the environment.
Feedback			
<p>If you would like to comment on the proposed activities outlined in this information sheet, or would like additional information, please contact Woodside before 17 March 2023 via:</p> <p>E: Feedback@woodside.com.au Toll free: 1800 442 977</p> <p>You can subscribe on our website to receive Consultation Information Sheets for proposed activities: www.woodside.com/sustainability/consultation-activities.</p> <p>Please note that stakeholder feedback will be communicated to the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA) as required under legislation. Woodside will communicate any material changes to the proposed activity to affected stakeholders as they arise.</p>		<p>Please note that 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 <i>Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2009 (Cth)</i>.</p> <p>Please let us know if your feedback for this activity is sensitive and we will make this known to NOPSEMA upon submission of the EP in order for this information to remain confidential to NOPSEMA.</p>	

3. Activity Update (June 2023)

3.1 Email sent to relevant Shires (1 June 2023)

- *Shire of East Pilbara*
- *Derby Chamber of Commerce and Industry*
- *Shire of Broome*
- *Shire of Shark Bay*
- *East Kimberley Chamber of Commerce and Industry*
- *Shire of Chapman Valley*
- *Shire of Dandaragan*
- *Shire of Gingin*
- *Shire of Northampton*
- *Shire of August Margaret River*
- *Margaret River Chamber of Commerce and Industry*
- *Mid West Chamber of Commerce and Industry*
- *Shire of Wyndham-East Kimberley*
- *Shire of Derby/West Kimberley*
- *City of Greater Geraldton*

Dear Stakeholder

Woodside is preparing the Stybarrow Plug and Abandonment (P&A) Environment Plan (EP), which will support P&A activities required as part of the progressive decommissioning of the Stybarrow field, located in Commonwealth waters in Production Licence WA-32-L, approximately 53 km north-west of Exmouth, Western Australia and in water depths of approximately ~810-850 m.

Following recent changes to Commonwealth EP consultation requirements, Woodside is now consulting stakeholders whom are located within the environment that may be affected (EMBA) by a proposed petroleum activity. The EMBA is the largest spatial extent where unplanned events could potentially have an environmental consequence. For this environmental plan, the broadest extent of the EMBA has been determined by the highly unlikely event of a hydrocarbon release from activities within the scope the EP. The worst-case credible spill scenario for the Stybarrow P&A EP is a well loss of integrity.

A summary of proposed activities is outlined below, and more detailed information is provided in the attached Consultation Information Sheet. The Information Sheet provide details on activities proposed to be managed under a number of environment plans (EPs), including a summary of potential key risks and associated management measures. The Information Sheets are also available on our [website](#).

The National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA) has published a brochure entitled [Consultation on offshore petroleum environment plans – Information for the Community](#) to help community members understand consultation requirements for Commonwealth EPs and how to participate in consultation.

Any feedback provided previously on proposed activities will remain current where EPs are under assessment by NOPSEMA.

Please let us know if you would like to update previous feedback or have any additional views by **1 July 2023**.

Activity:

Plugging and Abandonment (P&A) Activities
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Stybarrow Plug and Abandonment Environment Plan

Summary:	<ul style="list-style-type: none">• Pre-execution activities associated with the well P&A, such as barrier testing and removal of marine growth.• Well P&A of the 10 productions/injection wells by placing cement plugs in the wells to permanently prevent hydrocarbon release.• Cutting and removal of the wellhead and subsea tree assembly.• Unblocking of the H4 flowline, if deemed feasible.
Location:	<ul style="list-style-type: none">• 53 km northwest of Exmouth, Western Australia.
Approx. Water Depth (m):	<ul style="list-style-type: none">• Approx. 810 – 850 m.
Schedule:	<ul style="list-style-type: none">• Earliest P&A start is estimated to be Q4 2023, subject to approvals, MODU and vessel availability and weather constraints.• P&A activities must be completed no later than 30 September 2024, pursuant to General Direction 833.
Duration:	<ul style="list-style-type: none">• P&A activities are anticipated to take approximately 6 – 9 months.
Exclusionary/Cautious Zone:	<ul style="list-style-type: none">• The Operational Area includes the area encompassing an approximate 3,000 m radius around each of the four drill centers within WA-32-L.• A temporary 500 m exclusion zone will apply around the MODU and the associated project vessels during P&A activities.
Vessels:	<ul style="list-style-type: none">• Semi-Submersible Mobile Offshore Drilling Unit (MODU)• The MODU will be supported by 2 to 3 offshore support vessels.

Feedback:

If you have any feedback specific to the proposed activities described under the proposed EPs, we would welcome your feedback at: Feedback@woodside.com.au or 1800 442 977 by **1 July 2023**.

Your feedback and our response will be included in our Environment Plan which will be submitted to NOPSEMA for acceptance in accordance with the *Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2009* (Cth).

Please let us know if your feedback for this activity is sensitive and we will make this known to NOPSEMA upon submission of the Environment Plan in order for this information to remain confidential to NOPSEMA.

You can also subscribe on our website to receive Consultation Information Sheets for proposed activities: www.woodside.com/sustainability/consultation-activities.

Regards,

Woodside Feedback

3.1.1 Email sent to relevant Shires (23 June 2023)

- *Shire of East Pilbara*

Stybarrow Plug and Abandonment Environment Plan

- *Derby Chamber of Commerce and Industry*
- *Shire of Broome*
- *Shire of Shark Bay*
- *East Kimberley Chamber of Commerce and Industry*
- *Shire of Chapman Valley*
- *Shire of Dandaragan*
- *Shire of Gingin*
- *Shire of Northampton*
- *Shire of August Margaret River*
- *Margaret River Chamber of Commerce and Industry*
- *Mid West Chamber of Commerce and Industry*
- *Shire of Wyndham-East Kimberley*
- *City of Greater Geraldton*

Dear Stakeholder,

Woodside previously consulted you (email below) on its plan to conduct plug and abandonment (P&A) activities as part of the progressive decommissioning of the Stybarrow field, located in Commonwealth waters in Production Licence WA-32-L, approximately 53 km north-west of Exmouth, Western Australia and in water depths of approximately ~810-850 m.

A summary of proposed activities is outlined below, and more detailed information is provided in the attached Consultation Information Sheet. The Information Sheet provide details on activities proposed to be managed under a number of environment plans (EPs), including a summary of potential key risks and associated management measures. The Information Sheets are also available on our [website](#).

Please let us know if you would like to update previous feedback or have any additional views by **1 July 2023**.

Kind regards,

Woodside Feedback

3.2 Email sent to titleholders (1 June 2023)

- *Shell*
- *INPEX*
- *PE Wheatstone*
- *Fugro*
- *Bounty Oil*
- *Coast Oil and Gas*
- *Buru Energy*
- *Energy Resources*
- *Key Petroleum*
- *Origin Energy*
- *Australian Gas Infrastructure*
- *Petro China*
- *Beagle No 1 Pty Ltd*

Stybarrow Plug and Abandonment Environment Plan

- KATO Amulet Pty Ltd / KATO NWS Pty Ltd / KATO Corowa / KATO Energy (WA) Pty Ltd
- Kyushu Electric Wheatstone

Dear Titleholder

Woodside is providing this update on the progressive decommissioning of the Stybarrow field, previously operated by BHP Petroleum Pty Ltd (BHP).

We are providing this information to ensure relevant persons are informed about the status of proposed activities, as there have been changes to activity scope and supporting consultation information since consultation commenced for these decommissioning projects in 2021.

The Stybarrow Field is in Commonwealth waters in Petroleum Licence WA-32-L, approximately 53 km northwest of Exmouth, Western Australia and in water depths of approximately 810 – 850 m.

A summary of proposed activities is outlined below, and more detailed information is provided in the attached Consultation Information Sheet. The Information Sheet provide details on activities proposed to be managed under a number of environment plans (EPs), including a summary of potential key risks and associated management measures. The Information Sheets are also available on our [website](#).

Following recent changes to Commonwealth EP consultation requirements, Woodside is now consulting stakeholders whom are located within the environment that may be affected (EMBA) by a proposed petroleum activity. The EMBA is the largest spatial extent where unplanned events could potentially have an environmental consequence.

The National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA) has published a brochure entitled [Consultation on offshore petroleum environment plans – Information for the Community](#) to help community members understand consultation requirements for Commonwealth EPs and how to participate in consultation.

Any feedback provided previously on proposed activities will remain current where EPs are under assessment by NOPSEMA.

Please let us know if you would like to update previous feedback or have any additional views by **1 July 2023**.

Activity:



	Stybarrow Field Decommissioning Activities
Summary:	Plugging and Abandonment (P&A) Activities <ul style="list-style-type: none">• Pre-execution activities associated with the well P&A, such as barrier testing and removal of marine growth.• Well P&A of the 10 productions/injection wells by

Stybarrow Plug and Abandonment Environment Plan

	<p>placing cement plugs in the wells to permanently prevent hydrocarbon release.</p> <ul style="list-style-type: none"> • Cutting and removal of the wellhead and subsea tree assembly. • Unblocking of the H4 flowline, if deemed feasible. <p>Removal Activities</p> <ul style="list-style-type: none"> • Removal of subsea equipment (wellheads, trees, manifolds, risers, flexible flowlines, and umbilicals). • Removal of the Disconnectable Turret Mooring (DTM) and its moorings. Recovery of the DTM may require it to be towed to shallower water outside of permit area WA-32-L to support the DTM removal from the marine environment. • Ongoing field management activities (equipment monitoring and inspection). <p>In Situ Activities</p> <ul style="list-style-type: none"> • Proposed leave in situ of the 9 DTM drag anchors (buried), nine suction piles for the riser holdbacks and the historical exploration wellhead, Eskdale-1, which was unable to be removed following its drilling and abandonment in 2003.
Location:	<ul style="list-style-type: none"> • 53 km northwest of Exmouth, Western Australia.
Approx. Water Depth (m):	<ul style="list-style-type: none"> • Approx. 810 – 850 m.
Schedule:	<p>Plugging and Abandonment (P&A) Activities</p> <ul style="list-style-type: none"> • Earliest P&A start is estimated to be Q4 2023, subject to approvals, MODU and vessel availability and weather constraints. • P&A activities must be completed no later than 30 September 2024, pursuant to General Direction 833. <p>Removal Activities</p>

Stybarrow Plug and Abandonment Environment Plan

	<ul style="list-style-type: none"> • Earliest facilities and DTM removal is estimated to be Q4 2023, subject to approvals, vessel availability and weather constraints. • Equipment removal must be completed no later than 31 March 2025, pursuant to General Direction 833.
<p>Duration:</p>	<p>Plugging and Abandonment (P&A) Activities</p> <ul style="list-style-type: none"> • P&A activities are anticipated to take approximately 6 – 9 months. <p>Removal Activities</p> <ul style="list-style-type: none"> • Removal activities are anticipated to take approximately 4-6 months to complete and DTM removal activities are anticipated to take approximately 1 month to complete.
<p>Exclusionary/Cautious Zone:</p>	<p>P&A Activities</p> <ul style="list-style-type: none"> • The Operational Area includes the area encompassing an approximate 3,000 m radius around each of the four drill centers within WA-32-L. • A temporary 500 m exclusion zone will apply around the MODU and the associated project vessels during P&A activities. <p>Removal Activities</p> <ul style="list-style-type: none"> • The temporary Operational Area includes the area encompassing an approximate 1,500 m radius around the subsea infrastructure and wellheads. • The DTM has an existing 1200 m radius petroleum safety zone which will continue to be in place until it is removed. • A temporary 500 m exclusion zone will apply around the CSV and the associated project vessels during removal activities. • A temporary 500 m exclusion zone will apply around the HLV and the associated project vessels during the removal of the DTM.
<p>Vessels:</p>	<p>P&A activities</p>

Stybarrow Plug and Abandonment Environment Plan

	<ul style="list-style-type: none">• Semi-Submersible Mobile Offshore Drilling Unit (MODU)• The MODU will be supported by 2 to 3 offshore support vessels. <p>Removal Activities</p> <ul style="list-style-type: none">• CSV and HLV for recovery and activities.• AHTs to support the towing of the DTM to the shallower water location (if required).
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Feedback:

If you have any feedback specific to the proposed activities described under the proposed EPs, we would welcome your feedback at: Feedback@woodside.com.au or 1800 442 977 by **1 July 2023**.

Your feedback and our response will be included in our Environment Plan which will be submitted to NOPSEMA for acceptance in accordance with the *Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2009* (Cth).

Please let us know if your feedback for this activity is sensitive and we will make this known to NOPSEMA upon submission of the Environment Plan in order for this information to remain confidential to NOPSEMA.

You can also subscribe on our website to receive Consultation Information Sheets for proposed activities: www.woodside.com/sustainability/consultation-activities.

Regards,

Woodside Feedback

3.2.1 Email sent to titleholders (23 June 2023)

- *Shell*
- *INPEX*
- *Fugro*
- *Bounty Oil*
- *Coast Oil and Gas*
- *Buru Energy*
- *Energy Resources*
- *Key Petroleum*
- *Origin Energy*
- *Australian Gas Infrastructure*
- *Petro China*
- *Beagle No 1 Pty Ltd*
- *KATO Amulet Pty Ltd / KATO NWS Pty Ltd / KATO Corowa / KATO Energy (WA) Pty Ltd*
- *Kyushu Electric Wheatstone*

Stybarrow Plug and Abandonment Environment Plan

Dear Titleholder,

Woodside previously consulted you (email below) on its plans to decommission the Stybarrow field in Commonwealth waters in Petroleum Licence WA-32-L, approximately 53 km northwest of Exmouth, Western Australia and in water depths of approximately 810 – 850 m.

A summary of proposed activities is outlined below, and more detailed information is provided in the attached Consultation Information Sheet. The Information Sheet provide details on activities proposed to be managed under a number of environment plans (EPs), including a summary of potential key risks and associated management measures. The Information Sheets are also available on our [website](#).

Please let us know if you would like to update previous feedback or have any additional views by **1 July 2023**.

Kind regards,

Woodside Feedback

3.3 Email sent to Northern Prawn Fishery (25 licence holders) (1 June 2023)

Dear Fishery Stakeholder

Woodside is preparing the Stybarrow Plug and Abandonment (P&A) Environment Plan (EP), which will support P&A activities required as part of the progressive decommissioning of the Stybarrow field, located in Commonwealth waters in Production Licence WA-32-L, approximately 53 km north-west of Exmouth, Western Australia and in water depths of approximately ~810-850 m.

Following recent changes to Commonwealth EP consultation requirements, Woodside is now consulting stakeholders whom are located within the environment that may be affected (EMBA) by a proposed petroleum activity. The EMBA is the largest spatial extent where unplanned events could potentially have an environmental consequence. For this environmental plan, the broadest extent of the EMBA has been determined by the highly unlikely event of a hydrocarbon release from activities within the scope the EP. The worst-case credible spill scenario for the Stybarrow P&A EP is a well loss of integrity.

A summary of proposed activities is outlined below, and more detailed information is provided in the attached Consultation Information Sheet. The Information Sheet provide details on activities proposed to be managed under a number of environment plans (EPs), including a summary of potential key risks and associated management measures. The Information Sheets are also available on our [website](#).

The National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA) has published a brochure entitled [Consultation on offshore petroleum environment plans – Information for the Community](#) to help community members understand consultation requirements for Commonwealth EPs and how to participate in consultation.

Any feedback provided previously on proposed activities will remain current where EPs are under assessment by NOPSEMA.

Please let us know if you would like to update previous feedback or have any additional views by **1 July 2023**.

Activity:

Plugging and Abandonment (P&A) Activities	
Summary:	<ul style="list-style-type: none"> • Pre-execution activities associated with the well P&A, such as barrier testing and removal of marine growth. • Well P&A of the 10 productions/injection wells by placing cement plugs in the wells to permanently prevent hydrocarbon release. • Cutting and removal of the wellhead and subsea tree assembly. • Unblocking of the H4 flowline, if deemed feasible.
Location:	<ul style="list-style-type: none"> • 53 km northwest of Exmouth, Western Australia.
Approx. Water Depth (m):	<ul style="list-style-type: none"> • Approx. 810 – 850 m.
Schedule:	<ul style="list-style-type: none"> • Earliest P&A start is estimated to be Q4 2023, subject to approvals, MODU and vessel availability and weather constraints. • P&A activities must be completed no later than 30 September 2024, pursuant to General Direction 833.
Duration:	<ul style="list-style-type: none"> • P&A activities are anticipated to take approximately 6 – 9 months.
Exclusionary/Cautious Zone:	<ul style="list-style-type: none"> • The Operational Area includes the area encompassing an approximate 3,000 m radius around each of the four drill centers within WA-32-L. • A temporary 500 m exclusion zone will apply around the MODU and the associated project vessels during P&A activities.
Vessels:	<ul style="list-style-type: none"> • Semi-Submersible Mobile Offshore Drilling Unit (MODU) • The MODU will be supported by 2 to 3 offshore support vessels.

Feedback:

If you have any feedback specific to the proposed activities described under the proposed EPs, we would welcome your feedback at: Feedback@woodside.com.au or 1800 442 977 by **1 July 2023**.

Your feedback and our response will be included in our Environment Plan which will be submitted to NOPSEMA for acceptance in accordance with the *Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2009* (Cth).

Please let us know if your feedback for this activity is sensitive and we will make this known to NOPSEMA upon submission of the Environment Plan in order for this information to remain confidential to NOPSEMA.

You can also subscribe on our website to receive Consultation Information Sheets for proposed activities: www.woodside.com/sustainability/consultation-activities.

Regards,

Woodside Feedback

3.3.1 Email sent to Northern Prawn Fishery (25 licence holders) (23 June 2023)

Dear Fishery Stakeholder,

Stybarrow Plug and Abandonment Environment Plan

Woodside previously consulted you (email below) on its plan to conduct plug and abandonment (P&A) activities as part of the progressive decommissioning of the Stybarrow field, located in Commonwealth waters in Production Licence WA-32-L, approximately 53 km north-west of Exmouth, Western Australia and in water depths of approximately ~810-850 m.

A summary of proposed activities is outlined below, and more detailed information is provided in the attached Consultation Information Sheet. The Information Sheet provide details on activities proposed to be managed under a number of environment plans (EPs), including a summary of potential key risks and associated management measures. The Information Sheets are also available on our [website](#).

Please let us know if you would like to update previous feedback or have any additional views by **1 July 2023**.

Kind regards,

Woodside Feedback

3.4 Email and letter sent to South West (11 licence holders) and West Coast recreational marine users (16 licence holders) (1 June 2023)

Stybarrow Plug and Abandonment Environment Plan



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

Please direct all responses/queries to:
Woodside Feedback
T: 1800 442 977
E: Feedback@woodside.com.au

1 June 2023

Dear Stakeholder

Woodside is preparing the [Stybarrow](#) Plug and Abandonment (P&A) Environment Plan (EP), which will support P&A activities required as part of the progressive decommissioning of the [Stybarrow](#) field, located in Commonwealth waters in Production Licence WA-32-L, approximately 53 km north-west of Exmouth, Western Australia and in water depths of approximately ~810-850 m.

Following recent changes to Commonwealth EP consultation requirements, Woodside is now consulting stakeholders [whom](#) are located within the environment that may be affected (EMBA) by a proposed petroleum activity. The EMBA is the largest spatial extent where unplanned events could potentially have an environmental consequence. For this environmental plan, the broadest extent of the EMBA has been determined by the highly unlikely event of a hydrocarbon release from activities within the scope the EP. The worst-case credible spill scenario for the [Stybarrow](#) P&A EP is a well loss of integrity.

A summary of proposed activities is outlined below, and more detailed information is provided in the attached Consultation Information Sheet. The Information Sheet provide details on activities proposed to be managed under [a number of](#) environment plans (EPs), including a summary of potential key risks and associated management measures. The Information Sheets are also available on our website: www.woodside.com.

The National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA) has published a brochure entitled *Consultation on offshore petroleum environment plans – Information for the Community* to help community members understand consultation requirements for Commonwealth EPs and how to participate in consultation.

Any feedback provided previously on proposed activities will remain current where EPs are under assessment by NOPSEMA.

Please let us know if you would like to update previous feedback or have any additional views by **1 July 2023**.

Activity:

Plugging and Abandonment (P&A) Activities	
Summary:	<ul style="list-style-type: none">• Pre-execution activities associated with the well P&A, such as barrier testing and removal of marine growth.• Well P&A of the 10 productions/injection wells by placing cement plugs in the wells to permanently prevent hydrocarbon release.• Cutting and removal of the wellhead and subsea tree assembly.• Unblocking of the H4 flowline, if deemed feasible.
Location:	<ul style="list-style-type: none">• 53 km northwest of Exmouth, Western Australia.
Approx. Water Depth (m):	<ul style="list-style-type: none">• Approx. 810 – 850 m.
Schedule:	<ul style="list-style-type: none">• Earliest P&A start is estimated to be Q4 2023, subject to approvals, MODU and vessel availability and weather constraints.• P&A activities must be completed no later than 30 September 2024, pursuant to General Direction 833.

Stybarrow Plug and Abandonment Environment Plan

Duration:	<ul style="list-style-type: none">• P&A activities are anticipated to take approximately 6 – 9 months.
Exclusionary/Cauti onary Zone:	<ul style="list-style-type: none">• The Operational Area includes the area encompassing an approximate 3,000 m radius around each of the four drill centers within WA-32-L.• A temporary 500 m exclusion zone will apply around the MODU and the associated project vessels during P&A activities.
Vessels:	<ul style="list-style-type: none">• Semi-Submersible Mobile Offshore Drilling Unit (MODU)• The MODU will be supported by 2 to 3 offshore support vessels.

Feedback:

If you have any feedback specific to the proposed activities described under the proposed EPs, we would welcome your feedback at: Feedback@woodside.com.au or 1800 442 977 by **1 July 2023**.

Your feedback and our response will be included in our Environment Plan which will be submitted to NOPSEMA for acceptance in accordance with the *Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2009* (Cth).

Please let us know if your feedback for this activity is sensitive and we will make this known to NOPSEMA upon submission of the Environment Plan in order for this information to remain confidential to NOPSEMA.

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Regards,

Woodside Feedback



Woodside Energy
Mia Yellagonga
Karlak, 11 Mount Street
Perth WA 6000
Australia

T: 1800 442 977
E: feedback@woodside.com.au
www.woodside.com
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Attached: Consultation Information Sheet

3.4.1 Email and letter sent to South West (11 licence holders) and West Coast recreational marine users (16 licence holders) (26 June 2023)

Stybarrow Plug and Abandonment Environment Plan



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

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Woodside Feedback
T: 1800 442 977
E: Feedback@woodside.com.au

26 June 2023

Dear Stakeholder

Woodside previously consulted you (correspondence dated 1 June 2023) with respect to its proposed Stybarrow Plug and Abandonment (P&A) Environment Plan (EP), which will support P&A activities required as part of the progressive decommissioning of the Stybarrow field. The field is located in Commonwealth waters in Production Licence WA-32-L, approximately 53 km north-west of Exmouth, Western Australia and in water depths of approximately ~810-850 m.

Following recent changes to Commonwealth EP consultation requirements, Woodside is now consulting stakeholders whom are located within the environment that may be affected (EMBA) by a proposed petroleum activity. The EMBA is the largest spatial extent where unplanned events could potentially have an environmental consequence. For this environmental plan, the broadest extent of the EMBA has been determined by the highly unlikely event of a hydrocarbon release from activities within the scope the EP. The worst-case credible spill scenario for the Stybarrow P&A EP is a well loss of integrity.

A summary of proposed activities is outlined below, and more detailed information is provided in the attached Consultation Information Sheet. The Information Sheet provide details on activities proposed to be managed under a number of environment plans (EPs), including a summary of potential key risks and associated management measures. The Information Sheets are also available on our website: www.woodside.com.

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Any feedback provided previously on proposed activities will remain current where EPs are under assessment by NOPSEMA.

Please let us know if you would like to update previous feedback or have any additional views by **1 July 2023**.

Activity:

Plugging and Abandonment (P&A) Activities	
Summary:	<ul style="list-style-type: none">• Pre-execution activities associated with the well P&A, such as barrier testing and removal of marine growth.• Well P&A of the 10 productions/injection wells by placing cement plugs in the wells to permanently prevent hydrocarbon release.• Cutting and removal of the wellhead and subsea tree assembly.• Unblocking of the H4 flowline, if deemed feasible.
Location:	<ul style="list-style-type: none">• 53 km northwest of Exmouth, Western Australia.
Approx. Water Depth (m):	<ul style="list-style-type: none">• Approx. 810 – 850 m.
Schedule:	<ul style="list-style-type: none">• Earliest P&A start is estimated to be Q4 2023, subject to approvals, MODU and vessel availability and weather constraints.• P&A activities must be completed no later than 30 September 2024, pursuant to General Direction 833.

Stybarrow Plug and Abandonment Environment Plan

Duration:	<ul style="list-style-type: none">P&A activities are anticipated to take approximately 6 – 9 months.
Exclusionary/Cauti onary Zone:	<ul style="list-style-type: none">The Operational Area includes the area encompassing an approximate 3,000 m radius around each of the four drill centers within WA-32-L.A temporary 500 m exclusion zone will apply around the MODU and the associated project vessels during P&A activities.
Vessels:	<ul style="list-style-type: none">Semi-Submersible Mobile Offshore Drilling Unit (MODU)The MODU will be supported by 2 to 3 offshore support vessels.

Feedback:

If you have any feedback specific to the proposed activities described under the proposed EPs, we would welcome your feedback at: Feedback@woodside.com.au or 1800 442 977 by **1 July 2023**.

Your feedback and our response will be included in our Environment Plan which will be submitted to NOPSEMA for acceptance in accordance with the *Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2009 (Cth)*.

Please let us know if your feedback for this activity is sensitive and we will make this known to NOPSEMA upon submission of the Environment Plan in order for this information to remain confidential to NOPSEMA.

You can also subscribe on our website to receive Consultation Information Sheets for proposed activities: www.woodside.com/sustainability/consultation-activities.

Regards,

Woodside Feedback



Woodside Energy
Mia Yellagonga
Karlak, 11 Mount Street
Perth WA 6000
Australia

T: 1800 442 977
E: feedback@woodside.com.au
www.woodside.com
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Attached: Consultation Information Sheet

3.5 Email and letter sent to Specimen Shell Managed Fishery (30 licence holders) and West Coast recreational marine users (97 licence holders) (9 June 2023)



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

Please direct all responses/queries to:
 Woodside Feedback
 T: 1800 442 977
 E: Feedback@woodside.com.au

|

9 June 2023

Dear Stakeholder

Woodside is providing this update on the progressive decommissioning of the Griffin and ~~Stybarrow~~ fields, previously operated by BHP Petroleum Pty Ltd (BHP).

We are providing this information to ensure relevant persons are informed about the status of proposed activities, as there have been changes to activity scope and supporting consultation information since consultation commenced for these decommissioning projects in 2021.

The **Griffin Field** is in Commonwealth waters in Petroleum Licence WA-10-L, 65 km northwest of Onslow and 94 km northeast of Exmouth, Western Australia and in water depths of approximately 120 m.

The ~~Stybarrow~~ **Field** is in Commonwealth waters in Petroleum Licence WA-32-L, approximately 53 km northwest of Exmouth, Western Australia and in water depths of approximately 810 – 850 m.

Following recent changes to Commonwealth EP consultation requirements, Woodside is now consulting stakeholders whom are located within the environment that may be affected (EMBA) by a proposed petroleum activity. The EMBA is the largest spatial extent where unplanned events could potentially have an environmental consequence.

A summary of proposed activities is outlined below, and more detailed information is provided in the attached Consultation Information Sheet. The Information Sheet provide details on activities proposed to be managed under a number of environment plans (EPs), including a summary of potential key risks and associated management measures. The Information Sheets are also available on our website: www.woodside.com.

The National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA) has published a brochure entitled *Consultation on offshore petroleum environment plans – Information for the Community* to help community members understand consultation requirements for Commonwealth EPs and how to participate in consultation.

Any feedback provided previously on proposed activities will remain current where EPs are under assessment by NOPSEMA.

Please let us know if you would like to update previous feedback or have any additional views by **9 July 2023**.

Activity:

	Griffin Field Decommissioning Activities	Stybarrow Field Decommissioning Activities
Summary:	Removal Activities <ul style="list-style-type: none"> Removal of subsea equipment (wellheads, trees, distribution skids, risers, flexible flowlines, rigid flowlines, umbilicals, and the pipeline end module (PLEM)). Removal of the Riser Turret Mooring (RTM) and its moorings. Depending on the vessel utilised, recovery of the RTM may require sections of it 	Plugging and Abandonment (P&A) Activities <ul style="list-style-type: none"> Pre-execution activities associated with the well P&A, such as barrier testing and removal of marine growth. Well P&A of the 10 productions/injection wells by placing cement plugs in the wells to permanently prevent hydrocarbon release.

	<p>to be towed to shallower water out of the title.</p> <ul style="list-style-type: none"> Removal of an exploration wellhead (Ramillies-1 in neighbouring petroleum title WA-12-L). Ongoing field management activities. Pigging and subsequent removal of the 26 km of Griffin Gas Export Pipeline (GEP) within Commonwealth waters. <p>In Situ Activities</p> <ul style="list-style-type: none"> Proposal to leave in situ 12 RTM drag anchors (buried), 6 concrete gravity bases and 5 piled foundations for the PLEM and 4 distribution skids. 	<ul style="list-style-type: none"> Cutting and removal of the wellhead and subsea tree assembly. Unblocking of the H4 flowline, if deemed feasible. <p>Removal Activities</p> <ul style="list-style-type: none"> Removal of subsea equipment (wellheads, trees, manifolds, risers, flexible flowlines, and umbilicals). Removal of the Disconnectable Turret Mooring (DTM) and its moorings. Recovery of the DTM may require it to be towed to shallower water outside of permit area WA-32-L to support the DTM removal from the marine environment. Ongoing field management activities (equipment monitoring and inspection). <p>In Situ Activities</p> <ul style="list-style-type: none"> Proposed leave in situ of the 9 DTM drag anchors (buried), nine suction piles for the riser holdbacks and the historical exploration wellhead, Eskdale-1, which was unable to be removed following its drilling and abandonment in 2003.
Location:	<ul style="list-style-type: none"> 94 km northeast of Exmouth, Western Australia. 	<ul style="list-style-type: none"> 53 km northwest of Exmouth, Western Australia.
Approx. Water Depth (m):	<ul style="list-style-type: none"> Approx. 120 m. 	<ul style="list-style-type: none"> Approx. 810 – 850 m.
Schedule:	<p>Removal Activities</p> <ul style="list-style-type: none"> Earliest proposed removal activity start is estimated to be Q4 2023, subject to approvals, vessel availability and weather constraints. Facilities removal must be completed no later than 31 December 2024, pursuant to General Direction 832. 	<p>Plugging and Abandonment (P&A) Activities</p> <ul style="list-style-type: none"> Earliest P&A start is estimated to be Q4 2023, subject to approvals, MODU and vessel availability and weather constraints. P&A activities must be completed no later than 30 September 2024, pursuant to General Direction 833. <p>Removal Activities</p> <ul style="list-style-type: none"> Earliest facilities and DTM removal is estimated to be Q4 2023, subject to approvals, vessel availability and weather constraints. Equipment removal must be completed no later than 31 March 2025, pursuant to General Direction 833.
Duration:	<p>Removal Activities</p> <ul style="list-style-type: none"> Removal activities are anticipated to take approximately 6 months to complete and GEP removal activities are anticipated to take approximately 2 months to complete. 	<p>Plugging and Abandonment (P&A) Activities</p> <ul style="list-style-type: none"> P&A activities are anticipated to take approximately 6 – 9 months. <p>Removal Activities</p> <ul style="list-style-type: none"> Removal activities are anticipated to take approximately 4-6 months to

Stybarrow Plug and Abandonment Environment Plan

		complete and DTM removal activities are anticipated to take approximately 1 month to complete.
Exclusionary/Cautionary Zone:	<p>Removal Activities</p> <ul style="list-style-type: none"> The temporary Operational Area includes the area encompassing an approximate 1,500 m radius around the equipment. A temporary 500 m exclusion zone will apply around the project vessels during removal and potential tow activities. 	<p>P&A Activities</p> <ul style="list-style-type: none"> The Operational Area includes the area encompassing an approximate 3,000 m radius around each of the four drill centers within WA-32-L. A temporary 500 m exclusion zone will apply around the MODU and the associated project vessels during P&A activities. <p>Removal Activities</p> <ul style="list-style-type: none"> The temporary Operational Area includes the area encompassing an approximate 1,500 m radius around the subsea infrastructure and wellheads. The DTM has an existing 1200 m radius petroleum safety zone which will continue to be in place until it is removed. A temporary 500 m exclusion zone will apply around the CSV and the associated project vessels during removal activities. A temporary 500 m exclusion zone will apply around the HLV and the associated project vessels during the removal of the DTM.
Vessels:	<p>Removal Activities</p> <ul style="list-style-type: none"> Construction support vessel (CSV) and Heavy Lift Vessel (HLV) for recovery and pipeline removal activities. An anchor handling tug (AHT) to support the towing of the RTM to sheltered water. 	<p>P&A activities</p> <ul style="list-style-type: none"> Semi-Submersible Mobile Offshore Drilling Unit (MODU) The MODU will be supported by 2 to 3 offshore support vessels. <p>Removal Activities</p> <ul style="list-style-type: none"> CSV and HLV for recovery and activities. AHTs to support the towing of the DTM to the shallower water location (if required).

Feedback:

If you have any feedback specific to the proposed activities described under the proposed EPs, we would welcome your feedback at: Feedback@woodside.com.au or 1800 442 977 by **9 July 2023**.

Your feedback and our response will be included in our Environment Plan which will be submitted to NOPSEMA for acceptance in accordance with the *Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2009 (Cth)*.

Please let us know if your feedback for this activity is sensitive and we will make this known to NOPSEMA upon submission of the Environment Plan in order for this information to remain confidential to NOPSEMA.

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Regards,

Woodside Feedback



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T: 1800 442 977
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f t in y @

Attached: Consultation Information Sheet

3.5.1 Email and letter sent to Specimen Shell Managed Fishery (30 licence holders) and West Coast recreational marine users (97 licence holders) (26 June 2023)



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ACN 004 898 962

Mia Yellagonga

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Australia

T: +61 8 9348 4000

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|

26 June 2023

Dear Stakeholder

Woodside previously consulted you (correspondence dated 9 June 2023) on its plans to progressively decommission the Griffin and Stybarrow fields, previously operated by BHP Petroleum Pty Ltd (BHP).

We are providing this information to ensure relevant persons are informed about the status of proposed activities, as there have been changes to activity scope and supporting consultation information since consultation commenced for these decommissioning projects in 2021.

The **Griffin Field** is in Commonwealth waters in Petroleum Licence WA-10-L, 65 km northwest of Onslow and 94 km northeast of Exmouth, Western Australia and in water depths of approximately 120 m.

The **Stybarrow Field** is in Commonwealth waters in Petroleum Licence WA-32-L, approximately 53 km northwest of Exmouth, Western Australia and in water depths of approximately 810 – 850 m.

Following recent changes to Commonwealth EP consultation requirements, Woodside is now consulting stakeholders whom are located within the environment that may be affected (EMBA) by a proposed petroleum activity. The EMBA is the largest spatial extent where unplanned events could potentially have an environmental consequence.

A summary of proposed activities is outlined below, and more detailed information is provided in the attached Consultation Information Sheet. The Information Sheet provide details on activities proposed to be managed under a number of environment plans (EPs), including a summary of potential key risks and associated management measures. The Information Sheets are also available on our website: www.woodside.com.

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Any feedback provided previously on proposed activities will remain current where EPs are under assessment by NOPSEMA.

Please let us know if you would like to update previous feedback or have any additional views by **9 July 2023**.

Activity:

	Griffin Field Decommissioning Activities	Stybarrow Field Decommissioning Activities
Summary:	<p>Removal Activities</p> <ul style="list-style-type: none"> Removal of subsea equipment (wellheads, trees, distribution skids, risers, flexible flowlines, rigid flowlines, umbilicals, and the pipeline end module (PLEM)). Removal of the Riser Turret Mooring (RTM) and its moorings. Depending on the vessel utilised, recovery of the RTM may require sections of it 	<p>Plugging and Abandonment (P&A) Activities</p> <ul style="list-style-type: none"> Pre-execution activities associated with the well P&A, such as barrier testing and removal of marine growth. Well P&A of the 10 productions/injection wells by placing cement plugs in the wells to permanently prevent hydrocarbon release.

Stybarrow Plug and Abandonment Environment Plan

	<p>to be towed to shallower water out of the title.</p> <ul style="list-style-type: none"> Removal of an exploration wellhead (Ramillies-1 in neighbouring petroleum title WA-12-L). Ongoing field management activities. Pigging and subsequent removal of the 26 km of Griffin Gas Export Pipeline (GEP) within Commonwealth waters. <p>In Situ Activities</p> <ul style="list-style-type: none"> Proposal to leave in situ 12 RTM drag anchors (buried), 6 concrete gravity bases and 5 piled foundations for the PLEM and 4 distribution skids. 	<ul style="list-style-type: none"> Cutting and removal of the wellhead and subsea tree assembly. Unblocking of the H4 flowline, if deemed feasible. <p>Removal Activities</p> <ul style="list-style-type: none"> Removal of subsea equipment (wellheads, trees, manifolds, risers, flexible flowlines, and umbilicals). Removal of the <u>Disconnectable Turret Mooring (DTM)</u> and its moorings. Recovery of the DTM may require it to be towed to shallower water outside of permit area WA-32-L to support the DTM removal from the marine environment. Ongoing field management activities (equipment monitoring and inspection). <p>In Situ Activities</p> <ul style="list-style-type: none"> Proposed leave in situ of the 9 DTM drag anchors (buried), nine suction piles for the riser holdbacks and the historical exploration wellhead, Eskdale-1, which was unable to be removed following its drilling and abandonment in 2003.
Location:	<ul style="list-style-type: none"> 94 km northeast of Exmouth, Western Australia. 	<ul style="list-style-type: none"> 53 km northwest of Exmouth, Western Australia.
Approx. Water Depth (m):	<ul style="list-style-type: none"> Approx. 120 m. 	<ul style="list-style-type: none"> Approx. 810 – 850 m.
Schedule:	<p>Removal Activities</p> <ul style="list-style-type: none"> Earliest proposed removal activity start is estimated to be Q4 2023, subject to approvals, vessel availability and weather constraints. Facilities removal must be completed no later than 31 December 2024, pursuant to General Direction 832. 	<p>Plugging and Abandonment (P&A) Activities</p> <ul style="list-style-type: none"> Earliest P&A start is estimated to be Q4 2023, subject to approvals, MODU and vessel availability and weather constraints. P&A activities must be completed no later than 30 September 2024, pursuant to General Direction 833. <p>Removal Activities</p> <ul style="list-style-type: none"> Earliest facilities and DTM removal is estimated to be Q4 2023, subject to approvals, vessel availability and weather constraints. Equipment removal must be completed no later than 31 March 2025, pursuant to General Direction 833.
Duration:	<p>Removal Activities</p> <ul style="list-style-type: none"> Removal activities are anticipated to take approximately 6 months to complete and GEP removal activities are anticipated to take approximately 2 months to complete. 	<p>Plugging and Abandonment (P&A) Activities</p> <ul style="list-style-type: none"> P&A activities are anticipated to take approximately 6 – 9 months. <p>Removal Activities</p> <ul style="list-style-type: none"> Removal activities are anticipated to take approximately 4-6 months to

Stybarrow Plug and Abandonment Environment Plan

		complete and DTM removal activities are anticipated to take approximately 1 month to complete.
Exclusionary/Cautious Zone:	Removal Activities <ul style="list-style-type: none"> The temporary Operational Area includes the area encompassing an approximate 1,500 m radius around the equipment. A temporary 500 m exclusion zone will apply around the project vessels during removal and potential tow activities. 	P&A Activities <ul style="list-style-type: none"> The Operational Area includes the area encompassing an approximate 3,000 m radius around each of the four drill centers within WA-32-L. A temporary 500 m exclusion zone will apply around the MODU and the associated project vessels during P&A activities. Removal Activities <ul style="list-style-type: none"> The temporary Operational Area includes the area encompassing an approximate 1,500 m radius around the subsea infrastructure and wellheads. The DTM has an existing 1200 m radius petroleum safety zone which will continue to be in place until it is removed. A temporary 500 m exclusion zone will apply around the CSV and the associated project vessels during removal activities. A temporary 500 m exclusion zone will apply around the HLV and the associated project vessels during the removal of the DTM.
Vessels:	Removal Activities <ul style="list-style-type: none"> Construction support vessel (CSV) and Heavy Lift Vessel (HLV) for recovery and pipeline removal activities. An anchor handling tug (AHT) to support the towing of the RTM to sheltered water. 	P&A activities <ul style="list-style-type: none"> Semi-Submersible Mobile Offshore Drilling Unit (MODU) The MODU will be supported by 2 to 3 offshore support vessels. Removal Activities <ul style="list-style-type: none"> CSV and HLV for recovery and activities. AHTs to support the towing of the DTM to the shallower water location (if required).

Feedback:

If you have any feedback specific to the proposed activities described under the proposed EPs, we would welcome your feedback at: Feedback@woodside.com.au or 1800 442 977 by **9 July 2023**.

Your feedback and our response will be included in our Environment Plan which will be submitted to NOPSEMA for acceptance in accordance with the *Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2009 (Cth)*.

Please let us know if your feedback for this activity is sensitive and we will make this known to NOPSEMA upon submission of the Environment Plan in order for this information to remain confidential to NOPSEMA.

You can also subscribe on our website to receive Consultation Information Sheets for proposed activities: www.woodside.com/sustainability/consultation-activities.

Regards,

Woodside Feedback



Woodside Energy
Mia Yellagonga
Karlak, 11 Mount Street
Perth WA 6000
Australia

T: 1800 442 977
E: feedback@woodside.com.au
www.woodside.com
f t in y @

Attached: Consultation Information Sheet

3.6 Geotargeted social media campaign

A Facebook information campaign was targeted along the coastline from Geraldton to Derby to ensure it reached all communities adjacent to the EMBA. Geotargeting locations are distributed along the coast, with 80 km radiuses around towns, cities and shires. Geotargeting points were also included for spaces between towns, cities and shires to ensure no areas were missed – you'll see below there are latitude and longitude references for those locations.

As at 11.30am 30 June 2023

Reach: 41,118

Impressions: 285,366

Link clicks: 1,236

Geotargeting locations:

- Broome (+80 km)
- Carnarvon (+80 km)
- Denham (+80 km)
- Exmouth (+80 km)
- Geraldton (+80 km)
- Onslow (+80 km)
- Port Hedland (+80 km)
- Karratha (+80 km)
- Latitude -17 Longitude 122.65 Dampier Peninsula (+80 km)
- Latitude -22.75 Longitude 114.10 Exmouth Gulf (+80 km)
- Latitude -18.96 Longitude 121.94 Gingerah (+80 km)
- Latitude -27.85 Longitude 114.25 Kalbarri National Park (+80 km)
- Latitude -21.32 Longitude 116.03 Mardie (+80 km)
- Pardoo (+80 km)
- Latitude -20.94 Longitude 117.83 Sherlock (+80 km)
- Latitude -26.96 Longitude 113.95 Tamala (+80 km)
- Latitude -19.88 Longitude 121.15 Telfer (+80 km)
- Latitude -17.52 Longitude 123.56 Willare (+80 km)
- Latitude -22.43 Longitude 114.93 Yannarie (+80 km)



A screenshot of a Facebook post from Woodside Energy. The post header shows the Woodside Energy logo, the name 'Woodside Energy', and 'Sponsored'. The main text asks 'Would you like to know what Woodside has planned on land and sea?' and provides contact information. At the bottom, there is a 'Learn more' button and a link to 'woodside.com Woodside's consultation activities'.

Woodside Energy
Sponsored

Would you like to know what Woodside has planned on land and sea?

We'd like to talk with you.

To find out about our current and proposed work and to share your views with Woodside on your relevant location, activities or interests visit: [woodside.com/consultation-activities](https://www.woodside.com/consultation-activities).

Alternatively, you can contact us at Feedback@woodside.com.au or on 1800 442 977.

 Woodside Energy

[woodside.com](https://www.woodside.com)
Woodside's consultation activities [Learn more](#)



A full-page advertisement for Woodside Energy. The background is a dark blue map of Australia. The text is white and asks 'Would you like to know what Woodside has planned on land and sea?'. It provides contact information and a 'Learn more' button at the bottom.

Woodside Energy
Sponsored

Would you like to know what Woodside has planned on land and sea?

We'd like to talk with you.

To find out about our current and proposed work and to share your views with Woodside on your relevant location, activities or interests visit: [woodside.com/consultation-activities](https://www.woodside.com/consultation-activities).

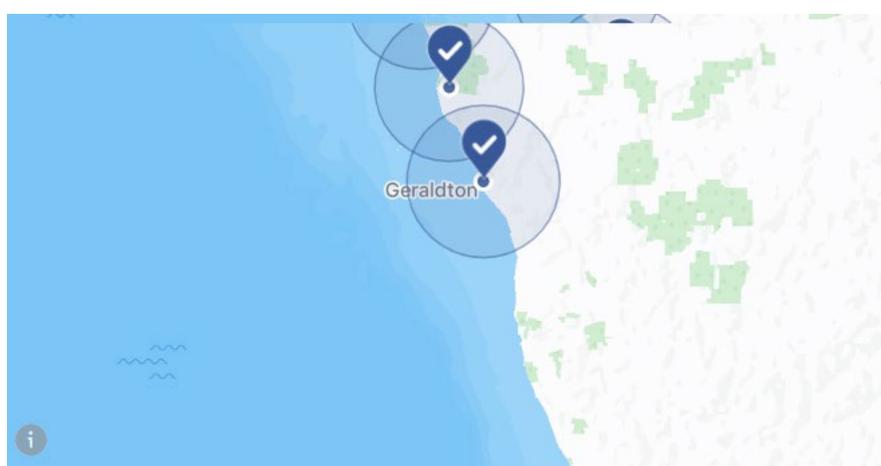
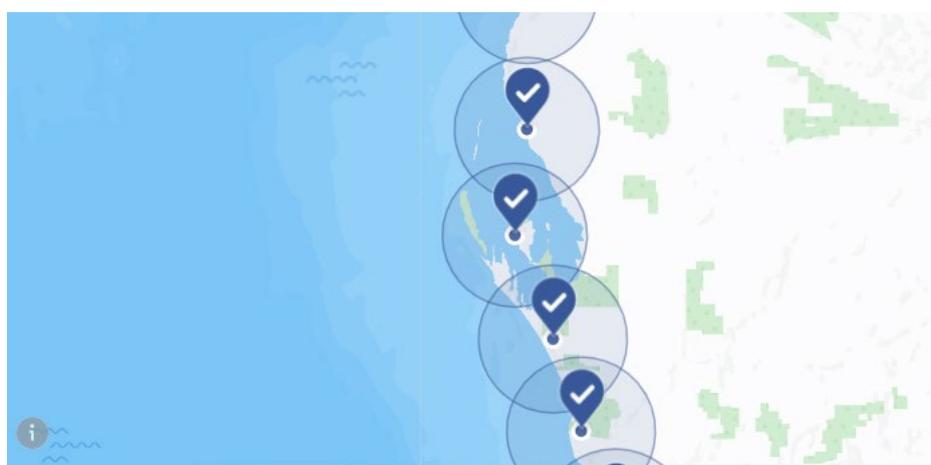
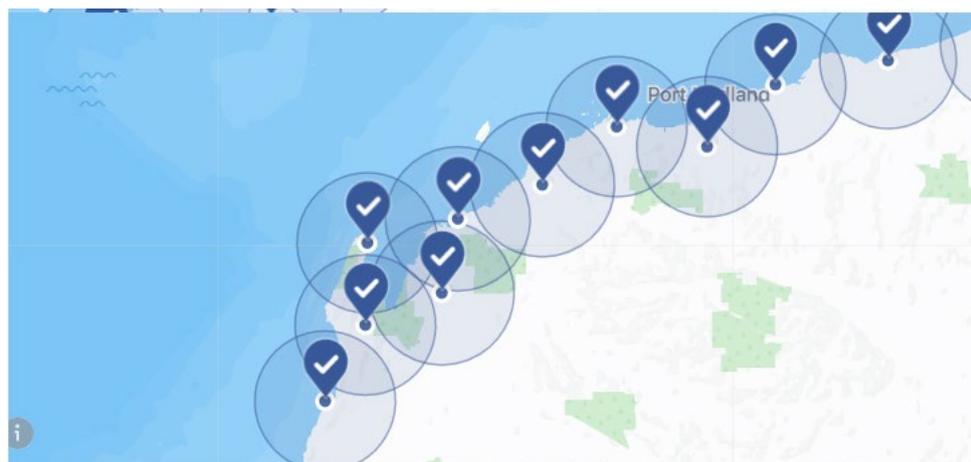
Alternatively, you can contact us at Feedback@woodside.com.au or on 1800 442 977.

 Woodside Energy

[Learn more](#)

Stybarrow Plug and Abandonment Environment Plan





3.7 Exmouth Community Information Session Geotargeted social media campaign

A Facebook information campaign was targeted in Exmouth to ensure it reached communities where the Consultation Information Session was planned to be held. Geotargeting points were also included for spaces between towns, cities and shires to ensure no areas were missed – you'll see below there are latitude and longitude references for those locations.

Dates: 15 June 2023 – 17 June 2023

Platform: Facebook

Stybarrow Plug and Abandonment Environment Plan

Ad type/placement: Feed tile and story

Reach: 6,801

Impressions: 8,237

Geotargeting (see below)

- 80km radius around Exmouth
- 80km radius around Coral Bay

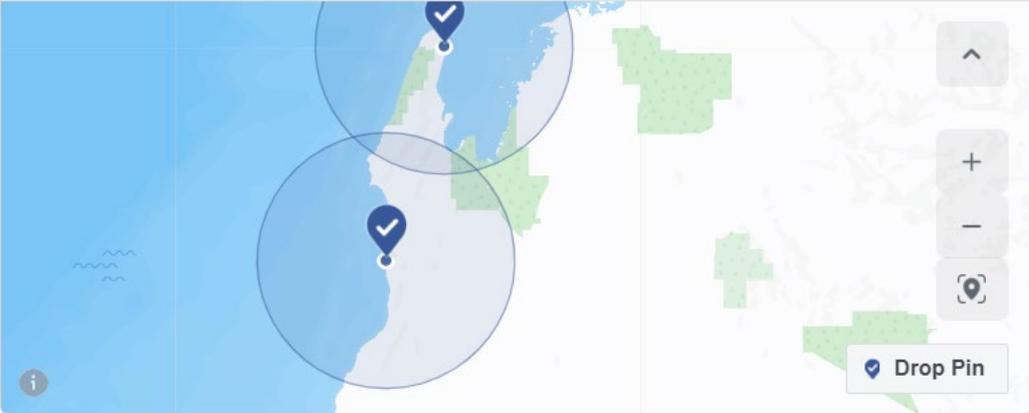
Reach people living in or recently in this location. ⓘ

Australia

✓ Coral Bay, Western Australia City + 80 km ▼

✓ Exmouth, Western Australia City + 80 km ▼

✓ Include ▼ 🔍 Search locations Browse



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 Facebook Feeds

 **Woodside Energy** added a new photo.  
Sponsored · 

Would you like to know what Woodside has planned on land and sea?

Stop by and say hello to our friendly team at PHI Aviation's Community Open Day.

You'll find Woodside at the Exmouth Aerodrome this weekend where we'll be talking about our Scarborough Project, Environment Plans and how the functions, activities or interests of relevant persons may be affected by our proposed activities.

We'd like to talk with you.

Saturday, 17 June 2023
10am - 1pm
Exmouth Aerodrome
Lot 12 Minilya-Exmouth Road
Exmouth WA 6707



 Like  Comment  Share

 Facebook Stories

 **Woodside Energy**
Sponsored  

Would you like to know what Woodside has planned on land and sea?

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Saturday, 17 June 2023
10am - 1pm
Exmouth Aerodrome
Lot 12 Minilya-Exmouth Road
Exmouth WA 6707



3.8 Community Information Session newspaper advertisements – Kimberley Echo and Broome Advertiser (1 June 2023 and 8 2023)



The site of the proposed wellness centre development at Frederick Street.

Centre to offer medical services and child care

CAIN ANDREWS & KATYA MINNS

The Shire of Broome has approved a development application for a health and wellness centre which will feature a creche able to look after up to 100 children at a time.

The centre will also supply accommodation for medical centre staff with four short-term units to be built in the north-eastern corner of the lot.

The health and wellness centre will feature a dental practice, a GP clinic, pharmacy, beauty clinic, cafe, psychologist's office, physiotherapy office and two medical imaging tenancies with the project estimated to cost just over \$61m.

The development applicant will also have to donate just over \$30,000 for public art to develop a public art installation equal to that value, thanks

to the Shire's local planning scheme. The site will be at Frederick Street between the Broome Boulevard Shopping Centre and the Broome Recreation and Aquatic Centre where the St Martin de Porres Re-engagement School sits. The school is now searching for a new location, according to the Shire agenda.

Shire president Desiree Male said the development was a step in the right direction for the tourist town. "To have a private developer come in and put a proposal forward to build something (as) significant as this is fantastic," she said.

"Across the board, we are lacking dreadfully (in child care) and anything that can add to the shortfall is a benefit."

"We're really supportive and thankful that we have attracted this sort of investment in town and we look forward to when it opens."

Tanami sealing set for 10-year build timeline

DAN JERVIS-BARDY

The sealing of the Tanami track in northern WA will take a decade to complete, the Albanese Government has confirmed.

But Infrastructure Minister Catherine King's office is defending the timeframe, saying it would ensure a consistent and manageable stream of work for local contractors and time for proper consultation with communities along the route.

It was revealed during Senate estimates that \$434 million in Commonwealth funding to seal the Tanami was spread out across the next 10 years, suggesting that was how long it would take to finish the much-needed upgrade.

Sealing the track promises

huge social and economic benefits for communities in the East Kimberley, including making it cheaper and easier to transport goods.

The Opposition slammed the decade-long timeline as "completely unacceptable", accusing both the Albanese and McGowan governments of failing to prioritise the project.

Ms King's office confirmed — and defended — the plan in a statement to The West Australian.

"A 10-year rolling delivery time frame will ensure a steady and sustainable pipeline of works for local construction crews," a spokeswoman said.

"As a large, unsealed and remote road, a staged approach over time also allows for the necessary

planning, environmental approvals and consultation to occur — including with First Nations communities."

The spokeswoman said work on the first portion of the 313km track was expected to start in the middle of the year. The project — jointly funded with the WA Government — is expected to cost \$542 million.

"The WA Government is currently developing a delivery strategy which will inform the project's rollout for upgrading and sealing the road," she said.

"Both governments are working together to ensure construction can start as soon as possible on the project, which will improve road safety, connectivity as well as freight access and productivity."

YOU'RE INVITED TO COME AND TALK WITH WOODSIDE ABOUT OUR ACTIVITIES.

Woodside is preparing Environment Plans and wants to discuss these with relevant persons, before submission to the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA).

Activities

- Plug and Abandonment Decommissioning Activities for the Stybarrow field, located about 53 km north-west of Exmouth.
- Pyxis Drilling and Subsea Installation, located about 170 km north west of Dampier.

We welcome Traditional Custodians and all community members to drop in, have a cuppa, find out more about these activities, and share your views.

We're keen to chat about all our operations, decommissioning activities and proposed projects such as Browse and Scarborough during these community information and feedback sessions.

Broome	Derby	Kununurra
Monday 12 June 12pm-5pm Gimble Club 3 Blackman St, Broome	Tuesday 13 June 12pm-5pm Derby Council Chambers, 30 Loch St, Derby	Thursday 15 June 12pm-5pm Council Meeting Room 20 Coolibah Dr, Kununurra

For more information: Feedback@woodside.com.au or phone toll free 1800 442 977
woodside.com










BOARDING INFORMATION EVENING

13th June - Oaks Broome Hotel
Broome - 6-8pm

Bookings are essential!
<https://mazenodregionalistvisitors2023.paperform.co>

Mazenod College, 55 Gladys Road Lesmurdie (08) 9291 1500 | www.mazenod.wa.edu.au
St Brigid's College, 200 Lesmurdie Road Lesmurdie (08) 9290 4200 | www.sbc1.wa.edu.au

Surf club rides crest of wave



CAIN ANDREWS

The new Broome Surf Life Saving Club is set to open to the public, with the main construction work of the \$5.5m project complete.

The club, due open to the public by late July, features a range of new facilities including new and increased storage areas, an education and function room, a new gym, bar and public toilets and showers. And the new facilities are already drawing in new members.

Broome Surf Life Saving Club Building director Rob Aristei said he was excited to see the building near completion after working on the project for the better part of a decade.

"In 2016 we started to get the project off the ground as the old building had reached the end of its life. What we're trying to do is make the club fully sustainable so it will be a lot easier for us to replace equipment, attract more members and even expand our patrolling time."

Broome Surf Life Saving Club manager Lauren Henderson said the new building would allow the



Bar manager Chris Andrzejczak, BSLS chairperson Bec Farkung, BSLS Education director Carrie Selten, BSLS Building director Rob Aristei, Broome Surf Life Saving Club manager Lauren Henderson. Picture: Cain Andrews

club to better service the community.

"The new facilities basically enhance our ability to achieve our core mission, which is to keep the community safe," she said. "It also enables us to purchase more equipment and have better training in our training rooms."

Ms Henderson said the new club was already attracting more members.

"We've got the highest number of nippers enrolments this year than we've had since pre-COVID," she said. "There's close to 200 new enrolments and I think the excitement around the new club is part of the reason for that."

"The new building doesn't just benefit our

club, but benefits the whole community as well."

Mr Aristei said the build wouldn't have been possible without sponsorship.

"I'd like to thank Surf Life Saving WA and all of the sponsors for their ongoing support, we couldn't have done it without you," he said.

Major Sponsors for the project include Totally Workwear, Cleanaway, Lion, Broome Plumbing and Gas and Galvins Plumbing Supplies. Major contractors involved in the project include CWD Builders, Laird Tran Studios and the Shire of Broome. See more pictures inside the club at broomead.com.au

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For more information: Feedback@woodside.com.au
or phone toll free 1800 442 977
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Man jailed for robberies on hotels

KATYA MINNS

The accomplice of a gang who acted as a "lookout" for his fellow offenders at the Oaks Hotel, a few days after breaking into and stealing alcohol from the Roebuck Bay Hotel, has been sentenced to 31 months imprisonment.

Anton Caleb Joseph Galova faced Broome's District Court on May 20 and pleaded guilty to six counts of aggravated burglary and stealing.

The court was told the 24-year-old was out drinking with friends and family at a residence before being convinced to accompany four other men to break into the Roebuck Bay Hotel at about

3am on March 19, 2022. Not wanting to be left behind, he went along with the group — helping peel open a metal door to one of the bars within the hotel and stealing 15 bottles of wine.

Three days later, he and the group went to Oaks Hotel on Robinson Street about 2am with the intention to burgle the bar for alcohol.

Galova kept a lookout for security as his fellow offenders used an axe to break the glass of the restaurant to gain entry into the bar, stealing bottles of liquor off the shelves.

An hour after leaving the hotel, the group returned for more alcohol but security was already investigating

the scene and had called police.

The police approached the men leaving the hotel on Guy Street, uncovering bottles of alcohol in their bags and immediately took them into custody.

Defence lawyer Nick Brookes said his client was "not a sophisticated individual" and that Galova did not believe he was fully involved in the crime, hence his co-operation with police when providing statements against the others involved.

District Court Judge Michael Bowden sentenced Galova to 31 months jail, backdated to March 21, 2022. He will be eligible for parole after serving 15½ months.

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AIRFARES START FROM \$240.00*

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Burney to blitz WA for Voice

DAN JERVIS-BARDY

Minister for Indigenous Australians Linda Burney will next month spend a full week criss-crossing WA to build grassroots support for the Voice to Parliament.

Ms Burney told an audience in Perth on Monday the people of WA had a "big job" in helping the referendum across the line.

In a speech to the Australian Institute of Aboriginal and Torres Strait Islander Studies summit, the minister said she would travel from "Kununurra to Claremont, from Perth to the Pilbara" to listen and talk to voters about the Voice to Parliament.

The rallying cry came as Senator MP Andrew Hastie launches a fundraising drive to position himself as a leading figure in the No campaign. The outcome in WA could be crucial because a majority Yes vote is needed in at least four of the six States to succeed.

Ms Burney recalled the shocking abuse she received when, as a State minister in 2010, she returned to the



Linda Burney

regional NSW town where she grew up.

She revealed how a man, who she suspected went to the same school as her, said: "You know, Linda, the day you were born was one of the darkest days this town has ever seen."

Ms Burney said the "nasty comments" she received in the schoolyard were now directed at her on Twitter and Facebook.

She told the summit it was the First Nations people who were struggling to get their

voices heard, which gave strength to keep prosecuting the case for a Voice to Parliament.

"This referendum is once-in-a-lifetime opportunity," she said.

"We have within our grasp the chance to make a positive change that will last generations."

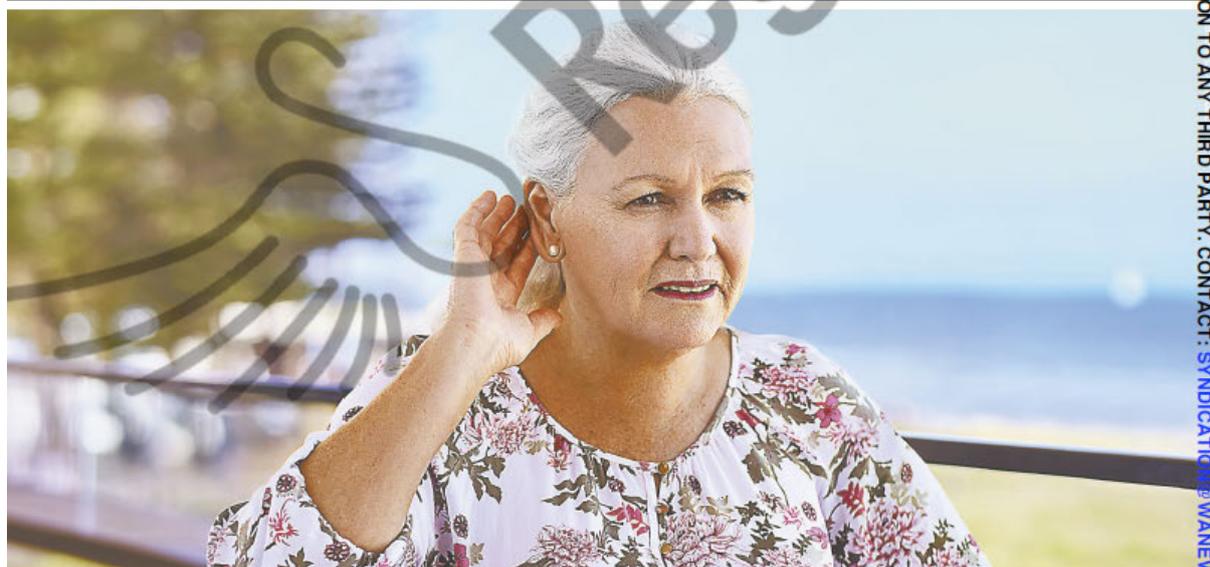
While Ms Burney and other Government ministers are upbeat about the referendum, polls suggest support is in decline.

The latest News showed fewer than half voters intended to support the constitutional change.

Yes campaign director Dean Parkin said the "tightening in the numbers" understandable after recent heated political debate.

"The conversation been bogged in Canberra politics, in a fair bit of negativity there," Mr Parkin said.

"That phase is coming to an end and so that will allow us to increase the focus on getting some more cut through that conversation that starting to grow significantly in communities."



One in six Australians experience hearing loss.

Having a hearing test helps to detect the early signs of hearing loss, so we can keep our hearing healthy for longer.

Book a hearing check, talk to a health professional, or visit health.gov.au/hearing for more information.



Australian Government

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3.9 Kimberley Geotargeted Social Media Campaign – Community Information Sessions

A Facebook information campaign was targeted in Kununurra, Broome and Derby to ensure it reached communities where the Consultation Information Sessions were planned to be held. Geotargeting points were also included for spaces between towns, cities and shires to ensure no areas were missed – you'll see below there are latitude and longitude references for those locations.

As at 3:30pm, Thursday 15 June 2023

Kununurra:

Dates: 8 June 2023 – 14 June 2023

Total reach: 12,228

Total impressions: 14,486

Geotargeting locations:

- 80km radius around Kununurra
- 80km radius around Durack
- 80km radius around Warmun
- 80km radius around Wyndham

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* Locations

Reach people living in or recently in this location. ⓘ

Australia

- ✓ Durack, Western Australia City + 80 km ▼
- ✓ Kununurra, Western Australia City + 80 km ▼
- ✓ Warmun, Western Australia City + 80 km ▼
- ✓ Wyndham, Western Australia City + 80 km ▼

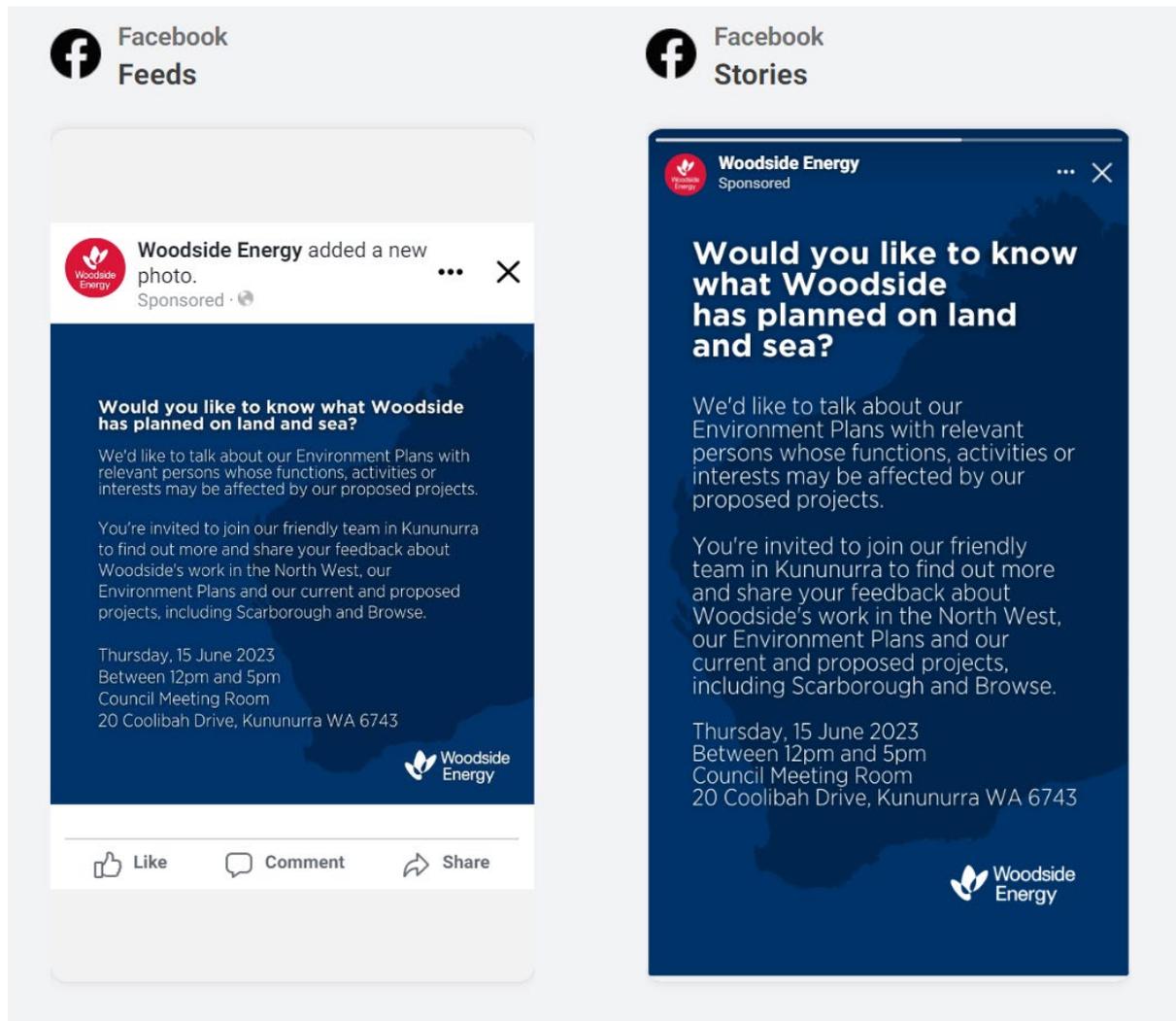
✓ Include ▼ 🔍 Search locations Browse



The map displays a geographical area in Western Australia with four blue location pins. Each pin is accompanied by a semi-transparent blue circle representing an 80km radius. The locations are Durack, Kununurra, Warmun, and Wyndham. The map interface includes standard navigation controls: a zoom-in (+) and zoom-out (-) button, a location finder icon, and a 'Drop Pin' button. An information icon (i) is visible in the bottom-left corner of the map area.

[Add locations in bulk](#)

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Broome:

Dates: 8 June 2023 – 12 June 2023

Total reach: 19,220

Total impressions: 22,665

Geotargeting locations:

- 80km radius around Broome
- 80km radius around Dampier Peninsula
- 80km radius around area between Broome and Dampier Peninsula (Waterbank area)
- 80km radius around area south of Broome (Lagrange area)

Stybarrow Plug and Abandonment Environment Plan

* Locations

Reach people living in or recently in this location. ⓘ

Australia

- ✓ (-16.8326, 122.5818) + 80 km ▼
- ✓ (-17.2597, 122.2412) + 80 km ▼
- ✓ (-18.7572, 121.6699) + 80 km ▼
- ✓ Broome, Western Australia City + 80 km ▼

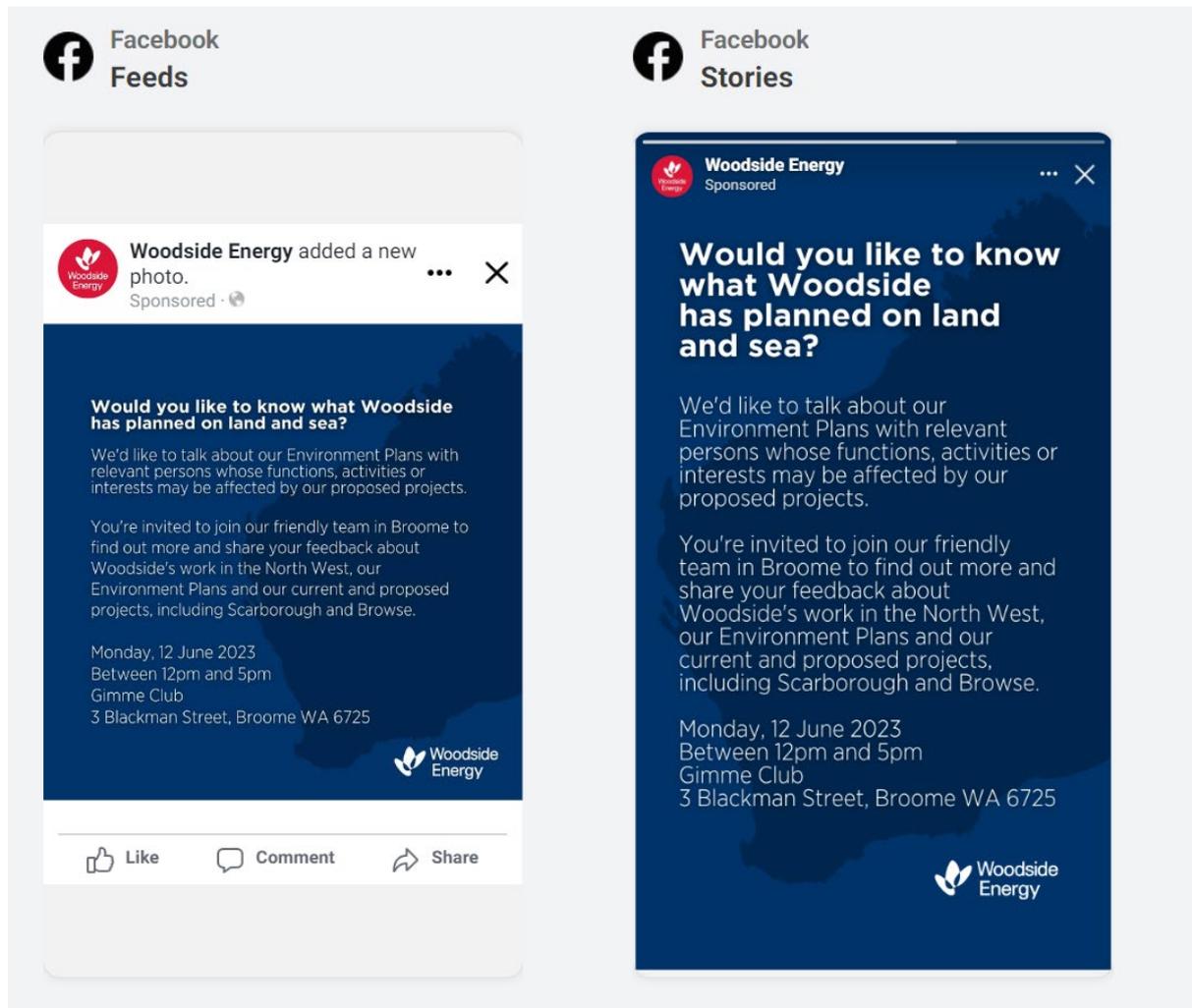
✓ Include ▼ 🔍 Search locations Browse



The map displays the coastal town of Broome in Western Australia. Four location pins are placed in a vertical line along the coast, each with a white checkmark and a semi-transparent blue circle representing an 80km radius. The map includes standard navigation controls on the right side: a home button (up arrow), zoom in (+), zoom out (-), and a location icon. A 'Drop Pin' button is located in the bottom right corner of the map area.

[Add locations in bulk](#)

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Derby:

Dates: 8 June 2023 – 13 June 2023

Total reach: 4,758

Total impressions: 5,773

Geotargeting locations:

- 80km radius around Derby
- 80km radius around Kimbolton

Stybarrow Plug and Abandonment Environment Plan

* Locations

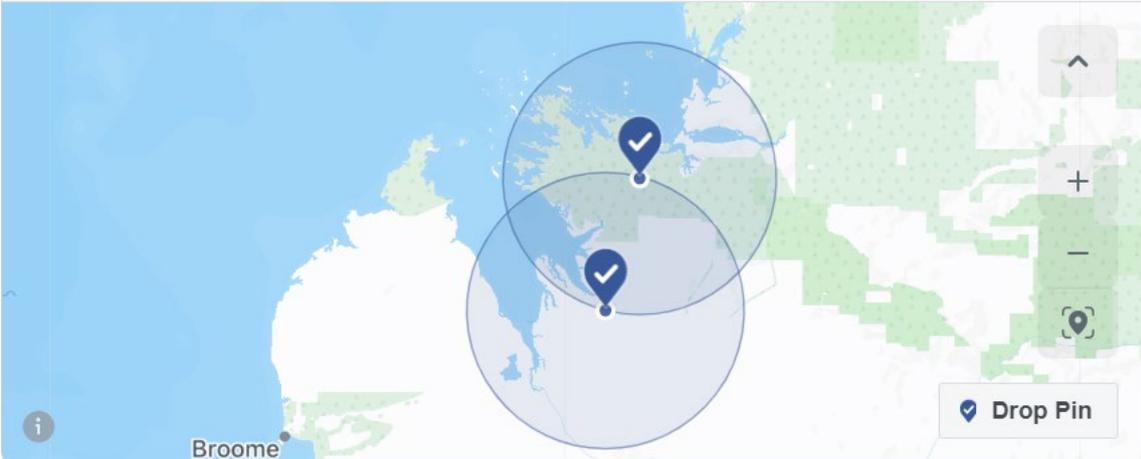
Reach people living in or recently in this location. ⓘ

Australia

✓ Derby, Western Australia City + 80 km ▼

✓ Kimbolton, Western Australia City + 80 km ▼

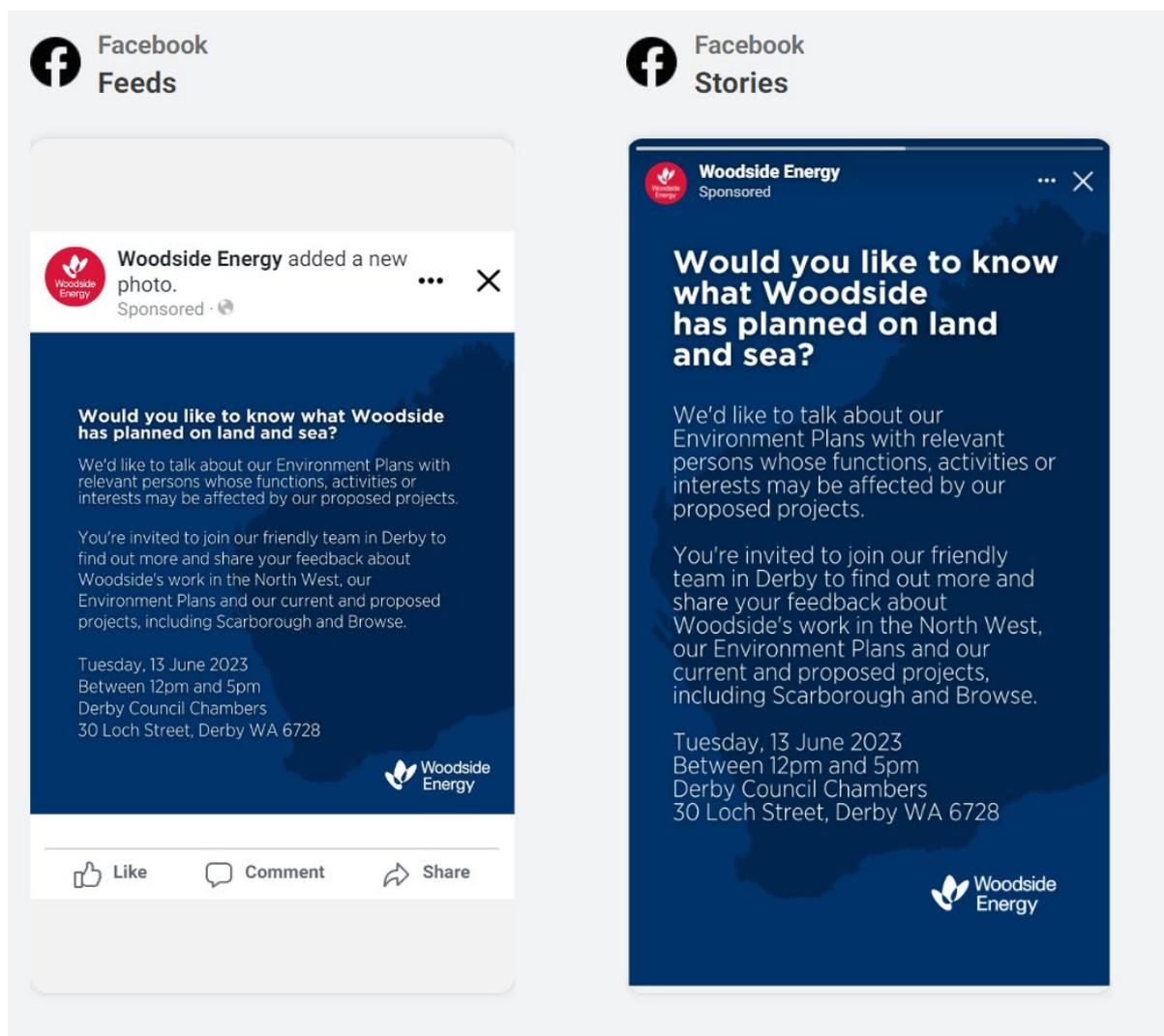
✓ Include ▼ 🔍 Search locations Browse



Broome

Drop Pin

Add locations in bulk



3.10 Roebourne Community Information Session poster (22 June 2023)

On 22 June 2023, Woodside held a consultation information session at its Roebourne office. The consultation information session was hosted by members from Woodside's Corporate Affairs and Environment teams and was open for all community members to receive information regarding Woodside's Environment Plans and proposed and planned activities.

Woodside distributed posters advertising the community information session locally, including:

- Front door and front window of Woodside Roebourne office
- Online distribution via the Roebourne Community Calendar
- Roebourne Police Station provided with printed copy

Woodside staff also visited the following offices to advise of the community information session:

- Ngarluma and Yindjibarndi Foundation Ltd (NYFL)
- Ngarliyarndu Bindirri Aboriginal Corporation
- Yinjaai-Barni Art
- Foundation Foods



COMMUNITY CONSULTATION

COMMUNITY INFORMATION SESSIONS IN IERAMUGADU

You're invited to meet, greet and eat with our friendly team in Ieramugadu. We'd like to talk about our Environment Plans with relevant persons whose functions, activities or interests may be affected by our proposed projects.

Stop by to find out more and share your feedback about Woodside's work in the North West, our Environment Plans and our current and proposed projects, including Scarborough and Browse.

Visit 39 Roe Street, Roebourne, between **12pm** and **3.30pm**, on:

Thursday
22 June 2023

Wednesday
19 July 2023



3.11 Karratha Community Information Session newspaper advertisement – Pilbara News (28 June 2023)



Rio reaches \$1b Range milestone

CHEYANNE ENCISO

Rio Tinto has spent \$1 billion with WA businesses as it progresses the development of its Western Range joint venture with China Baowu Steel Group.

Simon Trott, iron ore chief executive of Rio Tinto, said the \$1b spend marked a considerable milestone.

"Rio Tinto spends billions of dollars with local suppliers across Western Australia and the Pilbara every year, helping support thriving communities across the State by providing local jobs for local people," he said.

The 25 million tonnes-a-year Western Range project will help sustain production of Rio's flagship Pilbara blend product from its existing Paraburdoo mining hub as the Eastern Range project depletes. China Baowu said it was pleased to see the Western Range project progressing smoothly.

Premier Roger Cook said significant projects such as the Western Range reinforced WA as an attractive and secure destination for business and investment.

"I want to commend Rio Tinto and Baowu on this latest project milestone and acknowledge their efforts in investing in WA to ensure WA businesses and workers benefit most," he said.

Rio in March reported it had spent \$8.4b with more than 2900 WA and Indigenous businesses in 2022 as part of its local buying program.

The figure included \$618m with Pilbara-based businesses, \$594m with Indigenous companies across WA, and \$438m with businesses run by traditional owners.

Rio Tinto iron ore chief executive Simon Trott and China Baowu vice-president Hou Angui.



We are hiring

JOIN THE TEAM!

Here at Pilbara Ports Authority, we are committed to advancing an inclusive and productive workplace where people are valued and respected.

We are proud of the talent and diversity of our workforce. Our people are key to our current and future success. We are seeking individuals, who strive for excellence in all they do and seek out opportunities for growth. In return, we provide generous support for training and professional development.

If this sounds like a workplace you would thrive in, take a look at our current vacancies.

• **Administration Officer – Maintenance – Port Hedland**

Find out more about PPA careers and youth training online via careers.pilbaraports.com.au




FIND OUT MORE ABOUT OUR PROPOSED ACTIVITIES

WOULD YOU LIKE TO KNOW WHAT WOODSIDE HAS PLANNED ON LAND AND SEA?

We'd like to talk about our Environment Plans with relevant persons whose functions, activities or interests may be affected by our proposed projects.

Drop in to our office to find out more and share your feedback about Woodside's work in the North West, our Environment Plans and our current and proposed activities, including Scarborough.

Thursday, 29 June 2023
Between 9.00am - 2.00pm
The Quarter HQ Level 3
24 Sharpe Avenue
Karratha WA 6714

You can also access our consultation information and provide feedback by scanning the QR code.




3.12 Karratha Community Information Session (28 June 2023) Facebook post

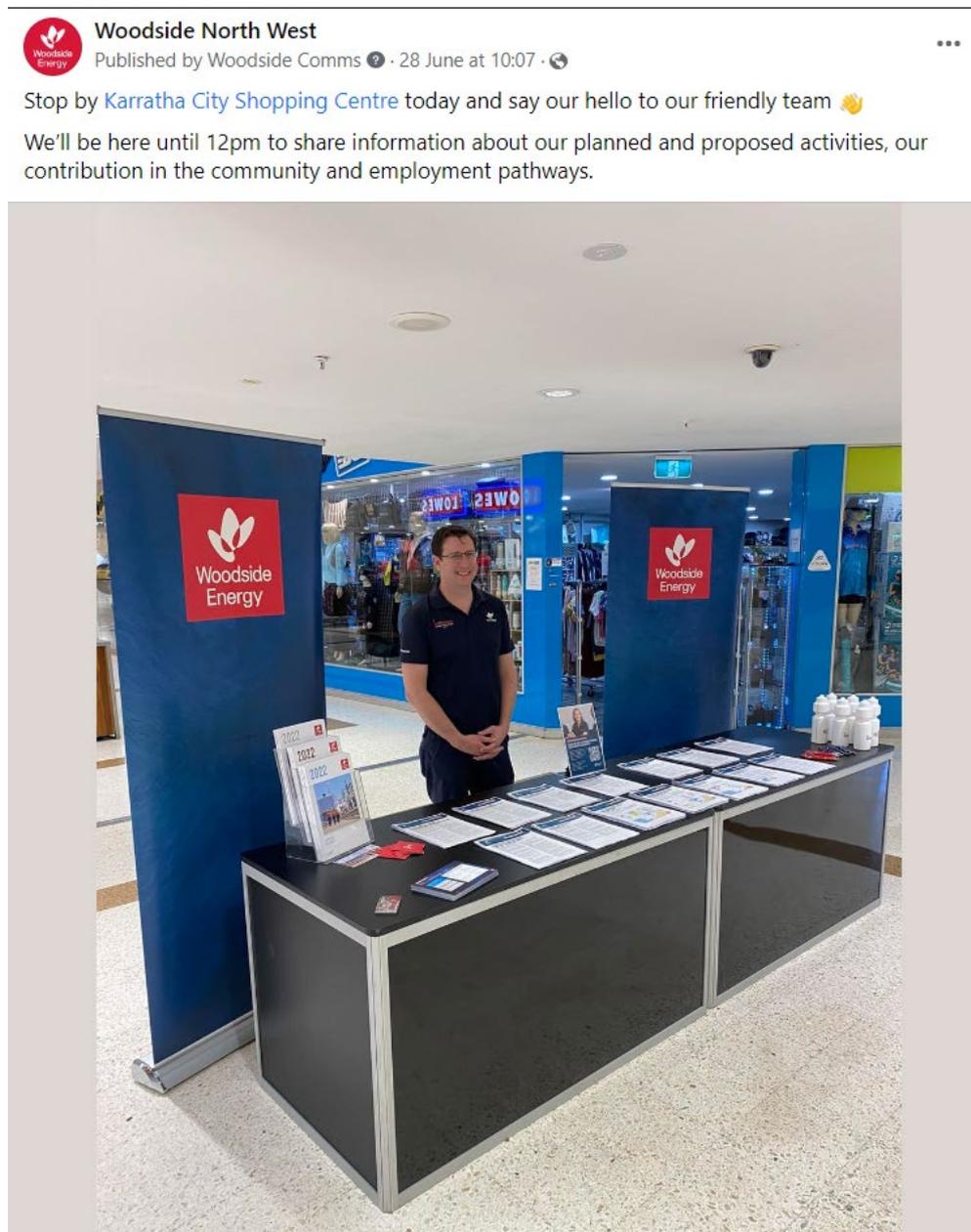
On 28 June 2023, Woodside posted a story on its Woodside North West Facebook account, sharing details of its shopping centre stand where Consultation Information Sheets regarding is planned and proposed activities were available, including the activities proposed under this EP.

Platform/channel: Woodside North West (Facebook)

Date: 28 June 2023

Reach: 1,464 viewers

Impressions: 1,464 views



3.13 Karratha Community Information Session (29 June 2023) Geotargeted Social Media Campaign

On 29 June 2023, Woodside held a drop-in session at its Karratha town office. The drop-in session was hosted by one of Woodside's Senior Environmental Advisers and was open for

Stybarrow Plug and Abandonment Environment Plan

all community members to receive information regarding Woodside's Environment Plans and proposed and planned activities.

Dates: 26 June 2023 – 29 June 2023

Geotargeting: 40km radius around Karratha

Reach: 19,240 viewers

Impressions: 22,931 views

Campaign name	Ad set name	Delivery	Reach	Impressions	Frequency	Attribution setting	Results
EP Drop in session - KTA	All	Recently completed Campaign	19,240	22,931	1.19	7-day click or 1-day view	19,240 Reach

Facebook Feeds

Woodside North West added a new photo. Sponsored

Would you like to know what Woodside has planned on land and sea?

Stop by and say hello to our friendly team at our Karratha office.

We'd like to talk about our Environment Plans with relevant persons whose functions, activities or interests may be affected by our proposed projects.

Drop in to our office to find out more and share your feedback about Woodside's work in the North West, our Environment Plans and our current and proposed activities, including Scarborough and Browse.

Thursday, 29 June 2023
Between 9.00am - 2.00pm
The Quarter HQ Level 3
24 Sharpe Avenue
Karratha WA 6714

Like Comment Share

Facebook Stories

Would you like to know what Woodside has planned on land and sea?

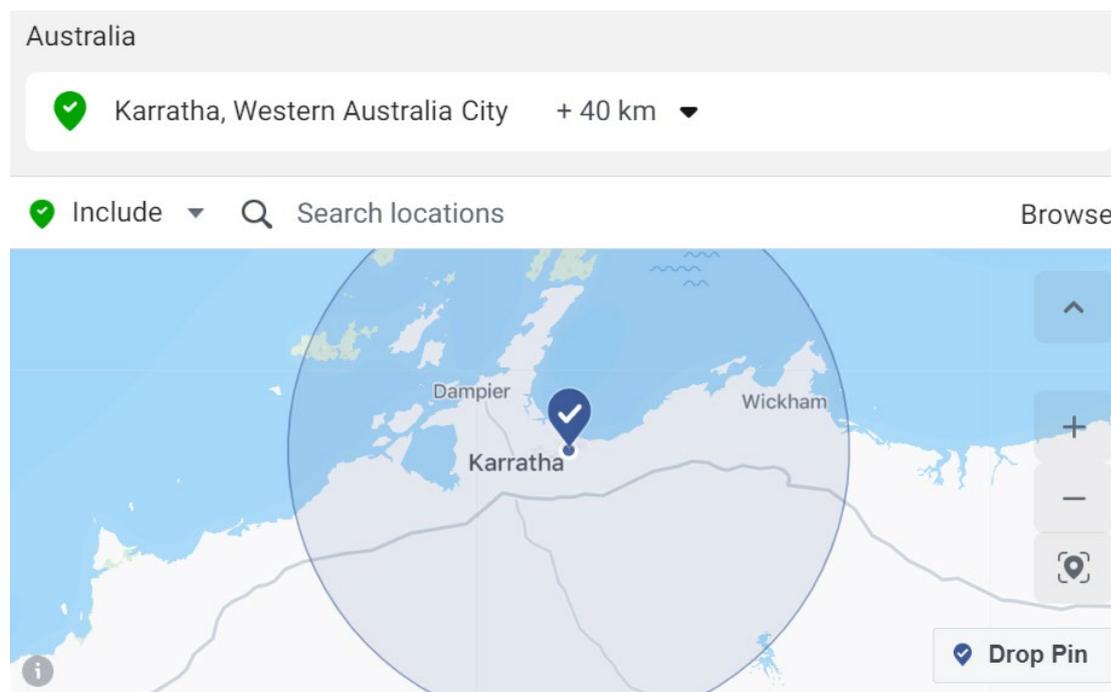
Stop by and say hello to our friendly team at our Karratha office.

We'd like to talk about our Environment Plans with relevant persons whose functions, activities or interests may be affected by our proposed projects.

Drop in to our office to find out more and share your feedback about Woodside's work in the North West, our Environment Plans and our current and proposed activities, including Scarborough and Browse.

Thursday, 29 June 2023
Between 9.00am - 2.00pm
The Quarter HQ Level 3
24 Sharpe Avenue
Karratha WA 6714

Stybarrow Plug and Abandonment Environment Plan



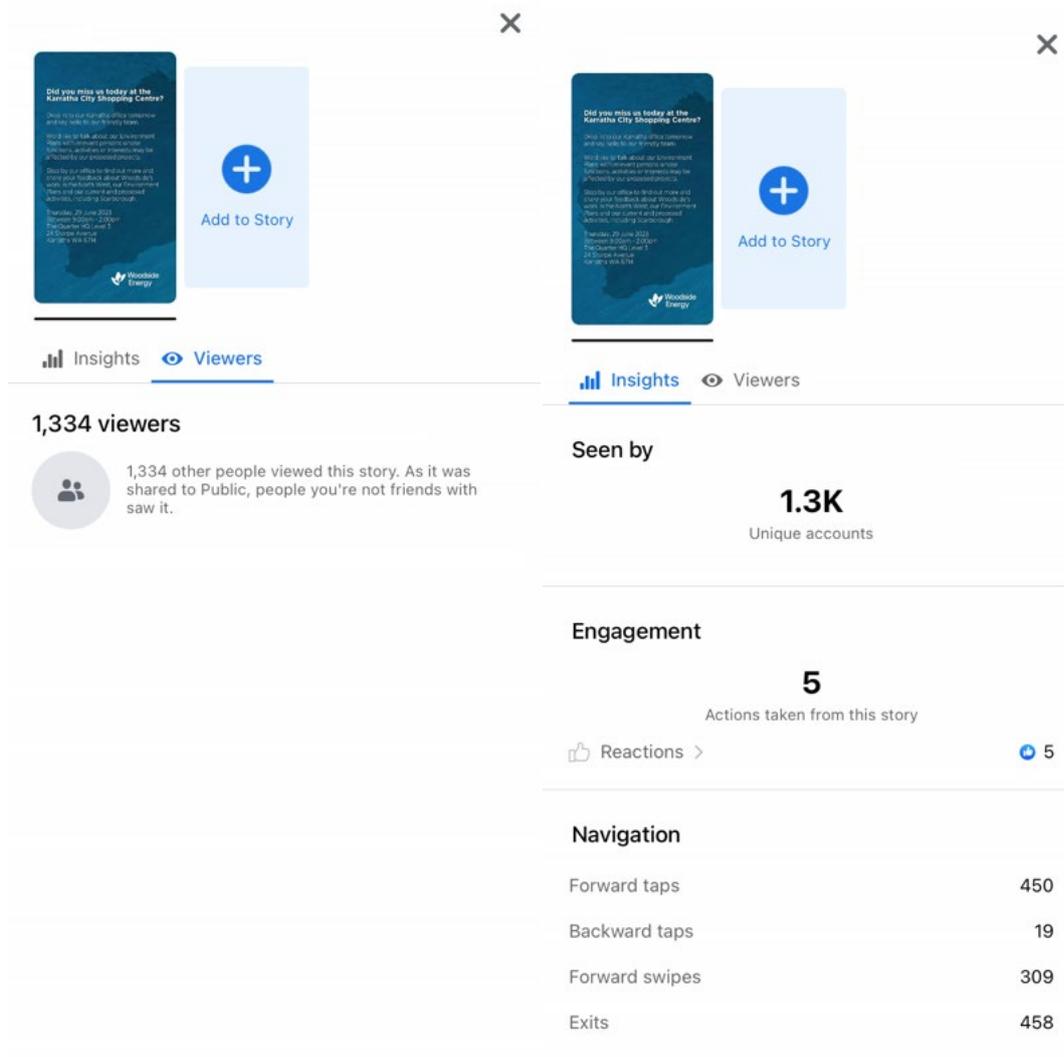
On 28 June 2023, Woodside posted a story on its Woodside North West Facebook account, sharing details of its drop-in session.

Reach: 1,366 viewers

Impressions: 22,931 views

Geotargeting: 40 km radius around Karratha

Stybarrow Plug and Abandonment Environment Plan

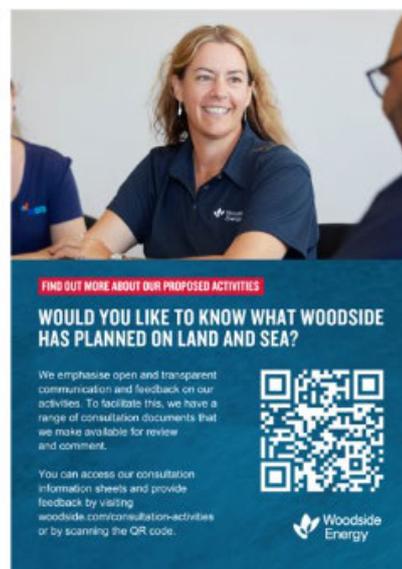




3.14 Presentation to Karratha Community Liaison Group (29 June 2023)

ENVIRONMENT PLAN CONSULTATION

- Changes to Commonwealth Environment Plan (EP) consultation requirements.
- Woodside is now consulting based on the **environment that may be affected (EMBA)** by a proposed petroleum activity rather than within the Operational Area.
- The EMBA is the largest spatial extent where unplanned events, no matter how unlikely, could potentially have an environmental consequence.
- Any person or organisation who does not wish to continue to receive EP consultation materials where they have only been assessed as 'relevant' for unplanned events in the EMBA, under the EP consultation requirements, please advise us in writing and we will not send further information.
- However, you should be aware that this request will need to be recorded in our EP documents and will be publicly available.
- We will be holding a drop-in session after this meeting for anyone in community who would like to know more about any of our EPs.

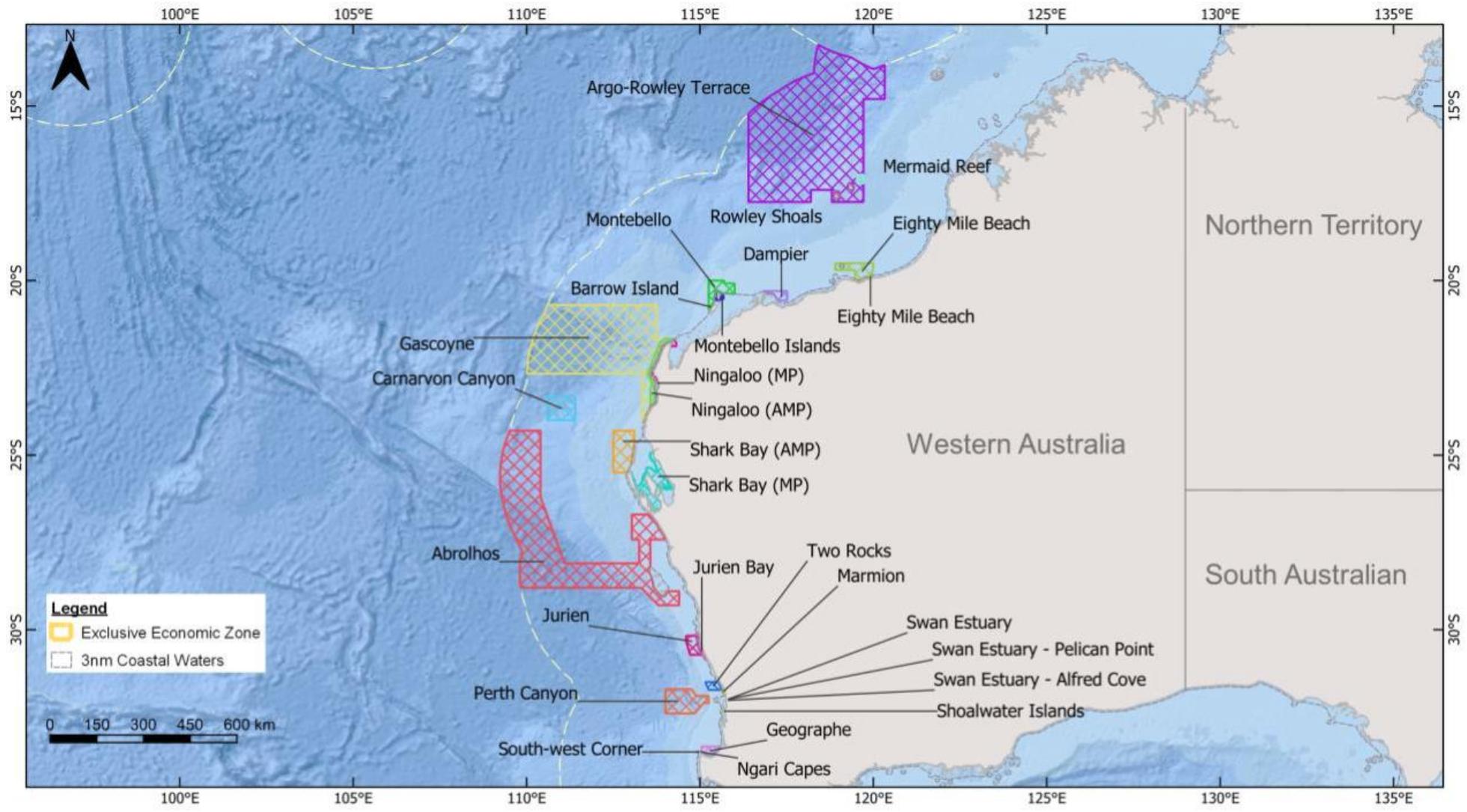


Stybarrow Plug and Abandonment Environment Plan

ENVIRONMENT PLAN CONSULTATION Consultation with Karratha CLG



Appendix G. Environmental Receptor Locations used in Oil Spill Modelling

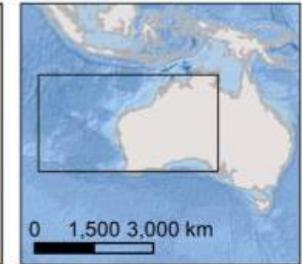


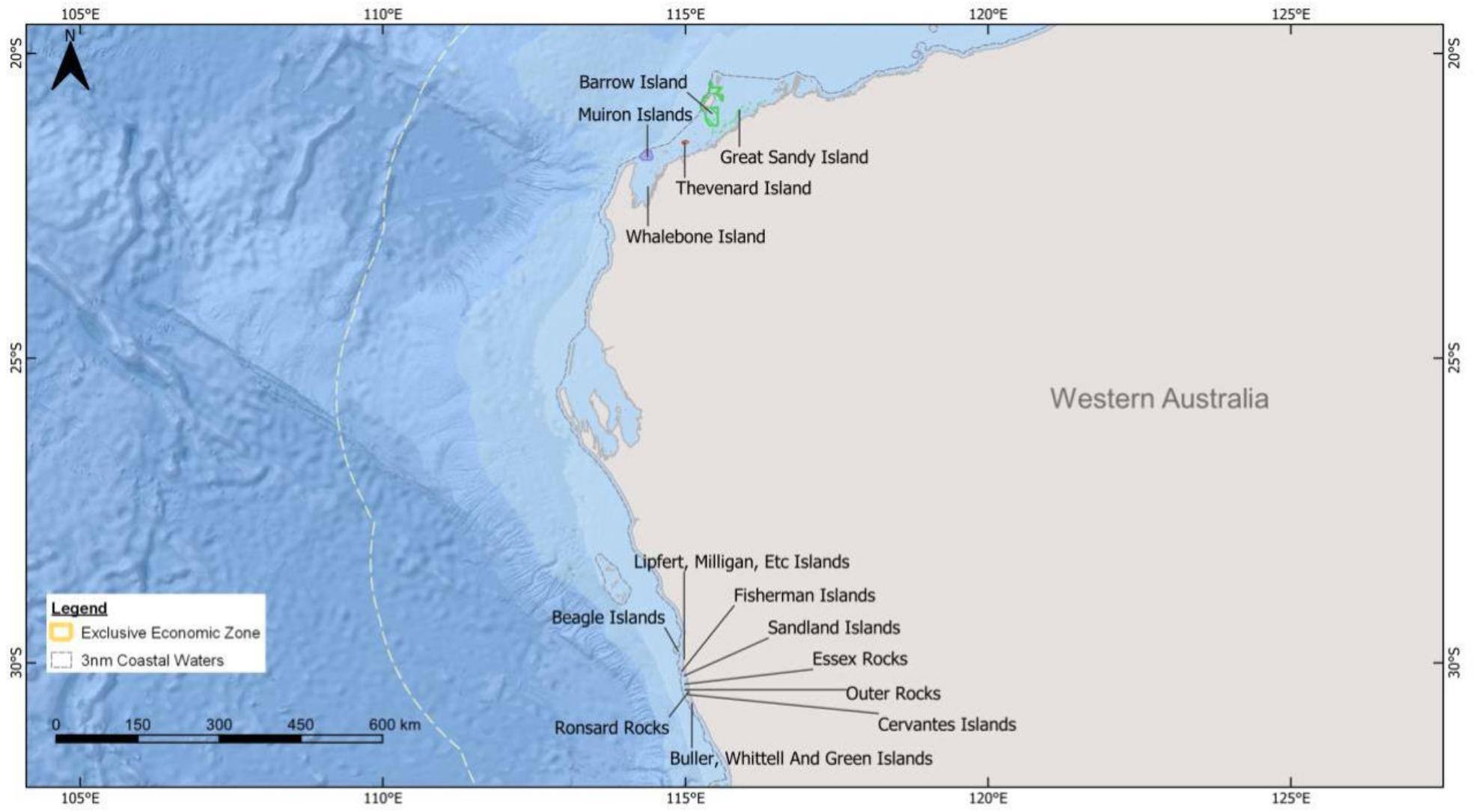
Receptor Map - Australian Marine Parks and Marine Parks



Coordinate System: GCS WGS 1984
 Datum: WGS 1984
 Units: Degree
 Date created: 09/29/2021

- | | | | |
|--------------------------------|--|---------------------|--|
| Australian Marine Parks | <ul style="list-style-type: none"> Abrolhos Argo-Rowley Terrace Carnarvon Canyon Dampier Eighty Mile Beach Gascoyne Geographe Jurien Mermaid Reef Montebello Perth Canyon South-west Corner Two Rocks Ningaloo (AMP) Shark Bay (AMP) | Marine Parks | <ul style="list-style-type: none"> Shoalwater Islands Swan Estuary Swan Estuary - Alfred Cove Swan Estuary - Milyu Swan Estuary - Pelican Point Ningaloo (MP) Shark Bay (MP) Barrow Island Eighty Mile Beach Jurien Bay Marmion Montebello Islands Ngari Capes Rowley Shoals |
|--------------------------------|--|---------------------|--|



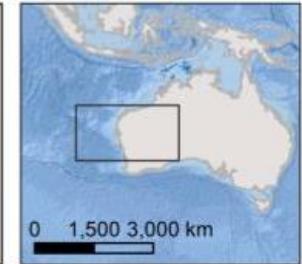


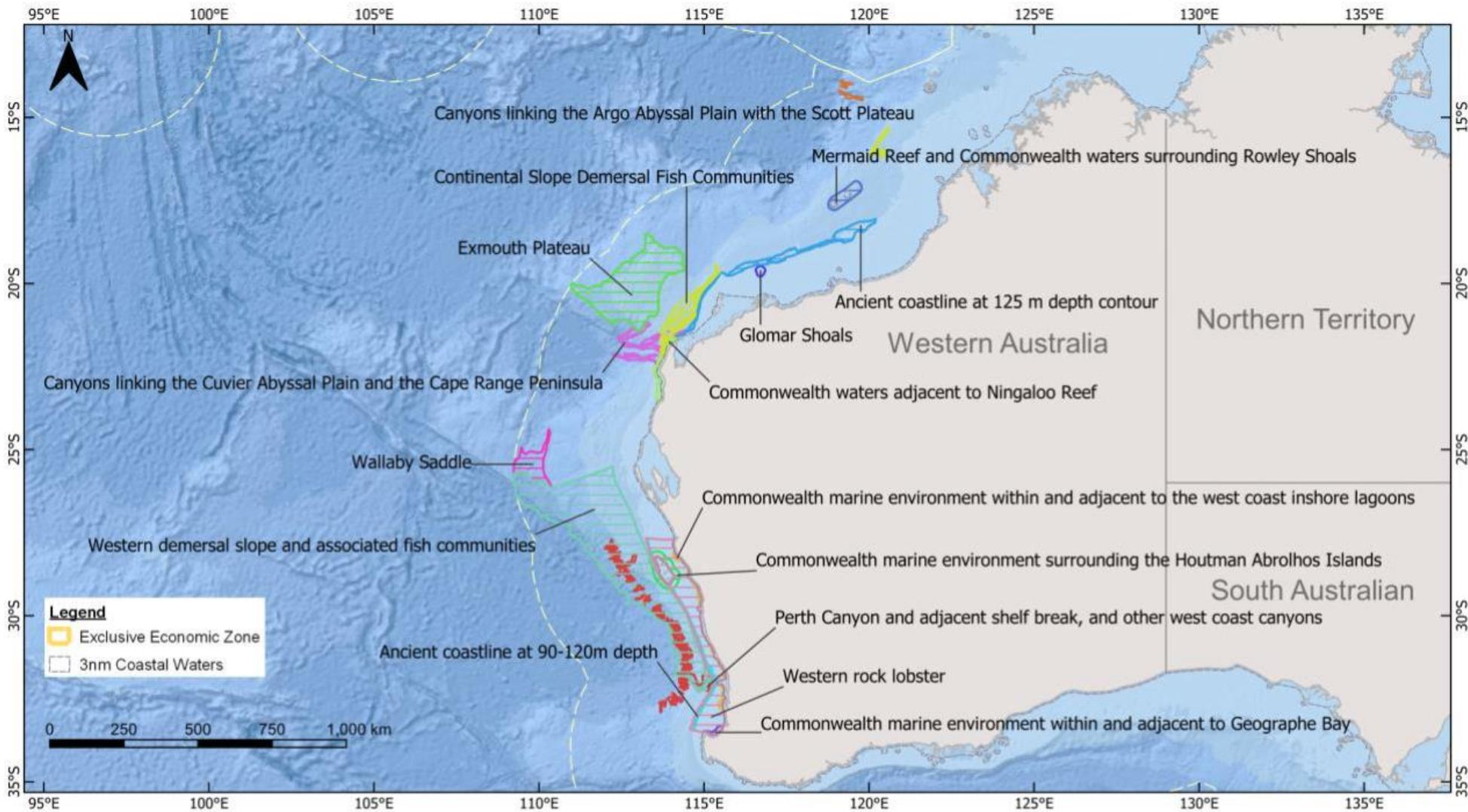
Receptor Map - Marine Management Areas and Nature Reserves



Coordinate System: GCS WGS 1984
 Datum: WGS 1984
 Units: Degree
 Date created: 09/29/2021

- | | | |
|------------------------------------|--------------------------------|------------------------|
| Marine Management Areas | Cervantes Islands | Ronsard Rocks |
| Barrow Island | Essex Rocks | Sandland Islands |
| Muiron Islands | Fisherman Islands | Shoalwater Bay Islands |
| Nature Reserves | Great Sandy Island | Thevenard Island |
| Beagle Islands | Lipfert, Milligan, Etc Islands | Whalebone Island |
| Buller, Whittell And Green Islands | Outer Rocks | |





Receptor Map - Key Ecological Features

Key Ecological Features

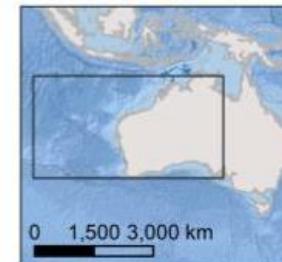
- Ancient coastline at 125 m depth contour
- Ancient coastline at 90-120m depth
- Canyons linking the Argo Abyssal Plain with the Scott Plateau
- Canyons linking the Cuvier Abyssal Plain and the Cape Range Peninsula
- Commonwealth marine environment surrounding the Houtman Abrolhos Islands

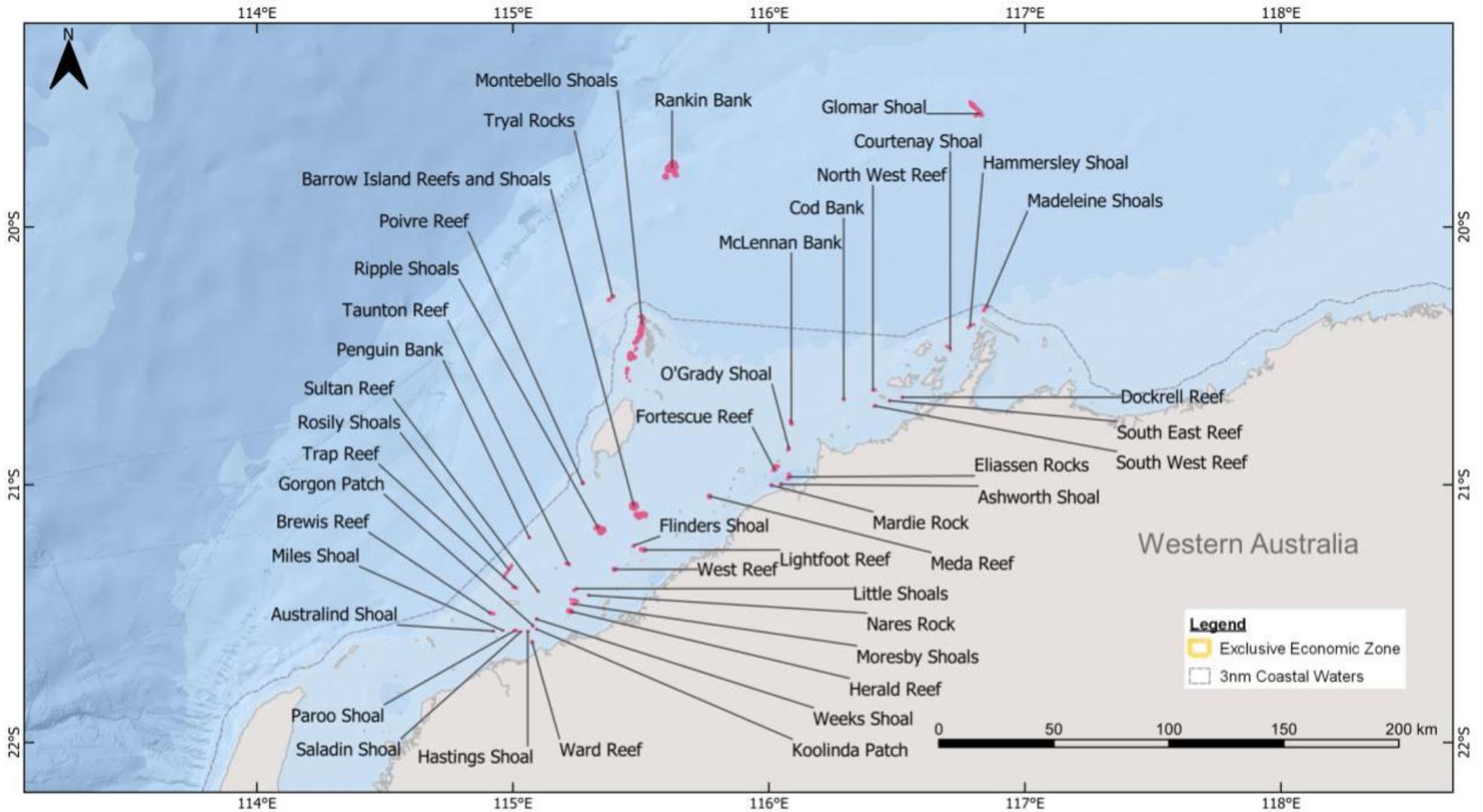
- Commonwealth marine environment within and adjacent to Geographe Bay
- Commonwealth marine environment within and adjacent to the west coast inshore lagoons
- Commonwealth waters adjacent to Ningaloo Reef
- Continental Slope Demersal Fish Communities
- Exmouth Plateau
- Glomar Shoals

- Mermaid Reef and Commonwealth waters surrounding Rowley Shoals
- Perth Canyon and adjacent shelf break, and other west coast canyons
- Wallaby Saddle
- Western demersal slope and associated fish communities
- Western rock lobster



Coordinate System: GCS WGS 1984
 Datum: WGS 1984
 Units: Degree
 Date created: 09/29/2021

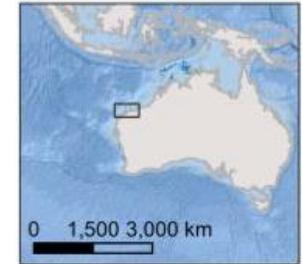


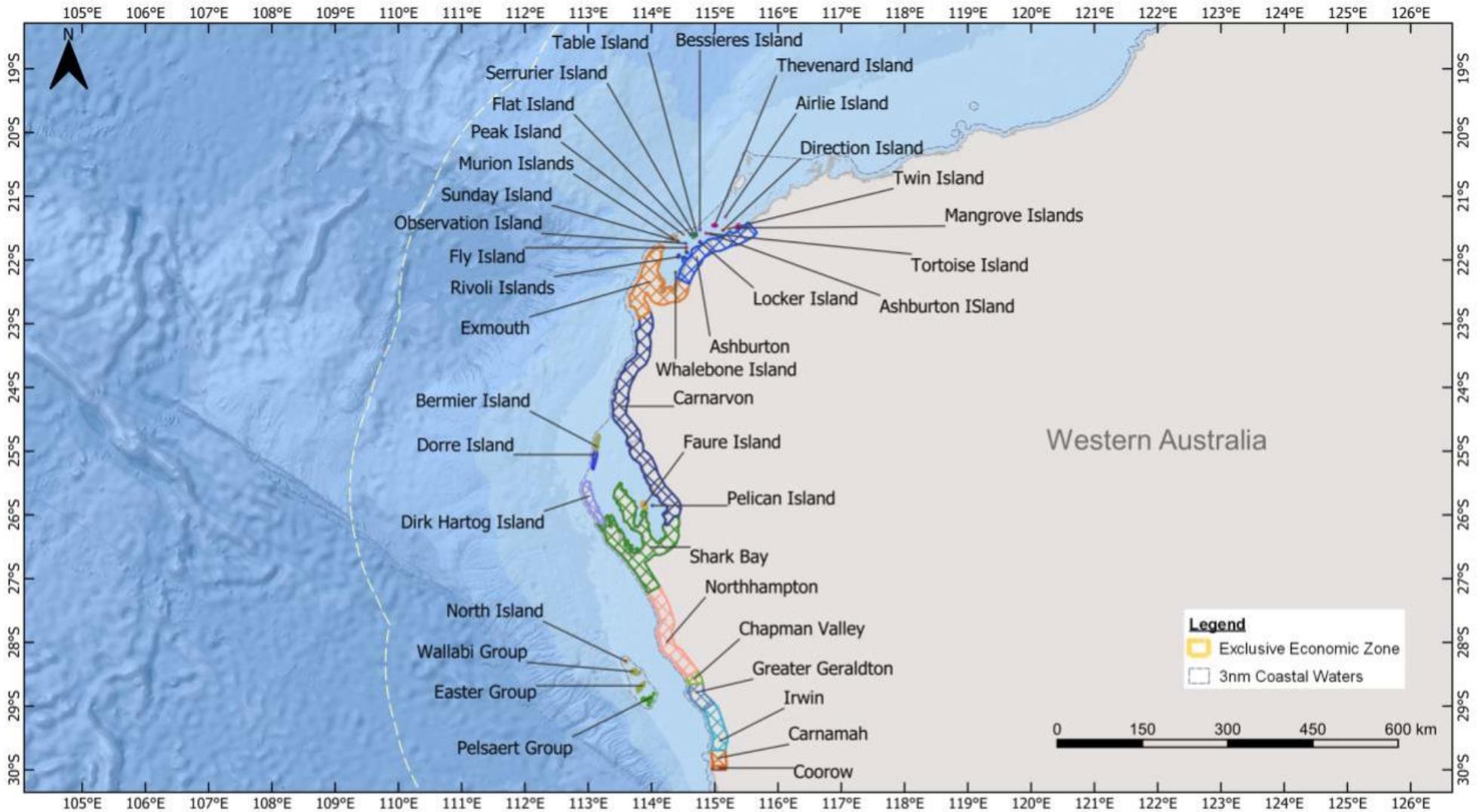


Receptor Map - Reefs, Shoals and Banks

Reef, Shoals and Banks

Coordinate System: GCS WGS 1984
 Datum: WGS 1984
 Units: Degree
 Date created: 09/30/2021

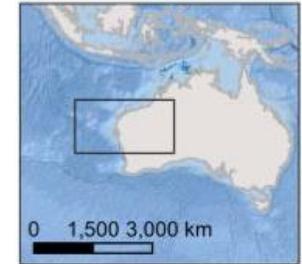




Receptor Map - Shoreline

Coordinate System: GCS WGS 1984
 Datum: WGS 1984
 Units: Degree
 Date created: 09/30/2021

Airie Island	Chapman Valley	Flat Island	Northhampton	Shark Bay
Ashburton	Coorow	Fly Island	Observation Island	Sunday Island
Ashburton Island	Direction Island	Greater Geraldton	Peak Island	Table Island
Bermier Island	Dirk Hartog Island	Irwin	Pelican Island	Thevenard Island
Bessieres Island	Dorre Island	Locker Island	Pelsaert Group	Tortoise Island
Camamah	Easter Group	Mangrove Islands	Rivoli Islands	Twin Island
Carnarvon	Exmouth	Murion Islands	Round Island	Wallabi Group
	Faure Island	North Island	Serrurier Island	Whalebone Island



Appendix H. Environmental Monitoring Response Strategies

Appendix H – Environmental Monitoring

1 Operational Monitoring Activation and Termination Criteria

Table H-1: Operational monitoring objectives, triggers and termination criteria

Operational Monitoring Operational Plan	Objectives	Activation triggers	Termination criteria
<p>Operational Monitoring Operational Plan 1 (OM01)</p> <p>Predictive Modelling of Hydrocarbons to Assess Resources at Risk</p>	<p>OM01 focuses on the conditions that have prevailed since a spill commenced, as well as those that are forecasted in the short term (1–3 days ahead) and longer term. OM01 utilises computer-based forecasting methods to predict hydrocarbon spill movement and guide the management and execution of spill response operations to maximise the protection of environmental resources at risk.</p> <p>The objectives of OM01 are to:</p> <ul style="list-style-type: none"> • Provide forecasting of the movement and weathering of spilled hydrocarbons • Identify resources that are potentially at risk of contamination • Provide simulations showing the outcome of alternative response options (booming patterns etc.) to inform on-going Net Environmental Benefit Analysis (NEBA) and continually assess the efficacy of available response options in order to reduce risks to ALARP 	<p>OM01 will be triggered immediately following a level 2/3 hydrocarbon spill.</p>	<p>The criteria for the termination of OM01 are:</p> <ul style="list-style-type: none"> • The hydrocarbon discharge has ceased and no further surface oil is visible • Response activities have ceased • Hydrocarbon spill modelling (as verified by OM02 surveillance observations) predicts no additional natural resources will be impacted

Operational Monitoring Operational Plan	Objectives	Activation triggers	Termination criteria
<p>Operational Monitoring Operational Plan 2 (OM02)</p> <p>Surveillance and reconnaissance to detect hydrocarbons and resources at risk</p>	<p>OM02 aims to provide regular, on-going hydrocarbon spill surveillance throughout a broad region, in the event of a spill.</p> <p>The objectives of OM02 are:</p> <ul style="list-style-type: none"> • Verify spill modelling results and recalibrate spill trajectory models (OM01). • Understand the behaviour, weathering and fate of surface hydrocarbons. • Identify environmental receptors and locations at risk or contaminated by hydrocarbons. • Inform ongoing Net Environmental Benefit Analysis (NEBA) and continually assess the efficacy of available response options 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. 	<p>OM02 will be triggered immediately following a level 2/3 hydrocarbon spill.</p>	<p>The termination triggers for the OM02 are:</p> <ul style="list-style-type: none"> • 72 hours has elapsed since the last confirmed observation of surface hydrocarbons. • Latest hydrocarbon spill modelling results (OM01) do not predict surface exposures at visible levels.
<p>Operational Monitoring Operational Plan 3 (OM03)</p> <p>Monitoring of hydrocarbon presence, properties, behaviour and weathering in water</p>	<p>OM03 will measure surface, entrained and dissolved hydrocarbons in the water column to inform decision-making for spill response activities.</p> <p>The specific objectives of OM03 are as follows:</p> <ul style="list-style-type: none"> • Detect and monitor for the presence, quantity, properties, behaviour and weathering of surface, entrained and dissolved hydrocarbons. • Verify predictions made by OM01 and observations made by OM02 about the presence and extent of hydrocarbon contamination. <p>Data collected in OM03 will also be used for the purpose of longer-term water quality monitoring during SM01.</p>	<p>OM03 will be triggered immediately following a level 2/3 hydrocarbon spill.</p>	<p>The criteria for the termination of OM03 are as follows:</p> <ul style="list-style-type: none"> • The hydrocarbon release has ceased. • Response activities have ceased. • Concentrations of hydrocarbons in the water are below available ANZECC/ ARMCANZ (2018) trigger values for 99% species protection.

Operational Monitoring Operational Plan	Objectives	Activation triggers	Termination criteria
<p>Operational Monitoring Operational Plan 4 (OM04)</p> <p>Pre-emptive assessment of sensitive receptors at risk</p>	<p>OM04 aims to undertake a rapid assessment of the presence, extent and current status of shoreline sensitive receptors prior to contact from the hydrocarbon spill, by providing categorical or semi-quantitative information on the characteristics of resources at risk.</p> <p>The primary objective of OM04 is to confirm understanding of the status and characteristics of environmental resources predicted by OM01 and OM02 to be at risk, to further assist in making decisions on the selection of appropriate response actions and prioritisation of resources.</p> <p>Indirectly, qualitative/semi-quantitative pre-contact information collected by OM04 on the status of environmental resources may also aid in the verification of environmental baseline data and provide context for the assessment of environmental impacts, as determined through subsequent SMPs.</p> <p>OM04 would be undertaken in liaison with WA DoT as the control agency once the oil is in State Waters (if a Level 2/3 incident).</p>	<p>Triggers for commencing OM04 include:</p> <ul style="list-style-type: none"> • Contact of a sensitive habitat or shoreline is predicted by OM01, OM02 and/or OM03. • The pre-emptive assessment methods can be implemented before contact from hydrocarbons (once a receptor has been contacted by hydrocarbons it will be assessed under OM05). 	<p>The criteria for the termination of OM04 at any given location are:</p> <ul style="list-style-type: none"> • Locations predicted to be contacted by hydrocarbons have been contacted. • The location has not been contacted by hydrocarbons and is no longer predicted to be contacted by hydrocarbons (resources should be reallocated as appropriate).

Operational Monitoring Operational Plan	Objectives	Activation triggers	Termination criteria
<p>Operational monitoring operational plan 5 (OM05)</p> <p>Monitoring of contaminated resources</p>	<p>OM05 aims to implement surveys to assess the condition of wildlife and habitats contacted by hydrocarbons at sensitive habitat and shoreline locations.</p> <p>The primary objectives of OM05 are:</p> <ul style="list-style-type: none"> Record evidence of oiled wildlife (mortalities, sub-lethal impacts, number, extent, location) and habitats (mortalities, sub-lethal impacts, type, extent of cover, area, hydrocarbon character, thickness, mass and content) throughout the response and clean-up at locations contacted by hydrocarbons to inform and prioritise clean-up efforts and resources, while minimising the potential impacts of these activities. <p>Indirectly, the information collected by OM05 may also support the assessment of environmental impacts, as determined through subsequent SMPs.</p> <p>OM05 would be undertaken in liaison with WA DoT as the control agency once the oil is in State Waters (if a Level 2/3 incident).</p>	<p>OM05 will be triggered when a sensitive habitat or shoreline is predicted to be contacted by hydrocarbons by OM01, OM02 and/or OM03.</p>	<p>The criteria for the termination of OM05 at any given location are:</p> <ul style="list-style-type: none"> No additional response or clean-up of wildlife or habitats is predicted. Spill response and clean-up activities have ceased. <p>OM05 survey sites established at sensitive habitat and shoreline locations will continue to be monitored during SM02.</p> <p>The formal transition from OM05 to SM02 will begin on cessation of spill response and clean-up activities.</p>

2 Oil Spill Scientific Monitoring Program

Oil Spill Environmental Monitoring

The following provides some further detail on Woodside's oil spill scientific monitoring Program and includes the following:

- The organisation, roles and responsibilities of the Woodside oil spill scientific monitoring team and external resourcing.
- A summary table of the ten scientific monitoring programs as per the specific focus receptor, objectives, activation triggers and termination criteria.
- Details on the oil spill environmental monitoring activation and termination decision-making processes.
- Baseline knowledge and environmental studies knowledge access via geo-spatial metadata databases.
- An outline of the reporting requirements for oil spill scientific monitoring programs.

Oil Spill Scientific Monitoring – Delivery Team Roles and Responsibilities

Woodside Oil Spill Scientific Monitoring Delivery Team

The Woodside science team are responsible for the delivery of the oil spill scientific monitoring. The roles and responsibilities of the Woodside scientific monitoring delivery team are presented in Table H-1 and the organisational structure and Corporate Incident Management Team (CIMT) linkage provided in Figure H-1.

Woodside Oil Spill Scientific monitoring program – External Resourcing

In the event of a Level 2 or 3 hydrocarbon release, or any release event with the potential to contact sensitive environmental receptors, scientific monitoring personnel and scientific equipment to implement the appropriate SMPs will be provided by SMP Standby contractor who hold a standby contract for SMP via the Woodside Environmental Services Panel (ESP). In the event that additional resources are required other consultancy capacity within the Woodside ESP will be utilised (as needed and may extend to specialist contractors such as research agencies engaged in long-term marine monitoring programs). In consultation with the SMP Standby Contractor and/or specialist contractors, the selection, field sampling and approach of the SMPs will be determined by the nature and scale of the spill.

Table H-2: Woodside and Environmental Service Provider – Oil Spill Scientific Monitoring Program Delivery Team Key Roles and Responsibilities

Role	Location	Responsibility
Woodside Roles		
SMP Lead/Manager	Onshore	<ul style="list-style-type: none"> Approves activated the SMPs based on operational monitoring data provided by the Planning Function Provides advice to the CIMT in relation to scientific monitoring Provides technical advice regarding the implementation of scientific monitoring Approves detailed sampling plans prepared for SMPs Directs liaison between statutory authorities, advisors and government agencies in relation to SMPs.
SMP Co-ordinator	Onshore	<ul style="list-style-type: none"> Activates the SMPs based on operational monitoring data provided by the Planning Function Sits in the Planning function of the CIMT. Liaises with other CIMT functions to deliver required logistics, resources and operational support from Woodside to support the Environmental Service Provider in delivering on the SMPs. Acts as the conduit for advice from the SMP Lead/Manager to the Environmental Service Provider Manages the Environmental Service Provider's implementation of the SMPs Liaises with the Environmental Service Provider on delivery of the SMPs Arranges all contractual matters, on behalf of Woodside, associated with the Environmental Service Provider's delivery of the SMPs.
Environmental Service Provider Roles		
SMP Standby Contractor – SMP Duty Manager/Project Manager (SMP Liaison Officer)	Onshore	<ul style="list-style-type: none"> Coordinates the delivery of the SMPs Provides costings, schedule and progress updates for delivery of SMPs Determines the structure of the Environmental Service Provider's team to necessitate delivery of the SMPs Verifies that HSE Plans, detailed sampling plans and other relevant deliverables are developed and implemented for delivery of the SMPs Directs field teams to deliver SMPs Arranges all contractual matters, on behalf of Environmental Service Provider, associated with the delivery of the SMPs to Woodside Manages sub-consultant delivery to Woodside Provides required personnel and equipment to deliver the SMPs.
SMP Field Teams	Offshore – Monitoring Locations	<ul style="list-style-type: none"> Delivers the SMPs in the field consistent with the detailed sampling plans and HSE requirements, within time and budget. Early communication of time, budget, HSE risks associated with delivery of the SMPs to the Environmental Service Provider – Project Manager Provides start up, progress and termination updates to the Environmental Service Provider – Project Manager (will be led in-field by a party chief).

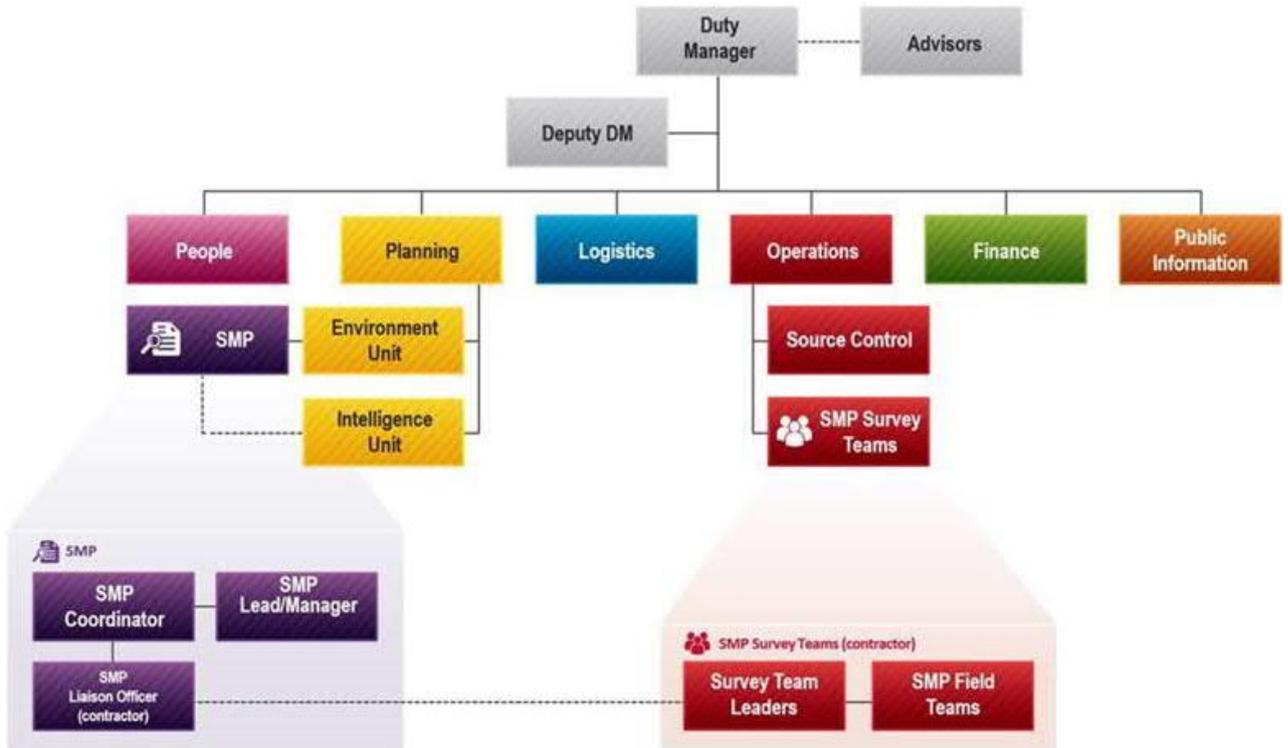


Figure H-1: Woodside Oil Spill Scientific Monitoring Program Delivery Team and Linkage to Corporate Incident Management Team (CIMT) organisational structure.

Table H-3: Oil Spill Environmental Monitoring: Scientific Monitoring Program – Objectives, Activation Triggers and Termination Criteria

Scientific monitoring Program (SMP)	Objectives	Activation Triggers	Termination Criteria
Scientific monitoring program 1 (SM01) Assessment of Hydrocarbons in Marine Waters	<p>SM01 will detect and monitor the presence, extent, persistence and properties of hydrocarbons in marine waters following the spill and the response.</p> <p>The specific objectives of SM01 are as follows:</p> <ul style="list-style-type: none"> Assess and document the extent, severity and persistence of hydrocarbon contamination with reference to observations made during surveillance activities and / or in-water measurements made during operational monitoring; and Provide information that may be used to interpret potential cause and effect drivers for environmental impacts recorded for sensitive receptors monitored under other SMPs. 	SM01 will be initiated in the event of a Level 2 or 3 hydrocarbon release, or any release event with the potential to contact sensitive environmental receptors	<p>SM01 will be terminated when:</p> <ul style="list-style-type: none"> Operational monitoring data relating to observations and / or measurements of hydrocarbons on and in water have been compiled, analysed and reported; and The report provides details of the extent, severity and persistence of hydrocarbons which can be used for analysis of impacts recorded for sensitive receptors monitored under other SMPs. <p>SMP monitoring of sensitive receptor sites:</p> <ul style="list-style-type: none"> Concentrations of hydrocarbons in water samples are below NOPSEMA guidance note (2019¹) concentrations of 1 g/m² for floating, 10 ppb for entrained and dissolved; and Details of the extent, severity and persistence of hydrocarbons from concentrations recorded in water have been documented at sensitive receptor sites monitored under other SMPs.
Scientific monitoring program 2 (SM02) Assessment of the Presence, Quantity and Character of Hydrocarbons in Marine Sediments	<p>SM02 will detect and monitor the presence, extent, persistence and properties of hydrocarbons in marine sediments following the spill and the response.</p> <p>The specific objectives of SM02 are as follows:</p> <ul style="list-style-type: none"> Determine the extent, severity and persistence of hydrocarbons in marine sediments across selected sites where hydrocarbons were observed or recorded during operational monitoring; and Provide information that may be used to interpret potential cause and effect drivers for environmental impacts recorded for sensitive receptors monitored under other SMPs. 	<p>SM02 will be initiated in the event of a Level 2 or 3 hydrocarbon release, or any release event with the potential to contact sensitive environmental receptors and implemented as follows:</p> <ul style="list-style-type: none"> Response activities have ceased; and Operational monitoring results made during the response phase indicate that shoreline, intertidal or sub-tidal sediments have been exposed to surface, entrained or dissolved hydrocarbons (at or above 0.5 g/m² surface, 5 ppb for entrained/dissolved hydrocarbons and ≥1 g/m² for shoreline accumulation). 	<p>SM02 will be terminated once pre-spill condition is reached and agreed upon as per the SMP termination criteria process and include consideration of:</p> <ul style="list-style-type: none"> Concentrations of hydrocarbons in sediment samples are below ANZECC/ ARMCANZ (2013²) sediment quality guideline values (SQGVs) for biological disturbance; and Details of the extent, severity and persistence of hydrocarbons from concentrations recorded in sediments have been documented.
Scientific monitoring program 3 (SM03) Assessment of Impacts and Recovery of Subtidal and Intertidal Benthos	<p>The objectives of SM03 are:</p> <ul style="list-style-type: none"> Characterize the status of intertidal and subtidal benthic habitats and quantify any impacts to functional groups, abundance and density that may be a result of the spill; and Determine the impact of the hydrocarbon spill and subsequent recovery (including impacts associated with the implementation of response options). <p>Categories of intertidal and subtidal habitats that may be monitored include:</p> <ul style="list-style-type: none"> Coral reefs Seagrass Macro-algae Filter-feeders <p>SM03 will be supported by sediment contamination records (SM02) and characteristics of the spill derived from OMPs.</p>	<p>SM03 will be activated in the event of a Level 2 or 3 hydrocarbon release, or any release event with the potential to contact sensitive environmental receptors and implemented as follows:</p> <ul style="list-style-type: none"> As part of a pre-emptive assessment of PBAs of receptor locations identified by time to hydrocarbon contact >10 days, to target receptors and sites where it is possible to acquire pre-hydrocarbon contact baseline; and Operational monitoring identified shoreline potential contact of hydrocarbons (at or above 0.5 g/m² surface, 5 ppb for entrained/dissolved hydrocarbons and ≥1 g/m² for shoreline accumulation) for subtidal and intertidal benthic habitat. 	<p>SM03 will be terminated once pre-spill condition is reached and agreed upon as per the SMP termination criteria process and include consideration of:</p> <ul style="list-style-type: none"> Overall impacts to benthic habitats from hydrocarbon exposure have been quantified. Recovery of impacted benthic habitats has been evaluated. Agreement with relevant stakeholders and regulators based on the nature and scale of the hydrocarbon spill impacts and/or that observed impacts can no longer be attributed to the spill.
Scientific monitoring program 4 (SM04)	<p>The objectives of SM04 are:</p> <ul style="list-style-type: none"> Characterize the status of mangroves (and associated salt marsh habitat) at shorelines exposed/contacted by spilled hydrocarbons; 	SM04 will be activated in the event of a Level 2 or 3 hydrocarbon release, or any release event with the	SM04 will be terminated once pre-spill condition is reached and agreed upon as per the SMP termination criteria process and include consideration of:

¹ NOPSEMA (2019) Bulletin #1 – Oil spill modelling – April 2019, <https://www.nopsema.gov.au/assets/Bulletins/A652993.pdf>

² Simpson SL, Batley GB and Chariton AA (2013). Revision of the ANZECC/ARMCANZ Sediment Quality Guidelines. CSIRO and Water Science Report 08/07. Land and Water, pp. 132.

Scientific monitoring Program (SMP)	Objectives	Activation Triggers	Termination Criteria
Assessment of Impacts and Recovery of Mangroves / Saltmarsh	<ul style="list-style-type: none"> Quantify any impacts to species (abundance and density) and mangrove/saltmarsh community structure; and Determine and monitor the impact of the hydrocarbon spill and potential subsequent recovery (including impacts associated with the implementation of response options). <p>SM03 will be supported by sediment sampling undertaken in SM02 and characteristics of the spill derived from OMPs.</p>	<p>potential to contact sensitive environmental receptors and implemented as follows:</p> <ul style="list-style-type: none"> As part of a pre-emptive assessment of receptor locations identified by time to hydrocarbon contact >10 days; and Operational monitoring identified shoreline potential contact of hydrocarbons (at or above 0.5 g/m² surface, 5 ppb for entrained/dissolved hydrocarbons and ≥1 g/m² for shoreline accumulation) for mangrove/saltmarsh habitat. 	<ul style="list-style-type: none"> Impacts to mangrove and saltmarsh habitat from hydrocarbon exposure have been quantified. Recovery of impacted mangrove/saltmarsh habitat has been evaluated. Agreement with relevant stakeholders and regulators based on the nature and scale of the hydrocarbon spill impacts and/or that observed impacts can no longer be attributed to the spill.
Scientific monitoring program 5 (SM05) Assessment of Impacts and Recovery of Seabird and Shorebird Populations	<p>The Objectives of SM05 are to:</p> <ul style="list-style-type: none"> Collate and quantify impacts to avian wildlife from results recorded during OM02 and OM05 (such as mortalities, oiling, rescue and release counts) and undertake a desk-based assessment to infer potential impacts at species population level; and Undertake monitoring to quantify and assess impacts of hydrocarbon exposure to seabirds and shorebird populations at targeted breeding colonies / staging sites / important coastal wetlands where hydrocarbon contact was recorded. 	<p>SM05 will be initiated in the event of a Level 2 or 3 hydrocarbon release, or any release event with the potential to contact sensitive environmental receptors and implemented as follows:</p> <ul style="list-style-type: none"> As part of a pre-emptive assessment of receptor locations identified by time to hydrocarbon contact >10 days; Operational monitoring predicts shoreline contact of hydrocarbons (at or above 0.5 g/m² surface, 5 ppb for entrained/dissolved hydrocarbons and ≥1 g/m² for shoreline accumulation) at important bird colonies / staging sites / important coastal wetland locations; or Records of dead, oiled or injured bird species made during the hydrocarbon spill or response. 	<p>SM05 will be terminated once it is agreed that the receptor has returned to pre-spill condition. The SMP termination criteria process will be followed and include consideration of:</p> <ul style="list-style-type: none"> Impacts to seabird and shorebird populations from hydrocarbon exposure have been quantified. Recovery of impacted seabird and shorebird populations has been evaluated. Agreement with relevant stakeholders and regulators based on the nature and scale of the hydrocarbon spill impacts and/or that observed impacts can no longer be attributed to the spill.
Scientific monitoring program 6 (SM06) Assessment of Impacts and Recovery of Nesting Marine Turtle Populations	<p>The objectives of SM06 are to:</p> <ul style="list-style-type: none"> To quantify impacts of hydrocarbon exposure or contact on marine turtle nesting populations (including impacts associated with the implementation of response options); Collate and quantify impacts to adult and hatchling marine turtles from results recorded during OM02 and OM05 (such as mortalities, oiling, rescue and release counts) and undertake a desk-based assessment to infer potential impacts at species population levels (including impacts associated with the implementation of response options); .and Undertake monitoring to quantify and assess impacts of hydrocarbon exposure to nesting marine turtle populations at known rookeries (including impacts associated with the implementation of response options). 	<p>SM06 will be initiated in the event of a Level 2 or 3 hydrocarbon release, or any release event with the potential to contact sensitive environmental receptors and implemented if operational monitoring has:</p> <ul style="list-style-type: none"> As part of a pre-emptive assessment of receptor locations identified by time to hydrocarbon contact >10 days; Predicted shoreline contact of hydrocarbons (at or above 0.5 g/m² surface, 5 ppb for entrained/dissolved hydrocarbons and ≥1 g/m² for shoreline accumulation) at known marine turtle rookery locations; or Records of dead, oiled or injured marine turtle species made during the hydrocarbon spill or response. 	<p>SM06 will be terminated once it is agreed that the receptor has returned to pre-spill condition. The SMP termination criteria process will be followed and include consideration of:</p> <ul style="list-style-type: none"> Impacts to nesting marine turtle populations from hydrocarbon exposure have been quantified. Recovery of impacted nesting marine turtle populations has been evaluated. Agreement with relevant stakeholders and regulators based on the nature and scale of the hydrocarbon spill impacts and/or that observed impacts can no longer be attributed to the spill.
Scientific monitoring program 7 (SM07) Assessment of Impacts to Pinniped Colonies including Haul-out Site Populations	<p>The objectives of SM07 are to:</p> <ul style="list-style-type: none"> Quantify impacts on pinniped colonies and haul-out sites as a result of hydrocarbon exposure/contact. Collate and quantify impacts to pinniped populations from results recorded during OM02 and OM05 (such as mortalities, oiling, rescue and release counts) and undertake a desk-based assessment to infer potential impacts at species population levels. 	<p>SM07 will be initiated in the event of a Level 2 or 3 hydrocarbon release, or any release event with the potential to contact sensitive environmental receptors and implemented if operational monitoring has:</p> <ul style="list-style-type: none"> As part of a pre-emptive assessment of receptor locations identified by time to hydrocarbon contact >10 days; 	<p>SM07 will be terminated once it is agreed that the receptor has returned to pre-spill condition. The SMP termination criteria process will be followed and include consideration of:</p> <ul style="list-style-type: none"> Impacts to pinniped populations from hydrocarbon exposure have been quantified. Recovery of pinniped populations has been evaluated. Agreement with relevant stakeholders and regulators based on the nature and scale of the hydrocarbon spill impacts and/or that observed impacts can no longer be attributed to the spill.

Scientific monitoring Program (SMP)	Objectives	Activation Triggers	Termination Criteria
		<ul style="list-style-type: none"> Identified shoreline contact of hydrocarbons ((at or above 0.5 g/m² surface, ≥5 ppb for entrained/dissolved hydrocarbons and ≥1 g/m² for shoreline accumulation) at known pinniped colony or haul-out site(s) (i.e. most northern site is the Houtman Abrolhos Islands); or Records of dead, oiled or injured pinniped species made during the hydrocarbon spill or response. 	
<p>Scientific monitoring program 8 (SM08)</p> <p>Desk-Based Assessment of Impacts to Other Non-Avian Marine Megafauna</p>	<p>The objective of SM08 is to provide a desk-based assessment which collates the results of OM02 and OM05 where observations relate to the mortality, stranding or oiling of mobile marine megafauna species not addressed in SM06 or SM07, including:</p> <ul style="list-style-type: none"> Cetaceans; Dugongs; Whale sharks and other shark and ray populations; Sea snakes; and Crocodiles. <p>The desk-based assessment will include population analysis to infer potential impacts to marine megafauna species populations.</p>	<p>SM08 will be initiated in the event of a Level 2 or 3 hydrocarbon release, or any release event with the potential to contact sensitive environmental receptors and implemented if operational monitoring reports records of dead, oiled or injured non-avian marine megafauna during the spill/ response phase.</p>	<p>SM08 will be terminated when the results of the post-spill monitoring have quantified impacts to non-avian megafauna.</p> <ul style="list-style-type: none"> Agreement with relevant stakeholders and regulators based on the nature and scale of the hydrocarbon spill impacts and/or that observed impacts can no longer be attributed to the spill.
<p>Scientific monitoring program 9 (SM09)</p> <p>Assessment of Impacts and Recovery of Marine Fish associated with SM03 habitats</p>	<p>The objectives of SM09 are:</p> <ul style="list-style-type: none"> Characterise the status of resident fish populations associated with habitats monitored in SM03 exposed/contacted by spilled hydrocarbons; Quantify any impacts to species (abundance, richness and density) and resident fish population structure (representative functional trophic groups); and Determine and monitor the impact of the hydrocarbon spill and potential subsequent recovery (including impacts associated with the implementation of response options). 	<p>SM09 will be initiated in the event of a Level 2 or 3 hydrocarbon release, or any release event with the potential to contact sensitive environmental receptors and implemented with SMO3.</p>	<p>SM09 will be undertaken and terminated concurrent with monitoring undertaken for SM03, as per the SMP termination criteria process</p> <ul style="list-style-type: none"> Agreement with relevant stakeholders and regulators based on the nature and scale of the hydrocarbon spill impacts and/or that observed impacts can no longer be attributed to the spill.
<p>Scientific monitoring program 10 (SM10)</p> <p>SM10 - Assessment of physiological impacts important fish and shellfish species (fish health and seafood quality/safety) and recovery</p>	<p>SM10 aims to assess any physiological impacts to important commercial fish and shellfish species (assessment of fish health) and if applicable, seafood quality/safety. Monitoring will be designed to sample key commercial fish and shellfish species and analyse tissues to identify fish health indicators and biomarkers, for example:</p> <ul style="list-style-type: none"> Liver Detoxification Enzymes (ethoxyresorufin-O-deethylase (EROD) activity) PAH Biliary Metabolites Oxidative DNA Damage Serum SDH Other physiological parameters, such as condition factor (CF), liver somatic index (LSI), gonado-somatic index (GSI) and gonad histology, total weight, length, condition, parasites, egg development, testes development, abnormalities. <p>Seafood tainting may be included (where appropriate) using applicable sensory tests to objectively assess targeted finfish and shellfish species for hydrocarbon contamination.</p> <p>Results will be used to make inferences on the health of commercial fisheries and the potential magnitude of impacts to fishing industries.</p>	<p>SM10 will be initiated in the event of a Level 2 or 3 hydrocarbon release, or any release event with the potential to contact sensitive environmental receptors and implemented if operational monitoring (OM01, OM02 and OM05) indicates the following:</p> <ul style="list-style-type: none"> The hydrocarbon spill will or has intersected with active commercial fisheries or aquaculture activities. Commercially targeted finfish and/or shellfish mortality has been observed/recorded. Commercial fishing or aquaculture areas have been exposed to hydrocarbons (≥0.5 g/m² surface and ≥5 ppb for entrained/dissolved hydrocarbons); and Taste, odour or appearance of seafood presenting a potential human health risk is observed. 	<p>SM10 will be terminated once it is agreed that the receptor has returned to pre-spill condition. The SMP termination criteria process will be followed and include consideration of:</p> <ul style="list-style-type: none"> Physiological impacts to important commercial fish and shellfish species from hydrocarbon exposure have been quantified. Recovery of important commercial fish and shellfish species from hydrocarbon exposure has been evaluated. Impacts to seafood quality/safety (if applicable) have been assessed and information provided to the relevant stakeholders and regulators for the management of any impacted fisheries. Agreement with relevant stakeholders and regulators based on the nature and scale of the hydrocarbon spill impacts and/or that observed impacts can no longer be attributed to the spill.

Activation Triggers and Termination Criteria

Scientific monitoring program activation

The Woodside oil spill scientific monitoring team will be stood up immediately with the occurrence of a hydrocarbon spill (actual or suspected) Level 2 or 3 hydrocarbon release, or any release event with the potential to contact sensitive environmental receptors via the First Strike plan for the petroleum activity programme. The presence of any level of hydrocarbons in the marine environment triggers the activation of the oil spill scientific monitoring program (SMP). This is to ensure the full range of eventualities relating to the environmental, socio-economic and health consequences of the spill are considered in the planning and execution of the SMP. The activation process also takes into consideration the management objectives, species recovery plans, conservation advices and conservations plans for any World Heritage Area (WHA), AMPs, State Marine Parks, other protected area designations (e.g., State nature reserves) and Matters of National Environmental Significance (including listed species under part 3 of the EPBC Act) potentially exposed to hydrocarbons. With the first 24-48 hours of a spill event, such information will be sourced and evaluated as part of the SMP planning process guided by Appendix D (identified receptors vulnerable to hydrocarbon contact), the information presented in the Existing Environment section of the EP as well as other information sources such as the Woodside Baseline Environmental Studies Database.

The starting point for decision-making on which SMPs are activated, and the spatial extent of monitoring activities, will be based on the predictive modelling results (OM01) in the first 24-48 hours until more information is made available from other operational monitoring activities such as aerial surveillance and shoreline surveys. Pre-emptive Baseline Areas (WHA, AMPs and State Marine Parks encompassing key ecological and socio-economic values) are a key focus of the SMP activation decision-making process, particularly, in the early spill event/response phase. As the operational monitoring progresses and further situational awareness information becomes available, it will be possible to understand the nature and scale of the spill. The SMP activation and implementation decision-making will be revisited on a daily basis to account for the updates on spill information. One of the priority focus areas in the early phase of the incident will be to identify and execute pre-emptive SMP assessments at key receptor locations, as required. The SMP activation and implementation decision tree is presented in Figure H-2.

Scientific monitoring program termination

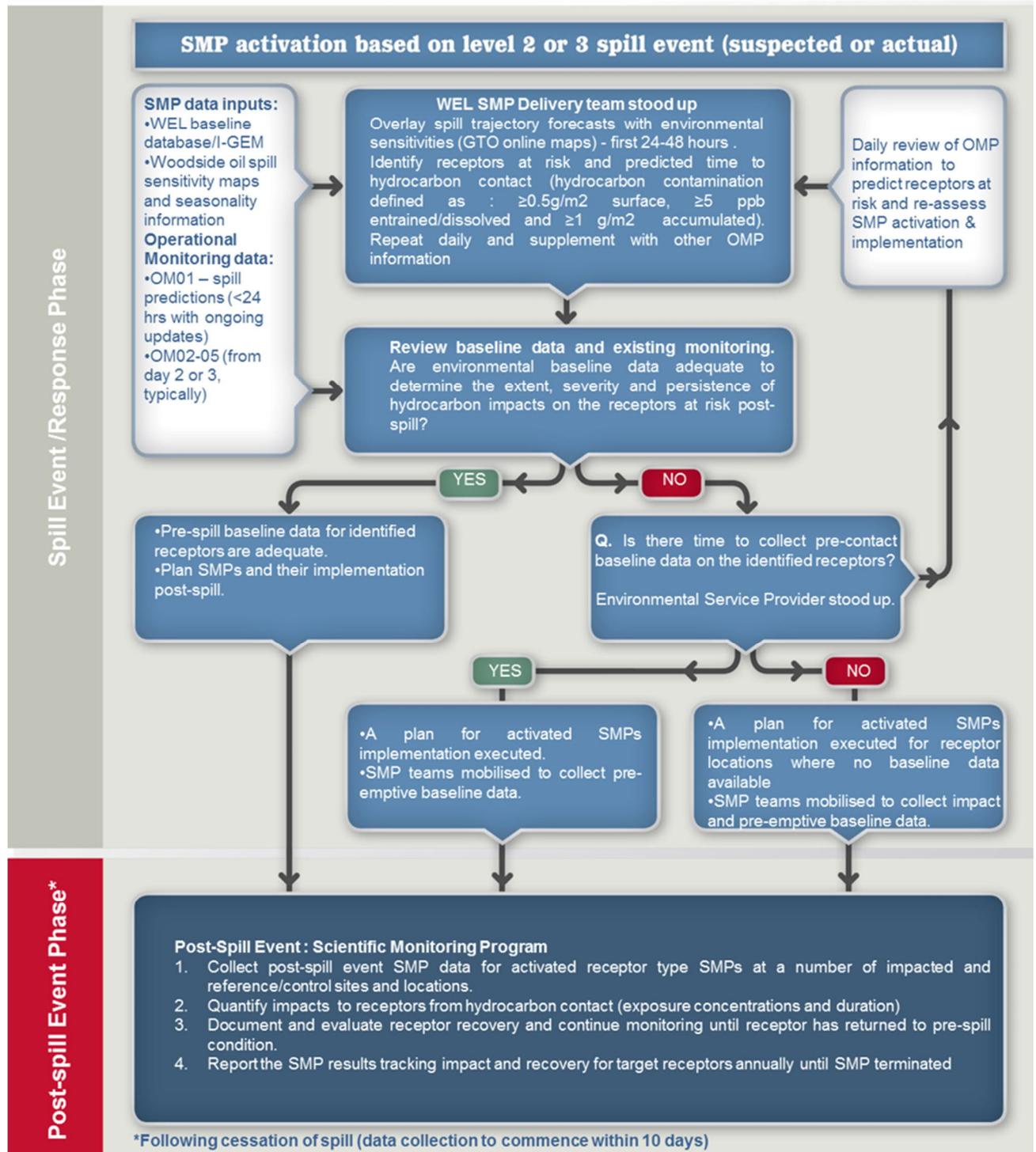
The basis of the termination process for the active SMPs (SMPs 1-10) will include quantification of impacts, evaluation of recovery for the receptor at risk and consultation with relevant authorities, persons and organisations. Termination of each SMP will not be considered until the results (as presented in annual SMP reports for the duration of each program) indicate that the target receptor has returned to pre-spill condition.

Once the SMP results indicate impacted receptor(s) have returned to pre-spill condition (as identified by Woodside) a termination decision-making process will be triggered and a number of steps will be undertaken as follows:

- Woodside will engage expert opinion on whether the receptor has returned to pre-spill condition (based on monitoring data). Subject Matter Expert (SMEs) will be engaged (via the Woodside SME scientific monitoring terms of reference) to review program outcomes, provide expert advice and recommendations for the duration of each SMP.
- Where expert opinion agrees that the receptor has returned to pre-spill condition, findings will then be presented to the relevant authorities, persons and organisations (as defined by the Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulation 11A). Stakeholder identification, planning and engagement will be managed by Woodside's Reputation Functional Support Team (FST) and follow the stakeholder management FST guidelines. These guidelines outline the FST roles and responsibilities, competencies, stakeholder communications and planning processes. An assessment of the merits of any objection to termination will be documented in the SMP final report.
- Woodside will decide on termination of SMP based on expert opinion and merits of any stakeholder objections. The final report following termination will include: monitoring results, expert opinion and stakeholder consultation including merits of any objections.
- Termination of SMPs will also consider applicable management objectives, species recovery plans, conservation advices and conservations plans for any World Heritage Area (WHA), AMPs, State Marine Parks, other protected area designations (e.g., State nature reserves) and Matters of National Environmental Significance (including listed species under part 3 of the EPBC Act).

The SMP termination decision-making process will be applied to each active SMP and an iterative process of decision steps continued until each SMP has been terminated (refer to decision-tree diagram for SMP termination criteria, Figure H-3).

SMP ACTIVATION & IMPLEMENTATION DECISION PROCESS



*Following cessation of spill (data collection to commence within 10 days)

Figure H-2: Activation and Implementation Decision-tree for Oil Spill Environmental Monitoring

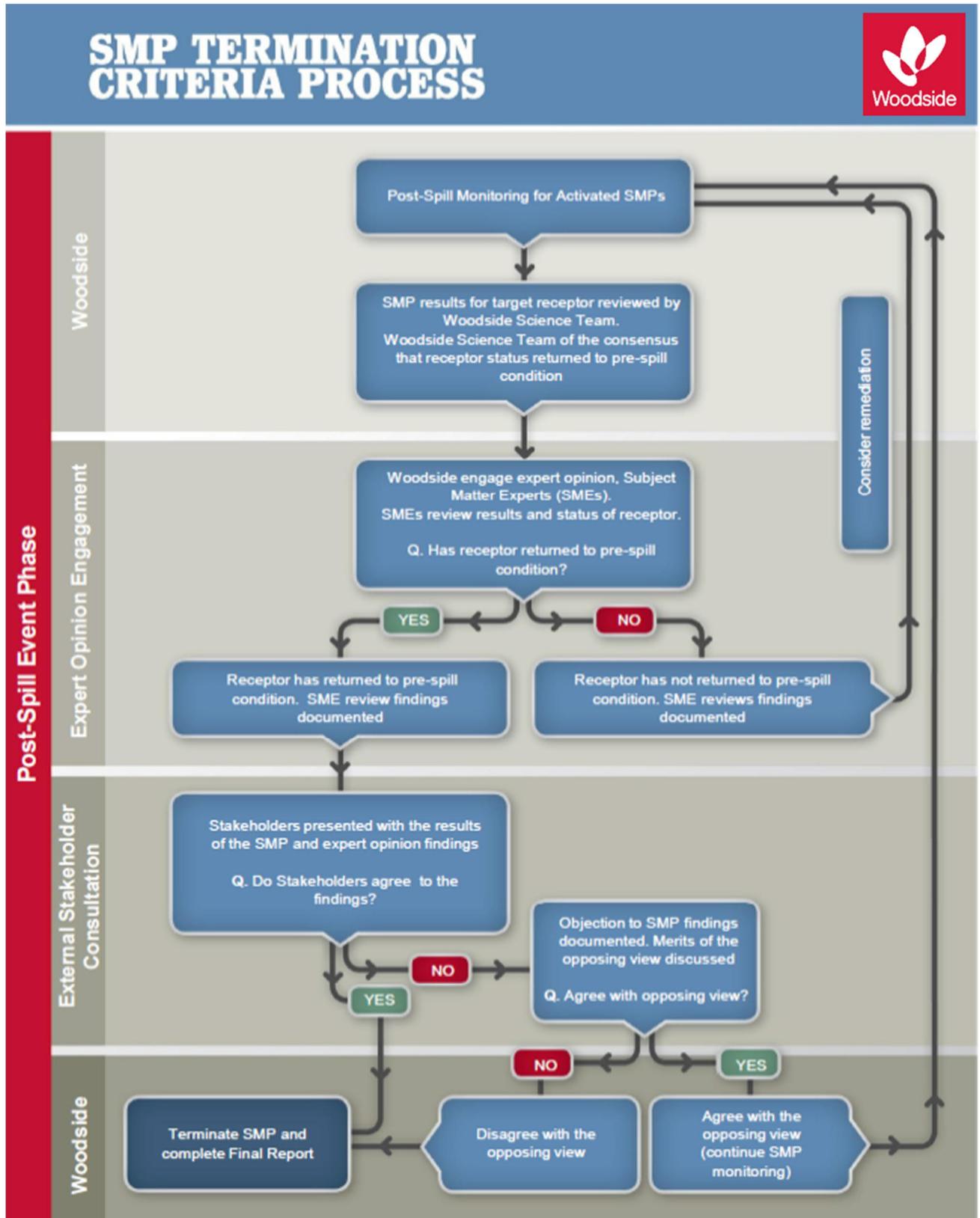


Figure H-3: Termination Criteria Decision-tree for Oil Spill Environmental Monitoring

Receptors at Risk and Baseline Knowledge

In order to assess the baseline studies available and suitability for oil spill scientific monitoring, Woodside maintains knowledge of environmental baseline studies through the upkeep and use of its Environmental Knowledge Management System.

Woodside's Environmental Knowledge Management System is a centralised platform for scientific information on the existing environment, marine biodiversity, Woodside environmental studies, key environmental impact topics, key literature and web-based resources. The system comprises a number of data directories and an environmental baseline database, as well as folders within the 'Corporate Environment' server space. The environmental baseline database was set up to support Woodside's SMP preparedness and as a SMP resource in the event of an unplanned hydrocarbon spill. The environmental baseline database is subject to updates including annual reviews completed as part of SMP standby contract. This database is accessed pre-PAP to identify Pre-emptive Baseline Areas (PBAs) where hydrocarbon contact is predicted to occur <10 days.

In addition to Woodside's Environmental Knowledge Management System, it is acknowledged that many relevant baseline datasets are held by other organisations (e.g. other oil and gas operators, government agencies, state and federal research institutions and non-governmental organisations). In order to understand the present status of environmental baseline studies a spatial environmental metadata database for Western Australia (Industry-Government Environmental Metadata, I-GEM) was established. IGEM is a collaboration comprising oil and gas operators (including Woodside), government and research agencies and other organisations. IGEM held data were integrated into the Department of Water and Environmental Regulation (WA) Index of Marine Surveys for Assessment (IMSA)³ in 2020. The Index of Marine Surveys for Assessments (IMSA) is an online portal for information about marine-based environmental surveys in Western Australia. IMSA is a project of the Department of Water and Environmental Regulation (the department) for the systematic capture and sharing of marine data created as part of an environmental impact assessment (EIA).

In the event of an unplanned hydrocarbon release, Woodside intends to interrogate the information on baseline studies status as held by the various databases (e.g. Woodside Environmental Knowledge Management System, IMSA and other sources of existing baseline data) to identify Pre-emptive Baseline Areas (PBAs), i.e., receptors at risk where hydrocarbon contact is predicted to be >10 days, and baseline data can be collected before hydrocarbon contact.

Reporting

For the scientific monitoring program relevant regulators will be provided with:

- Annual reports summarising the SMPs deployed and active, data collection activities and available findings; and
- Final reports for each SMP summarising the quantitative assessment of environmental impacts and recovery of the receptor once returned to pre-spill condition and termination of the monitoring program.

The reporting requirements of the scientific monitoring program will be specific to the individual SMPs deployed and terms of responsibilities, report templates, schedule, Quality Assurance/Quality Control (QA/QC) and peer-review will be agreed with the contractors engaged to conduct the SMPs. Compliance and auditing mechanisms will be incorporated into the reporting terms.

³ <https://biocollect.ala.org.au/imsa#max%3D20%26sort%3DdateCreatedSort>

3 Scientific Monitoring Program and Baseline Studies for the Petroleum Activities Program

Table H-4: Oil Spill Environmental Monitoring – scientific monitoring program scope for the Petroleum Activities Program based on Spill EMBA for Stybarrow Plug and Abandonment

Receptor Areas - Potential Impact and Reference Scientific Monitoring Sites (marked X)																																																	
Receptors to be Monitored	Applicable SMP	Kimberley AMP	Agro-Rowley Terrace AMP	Montebello AMP	Dampier AMP	Carnarvon Canyon AMP	Ningaloo AMP	Gascoyne AMP	Shark Bay Open Ocean (including AMP)	Abrothos AMP	Jurien AMP	Two Rocks AMP	Perth Canyon AMP	Geographic AMP	South-west Corner AMP	Ashore Reef and AMP	Seringapatam Reef	Scott Reef (North and South)	Mermaid Reef and AMP	Clerke Reef and State Marine Park	Imperieuse Reef and State Marine Park	Rankin Bank	Glomar Shoals	Rowley Shoals (including Sate Maine Park)	Fantome Shoal	Adele Island	Lacepede Islands	Montebello Islands (including State Marine Park)	Lowendal Islands (including State Nature Reserves)	Barrow Island (including State Nature Reserves, State Marine Park and Marine Management Area)	Muiron Islands (WHA, Marine Management Area)	Pilbara Islands - Southern Island Group (Serrurier, Thevenard and Bessieres Islands - State Nature Reserves)	Pilbara Islands - Northern Island Group (Sandy Island Passage Islands - State nature)	Abrothos Islands	Kimberley Coast	Dampier Peninsula	Northern Pilbara Shoreline	Ningaloo Coast (North/North West Cape, Middle and South) (WHA, and State Marine Park)	Shark Bay - Open Ocean Coast	Shark Bay (WHA, State Marine Park)	Ngari Capes State Marine Park								
Habitat																																																	
Water Quality	SM01	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X							
Marine Sediment Quality	SM02	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X					
Coral Reef	SM03	X		X												X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X					
Seagrass / Macro-Algae	SM03	X									X					X	X	X									X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X				
Deeper Water Filter Feeders	SM03	X			X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X																							
Mangroves and Saltmarsh	SM04																										X									X	X	X	X	X	X	X	X	X	X				
Species																																																	
Sea Birds and Migratory Shorebirds (significant colonies / staging sites / coastal wetlands)	SM05	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
Marine Turtles (significant nesting beaches)	SM06	X	X	X	X		X	X	X							X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
Pinnipeds (significant colonies / haul-out sites)	SM07									X	X	X			X																																X		
Cetaceans - Migratory Whales	SM08	X	X	X	X		X	X	X	X	X	X	X	X	X												X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
Oceanic and Coastal Cetaceans	SM08	X	X	X	X		X	X	X	X			X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
Dugongs	SM08	X							X							X												X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
Sea Snakes	SM08	X		X	X			X	X	X						X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
Whale Sharks	SM08			X			X	X										X										X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
Other Shark and Ray Populations	SM08, SM09	X	X	X	X		X	X	X	X			X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Fish Assemblages	SM09	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Socio-economic																																																	
Fisheries - Commercial	SM10		X	X	X	X	X	X	X	X	X																	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
Fisheries - Traditional	SM10															X	X	X									X																					X	
Tourism (incl. recreational fishing)	SM10	X		X			X	X	X		X			X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X

Receptor areas identified as Pre-emptive Baseline Areas (based on criteria of surface contact and/or entrained hydrocarbon contact ≤10 days (Offshore Australian Marine Parks contacted by hydrocarbons in this timeframe also noted)

Receptor areas identified as Pre-emptive Baseline Areas in the response phase >10 days (based on criteria of surface contact and/or entrained hydrocarbon contact >10 days)

Receptor areas that may be identified as impact or reference sites in the event of major hydrocarbon release and would be identified as part of the SMP planning process

Table H-5: Baseline Studies for the SMPs applicable to identified Pre-emptive Baseline Areas for the Petroleum Activities Program

Major Baseline	Proposed Scientific monitoring operational plan and Methodology	Ningaloo Coast and the Muiron Islands	Rankin Bank & Glomar Shoal	Barrow, Montebello and Lowendal Islands	Montebello AMP
Benthic Habitat (Coral Reef)	<p>SM03</p> <p>Quantitative assessment using image capture using either diver held camera or towed video. Post analysis into broad groups based on taxonomy and morphology.</p>	Studies:			
		<ol style="list-style-type: none"> 1. DBCA LTM Ningaloo Reef program: 1991-ongoing. 2. AIMS/DBCA 2014 Baseline Ningaloo and Muiron Islands Survey – repeat and expansion on the LTM (Co-funded survey: Woodside and AIMS). 3. Pilbara Marine Conservation Partnership. 4. WAMSI LTM Study: Ningaloo Research node: 2009 - 10 over the length of Ningaloo reef system (with a focus on coral and fish recruitment). 5. Ningaloo Outlook (CSIRO) - Shallow and Deep Reefs Program (2015-ongoing). 6. Ningaloo Collaboration Cluster: Habitats of the Ningaloo Reef and adjacent coastal areas determined through hyperspectral imagery 7. Allen Coral Atlas 	<ol style="list-style-type: none"> 1. Glomar Shoal and Rankin Bank Environmental Survey Report, 2013, quantitatively surveyed benthic habitats and communities. AIMS report to Woodside. Scientific Publication - Biodiversity and spatial patterns of benthic habitat and associated demersal fish communities at two tropical submerged reef ecosystems, 2018. 2. Rankin Bank Environmental Survey Extension, 2014, Habitat assessment of an area southeast of Rankin Bank. 3. Glomar Shoal and Rankin Bank surveys, 2017. GWF-2 Monitoring Programme. Quantitatively surveyed benthic habitats and communities. 4. Temporal Studies survey of Rankin Bank and Glomar Shoal, 2018. 	<p>Barrow Island:</p> <p>East and West Coast baseline and monitoring for soft sediment, limestone pavement and coral assemblages (Chevron)</p> <p>Barrow, Montebello and Lowendal Islands:</p> <ol style="list-style-type: none"> 1. Benthic community monitoring as part of DBCA Western Australian Marine Monitoring Program (2015-ongoing). 2. Pilbara Marine Conservation Partnership Seabed biodiversity survey (2013). 	<p>Coral Reefs & Filter Feeders</p> <ol style="list-style-type: none"> 1. Montebello Marine Park, 2019, Identification and qualitative descriptions of benthic habitat. 2. Montebello Australian Marine Parks – 2019 – Baseline survey on benthic habitats. 3. Pluto Trunkline within Montebello Marine Park – Monitoring marine communities.
		Methods:			
		<ol style="list-style-type: none"> 1. LTM transects, diver based (video) photo quadrats, specimen collection. 2. LTM sites, transects, diver-based video quadrat. 3. Diver video transects, still photography, video and in situ visual estimates from transects, quadrats, manta-tows, towed video and ROV. 4. Video point intercept transects recorded by towed video or diver hand-held video camera. 5. Video transects. 6. LTM transects, diver based (video) photo quadrat. 7. Combination of satellite imagery analysis and mapped/monitored areas. 	<ol style="list-style-type: none"> 1. Towed video transects, photo quadrats using towed video system. 2. Towed video transects, photo quadrats using towed video system. 3. Towed video transects, photo quadrats using towed video system. 4. Towed video transects, photo quadrats using towed video system. 	<p>Barrow Island:</p> <p>Coral habitat – mapping, rapid visual assessment, size-class frequency, photoquadrats – live coral cover and survival, tagged corals – growth and survival and coral recruitment</p> <p>Benthic macro-invertebrate surveys – video belt transects</p> <p>Barrow, Montebello and Lowendal Islands:</p> <ol style="list-style-type: none"> 1. Fixed long-term monitoring sites. Diver video transect. 2. Towed video, benthic trawl and sled. 	<ol style="list-style-type: none"> 1. ROV Transects 2. Benthic habitat mapping, multibeam acoustic swathing. 3. ROV video.
References and Data:					
<ol style="list-style-type: none"> 1. DBCA unpublished data. DATAHOLDER: DBCA 2. AIMS 2015. DATAHOLDER: AIMS. 3. Pilbara Marine Conservation Partnership DATAHOLDER: CSIRO 4. Depczynski et al. 2011 DATAHOLDER: AIMS, DBCA and WAMSI. 5. CSIRO 2019 – Ningaloo Outlook Program 6. Murdoch University – HyVista Corporation – April and May 2006 (Kobryn et al. 2013 and 2022) 7. https://allencoralatlas.org/atlas/#7.58/-21.5563/114.9133 (accessed 18/05/2022) 	<ol style="list-style-type: none"> 1. AIMS 2014a and Abdul Wahab et al., 2018. DATAHOLDER: AIMS. 2. AIMS 2014b. DATAHOLDER: AIMS. 3. Currey-Randall et al., 2019. DATAHOLDER: AIMS 4. Currey-Randall et al., 2019 and Jones et al. 2021. DATAHOLDER: AIMS 	<p>Barrow Island:</p> <p>Chevron Australia (2015a and b) DATAHOLDER: Chevron Australia</p> <p>Barrow, Montebello and Lowendal Islands:</p> <ol style="list-style-type: none"> 1. WA Department of Biodiversity, Conservation and Attractions (DBCA) DATAHOLDER: DBCA 2. Pitcher et al. 2016 DATAHOLDER: CSIRO 	<ol style="list-style-type: none"> 1. Advisian 2019 2. Keesing 2019 3. McLean et al. 2019 		
SM03		Studies:			

Major Baseline	Proposed Scientific monitoring operational plan and Methodology	Ningaloo Coast and the Muiron Islands	Rankin Bank & Glomar Shoal	Barrow, Montebello and Lowendal Islands	Montebello AMP
Benthic Habitat (Seagrass and Macro-algae)	Quantitative assessment using image capture using either diver held camera or towed video. Post analysis into broad groups based on taxonomy and morphology.	1. Quantitative descriptions of Ningaloo sanctuary zones habitat types including lagoon and offshore areas – Cassata and Collins (2008). 2. CSIRO/BHP Ningaloo Outlook Program. 3. Ningaloo Collaboration Cluster: Habitats of the Ningaloo Reef and adjacent coastal areas determined through hyperspectral imagery. 4. Australian Institute of Marine Science – CReefs: Ningaloo Reef Biodiversity Expeditions (2008-2010). 5. Combination of satellite imagery analysis and mapped/monitored areas Methods:		Barrow Island: East Barrow Island – Chevron baseline and monitoring	N/A – see Table H-4
		1. Video transects to ground truth aerial photographs and satellite imagery. 2. Diver video transects. 3. LTM transects, diver based (video) photo quadrat. 4. LTM transects, diver based (video) photo quadrats, specimen collection. 5. Satellite imagery, mapping and monitoring References and Data:		East Barrow- seagrass photoquadrats (30 m transects) during spring/summer and winter periods Macroalgae photoquadrats, visual census and biomass and specimen sampling	
		1. Cassata and Collins 2008. DATAHOLDER: Curtin University – Applied Geology. 2. CSIRO – Ningaloo Outlook Program 3. AIMS - AIMS (2010) - http://www.aims.gov.au/creefs 4. Murdoch University - HyVista Corporation – April and May 2006 (Kobryn et al. 2013 and 2022) 5. https://allencoralatlas.org/atlas/#7.58/-21.5563/114.9133 (accessed 18/05/2022)		Barrow Island: Chevron Australia (2015a and b) DATAHOLDER: Chevron Australia	
Benthic Habitat (Deeper Water Filter Feeders)	SM03 Quantitative assessment using image capture using towed video. Post analysis into broad groups based on taxonomy and morphology.	Studies: 1. WAMSI 2007 deep-water Ningaloo benthic communities' study, Colquhoun and Heyward (2008). 2. CSIRO/BHP Ningaloo Outlook Program - Deep reef themes 2020	As above (SM03 Coral Reefs)		As above (SM03 Coral Reefs)
		Methods: 1. Towed video and benthic sled (specimen sampling). 2. Side-scan sonar and AUV transects.			
		References and Data: 1. Colquhoun and Heyward (eds) 2008. DATAHOLDER: WAMSI, AIMS. 2. CSIRO – Ningaloo Outlook 2020			
Mangroves and Saltmarsh	SM04 Aerial photography and satellite imagery will be used in conjunction with field surveys to map the range and distribution of mangrove communities.	Studies: 1. Atmospheric corrected land cover classification, NW Cape. 2. Woodside hold Rapid Eye imagery of the Ningaloo Reef and coastal area. 3. Hyperspectral survey (2006) of Ningaloo Reef and coastal area (not yet analysed for Mangroves). 4. North West Cape sensitivity mapping 2012 included Mangrove Bay. 5. Global mangrove distribution as mapped by the USGS and located on UNEP's Ocean Data viewer.	N/A – See Table D-1	Barrow Island: East and West Coast baseline and monitoring - mapping (HR aerial imagery) and vegetation surveys	N/A – see Table H-4
		Methods:			

Major Baseline	Proposed Scientific monitoring operational plan and Methodology	Ningaloo Coast and the Muiron Islands	Rankin Bank & Glomar Shoal	Barrow, Montebello and Lowendal Islands	Montebello AMP			
		<ol style="list-style-type: none"> 1. Modular Inversion Program. May 2017 2. Rapid Eye imagery – High resolution satellite imagery from October/November/December 2011 and 2017. 3. Remote sensing – acquisition of HyMap airborne hyperspectral imagery and ground truthing data collection. 4. Reconnaissance surveys of the shorelines of the North West Cape and Muiron Islands. 5. Remote sensing study of global mangrove coverage. 		Barrow – Chevron (2015a and b) – HR mapping (aerial images) and vegetation surveys using belt transects – species composition, estimated total canopy cover, total number of trees, pneumatophore density and canopy density.				
References and Data:								
		<ol style="list-style-type: none"> 1. EOMAP 2017 DATAHOLDER: Woodside. 2. AAM 2014. Dataholder: Woodside 3. Kobryn et al. 2013 and 2022. DATAHOLDER: Murdoch University, AIMS; Woodside. 4. Joint Carnarvon Basin Operators, 2012. DATAHOLDER: Woodside and Apache Energy Ltd. 5. http://data.unep-wcmc.org/ 		Barrow Island: Chevron Australia (2015a and b) DATAHOLDER: Chevron Australia				
Seabirds	SM05 Visual counts of breeding seabirds, nest counts, intertidal bird counts at high tide.	<p>Studies:</p> <ol style="list-style-type: none"> 1. LTM Study of marine and shoreline birds: 1970-2011. 2. LTM of shorebirds within the Ningaloo coastline (Shorebirds 2020). 3. Exmouth Sub-basin Marine Avifauna Monitoring Program (Quadrant Energy/Santos). 4. Seabird and Shorebird baseline studies, Ningaloo Region – Report on January 2018 bird surveys. 5. Wedge-tailed shearwater foraging behaviour in the Exmouth Region – Final Report <p>N/A – See Table D-1</p> <p>Barrow Island:</p> <p>Barrow Island Seabird Monitoring Program (Chevron)</p> <p>Barrow, Montebello and Lowendal Islands:</p> <ol style="list-style-type: none"> 1. Johnston et al (2013) general inventory and distribution for the Pilbara region (WA Museum) 2. Santos – Integrated Shearwater Monitoring Program (1994-2016) 3. Santos – monitoring of seabird breeding colonies throughout the Lowendal Group of Islands. <p>N/A – see Table D-1</p> <p>Methods:</p> <ol style="list-style-type: none"> 1. Counts of nesting areas, counts of intertidal zone during high tide. 2. The Shorebirds 2020 database comprises the most complete shorebird count data available in Australia. The data have been collected by volunteer counters and BirdLife Australia staff for approximately 150 roosting and feeding sites, mainly in coastal Australia. The data go back as far as 1981 for key areas. 3. The Exmouth Sub-basin Marine Avifauna Monitoring Program undertook a detailed assessment of seabird and shorebird use in the Exmouth Sub-basin. Four aerial surveys and four island surveys were conducted between February 2013 and January 2015 for this Program, inclusive of the mainland coasts, of shore islands and a 2,500 km² area of ocean adjacent to the Exmouth Sub-basin. 4. Shorebird counts, Shearwater Burrow Density. 5. Telemetry (GPS & Satellite). 					Barrow Island – 2008-ongoing annual surveys: abundance, nest density, presence/absence of egg or chick/fledgling	
References and Data:								
				Barrow, Montebello and Lowendal Islands:				
				<ol style="list-style-type: none"> 1. Desktop review (WA Museum) 2. Nest burrow density, presence/absence of eggs or chicks in burrows 3. The distribution and abundance of other nesting seabirds within the Lowendal Island group, including up to 45 islands and islets 				

Major Baseline	Proposed Scientific monitoring operational plan and Methodology	Ningaloo Coast and the Muiron Islands	Rankin Bank & Glomar Shoal	Barrow, Montebello and Lowendal Islands	Montebello AMP
		1. Johnstone et al. 2013. DATAHOLDER: WA MUSEUM. AMOSC/DBCA (DPaW) 2014. 2. BirdLife Australia DATAHOLDER: Woodside and BirdLife Australia 3. Surman & Nicholson 2015. 4. BirdLife Australia: DATAHOLDER: Woodside 5. Cannel et al. 2019 DATAHOLDER: UWA and BirdLife Australia		Barrow – Chevron (2015c) DATAHOLDER: Chevron Australia Barrow, Montebello and Lowendal Islands: 1. Johnston et al (2013) DATAHOLDER: (WA Museum) 2. Santos DATAHOLDER: Santos 3. Surman and Nicholson (2012) DATAHOLDER: Santos	
Turtles	SM06 Beach surveys (recording species, nests, and false crawls).	Studies: 1. Exmouth Islands Turtle Monitoring Program. 2. Ningaloo Turtle Program 3. Turtle activity and nesting on the Muiron Islands and Ningaloo Coast (2018). 4. Spatial and temporal use of inter-nesting habitat by sea turtles along the Muiron Islands and Ningaloo Coast – 2018-2019	N/A – See Table D-1	Barrow Island: Chevron Australia: long term monitoring programs for flatback turtles Barrow, Montebello and Lowendal Islands: 1. Marine turtle monitoring as part of DBCA long-term turtle monitoring program (ongoing). 2. LTM Study of Green, Flatback, Hawksbill turtles on beaches within the Barrow, Lowendal and Montebello Island Complex. 3. Santos 2013 turtle nesting survey on the Lowendal islands. 4. Varanus Island Turtle monitoring program (2005 – present). North West Shelf Flatback Conservation Program – conserve North West Shelf stock – scope covers all summer nesting flatback turtles - https://flatbacks.dbca.wa.gov.au/about	N/A – see Table H-4
		Methods: 1. Astron (on behalf of Santos) to address a gap in the knowledge of turtle numbers at key locations (offshore islands within the region) that are not currently part of an existing monitoring programs (e.g. the NTP). Field surveys were conducted in October 2013 and January 2014. Surveys were conducted on 12 islands, with each island surveyed once (with the exception of Beach 8 at North Muiron Island) and all tracks counted. 2. Long term trends in marine turtle populations, beach surveys, track counts, best location, mortality counts. 3. On-beach monitoring and aerial surveys. 4. Tagging (satellite transmitter), analysis of inter-nesting, migration and foraging grounds movements and behaviour.		Barrow Island – Chevron Australia: 2005 -ongoing annual surveys, flatback turtles – nesting success, track counts and satellite tracking, hatchling survival and dispersal. Barrow, Montebello and Lowendal Islands: 1. Nesting demographics 2. Nesting demographics 3. Tagging and nest counts 4. Tagging and nest counts at Varanus, Beacon, Bridled, Abutilon and Parakeelya islands. North West Shelf Flatback Conservation Program - https://flatbacks.dbca.wa.gov.au/program-activities	
		References/Data:			

Major Baseline	Proposed Scientific monitoring operational plan and Methodology	Ningaloo Coast and the Muiron Islands	Rankin Bank & Glomar Shoal	Barrow, Montebello and Lowendal Islands	Montebello AMP
		1.Santos – Report. 2. NTP Annual Reports DATAHOLDERS: DBCA. Reports available at http://www.ningalooturtles.org.au/media_reports.html 3.Rob et al. 2019 DATAHOLDER: DBCA 4.Tucker et al. 2019 DATAHOLDER: DBCA		Barrow Island – Chevron (2015c) DATAHOLDER: Chevron Australia Barrow, Montebello and Lowendal Islands: 1. DBCA 2. Pendoley 2005. AMOSC/DBCA (DPaW) 2014. 3. Santos (2014) DATAHOLDER: Santos 4. Santos (2005-prsesent) DATAHOLDER: Santos North West Shelf Flatback Conservation Program - https://flatbacks.dbca.wa.gov.au/program-activities	
Fish	SM09 Baited Remote Underwater Video Stations (BRUVS), Visual Underwater Counts (VUC), Diver Operated Video (DOV).	Studies:			
		1. AIMS/DBCA 2014 Baseline Ningaloo Survey – repeat and expansion on the LTM (Co-funded survey: Woodside and AIMS). 2. Demersal fish populations – baseline assessment (AIMS/WAMSI). 3. DBCA study measured Species Richness, Community Composition, and Target Biomass, through UVC. BRUVS studies determining max N, Species Richness, and Biomass. 4. Pilbara Marine Conservation Partnership Stereo BRUVS in shallow water (~10m) in 2014 in northern region of the Ningaloo Marine Park, in shallow water (~10m) inside the lagoonal reef of the Ningaloo Marine Park in 2016, in deep water (~40m) across the length of the Ningaloo Marine Park in 2015, in shallow water outside of Ningaloo Reef from Waroora to Jurabi in 2015 and offshore of the Muiron Islands in 2015. 5. Elasmobranch faunal composition of Ningaloo Marine Park. 6. Juvenile fish recruitment surveys at Ningaloo reef. 7. Demersal fish assemblage sampling method comparison 8. Ningaloo Outlook (CSIRO) - Shallow and Deep Reefs Program	1. Glomar Shoal and Rankin Bank Environmental Survey Report, 2013, quantitatively surveyed benthic habitats and communities. AIMS report to Woodside. Scientific Publication - Biodiversity and spatial patterns of benthic habitat and associated demersal fish communities at two tropical submerged reef ecosystems, 2018. 2. Rankin Bank Environmental Survey Extension, 2014, Habitat assessment of an area southeast of Rankin Bank. 3. Glomar Shoal and Rankin Bank surveys, 2017. GWF-2 Monitoring Programme. Quantitatively surveyed benthic habitats and communities. 4. Temporal Studies survey of Rankin Bank and Glomar Shoal, 2018.	Barrow Island: Chevron: East and West Coast intertidal and subtidal baseline and monitoring Barrow, Montebello and Lowendal Islands: 1. Pilbara Marine Conservation Partnership Stereo BRUVS drops in shallow water (~10m) from Exmouth to Barrow Islands in 2015. 2. Finfish monitoring as part of DBCAs Western Australian Marine Monitoring Program (2015-ongoing).	1. CSIRO – Fish Diversity. 2. Fish species richness and abundance.
		Methods:			
		1. UVC surveys. 2. BRUVS Study with 304 video samples at three specific depth ranges (1-10 m, 10-30 m and 30-110m). 3. UVC surveys. 4. Stereo BRUVS 5. Snorkel and Scuba surveys. 5. Underwater visual census. 6. Diver operated video. 7. Diver UVC. 8. Diver UVC, stereo BRUVs	1. BRUVs. 2. BRUVs. 3. BRUVs. 4. BRUVs.	Barrow Island – Chevron (2015a and b) – demersal fish: stereo BRUVS (subtidal habitats) and netting combination for mangrove habitat Barrow, Montebello and Lowendal Islands: 1. Stereo BRUVS. 2. Diver underwater visual surveys (UVS)	1. Semi V Wing trawl net or an epibenthic sled. 2. ROV Video.
		References/Data:			

Major Baseline	Proposed Scientific monitoring operational plan and Methodology	Ningaloo Coast and the Muiron Islands	Rankin Bank & Glomar Shoal	Barrow, Montebello and Lowendal Islands	Montebello AMP
		<p>1. AIMS 2014. DATAHOLDER: AIMS/Woodside.</p> <p>2. Fitzpatrick et al. 2012. DATAHOLDERS: WAMSI, AIMS.</p> <p>3. DBCA unpublished data. DATAHOLDER: DBCA/AIMS.</p> <p>4. CSIRO Data DATAHOLDER: CSIRO Data Centre (data-requestes-hf@csiro.au).</p> <p>5. Stevens, J.D., P.R., White, W.T., McAuley, R.B., Meekan, M.G. 2009.</p> <p>6. WAMSI unpublished data DATAHOLDER: AIMS</p> <p>7. DATAHOLDER: WAMSI</p> <p>8. CSIRO – Ningaloo Outlook 2020.</p>	<p>1. AIMS 2014a and Abdul Wahab et al., 2018. DATAHOLDER: AIMS.</p> <p>2. AIMS 2014b. DATAHOLDER: AIMS.</p> <p>3. Currey-Randall et. al., 2019. DATAHOLDER: AIMS</p> <p>4. Currey-Randall et. al., 2019 and Jones et al. 2021. DATAHOLDER: AIMS</p>	<p>Barrow Island – Chevron Australia (2015a and b) DATAHOLDER: Chevron</p> <p>Barrow, Montebello and Lowendal Islands: 1. Unpublished report CSIRO DATAHOLDER: CSIRO, CSIRO Data centre (data-requestes-hf@csiro.au)</p> <p>2. DBCA</p>	<p>1. Keesing 2019. 2. McLean et al. 2019.</p>

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Appendix I. Cultural Heritage Search Results

List of Registered Aboriginal Sites

Search Criteria

404 Registered Aboriginal Sites in Shapefile - Shoreline annual 10 gm2 EMBA. Warning: Search area complex so results may be inaccurate. Contact DPLH for assistance.

Disclaimer

The *Aboriginal Heritage Act 1972* preserves all Aboriginal sites in Western Australia whether or not they are registered. Aboriginal sites exist that are not recorded on the Register of Aboriginal Sites, and some registered sites may no longer exist.

The information provided is made available in good faith and is predominately based on the information provided to the Department of Planning, Lands and Heritage by third parties. The information is provided solely on the basis that readers will be responsible for making their own assessment as to the accuracy of the information. If you find any errors or omissions in our records, including our maps, it would be appreciated if you email the details to the Department at AboriginalHeritage@dplh.wa.gov.au and we will make every effort to rectify it as soon as possible.

South West Settlement ILUA Disclaimer

Your heritage enquiry is on land **within or adjacent to** the following Indigenous Land Use Agreement(s): South West Boojarah #2 Indigenous Land Use Agreement, Yued Indigenous Land Use Agreement.

On 8 June 2015, six identical Indigenous Land Use Agreements (ILUAs) were executed across the South West by the Western Australian Government and, respectively, the Yued, Whadjuk People, Gnaala Karla Booja, Ballardong People, South West Boojarah #2 and Wagyl Kaip & Southern Noongar groups, and the South West Aboriginal Land and Sea Council (SWALSC).

The ILUAs bind the parties (including 'the State', which encompasses all State Government Departments and certain State Government agencies) to enter into a Noongar Standard Heritage Agreement (NSHA) when conducting Aboriginal Heritage Surveys in the ILUA areas, unless they have an existing heritage agreement. It is also intended that other State agencies and instrumentalities enter into the NSHA when conducting Aboriginal Heritage Surveys in the ILUA areas. It is recommended a NSHA is entered into, and an 'Activity Notice' issued under the NSHA, if there is a risk that an activity will 'impact' (i.e. by excavating, damaging, destroying or altering in any way) an Aboriginal heritage site. The Aboriginal Heritage Due Diligence Guidelines, which are referenced by the NSHA, provide guidance on how to assess the potential risk to Aboriginal heritage.

Likewise, from 8 June 2015 the Department of Mines, Industry Regulation and Safety (DMIRS) in granting Mineral, Petroleum and related Access Authority tenures within the South West Settlement ILUA areas, will place a condition on these tenures requiring a heritage agreement or a NSHA before any rights can be exercised.

If you are a State Government Department, Agency or Instrumentality, or have a heritage condition placed on your mineral or petroleum title by DMIRS, you should seek advice as to the requirement to use the NSHA for your proposed activity. The full ILUA documents, maps of the ILUA areas and the NSHA template can be found at <https://www.wa.gov.au/organisation/departments-of-the-premier-and-cabinet/south-west-native-title-settlement>.

Further advice can also be sought from the Department of Planning, Lands and Heritage at AboriginalHeritage@dplh.wa.gov.au.

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Coordinate Accuracy

Coordinates (Easting/Northing metres) are based on the GDA 94 Datum. Accuracy is shown as a code in brackets following the coordinates.

List of Registered Aboriginal Sites

Terminology (NB that some terminology has varied over the life of the legislation)

Place ID/Site ID: This a unique ID assigned by the Department of Planning, Lands and Heritage to the place.

Status:

- **Registered Site:** The place has been assessed as meeting Section 5 of the *Aboriginal Heritage Act 1972*.
- **Other Heritage Place which includes:**
 - **Stored Data / Not a Site:** The place has been assessed as not meeting Section 5 of the *Aboriginal Heritage Act 1972*.
 - **Lodged:** Information has been received in relation to the place, but an assessment has not been completed at this *stage* to determine if it meets Section 5 of the *Aboriginal Heritage Act 1972*.

Access and Restrictions:

- **File Restricted = No:** Availability of information that the Department of Planning, Lands and Heritage holds in relation to the place is not restricted in any way.
- **File Restricted = Yes:** Some of the information that the Department of Planning, Lands and Heritage holds in relation to the place is restricted if it is considered culturally sensitive. This information will only be made available if the Department of Planning, Lands and Heritage receives written approval from the informants who provided the information. To request access please contact AboriginalHeritage@dplh.wa.gov.au.
- **Boundary Restricted = No:** Place location is shown as accurately as the information lodged with the Registrar allows.
- **Boundary Restricted = Yes:** To preserve confidentiality the exact location and extent of the place is not displayed on the map. However, the shaded region (generally with an area of at least 4km²) provides a general indication of where the place is located. If you are a landowner and wish to find out more about the exact location of the place, please contact the Department of Planning, Lands and Heritage.
- **Restrictions:**
 - **No Restrictions:** *Anyone* can view the information.
 - **Male Access Only:** Only *males* can view restricted information.
 - **Female Access Only:** Only *females* can view restricted information.

Legacy ID: This is the former unique number that the former Department of Aboriginal Sites assigned to the place. This has been replaced by the Place ID / Site ID.

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Aboriginal Heritage Inquiry System

List of Registered Aboriginal Sites

ID	Name	File Restricted	Boundary Restricted	Restrictions	Status	Type	Knowledge Holders	Coordinate	Legacy ID
508	POINT MURAT 03	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Midden / Scatter	*Registered Knowledge Holder names available from DPL	209042mE 7584688mN Zone 50 [Reliable]	P07503
509	POINT MURAT 04	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter	*Registered Knowledge Holder names available from DPL	208690mE 7584604mN Zone 50 [Reliable]	P07504
563	POINT MURAT 01	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Midden / Scatter	*Registered Knowledge Holder names available from DPL	208716mE 7585665mN Zone 50 [Reliable]	P07501
564	POINT MURAT 02	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Midden / Scatter	*Registered Knowledge Holder names available from DPL	209079mE 7585539mN Zone 50 [Reliable]	P07502
628	CAMP THIRTEEN BURIAL	No	No	No Gender Restrictions	Registered Site	Skeletal Material / Burial	*Registered Knowledge Holder names available from DPL	800392mE 7559449mN Zone 49 [Reliable]	P07434
811	URALA 94 B	No	No	No Gender Restrictions	Registered Site	Midden / Scatter	*Registered Knowledge Holder names available from DPL	273738mE 7591155mN Zone 50 [Unreliable]	P07322
911	40 MILE - EASTERN POINT	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Midden / Scatter	*Registered Knowledge Holder names available from DPL	437309mE 7697139mN Zone 50 [Reliable]	P07271
919	ENDERBY IS.27: GOODWYN VIEW	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Midden / Scatter	*Registered Knowledge Holder names available from DPL	452539mE 7724955mN Zone 50 [Unreliable]	P07279
929	ENDERBY IS.18: MANGROVE CK	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Quarry	*Registered Knowledge Holder names available from DPL	451039mE 7720255mN Zone 50 [Unreliable]	P07235
930	ENDERBY IS.19: MANGROVE CK	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter	*Registered Knowledge Holder names available from DPL	451139mE 7720655mN Zone 50 [Unreliable]	P07236
931	ENDERBY IS.20: MANGROVE CK	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Midden / Scatter	*Registered Knowledge Holder names available from DPL	450939mE 7720855mN Zone 50 [Unreliable]	P07237
932	ENDERBY IS.21: BACK QUARRY	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Quarry	*Registered Knowledge Holder names available from DPL	449839mE 7720155mN Zone 50 [Unreliable]	P07238

Aboriginal Heritage Inquiry System

List of Registered Aboriginal Sites

ID	Name	File Restricted	Boundary Restricted	Restrictions	Status	Type	Knowledge Holders	Coordinate	Legacy ID
933	ENDERBY IS.22: TEREBRALIA	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Midden / Scatter	*Registered Knowledge Holder names available from DPL	447239mE 7720355mN Zone 50 [Unreliable]	P07239
934	ENDERBY IS.23: GRINDING	No	No	No Gender Restrictions	Registered Site	Engraving, Grinding Patches / Grooves	*Registered Knowledge Holder names available from DPL	446939mE 7720455mN Zone 50 [Unreliable]	P07240
936	ENDERBY IS.25: DINGHY MIDDEN	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Midden / Scatter	*Registered Knowledge Holder names available from DPL	447539mE 7720155mN Zone 50 [Unreliable]	P07242
937	ENDERBY IS.26: NORTH POINT	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Midden / Scatter, Quarry	*Registered Knowledge Holder names available from DPL	453339mE 7725455mN Zone 50 [Unreliable]	P07243
970	ROSEMARY IS.15: AIRSTRIP	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Grinding Patches / Grooves, Midden / Scatter	*Registered Knowledge Holder names available from DPL	458739mE 7737855mN Zone 50 [Unreliable]	P07223
971	ROSEMARY IS.16: AIRSTRIP	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Midden / Scatter, Quarry	*Registered Knowledge Holder names available from DPL	458539mE 7737855mN Zone 50 [Unreliable]	P07224
972	ROSEMARY IS.17: AIRSTRIP	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Quarry	*Registered Knowledge Holder names available from DPL	458139mE 7737655mN Zone 50 [Unreliable]	P07225
973	ROSEMARY IS.18: DEEP WATER	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Midden / Scatter	*Registered Knowledge Holder names available from DPL	457039mE 7736655mN Zone 50 [Unreliable]	P07226
974	ROSEMARY IS.19: CHITON	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Midden / Scatter	*Registered Knowledge Holder names available from DPL	456839mE 7736355mN Zone 50 [Unreliable]	P07227
975	ROSEMARY IS.20: HALFWAY CK	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Midden / Scatter	*Registered Knowledge Holder names available from DPL	456839mE 7735355mN Zone 50 [Unreliable]	P07228
978	ROSEMARY IS.23: WADJURU R/H	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Engraving, Grinding Patches / Grooves, Man-Made Structure, Midden / Scatter, Water Source	*Registered Knowledge Holder names available from DPL	455839mE 7734355mN Zone 50 [Unreliable]	P07231
979	ROSEMARY IS.24: HUNGERFORD	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Midden / Scatter	*Registered Knowledge Holder names available from DPL	456339mE 7734355mN Zone 50 [Unreliable]	P07232



Aboriginal Heritage Inquiry System

List of Registered Aboriginal Sites

ID	Name	File Restricted	Boundary Restricted	Restrictions	Status	Type	Knowledge Holders	Coordinate	Legacy ID
1062	LEGENDRE 11	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter	*Registered Knowledge Holder names available from DPL	494439mE 7742455mN Zone 50 [Unreliable]	P07204
1103	LEGENDRE HILL	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Midden / Scatter	*Registered Knowledge Holder names available from DPL	492639mE 7742455mN Zone 50 [Unreliable]	P07193
1104	LEGENDRE 01.	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Shell, Water Source	*Registered Knowledge Holder names available from DPL	492639mE 7742655mN Zone 50 [Unreliable]	P07194
1105	LEGENDRE 02	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Midden / Scatter	*Registered Knowledge Holder names available from DPL	494939mE 7742055mN Zone 50 [Unreliable]	P07195
1106	LEGENDRE 03.	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Shell	*Registered Knowledge Holder names available from DPL	491739mE 7743455mN Zone 50 [Unreliable]	P07196
1109	LEGENDRE 06.	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Shell	*Registered Knowledge Holder names available from DPL	494439mE 7742455mN Zone 50 [Unreliable]	P07199
1110	LEGENDRE 07.	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Shell	*Registered Knowledge Holder names available from DPL	494139mE 7742455mN Zone 50 [Unreliable]	P07200
1112	LEGENDRE 09.	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Shell	*Registered Knowledge Holder names available from DPL	488639mE 7744555mN Zone 50 [Unreliable]	P07202
1113	LEGENDRE 10.	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Rockshelter, Shell	*Registered Knowledge Holder names available from DPL	486839mE 7745455mN Zone 50 [Unreliable]	P07203
4491	LYNTON STATION	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Skeletal Material / Burial	*Registered Knowledge Holder names available from DPL	234838mE 6876852mN Zone 50 [Unreliable]	S02725
4531	BULLER RIVER NORTH.	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Skeletal Material / Burial, Camp	*Registered Knowledge Holder names available from DPL	264742mE 6833501mN Zone 50 [Reliable]	S02592
4532	BULLER RIVER NORTH REBURIAL	Yes	Yes	No Gender Restrictions	Registered Site	Skeletal Material / Burial	*Registered Knowledge Holder names available from DPL	Not available when location is restricted	S02593



Aboriginal Heritage Inquiry System

List of Registered Aboriginal Sites

ID	Name	File Restricted	Boundary Restricted	Restrictions	Status	Type	Knowledge Holders	Coordinate	Legacy ID
4667	GREENOUGH RIVER	No	No	No Gender Restrictions	Registered Site	Midden / Scatter, Skeletal Material / Burial	*Registered Knowledge Holder names available from DPL	271638mE 6801651mN Zone 50 [Unreliable]	S02275
4940	BOWES RIVER MOUTH SOUTH.	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Midden / Scatter, Skeletal Material / Burial, Camp, Other: ?	*Registered Knowledge Holder names available from DPL	250738mE 6854751mN Zone 50 [Unreliable]	S01714
5279	FLAT ROCKS	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Midden / Scatter	*Registered Knowledge Holder names available from DPL	283638mE 6788651mN Zone 50 [Unreliable]	S01001
5465	DRUMMONDS COVE	No	No	No Gender Restrictions	Registered Site	Skeletal Material / Burial	*Registered Knowledge Holder names available from DPL	265638mE 6829651mN Zone 50 [Unreliable]	S00668
5467	WOOLAWAR GULLY	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Skeletal Material / Burial	*Registered Knowledge Holder names available from DPL	258738mE 6845451mN Zone 50 [Reliable]	S00734
5558	HORROCKS BEACH.	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Camp	*Registered Knowledge Holder names available from DPL	251138mE 6854551mN Zone 50 [Unreliable]	S00003
5672	HUTT RIVER	No	No	No Gender Restrictions	Registered Site	Painting	*Registered Knowledge Holder names available from DPL	235638mE 6875652mN Zone 50 [Unreliable]	S00500
5946	WEST INTERCOURSE ISLAND 11	No	No	No Gender Restrictions	Registered Site	Engraving	*Registered Knowledge Holder names available from DPL	459839mE 7712655mN Zone 50 [Unreliable]	P07153
5999	WEST INTERCOURSE ISLAND 09.	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Water Source	*Registered Knowledge Holder names available from DPL	459739mE 7712655mN Zone 50 [Unreliable]	P07151
6000	WEST INTERCOURSE ISLAND 10	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Midden / Scatter	*Registered Knowledge Holder names available from DPL	459739mE 7712705mN Zone 50 [Unreliable]	P07152
6078	ROSEMARY ISLAND 10	No	No	No Gender Restrictions	Registered Site	Engraving	*Registered Knowledge Holder names available from DPL	456639mE 7734755mN Zone 50 [Reliable]	P07019
6079	ENDERBY ISLAND 12	No	No	No Gender Restrictions	Registered Site	Man-Made Structure	*Registered Knowledge Holder names available from DPL	454739mE 7724505mN Zone 50 [Reliable]	P07020

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ID	Name	File Restricted	Boundary Restricted	Restrictions	Status	Type	Knowledge Holders	Coordinate	Legacy ID
6080	ENDERBY ISLAND 13	No	No	No Gender Restrictions	Registered Site	Engraving	*Registered Knowledge Holder names available from DPL	455239mE 7724555mN Zone 50 [Reliable]	P07021
6182	EAST LEWIS ISLAND: SW.	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Engraving, Midden / Scatter, Camp	*Registered Knowledge Holder names available from DPL	462239mE 7719055mN Zone 50 [Reliable]	P06915
6184	ENDERBY ISLAND 09: SE	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Fish Trap, Midden / Scatter	*Registered Knowledge Holder names available from DPL	453689mE 7720355mN Zone 50 [Reliable]	P06917
6186	ENDERBY ISLAND 11: NE.	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Ceremonial, Engraving, Grinding Patches / Grooves, Man-Made Structure, Camp	*Registered Knowledge Holder names available from DPL	456139mE 7724055mN Zone 50 [Reliable]	P06919
6228	WEST LEWIS ISLAND: SW.	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Grinding Patches / Grooves, Midden / Scatter, Quarry, Camp, Water Source, Other: ?, (FORMER	*Registered Knowledge Holder names available from DPL	459539mE 7722755mN Zone 50 [Reliable]	P06909
6229	WEST LEWIS ISLAND: NW ARM 1	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Ceremonial, Engraving, Grinding Patches / Grooves, Man-Made Structure	*Registered Knowledge Holder names available from DPL	462438mE 7727355mN Zone 50 [Reliable]	P06910
6230	WEST LEWIS ISLAND: NW ARM 2	Yes	Yes	Male Access Only	Registered Site	Artefacts / Scatter, Ceremonial, Engraving, Grinding Patches / Grooves, Man-Made Structure	*Registered Knowledge Holder names available from DPL	Not available when location is restricted	P06911
6233	EAST LEWIS ISLAND: S.	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Engraving, Midden / Scatter, Camp	*Registered Knowledge Holder names available from DPL	462389mE 7718755mN Zone 50 [Reliable]	P06914
6311	POINT MURAT.	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Midden / Scatter, Skeletal Material / Burial, Camp, Other: ?	*Registered Knowledge Holder names available from DPL	208538mE 7584405mN Zone 50 [Reliable]	P06628
6325	COWERIE WELL	Yes	Yes	No Gender Restrictions	Registered Site	Skeletal Material / Burial	*Registered Knowledge Holder names available from DPL	Not available when location is restricted	P06642
6334	MUNDA STATION BURIAL 1	No	No	No Gender Restrictions	Registered Site	Skeletal Material / Burial	*Registered Knowledge Holder names available from DPL	612139mE 7742155mN Zone 50 [Unreliable]	P06651
6335	MUNDA STATION BURIAL 2	No	No	No Gender Restrictions	Registered Site	Skeletal Material / Burial	*Registered Knowledge Holder names available from DPL	613139mE 7742255mN Zone 50 [Unreliable]	P06652



Aboriginal Heritage Inquiry System

List of Registered Aboriginal Sites

ID	Name	File Restricted	Boundary Restricted	Restrictions	Status	Type	Knowledge Holders	Coordinate	Legacy ID
6498	DIRK HARTOG ISLAND	No	No	No Gender Restrictions	Registered Site	Man-Made Structure	*Registered Knowledge Holder names available from DPL	695143mE 7175147mN Zone 49 [Unreliable]	P06448
6541	URALA STATION WEST	Yes	Yes	No Gender Restrictions	Registered Site	Ceremonial	*Registered Knowledge Holder names available from DPL	Not available when location is restricted	P06438
6575	JINTA 1 MIDDEN	Yes	Yes	No Gender Restrictions	Registered Site	Artefacts / Scatter, Midden / Scatter	*Registered Knowledge Holder names available from DPL	Not available when location is restricted	P06370
6596	POINT ANDERSON.	Yes	Yes	No Gender Restrictions	Registered Site	Artefacts / Scatter, Midden / Scatter, Camp, Hunting Place, Shell, Water Source	*Registered Knowledge Holder names available from DPL	Not available when location is restricted	P06341
6607	CRAYFISH BAY 2	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Midden / Scatter, Quarry	*Registered Knowledge Holder names available from DPL	729642mE 7084646mN Zone 49 [Unreliable]	P06352
6608	ZUYTDORP POINT	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Midden / Scatter	*Registered Knowledge Holder names available from DPL	729442mE 7078146mN Zone 49 [Unreliable]	P06353
6616	CORAL BAY ACCESS 2	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Midden / Scatter	*Registered Knowledge Holder names available from DPL	784342mE 7438148mN Zone 49 [Unreliable]	P06361
6617	BURUBARLADJI	Yes	Yes	No Gender Restrictions	Registered Site	Mythological	*Registered Knowledge Holder names available from DPL	Not available when location is restricted	P06362
6618	DEW TALU.	Yes	Yes	No Gender Restrictions	Registered Site	Ceremonial, Water Source	*Registered Knowledge Holder names available from DPL	Not available when location is restricted	P06363
6619	JINTA 1.	Yes	Yes	No Gender Restrictions	Registered Site	Water Source	*Registered Knowledge Holder names available from DPL	Not available when location is restricted	P06364
6620	JINTA 2.	Yes	Yes	No Gender Restrictions	Registered Site	Water Source	*Registered Knowledge Holder names available from DPL	Not available when location is restricted	P06365
6723	MULANDA 2	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Midden / Scatter	*Registered Knowledge Holder names available from DPL	784742mE 7441148mN Zone 49 [Unreliable]	P06257

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ID	Name	File Restricted	Boundary Restricted	Restrictions	Status	Type	Knowledge Holders	Coordinate	Legacy ID
6724	MULANDA 3	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Midden / Scatter	*Registered Knowledge Holder names available from DPL	784842mE 7441248mN Zone 49 [Unreliable]	P06258
6750	WAGOE FARM BURIAL	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Midden / Scatter, Skeletal Material / Burial	*Registered Knowledge Holder names available from DPL	215638mE 6914652mN Zone 50 [Unreliable]	P06231
6754	OSPREY BAY 6	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Midden / Scatter	*Registered Knowledge Holder names available from DPL	792942mE 7538749mN Zone 49 [Reliable]	P06165
6755	OSPREY BAY INTERDUNAL 1	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Midden / Scatter	*Registered Knowledge Holder names available from DPL	792342mE 7537149mN Zone 49 [Unreliable]	P06166
6756	OSPREY BAY INTERDUNAL 2	No	No	No Gender Restrictions	Registered Site	Midden / Scatter	*Registered Knowledge Holder names available from DPL	792642mE 7537149mN Zone 49 [Reliable]	P06167
6757	BLOODWOOD CREEK MIDDEN 1	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Midden / Scatter	*Registered Knowledge Holder names available from DPL	794942mE 7544549mN Zone 49 [Reliable]	P06168
6758	BLOODWOOD CREEK MIDDEN 2	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Midden / Scatter	*Registered Knowledge Holder names available from DPL	794942mE 7545049mN Zone 49 [Reliable]	P06169
6759	BLOODWOOD CREEK MIDDEN 3	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Midden / Scatter	*Registered Knowledge Holder names available from DPL	795142mE 7544949mN Zone 49 [Reliable]	P06170
6760	BLOODWOOD CREEK SHORELINE	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Midden / Scatter	*Registered Knowledge Holder names available from DPL	794942mE 7545249mN Zone 49 [Reliable]	P06171
6761	LOW POINT MIDDEN	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Midden / Scatter	*Registered Knowledge Holder names available from DPL	802992mE 7566299mN Zone 49 [Reliable]	P06172
6762	MILYERING MIDDEN	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Midden / Scatter	*Registered Knowledge Holder names available from DPL	801342mE 7561449mN Zone 49 [Reliable]	P06173
6763	YARDIE ROCKSHELTERS NORTH.	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Midden / Scatter, Rockshelter	*Registered Knowledge Holder names available from DPL	791542mE 7530249mN Zone 49 [Unreliable]	P06174

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6764	CAMP 17 SOUTH MIDDENS	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Midden / Scatter	*Registered Knowledge Holder names available from DPL	799042mE 7555649mN Zone 49 [Unreliable]	P06175
6765	CAMP 17 NORTH MIDDENS	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Midden / Scatter	*Registered Knowledge Holder names available from DPL	799042mE 7555849mN Zone 49 [Unreliable]	P06176
6769	MULANDA 1	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Midden / Scatter	*Registered Knowledge Holder names available from DPL	784550mE 7441050mN Zone 49 [Reliable]	P06180
6782	28 MILE CREEK NORTH 1	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Midden / Scatter	*Registered Knowledge Holder names available from DPL	795242mE 7545949mN Zone 49 [Unreliable]	P06140
6784	MANDU MANDU CREEK SOUTH	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Midden / Scatter	*Registered Knowledge Holder names available from DPL	796642mE 7548649mN Zone 49 [Unreliable]	P06142
6785	MANDU MANDU CREEK NORTH	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Midden / Scatter	*Registered Knowledge Holder names available from DPL	796642mE 7548649mN Zone 49 [Unreliable]	P06143
6790	YARDIE CREEK SOUTH 1	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Midden / Scatter	*Registered Knowledge Holder names available from DPL	788942mE 7527749mN Zone 49 [Reliable]	P06148
6791	YARDIE CREEK SOUTH 2	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Midden / Scatter	*Registered Knowledge Holder names available from DPL	790342mE 7528149mN Zone 49 [Reliable]	P06149
6797	YARDIE WELL ROCKSHELTER.	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Midden / Scatter, Rockshelter, Arch Deposit, BP Dating: 10, 490+/-180BP, Other: ?	*Registered Knowledge Holder names available from DPL	791542mE 7530449mN Zone 49 [Reliable]	P06155
6798	YARDIE INTERDUNAL SWALE	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Midden / Scatter	*Registered Knowledge Holder names available from DPL	789942mE 7528849mN Zone 49 [Reliable]	P06156
6799	YARDIE BEACH MIDDEN	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Midden / Scatter	*Registered Knowledge Holder names available from DPL	789842mE 7529049mN Zone 49 [Reliable]	P06157
6800	OYSTER STACKS MIDDEN	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Midden / Scatter	*Registered Knowledge Holder names available from DPL	797042mE 7549849mN Zone 49 [Reliable]	P06158

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6801	NORTH T-BONE BAY	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Midden / Scatter	*Registered Knowledge Holder names available from DPL	801666mE 7562059mN Zone 49 [Reliable]	P06159
6802	OSPREY BAY 1	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Midden / Scatter	*Registered Knowledge Holder names available from DPL	792742mE 7538149mN Zone 49 [Reliable]	P06160
6803	OSPREY BAY 2	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Midden / Scatter	*Registered Knowledge Holder names available from DPL	792742mE 7538049mN Zone 49 [Reliable]	P06161
6804	OSPREY BAY 3	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Midden / Scatter	*Registered Knowledge Holder names available from DPL	792542mE 7537849mN Zone 49 [Reliable]	P06162
6805	OSPREY BAY 4	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Midden / Scatter	*Registered Knowledge Holder names available from DPL	792342mE 7537049mN Zone 49 [Reliable]	P06163
6806	OSPREY BAY 5	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Midden / Scatter	*Registered Knowledge Holder names available from DPL	792742mE 7538149mN Zone 49 [Reliable]	P06164
6827	CORAL BAY SKELETON	No	No	No Gender Restrictions	Registered Site	Skeletal Material / Burial	*Registered Knowledge Holder names available from DPL	785143mE 7445149mN Zone 49 [Unreliable]	P06132
6833	WEST MOORE ISLAND	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Midden / Scatter	*Registered Knowledge Holder names available from DPL	570539mE 7718055mN Zone 50 [Reliable]	P06138
6966	ENDERBY ISLAND 08	No	No	No Gender Restrictions	Registered Site	Engraving	*Registered Knowledge Holder names available from DPL	455571mE 7723794mN Zone 50 [Unreliable]	P05955
7059	FOUR MILE CREEK MIDDEN	No	No	No Gender Restrictions	Registered Site	Midden / Scatter	*Registered Knowledge Holder names available from DPL	298839mE 7600855mN Zone 50 [Unreliable]	P05890
7085	WADJUDUKUBRA 1.	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Shell	*Registered Knowledge Holder names available from DPL	532639mE 7706655mN Zone 50 [Unreliable]	P05859
7087	WADJUDUKUBRA 3	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Midden / Scatter	*Registered Knowledge Holder names available from DPL	533639mE 7706655mN Zone 50 [Unreliable]	P05861

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7123	BERNIER ISLAND	No	No	No Gender Restrictions	Registered Site	Skeletal Material / Burial	*Registered Knowledge Holder names available from DPL	716459mE 7249035mN Zone 49 [Unreliable]	P05789
7124	DORRE ISLAND	No	No	No Gender Restrictions	Registered Site	Skeletal Material / Burial	*Registered Knowledge Holder names available from DPL	711750mE 7220260mN Zone 49 [Unreliable]	P05790
7126	MESA CAMP	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Midden / Scatter	*Registered Knowledge Holder names available from DPL	798442mE 7554749mN Zone 49 [Unreliable]	P05792
7138	QUOBBA DUNES.	Yes	Yes	No Gender Restrictions	Registered Site	Artefacts / Scatter, Midden / Scatter, Skeletal Material / Burial, Camp	*Registered Knowledge Holder names available from DPL	Not available when location is restricted	P05804
7203	BAUBOODJOO POINT (Bruboodjoo Midden Site)	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Midden / Scatter, Camp, Hunting Place	*Registered Knowledge Holder names available from DPL	789242mE 7456149mN Zone 49 [Reliable]	P05707
7205	TWIN HILL FISHING PLACE.	No	No	No Gender Restrictions	Registered Site	Hunting Place	*Registered Knowledge Holder names available from DPL	787042mE 7467649mN Zone 49 [Unreliable]	P05709
7206	WEALJUGOO MIDDEN.	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Midden / Scatter, Camp, Hunting Place	*Registered Knowledge Holder names available from DPL	776584mE 7504740mN Zone 49 [Reliable]	P05710
7209	BULBARLI POINT COMPLEX.	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Midden / Scatter, Camp, Water Source	*Registered Knowledge Holder names available from DPL	778042mE 7393048mN Zone 49 [Reliable]	P05713
7211	MAUD LANDING.	No	No	No Gender Restrictions	Registered Site	Skeletal Material / Burial, Camp, Meeting Place, Water Source	*Registered Knowledge Holder names available from DPL	784292mE 7441048mN Zone 49 [Unreliable]	P05715
7254	SANDY BAY NORTH	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Midden / Scatter	*Registered Knowledge Holder names available from DPL	793442mE 7539949mN Zone 49 [Reliable]	P05652
7265	LAKE SIDE VIEW	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Midden / Scatter	*Registered Knowledge Holder names available from DPL	800942mE 7560549mN Zone 49 [Reliable]	P05664
7286	KAPOK WELL BURIAL	Yes	Yes	No Gender Restrictions	Registered Site	Skeletal Material / Burial	*Registered Knowledge Holder names available from DPL	Not available when location is restricted	P05632

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7298	YARDIE CREEK ROCKSHELTERS	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter	*Registered Knowledge Holder names available from DPL	790635mE 7529704mN Zone 49 [Reliable]	P05644
7299	YARDIE CREEK	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Midden / Scatter	*Registered Knowledge Holder names available from DPL	789642mE 7528649mN Zone 49 [Unreliable]	P05645
7300	MANDU MANDU CK ROCKSHELTERS	Yes	Yes	No Gender Restrictions	Registered Site	Artefacts / Scatter	*Registered Knowledge Holder names available from DPL	Not available when location is restricted	P05646
7303	TULKI WELL MIDDEN	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Midden / Scatter	*Registered Knowledge Holder names available from DPL	798642mE 7554249mN Zone 49 [Reliable]	P05649
7304	PILGRAMUNNA BAY MIDDEN	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Midden / Scatter	*Registered Knowledge Holder names available from DPL	794642mE 7543349mN Zone 49 [Reliable]	P05650
7305	MANGROVE BAY.	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Midden / Scatter, Skeletal Material / Burial, Hunting Place	*Registered Knowledge Holder names available from DPL	804142mE 7568149mN Zone 49 [Reliable]	P05651
7332	URALA STATION 12	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Midden / Scatter	*Registered Knowledge Holder names available from DPL	282038mE 7597555mN Zone 50 [Reliable]	P05574
7334	URALA STATION 14	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Midden / Scatter	*Registered Knowledge Holder names available from DPL	282538mE 7597255mN Zone 50 [Reliable]	P05576
7381	URALA STATION 09	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Midden / Scatter, Skeletal Material / Burial, Camp	*Registered Knowledge Holder names available from DPL	277045mE 7592515mN Zone 50 [Reliable]	P05569
7382	ROCKY POINT MIDDEN COMPLEX	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Midden / Scatter	*Registered Knowledge Holder names available from DPL	278538mE 7594655mN Zone 50 [Reliable]	P05570
7383	ROCKY POINT EAST	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Midden / Scatter	*Registered Knowledge Holder names available from DPL	279238mE 7594855mN Zone 50 [Reliable]	P05571
7385	URALA STATION 11	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Midden / Scatter	*Registered Knowledge Holder names available from DPL	282238mE 7597555mN Zone 50 [Reliable]	P05573

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7786	BAALYINNYE.	Yes	Yes	No Gender Restrictions	Registered Site	Artefacts / Scatter, Midden / Scatter, Water Source	*Registered Knowledge Holder names available from DPL	Not available when location is restricted	P05055
7866	EAST LEWIS MIDDEN 2	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Midden / Scatter, Quarry	*Registered Knowledge Holder names available from DPL	463039mE 7720355mN Zone 50 [Reliable]	P04966
7906	DELAMBRE ISLAND SOUTH.	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Water Source	*Registered Knowledge Holder names available from DPL	508039mE 7737955mN Zone 50 [Unreliable]	P04954
7907	ROE POINT, EAST LEWIS	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Midden / Scatter	*Registered Knowledge Holder names available from DPL	465239mE 7719355mN Zone 50 [Reliable]	P04955
7914	EAST LEWIS MIDDEN 1	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Midden / Scatter	*Registered Knowledge Holder names available from DPL	464139mE 7719655mN Zone 50 [Reliable]	P04962
8014	CAPE LAMBERT MIDDEN 07	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Midden / Scatter, Quarry	*Registered Knowledge Holder names available from DPL	517939mE 7722255mN Zone 50 [Reliable]	P04665
8299	BEADON CREEK	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Skeletal Material / Burial	*Registered Knowledge Holder names available from DPL	313139mE 7609155mN Zone 50 [Reliable]	P04351
8300	CORAL BAY	No	No	No Gender Restrictions	Registered Site	Skeletal Material / Burial	*Registered Knowledge Holder names available from DPL	784442mE 7430398mN Zone 49 [Unreliable]	P04352
8301	NINGALOO STATION	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter	*Registered Knowledge Holder names available from DPL	775891mE 7493649mN Zone 49 [Unreliable]	P04353
8302	WARROORA	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Midden / Scatter	*Registered Knowledge Holder names available from DPL	786642mE 7420648mN Zone 49 [Unreliable]	P04354
8920	ONSLow 1	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Midden / Scatter	*Registered Knowledge Holder names available from DPL	304068mE 7606217mN Zone 50 [Reliable]	P03563
8927	TEN MILE WELL BURIAL	No	No	No Gender Restrictions	Registered Site	Skeletal Material / Burial	*Registered Knowledge Holder names available from DPL	783642mE 7480649mN Zone 49 [Reliable]	P03570

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9737	ENDERBY ISLAND 06: BOILER B	No	No	No Gender Restrictions	Registered Site	Engraving, Quarry	*Registered Knowledge Holder names available from DPL	445139mE 7720655mN Zone 50 [Reliable]	P02449
10381	VLAMING HEAD	Yes	Yes	No Gender Restrictions	Registered Site	Ceremonial, Mythological	*Registered Knowledge Holder names available from DPL	Not available when location is restricted	P01799
10999	CRAYFISH BAY.	No	No	No Gender Restrictions	Registered Site	Historical, Man-Made Structure, Other: STOCKADES	*Registered Knowledge Holder names available from DPL	729642mE 7084646mN Zone 49 [Unreliable]	P01151
11401	5 Mile Well (Cape Range)	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Engraving, Painting, Quarry, Arch Deposit	*Registered Knowledge Holder names available from DPL	198638mE 7583655mN Zone 50 [Unreliable]	P00751
11402	URALA DUNE BURIAL	Yes	Yes	No Gender Restrictions	Registered Site	Artefacts / Scatter, Midden / Scatter, Skeletal Material / Burial	*Registered Knowledge Holder names available from DPL	Not available when location is restricted	P00752
11458	NINGALOO (near)	No	No	No Gender Restrictions	Registered Site	Painting	*Registered Knowledge Holder names available from DPL	781642mE 7511649mN Zone 49 [Unreliable]	P00701
11460	WARROORA STATION	No	No	No Gender Restrictions	Registered Site	Skeletal Material / Burial	*Registered Knowledge Holder names available from DPL	784642mE 7401648mN Zone 49 [Unreliable]	P00703
11625	DEPUCH ISLAND	No	No	No Gender Restrictions	Registered Site	Engraving, Other: PA 04	*Registered Knowledge Holder names available from DPL	575578mE 7718337mN Zone 50 [Reliable]	P00542
11627	JANE CREEK	No	No	No Gender Restrictions	Registered Site	Engraving	*Registered Knowledge Holder names available from DPL	574926mE 7720109mN Zone 50 [Reliable]	P00544
11628	ANCHOR HILL, DEPUCH ISLAND	No	No	No Gender Restrictions	Registered Site	Engraving	*Registered Knowledge Holder names available from DPL	577339mE 7718655mN Zone 50 [Reliable]	P00545
11649	DEBBY'S DUNE (DIXON ISLAND 4)	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Midden / Scatter	*Registered Knowledge Holder names available from DPL	505639mE 7718655mN Zone 50 [Unreliable]	P00513
11650	GAYLEEN BAY (DIXON IS. 6).	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Midden / Scatter, Arch Deposit	*Registered Knowledge Holder names available from DPL	505639mE 7719655mN Zone 50 [Unreliable]	P00514

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11653	BOBBY'S FLAT E(DIXON IS.2)	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Midden / Scatter	*Registered Knowledge Holder names available from DPL	508639mE 7720655mN Zone 50 [Unreliable]	P00517
11654	BOBBY'S FLAT (DIXON IS. 3)	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Midden / Scatter	*Registered Knowledge Holder names available from DPL	508639mE 7720655mN Zone 50 [Unreliable]	P00518
11656	SUSAN BAY (DIXON ISLAND 7)	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Midden / Scatter	*Registered Knowledge Holder names available from DPL	506227mE 7718934mN Zone 50 [Unreliable]	P00520
11664	CAPE LAMBERT	No	No	No Gender Restrictions	Registered Site	Engraving	*Registered Knowledge Holder names available from DPL	517748mE 7722516mN Zone 50 [Reliable]	P00528
11698	ANGELA COVE	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Engraving	*Registered Knowledge Holder names available from DPL	481639mE 7739655mN Zone 50 [Unreliable]	P00457
11715	RIM ROCK GORGE.	No	No	No Gender Restrictions	Registered Site	Engraving, Camp	*Registered Knowledge Holder names available from DPL	481639mE 7739655mN Zone 50 [Unreliable]	P00475
11729	NGARLUMA POINT, GIDLEY IS.	No	No	No Gender Restrictions	Registered Site	Engraving, Man-Made Structure	*Registered Knowledge Holder names available from DPL	479410mE 7738492mN Zone 50 [Reliable]	P00434
11730	MORS HILL, GIDLEY ISLAND.	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Engraving, Skeletal Material / Burial, Shell	*Registered Knowledge Holder names available from DPL	481596mE 7741122mN Zone 50 [Unreliable]	P00435
11744	EAST LEWIS 5	No	No	No Gender Restrictions	Registered Site	Engraving	*Registered Knowledge Holder names available from DPL	462389mE 7718655mN Zone 50 [Unreliable]	P00395
11745	EAST LEWIS 6	No	No	No Gender Restrictions	Registered Site	Engraving	*Registered Knowledge Holder names available from DPL	462339mE 7718805mN Zone 50 [Reliable]	P00396
11746	EAST LEWIS 7	No	No	No Gender Restrictions	Registered Site	Engraving	*Registered Knowledge Holder names available from DPL	462139mE 7718655mN Zone 50 [Unreliable]	P00397
11747	EAST LEWIS 8	No	No	No Gender Restrictions	Registered Site	Engraving	*Registered Knowledge Holder names available from DPL	462139mE 7718655mN Zone 50 [Unreliable]	P00398

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11748	EAST LEWIS 9	No	No	No Gender Restrictions	Registered Site	Engraving	*Registered Knowledge Holder names available from DPL	462139mE 7718655mN Zone 50 [Reliable]	P00399
11749	EAST LEWIS 4	No	No	No Gender Restrictions	Registered Site	Engraving	*Registered Knowledge Holder names available from DPL	463139mE 7719755mN Zone 50 [Unreliable]	P00400
11750	EAST LEWIS 3	No	No	No Gender Restrictions	Registered Site	Engraving	*Registered Knowledge Holder names available from DPL	463139mE 7720155mN Zone 50 [Unreliable]	P00401
11752	EAST LEWIS 2	No	No	No Gender Restrictions	Registered Site	Engraving	*Registered Knowledge Holder names available from DPL	464439mE 7719855mN Zone 50 [Unreliable]	P00403
11753	EAST LEWIS 1	No	No	No Gender Restrictions	Registered Site	Engraving	*Registered Knowledge Holder names available from DPL	463639mE 7720655mN Zone 50 [Unreliable]	P00404
11767	FISH POINT, GIDLEY ISLAND	No	No	No Gender Restrictions	Registered Site	Engraving	*Registered Knowledge Holder names available from DPL	479039mE 7736305mN Zone 50 [Unreliable]	P00418
11771	ENDERBY ISLAND 05	No	No	No Gender Restrictions	Registered Site	Engraving	*Registered Knowledge Holder names available from DPL	455639mE 7724155mN Zone 50 [Unreliable]	P00368
11772	ROSEMARY ISLAND 09	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Midden / Scatter	*Registered Knowledge Holder names available from DPL	456439mE 7733905mN Zone 50 [Unreliable]	P00369
11773	ROSEMARY ISLAND 08	No	No	No Gender Restrictions	Registered Site	Engraving, Grinding Patches / Grooves, Man-Made Structure	*Registered Knowledge Holder names available from DPL	456389mE 7734455mN Zone 50 [Unreliable]	P00370
11775	ROSEMARY ISLAND 06	No	No	No Gender Restrictions	Registered Site	Engraving	*Registered Knowledge Holder names available from DPL	457839mE 7737256mN Zone 50 [Unreliable]	P00372
11820	ENDERBY ISLAND 01	No	No	No Gender Restrictions	Registered Site	Engraving	*Registered Knowledge Holder names available from DPL	445137mE 7725156mN Zone 50 [Unreliable]	P00364
11822	ENDERBY ISLAND 03	No	No	No Gender Restrictions	Registered Site	Engraving	*Registered Knowledge Holder names available from DPL	452655mE 7719941mN Zone 50 [Unreliable]	P00366

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11823	ENDERBY ISLAND 04	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Engraving, Midden / Scatter	*Registered Knowledge Holder names available from DPL	452539mE 7724455mN Zone 50 [Reliable]	P00367
12071	SOUTH WEST CREEK 4.	Yes	Yes	No Gender Restrictions	Registered Site	Artefacts / Scatter, Ceremonial, Engraving, Man-Made Structure, Midden / Scatter, Arch Deposit, Camp, Other: PA 25	*Registered Knowledge Holder names available from DPL	Not available when location is restricted	P00090
12195	WAILALKUNYA, SLATE ISLANDS	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Quarry	*Registered Knowledge Holder names available from DPL	650262mE 8282510mN Zone 51 [Reliable]	K00023
12201	STEEP ISLAND, FOAM PASSAGE	No	No	No Gender Restrictions	Registered Site	Mythological	*Registered Knowledge Holder names available from DPL	657334mE 8223970mN Zone 51 [Reliable]	K00029
12230	BARINBAR, SWAN POINT	Yes	Yes	No Gender Restrictions	Registered Site	Ceremonial	*Registered Knowledge Holder names available from DPL	Not available when location is restricted	K00005
12234	CAPE LEVEQUE	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Quarry	*Registered Knowledge Holder names available from DPL	492065mE 8187568mN Zone 51 [Unreliable]	K00009
12387	BOONGINJ-GOON	Yes	Yes	No Gender Restrictions	Registered Site	Ceremonial, Mythological	*Registered Knowledge Holder names available from DPL	Not available when location is restricted	K02850
12410	LINTAPITJIN/LOT 2065PORT DR	Yes	Yes	No Gender Restrictions	Registered Site	Artefacts / Scatter, Ceremonial, Midden / Scatter, Mythological	*Registered Knowledge Holder names available from DPL	Not available when location is restricted	K02819
12468	GALYUNGA	Yes	Yes	No Gender Restrictions	Registered Site	Ceremonial, Fish Trap, Mythological	*Registered Knowledge Holder names available from DPL	Not available when location is restricted	K02772
12469	GUNJI CEREMONIAL GROUND	Yes	Yes	No Gender Restrictions	Registered Site	Ceremonial	*Registered Knowledge Holder names available from DPL	Not available when location is restricted	K02773
12470	GULGUDUNG	Yes	Yes	No Gender Restrictions	Registered Site	Mythological	*Registered Knowledge Holder names available from DPL	Not available when location is restricted	K02774
12471	MARUNGUDA	Yes	Yes	No Gender Restrictions	Registered Site	Mythological	*Registered Knowledge Holder names available from DPL	Not available when location is restricted	K02775

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12550	CONDINI LANDING WEST	No	No	No Gender Restrictions	Registered Site	Skeletal Material / Burial	*Registered Knowledge Holder names available from DPL	737640mE 7789656mN Zone 50 [Unreliable]	K02698
12661	DESFONTAINES ISLAND WEST	No	No	No Gender Restrictions	Registered Site	Man-Made Structure	*Registered Knowledge Holder names available from DPL	697230mE 8338303mN Zone 51 [Reliable]	K02550
12677	HEYWOOD ISLAND	No	No	No Gender Restrictions	Registered Site	Man-Made Structure	*Registered Knowledge Holder names available from DPL	642691mE 8304486mN Zone 51 [Unreliable]	K02566
12685	BUNGARUGUN.	Yes	Yes	No Gender Restrictions	Registered Site	Artefacts / Scatter, Fish Trap, Midden / Scatter, Skeletal Material / Burial, Camp, Water Source	*Registered Knowledge Holder names available from DPL	Not available when location is restricted	K02521
12705	BIGGE ISLAND	Yes	Yes	No Gender Restrictions	Registered Site	Painting	*Registered Knowledge Holder names available from DPL	Not available when location is restricted	K02541
12720	DULI CAVE.	No	No	No Gender Restrictions	Registered Site	Ceremonial, Mythological, Rockshelter, Camp	*Registered Knowledge Holder names available from DPL	784636mE 8456661mN Zone 51 [Unreliable]	K02503
12722	DIDJI POINT.	No	No	No Gender Restrictions	Registered Site	Man-Made Structure, Mythological, Named Place	*Registered Knowledge Holder names available from DPL	784147mE 8455259mN Zone 51 [Unreliable]	K02505
12725	DIDJI WELLS.	No	No	No Gender Restrictions	Registered Site	Mythological, Water Source	*Registered Knowledge Holder names available from DPL	784136mE 8457161mN Zone 51 [Unreliable]	K02508
12726	CASSINI STONE LINE	No	No	No Gender Restrictions	Registered Site	Man-Made Structure, Mythological	*Registered Knowledge Holder names available from DPL	784036mE 8456942mN Zone 51 [Reliable]	K02509
12727	CASSINI STONE CIRCLES	No	No	No Gender Restrictions	Registered Site	Man-Made Structure, Mythological	*Registered Knowledge Holder names available from DPL	784436mE 8456161mN Zone 51 [Unreliable]	K02510
12835	LAMBINJINMAN.	No	No	No Gender Restrictions	Registered Site	Midden / Scatter, Named Place	*Registered Knowledge Holder names available from DPL	417365mE 8026042mN Zone 51 [Unreliable]	K02405
12839	BILLINGURRU.	Yes	Yes	Male Access Only	Registered Site	Ceremonial, Mythological, Camp	*Registered Knowledge Holder names available from DPL	Not available when location is restricted	K02409

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12842	INBALMARRA.	Yes	Yes	No Gender Restrictions	Registered Site	Artefacts / Scatter, Ceremonial, Midden / Scatter, Mythological, Quarry, Camp	*Registered Knowledge Holder names available from DPL	Not available when location is restricted	K02412
12872	GANTHEAUME POINT 2.	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Midden / Scatter, Camp	*Registered Knowledge Holder names available from DPL	415637mE 8009361mN Zone 51 [Reliable]	K02331
12873	ENTRANCE POINT/YINARA.	Yes	Yes	No Gender Restrictions	Registered Site	Artefacts / Scatter, Midden / Scatter, Mythological, Camp	*Registered Knowledge Holder names available from DPL	Not available when location is restricted	K02332
12875	BARRED CREEK	Yes	Yes	Male Access Only	Registered Site	Ceremonial	*Registered Knowledge Holder names available from DPL	Not available when location is restricted	K02334
12888	BALJARKURUKUN.	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Midden / Scatter, Quarry, Named Place	*Registered Knowledge Holder names available from DPL	416336mE 8029372mN Zone 51 [Reliable]	K02347
12902	KUNDANDU.	Yes	Yes	No Gender Restrictions	Registered Site	Artefacts / Scatter, Midden / Scatter, Mythological, Camp, Water Source, Other: Part of failed PA 139. ACMC Res 11/89	*Registered Knowledge Holder names available from DPL	Not available when location is restricted	K02308
12903	MURRJAL.	Yes	Yes	Female Access Only	Registered Site	Artefacts / Scatter, Midden / Scatter, Mythological, Camp, Water Source, Other: Part of failed PA 139. ACMC Res11/89	*Registered Knowledge Holder names available from DPL	Not available when location is restricted	K02309
12904	RURRJAMAN.	Yes	Yes	No Gender Restrictions	Registered Site	Artefacts / Scatter, Midden / Scatter, Mythological, Camp, Plant Resource, Water Source, Other: Part of failed PA 139. ACMC Res 11/89	*Registered Knowledge Holder names available from DPL	Not available when location is restricted	K02310
12905	NORTH BARRED CREEK.	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Midden / Scatter, Water Source	*Registered Knowledge Holder names available from DPL	414237mE 8047061mN Zone 51 [Unreliable]	K02311
12906	WILLIES CREEK COMPLEX.	Yes	Yes	No Gender Restrictions	Registered Site	Artefacts / Scatter, Ceremonial, Midden / Scatter, Mythological, Skeletal Material / Burial, Camp, Hunting Place, Named Place, Water Source	*Registered Knowledge Holder names available from DPL	Not available when location is restricted	K02312

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12907	COCONUT WELL 2	No	No	No Gender Restrictions	Registered Site	Midden / Scatter	*Registered Knowledge Holder names available from DPL	416037mE 8030361mN Zone 51 [Reliable]	K02313
12908	COCONUT WELL 1.	Yes	Yes	No Gender Restrictions	Registered Site	Artefacts / Scatter, Midden / Scatter, Mythological, Water Source	*Registered Knowledge Holder names available from DPL	Not available when location is restricted	K02314
12909	COCONUT WELL ISLAND	Yes	Yes	No Gender Restrictions	Registered Site	Artefacts / Scatter, Midden / Scatter	*Registered Knowledge Holder names available from DPL	Not available when location is restricted	K02315
12910	NORTH CABLE BEACH 6	No	No	No Gender Restrictions	Registered Site	Midden / Scatter	*Registered Knowledge Holder names available from DPL	417137mE 8023861mN Zone 51 [Reliable]	K02316
12912	JURLIRR.	Yes	Yes	No Gender Restrictions	Registered Site	Artefacts / Scatter, Ceremonial, Midden / Scatter, Mythological, Water Source, Other: Failed PA 142. ACMC Res 11/89	*Registered Knowledge Holder names available from DPL	Not available when location is restricted	K02318
12915	NORTH CABLE BEACH 2	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Midden / Scatter	*Registered Knowledge Holder names available from DPL	416737mE 8021761mN Zone 51 [Reliable]	K02321
12917	CABLE BEACH 6.	Yes	Yes	No Gender Restrictions	Registered Site	Midden / Scatter, Camp, Meeting Place, Water Source	*Registered Knowledge Holder names available from DPL	Not available when location is restricted	K02323
12918	CABLE BEACH 4.	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Midden / Scatter, Camp, Water Source, Other: Part of Failed PA 143. ACMC Res 11/89	*Registered Knowledge Holder names available from DPL	416087mE 8016161mN Zone 51 [Unreliable]	K02324
12920	CABLE BEACH 1	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Midden / Scatter, Other: Part of Failed PA 143. ACMC Res 11/89	*Registered Knowledge Holder names available from DPL	413737mE 8012661mN Zone 51 [Reliable]	K02326
12921	MINYIRR.	Yes	Yes	No Gender Restrictions	Registered Site	Mythological, Water Source, Other: Part of Failed PA 143. ACMC Res 11/89	*Registered Knowledge Holder names available from DPL	Not available when location is restricted	K02327
12922	JUNGKURR	Yes	Yes	No Gender Restrictions	Registered Site	Mythological, Other: Part of Failed PA 143. ACMC Res 11/89	*Registered Knowledge Holder names available from DPL	Not available when location is restricted	K02328
12923	NGAKALYALYA	Yes	Yes	No Gender Restrictions	Registered Site	Mythological, Other: Part of Failed PA 143. ACMC Res 11/89	*Registered Knowledge Holder names available from DPL	Not available when location is restricted	K02329

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12924	GANTHEAUME POINT 1	Yes	Yes	No Gender Restrictions	Registered Site	Artefacts / Scatter, Midden / Scatter, Mythological, Other: Part of Failed PA143. APMC Res 11/89	*Registered Knowledge Holder names available from DPL	Not available when location is restricted	K02330
12944	KURAKARAMUNJUNO 1.	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Midden / Scatter, Camp	*Registered Knowledge Holder names available from DPL	410237mE 8079761mN Zone 51 [Reliable]	K02298
12945	KURAKARAMUNJUNO 2.	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Midden / Scatter, Camp	*Registered Knowledge Holder names available from DPL	410137mE 8079361mN Zone 51 [Reliable]	K02299
12947	KURAKARAMUNJUNO 4.	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Midden / Scatter, Camp, Water Source	*Registered Knowledge Holder names available from DPL	410237mE 8077161mN Zone 51 [Unreliable]	K02301
12948	FLAT ROCK 1.	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Midden / Scatter	*Registered Knowledge Holder names available from DPL	410037mE 8076461mN Zone 51 [Reliable]	K02302
12949	FLAT ROCK 2.	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Midden / Scatter	*Registered Knowledge Holder names available from DPL	409737mE 8076161mN Zone 51 [Reliable]	K02303
12950	KULMUKARAKUN JUNO 1	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Midden / Scatter	*Registered Knowledge Holder names available from DPL	409887mE 8073161mN Zone 51 [Reliable]	K02304
12965	CAPE KERAUDREN 3.	Yes	Yes	No Gender Restrictions	Registered Site	Artefacts / Scatter, Midden / Scatter, Camp, Water Source	*Registered Knowledge Holder names available from DPL	Not available when location is restricted	K02266
12967	CAPE KERAUDREN 5	Yes	Yes	No Gender Restrictions	Registered Site	Midden / Scatter, Skeletal Material / Burial	*Registered Knowledge Holder names available from DPL	Not available when location is restricted	K02268
12969	WARRA MURRANGA TALU	Yes	Yes	No Gender Restrictions	Registered Site	Ceremonial, Mythological	*Registered Knowledge Holder names available from DPL	Not available when location is restricted	K02270
13014	BARGAJOC SOAK.	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Water Source	*Registered Knowledge Holder names available from DPL	444911mE 8129056mN Zone 51 [Reliable]	K02206
13017	BARGAJOC FISHTRAPS	No	No	No Gender Restrictions	Registered Site	Fish Trap	*Registered Knowledge Holder names available from DPL	444302mE 8130134mN Zone 51 [Reliable]	K02209

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13039	WIDGINGARRI SHELTER 4.	Yes	Yes	No Gender Restrictions	Registered Site	Painting, Camp	*Registered Knowledge Holder names available from DPL	Not available when location is restricted	K02180
13044	WIDGINGARRI SHELTER 9.	Yes	Yes	No Gender Restrictions	Registered Site	Mythological, Painting, Camp	*Registered Knowledge Holder names available from DPL	Not available when location is restricted	K02185
13050	WIDGINGARRI SHELTER 15.	Yes	Yes	No Gender Restrictions	Registered Site	Rockshelter, Camp	*Registered Knowledge Holder names available from DPL	Not available when location is restricted	K02191
13054	BARGAJOC NEW SOAK.	No	No	No Gender Restrictions	Registered Site	Water Source	*Registered Knowledge Holder names available from DPL	444911mE 8129056mN Zone 51 [Reliable]	K02195
13075	MANGALAGUN+IWALANG ANJDANJ.	Yes	Yes	No Gender Restrictions	Registered Site	Artefacts / Scatter, Midden / Scatter, Mythological, BP Dating: 3640, Water Source	*Registered Knowledge Holder names available from DPL	Not available when location is restricted	K02163
13076	WALMADAN (James Price Point)	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Fish Trap, Midden / Scatter, Skeletal Material / Burial, BP Dating: 1,300, Camp, Hunting Place, Water Source, Other: Part of Failed PA 139. APMC Res 11/89	*Registered Knowledge Holder names available from DPL	409429mE 8065351mN Zone 51 [Reliable]	K02164
13311	WINDJIMIR.	Yes	Yes	Male Access Only	Registered Site	Skeletal Material / Burial, Camp, Water Source	*Registered Knowledge Holder names available from DPL	Not available when location is restricted	K01918
13313	IRVINE ISLAND: STONEMOUND 2	Yes	Yes	Male Access Only	Registered Site	Man-Made Structure, Skeletal Material / Burial	*Registered Knowledge Holder names available from DPL	Not available when location is restricted	K01920
13314	IRVINE ISLAND: CAMP 1.	Yes	Yes	Male Access Only	Registered Site	Camp, Hunting Place	*Registered Knowledge Holder names available from DPL	Not available when location is restricted	K01921
13350	FRAZIER DOWNS BEACH	No	No	No Gender Restrictions	Registered Site	Skeletal Material / Burial	*Registered Knowledge Holder names available from DPL	357192mE 7924475mN Zone 51 [Reliable]	K01902
13385	KOOLAN ISLAND.	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Midden / Scatter, Rockshelter, Arch Deposit	*Registered Knowledge Holder names available from DPL	573382mE 8218658mN Zone 51 [Reliable]	K01774



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13386	KOOLAN ISLAND.	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Midden / Scatter, Rockshelter, Arch Deposit	*Registered Knowledge Holder names available from DPL	573382mE 8218658mN Zone 51 [Reliable]	K01775
13387	KOOLAN ISLAND.	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Midden / Scatter, Rockshelter, Arch Deposit, BP Dating: 26, 500+/-1050BP, Camp	*Registered Knowledge Holder names available from DPL	573382mE 8218658mN Zone 51 [Reliable]	K01776
13465	WIRGANJU GROUND	Yes	Yes	No Gender Restrictions	Registered Site		*Registered Knowledge Holder names available from DPL	Not available when location is restricted	K01694
13466	WONGANIN/BATHURST & IRVINE.	Yes	Yes	Male Access Only	Registered Site	Man-Made Structure, Mythological, Skeletal Material / Burial, Hunting Place, Named Place, Plant Resource, Other: LOCAL GP. Failed PA 133	*Registered Knowledge Holder names available from DPL	Not available when location is restricted	K01695
13503	WIRRAR.	Yes	Yes	No Gender Restrictions	Registered Site	Artefacts / Scatter, Midden / Scatter, Skeletal Material / Burial, Camp, Water Source	*Registered Knowledge Holder names available from DPL	Not available when location is restricted	K01677
13504	KARDILAKAN - JAJAL.	Yes	Yes	No Gender Restrictions	Registered Site	Artefacts / Scatter, Ceremonial, Fish Trap, Midden / Scatter, Mythological, Camp, Water Source, Other: Part of Failed PA 139. APMC Res 11/89	*Registered Knowledge Holder names available from DPL	Not available when location is restricted	K01678
13596	DAVIDSONS POINT	No	No	No Gender Restrictions	Registered Site	Man-Made Structure	*Registered Knowledge Holder names available from DPL	779636mE 8423661mN Zone 51 [Reliable]	K01555
13917	GURRUDUN.	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Midden / Scatter, Camp	*Registered Knowledge Holder names available from DPL	490637mE 8183161mN Zone 51 [Reliable]	K01178
13918	DJEBUNDUN.	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Midden / Scatter, Camp	*Registered Knowledge Holder names available from DPL	490637mE 8183461mN Zone 51 [Reliable]	K01179
13919	DJILUN.	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Man-Made Structure, Midden / Scatter, Camp, Water Source	*Registered Knowledge Holder names available from DPL	490637mE 8183161mN Zone 51 [Reliable]	K01180
13920	GNAMAGUN.	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Midden / Scatter, Camp	*Registered Knowledge Holder names available from DPL	490370mE 8183102mN Zone 51 [Reliable]	K01181



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13923	NORON.	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Midden / Scatter, Camp, Water Source	*Registered Knowledge Holder names available from DPL	490037mE 8182961mN Zone 51 [Reliable]	K01184
13926	ARMANDA.	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Man-Made Structure, Midden / Scatter, Camp	*Registered Knowledge Holder names available from DPL	489687mE 8182761mN Zone 51 [Reliable]	K01187
13927	ANBARMAN.	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Man-Made Structure, Midden / Scatter, Camp	*Registered Knowledge Holder names available from DPL	489537mE 8182161mN Zone 51 [Reliable]	K01188
13930	GUNBUDARUN.	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Man-Made Structure, Midden / Scatter, Camp, Water Source	*Registered Knowledge Holder names available from DPL	490137mE 8178261mN Zone 51 [Reliable]	K01191
13931	DJUNDJUNBULGUN.	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Man-Made Structure, Midden / Scatter, Arch Deposit, Camp, Other: ?	*Registered Knowledge Holder names available from DPL	490437mE 8178161mN Zone 51 [Reliable]	K01192
13958	GUMBADAL.	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Engraving, Midden / Scatter, Camp	*Registered Knowledge Holder names available from DPL	492037mE 8187861mN Zone 51 [Reliable]	K01164
13959	NUMBULMARA.	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Grinding Patches / Grooves, Midden / Scatter, Camp	*Registered Knowledge Holder names available from DPL	492137mE 8187861mN Zone 51 [Reliable]	K01165
13960	DJUWINO.	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Midden / Scatter, Camp	*Registered Knowledge Holder names available from DPL	492037mE 8187661mN Zone 51 [Reliable]	K01166
13961	MILBANAN.	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Midden / Scatter, Camp	*Registered Knowledge Holder names available from DPL	492137mE 8187461mN Zone 51 [Reliable]	K01167
13962	KAYERUN.	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Midden / Scatter, Camp	*Registered Knowledge Holder names available from DPL	492637mE 8187461mN Zone 51 [Reliable]	K01168
13963	DUMBULGUN.	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Midden / Scatter, Camp	*Registered Knowledge Holder names available from DPL	492337mE 8187561mN Zone 51 [Reliable]	K01169
13964	LAYUD.	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Midden / Scatter, Camp	*Registered Knowledge Holder names available from DPL	492572mE 8187440mN Zone 51 [Unreliable]	K01170



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13967	MALINGUN.	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Camp	*Registered Knowledge Holder names available from DPL	493137mE 8187161mN Zone 51 [Reliable]	K01173
13968	GULDJIMAN.	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Midden / Scatter, Camp, Water Source, Other: LOCAL GROUP	*Registered Knowledge Holder names available from DPL	493438mE 8186968mN Zone 51 [Reliable]	K01174
13969	GULAMANGUN.	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Midden / Scatter, Camp	*Registered Knowledge Holder names available from DPL	492737mE 8187161mN Zone 51 [Unreliable]	K01175
14241	FISHERMENS BEND 3	Yes	Yes	Male Access Only	Registered Site	Ceremonial, Mythological, Repository / Cache, Other: Part of proposed PA 117	*Registered Knowledge Holder names available from DPL	Not available when location is restricted	K00851
14242	FISHERMENS BEND 4	Yes	Yes	Male Access Only	Registered Site	Mythological, Other: Part of proposed PA 117	*Registered Knowledge Holder names available from DPL	Not available when location is restricted	K00852
14243	FISHERMENS BEND 5	Yes	Yes	Male Access Only	Registered Site	Mythological, Other: Part of proposed PA 117	*Registered Knowledge Holder names available from DPL	Not available when location is restricted	K00853
14274	EMERIAU POINT 2	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Midden / Scatter	*Registered Knowledge Holder names available from DPL	454737mE 8146161mN Zone 51 [Unreliable]	K00832
14275	EMERIAU POINT 3	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Midden / Scatter	*Registered Knowledge Holder names available from DPL	454937mE 8145261mN Zone 51 [Unreliable]	K00833
14283	WEEDONG LAGOON MIDDEN 1	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Midden / Scatter	*Registered Knowledge Holder names available from DPL	471036mE 8144960mN Zone 51 [Unreliable]	K00841
14287	FISHING HUTS MIDDEN 1	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Midden / Scatter	*Registered Knowledge Holder names available from DPL	454836mE 8144560mN Zone 51 [Unreliable]	K00845
14288	FISHING HUTS MIDDEN 2	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Midden / Scatter	*Registered Knowledge Holder names available from DPL	454836mE 8144860mN Zone 51 [Unreliable]	K00846
14289	EMERIAU POINT FISH TRAP	No	No	No Gender Restrictions	Registered Site	Fish Trap	*Registered Knowledge Holder names available from DPL	454244mE 8145708mN Zone 51 [Unreliable]	K00847

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14291	FISHERMENS BEND 1.	Yes	Yes	Male Access Only	Registered Site	Artefacts / Scatter, Midden / Scatter, Mythological, Camp, Water Source, Other: Part of proposed PA 117	*Registered Knowledge Holder names available from DPL	Not available when location is restricted	K00849
14312	CAPE VILLARET	Yes	Yes	No Gender Restrictions	Registered Site	Mythological	*Registered Knowledge Holder names available from DPL	Not available when location is restricted	K00817
14341	SHELLBOROUGH 1-3.	Yes	Yes	No Gender Restrictions	Registered Site	Artefacts / Scatter, Grinding Patches / Grooves, Man-Made Structure, Midden / Scatter, Skeletal Material / Burial, Camp, Other: ?	*Registered Knowledge Holder names available from DPL	Not available when location is restricted	K00773
14433	PORT SMITH.	Yes	Yes	No Gender Restrictions	Registered Site	Ceremonial, Camp	*Registered Knowledge Holder names available from DPL	Not available when location is restricted	K00651
14438	BLACKROCK POINT 2.	No	No	No Gender Restrictions	Registered Site	Fish Trap, Midden / Scatter, Camp	*Registered Knowledge Holder names available from DPL	368925mE 7935168mN Zone 51 [Reliable]	K00656
14439	BIDIR-NGA:BA	Yes	Yes	No Gender Restrictions	Registered Site	Fish Trap, Mythological	*Registered Knowledge Holder names available from DPL	Not available when location is restricted	K00657
14442	LAGRANGE.	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Midden / Scatter, Camp, Water Source	*Registered Knowledge Holder names available from DPL	371637mE 7936661mN Zone 51 [Unreliable]	K00660
14444	BEACON HILL	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Midden / Scatter	*Registered Knowledge Holder names available from DPL	416092mE 8009063mN Zone 51 [Reliable]	K00662
14445	CAPE VILLARET BURIAL	No	No	No Gender Restrictions	Registered Site	Skeletal Material / Burial	*Registered Knowledge Holder names available from DPL	401657mE 7973326mN Zone 51 [Unreliable]	K00663
14489	BIDIYANABA FOOTPRINT	No	No	No Gender Restrictions	Registered Site	Mythological	*Registered Knowledge Holder names available from DPL	369546mE 7943763mN Zone 51 [Reliable]	K00589
14556	NGAMILI, CONDILLAC ISLAND	Yes	Yes	No Gender Restrictions	Registered Site	Mythological	*Registered Knowledge Holder names available from DPL	Not available when location is restricted	K00549



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ID	Name	File Restricted	Boundary Restricted	Restrictions	Status	Type	Knowledge Holders	Coordinate	Legacy ID
14557	CABLE BEACH 5.	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Ceremonial, Midden / Scatter, Mythological, Camp, Hunting Place, Other: Part of Failed PA 143. APMC 11/89	*Registered Knowledge Holder names available from DPL	415340mE 8018932mN Zone 51 [Reliable]	K00497
14561	SACRED STORES/ BROOME	Yes	Yes	No Gender Restrictions	Registered Site	Ceremonial, Repository / Cache	*Registered Knowledge Holder names available from DPL	Not available when location is restricted	K00501
14609	CABLE BEACH 3.	Yes	Yes	No Gender Restrictions	Registered Site	Artefacts / Scatter, Midden / Scatter, Mythological, Camp, Other: Part of Failed PA 143.APMC Res 11/89	*Registered Knowledge Holder names available from DPL	Not available when location is restricted	K00496
14665	LOMBADINA MISSION	Yes	Yes	No Gender Restrictions	Registered Site	Artefacts / Scatter, Ceremonial	*Registered Knowledge Holder names available from DPL	Not available when location is restricted	K00396
14701	MIDHREGUN	No	No	No Gender Restrictions	Registered Site	Fish Trap	*Registered Knowledge Holder names available from DPL	454637mE 8144661mN Zone 51 [Unreliable]	K00379
14793	VANSITTART BAY 1-3	Yes	Yes	No Gender Restrictions	Registered Site	Mythological, Painting	*Registered Knowledge Holder names available from DPL	Not available when location is restricted	K00262
14794	CHALANGDAL, VANSITTART BAY	Yes	Yes	No Gender Restrictions	Registered Site	Mythological, Painting	*Registered Knowledge Holder names available from DPL	Not available when location is restricted	K00263
14796	ECLIPSE ISLANDS	No	No	No Gender Restrictions	Registered Site	Quarry	*Registered Knowledge Holder names available from DPL	208634mE 8461664mN Zone 52 [Unreliable]	K00265
14797	SIR GRAHAM MOORE ISLANDS	Yes	Yes	No Gender Restrictions	Registered Site	Ceremonial, Man-Made Structure, Mythological	*Registered Knowledge Holder names available from DPL	Not available when location is restricted	K00266
14799	ANJO PENNINSULA	Yes	Yes	No Gender Restrictions	Registered Site	Skeletal Material / Burial	*Registered Knowledge Holder names available from DPL	Not available when location is restricted	K00268
14800	GALNGAURU	Yes	Yes	No Gender Restrictions	Registered Site	Mythological, Painting, Skeletal Material / Burial	*Registered Knowledge Holder names available from DPL	Not available when location is restricted	K00269

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ID	Name	File Restricted	Boundary Restricted	Restrictions	Status	Type	Knowledge Holders	Coordinate	Legacy ID
14802	KAREN, ADMIRALTY GULF	Yes	Yes	No Gender Restrictions	Registered Site	Mythological, Painting	*Registered Knowledge Holder names available from DPL	Not available when location is restricted	K00271
14803	BORDA ISLAND	Yes	Yes	No Gender Restrictions	Registered Site	Mythological, Painting	*Registered Knowledge Holder names available from DPL	Not available when location is restricted	K00272
14823	NGALUMAL GUDANGARI.	Yes	Yes	No Gender Restrictions	Registered Site	Ceremonial, Mythological, Camp	*Registered Knowledge Holder names available from DPL	Not available when location is restricted	K00239
14830	WADAI/ RED ISLAND.	Yes	Yes	No Gender Restrictions	Registered Site	Mythological, Camp	*Registered Knowledge Holder names available from DPL	Not available when location is restricted	K00246
14891	SWAN POINT.	Yes	Yes	No Gender Restrictions	Registered Site	Artefacts / Scatter, Man-Made Structure, Midden / Scatter, Mythological, Camp, Hunting Place	*Registered Knowledge Holder names available from DPL	Not available when location is restricted	K00091
14893	LINBINGUN.	Yes	Yes	No Gender Restrictions	Registered Site	Engraving, Mythological, Named Place	*Registered Knowledge Holder names available from DPL	Not available when location is restricted	K00093
14929	ALBERT ISLAND	No	No	No Gender Restrictions	Registered Site	Engraving	*Registered Knowledge Holder names available from DPL	707636mE 8394661mN Zone 51 [Unreliable]	K00131
14935	PRUDHOE ISLAND.	Yes	Yes	No Gender Restrictions	Registered Site	Ceremonial, Engraving, Mythological, Hunting Place	*Registered Knowledge Holder names available from DPL	Not available when location is restricted	K00137
14938	WOLLASTON ISLAND.	Yes	Yes	No Gender Restrictions	Registered Site	Mythological, Painting, Arch Deposit	*Registered Knowledge Holder names available from DPL	Not available when location is restricted	K00140
14939	KATERS ISLAND	Yes	Yes	No Gender Restrictions	Registered Site	Skeletal Material / Burial	*Registered Knowledge Holder names available from DPL	Not available when location is restricted	K00141
14940	CAPE VOLTAIRE	Yes	Yes	No Gender Restrictions	Registered Site	Mythological, Painting	*Registered Knowledge Holder names available from DPL	Not available when location is restricted	K00142
14971	BADANBIRI CLIFFS	Yes	Yes	No Gender Restrictions	Registered Site	Mythological	*Registered Knowledge Holder names available from DPL	Not available when location is restricted	K00173

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14973	DIDJINA	Yes	Yes	No Gender Restrictions	Registered Site	Ceremonial, Engraving, Man-Made Structure, Mythological	*Registered Knowledge Holder names available from DPL	Not available when location is restricted	K00175
14975	GUBARO REEF	Yes	Yes	No Gender Restrictions	Registered Site	Ceremonial, Mythological	*Registered Knowledge Holder names available from DPL	Not available when location is restricted	K00177
14977	CHAMPAGNY ISLANDS	No	No	No Gender Restrictions	Registered Site	Man-Made Structure, Painting	*Registered Knowledge Holder names available from DPL	634435mE 8307609mN Zone 51 [Unreliable]	K00179
14980	DECEPTION BAY	No	No	No Gender Restrictions	Registered Site	Painting	*Registered Knowledge Holder names available from DPL	645138mE 8265161mN Zone 51 [Unreliable]	K00182
14989	JACKSON ISLAND	No	No	No Gender Restrictions	Registered Site	Man-Made Structure, Painting	*Registered Knowledge Holder names available from DPL	676936mE 8322361mN Zone 51 [Unreliable]	K00191
15015	SOUTH OAKAJEE 1	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter	*Registered Knowledge Holder names available from DPL	265908mE 6830386mN Zone 50 [Reliable]	S03037
15322	POINT MURAT/WHITE OPAL	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Midden / Scatter	*Registered Knowledge Holder names available from DPL	209012mE 7585213mN Zone 50 [Reliable]	P07916
15857	BULLER RIVER AREA	No	No	No Gender Restrictions	Registered Site	Camp, Hunting Place, Water Source	*Registered Knowledge Holder names available from DPL	265929mE 6830326mN Zone 50 [Reliable]	
15926	TUBRIDGI 01	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Midden / Scatter, Shell	*Registered Knowledge Holder names available from DPL	277811mE 7593977mN Zone 50 [Reliable]	
15927	TUBRIDGI 02	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Midden / Scatter, Shell	*Registered Knowledge Holder names available from DPL	277849mE 7593901mN Zone 50 [Reliable]	
15928	TUBRIDGI 04	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Shell	*Registered Knowledge Holder names available from DPL	277838mE 7593830mN Zone 50 [Reliable]	
15929	TUBRIDGI 05	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Shell	*Registered Knowledge Holder names available from DPL	277834mE 7593689mN Zone 50 [Reliable]	

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ID	Name	File Restricted	Boundary Restricted	Restrictions	Status	Type	Knowledge Holders	Coordinate	Legacy ID
15930	TUBRIDGI 06	No	No	No Gender Restrictions	Registered Site	Midden / Scatter, Shell	*Registered Knowledge Holder names available from DPL	277865mE 7593559mN Zone 50 [Reliable]	
16597	Baler Bluff	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Midden / Scatter, Shell	*Registered Knowledge Holder names available from DPL	788977mE 7464149mN Zone 49 [Reliable]	
16792	Site A	No	No	No Gender Restrictions	Registered Site	Midden / Scatter, Shell	*Registered Knowledge Holder names available from DPL	272938mE 7590455mN Zone 50 [Unreliable]	
16793	Site B	No	No	No Gender Restrictions	Registered Site	Midden / Scatter, Shell	*Registered Knowledge Holder names available from DPL	274238mE 7591605mN Zone 50 [Unreliable]	
17043	Limbingoon	Yes	Yes	Male Access Only	Registered Site	Engraving, Named Place	*Registered Knowledge Holder names available from DPL	Not available when location is restricted	
17164	Horrocks Beach	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Shell, Water Source	*Registered Knowledge Holder names available from DPL	246772mE 6860129mN Zone 50 [Reliable]	
17193	Ningaloo Station	No	No	No Gender Restrictions	Registered Site	Skeletal Material / Burial	*Registered Knowledge Holder names available from DPL	775891mE 7489149mN Zone 49 [Unreliable]	
17568	CAPE VILLARET AREA 03 / HOMESTEAD SITE	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Midden / Scatter, BP Dating: 3100+/-60, Other: Baler shell	*Registered Knowledge Holder names available from DPL	409437mE 7975711mN Zone 51 [Reliable]	
17569	CAPE VILLARET AREA 04	No	No	No Gender Restrictions	Registered Site	Midden / Scatter, Camp, Other: Baler shell	*Registered Knowledge Holder names available from DPL	401637mE 7973311mN Zone 51 [Reliable]	
17570	CAPE VILLARET AREA 05	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Midden / Scatter, Rockshelter, BP Dating: 1390+/-70, Other: Baler shell	*Registered Knowledge Holder names available from DPL	401337mE 7973411mN Zone 51 [Reliable]	
17571	CAPE VILLARET AREA 06	No	No	No Gender Restrictions	Registered Site	Midden / Scatter, Rockshelter, Other: Archaeological Deposit?	*Registered Knowledge Holder names available from DPL	401187mE 7972961mN Zone 51 [Reliable]	
17572	CAPE VILLARET AREA 07 / BARNES BEACH MIDDEN	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Midden / Scatter, Other: Baler shell	*Registered Knowledge Holder names available from DPL	398437mE 7969011mN Zone 51 [Reliable]	

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ID	Name	File Restricted	Boundary Restricted	Restrictions	Status	Type	Knowledge Holders	Coordinate	Legacy ID
17573	CAPE VILLARET AREA 08	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Midden / Scatter, Arch Deposit, BP Dating: 1800+/-70, Ochre	*Registered Knowledge Holder names available from DPL	391987mE 7963761mN Zone 51 [Reliable]	
17575	CAPE VILLARET AREA 10	No	No	No Gender Restrictions	Registered Site	Midden / Scatter	*Registered Knowledge Holder names available from DPL	388087mE 7960511mN Zone 51 [Reliable]	
17576	CAPE VILLARET AREA 11 / GUMALIINGA	No	No	No Gender Restrictions	Registered Site	Midden / Scatter	*Registered Knowledge Holder names available from DPL	386937mE 7959761mN Zone 51 [Reliable]	
17577	CAPE VILLARET AREA 12	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Midden / Scatter, BP Dating: 1700+/-60, Other: Baler shell	*Registered Knowledge Holder names available from DPL	379037mE 7957761mN Zone 51 [Reliable]	
17579	CAPE VILLARET AREA 14	No	No	No Gender Restrictions	Registered Site	Midden / Scatter, BP Dating: 3060+/-50, Camp, Other: Baler shell	*Registered Knowledge Holder names available from DPL	378844mE 7957964mN Zone 51 [Reliable]	
17851	BALDWIN CREEK	No	No	No Gender Restrictions	Registered Site	Fish Trap	*Registered Knowledge Holder names available from DPL	434308mE 8119459mN Zone 51 [Unreliable]	
17958	SGA-2	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Midden / Scatter	*Registered Knowledge Holder names available from DPL	270388mE 6802800mN Zone 50 [Reliable]	
18794	Westbank Beach Burial	Yes	Yes	No Gender Restrictions	Registered Site	Skeletal Material / Burial, Other: Isolated Artefacts	*Registered Knowledge Holder names available from DPL	Not available when location is restricted	
18819	Cape Preston 16	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Midden / Scatter	*Registered Knowledge Holder names available from DPL	421070mE 7692909mN Zone 50 [Reliable]	
18822	Cape Preston 19	No	No	No Gender Restrictions	Registered Site	Quarry	*Registered Knowledge Holder names available from DPL	417279mE 7695781mN Zone 50 [Reliable]	
18823	Cape Preston 20	No	No	No Gender Restrictions	Registered Site	Quarry	*Registered Knowledge Holder names available from DPL	417302mE 7695899mN Zone 50 [Reliable]	
18824	Cape Preston 21	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Midden / Scatter	*Registered Knowledge Holder names available from DPL	417439mE 7695752mN Zone 50 [Unreliable]	



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ID	Name	File Restricted	Boundary Restricted	Restrictions	Status	Type	Knowledge Holders	Coordinate	Legacy ID
18825	Cape Preston 22	No	No	No Gender Restrictions	Registered Site	Quarry	*Registered Knowledge Holder names available from DPL	417490mE 7695550mN Zone 50 [Reliable]	
18826	Cape Preston 23	No	No	No Gender Restrictions	Registered Site	Quarry	*Registered Knowledge Holder names available from DPL	417299mE 7695502mN Zone 50 [Reliable]	
18827	Cape Preston 24	No	No	No Gender Restrictions	Registered Site	Quarry	*Registered Knowledge Holder names available from DPL	417181mE 7695123mN Zone 50 [Reliable]	
18838	Cape Preston 35	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Midden / Scatter	*Registered Knowledge Holder names available from DPL	411634mE 7678889mN Zone 50 [Reliable]	
18839	Cape Preston 36	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Midden / Scatter	*Registered Knowledge Holder names available from DPL	412251mE 7679517mN Zone 50 [Reliable]	
18840	Cape Preston 37	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Midden / Scatter	*Registered Knowledge Holder names available from DPL	412608mE 7679373mN Zone 50 [Reliable]	
18858	Cape Preston 55	Yes	Yes	No Gender Restrictions	Registered Site	Artefacts / Scatter, Engraving, Midden / Scatter	*Registered Knowledge Holder names available from DPL	Not available when location is restricted	
18859	Cape Preston 56	No	No	No Gender Restrictions	Registered Site	Grinding Patches / Grooves, Midden / Scatter	*Registered Knowledge Holder names available from DPL	416505mE 7684709mN Zone 50 [Reliable]	
19799	Mungullagun Blackberry Tree Midden	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Midden / Scatter	*Registered Knowledge Holder names available from DPL	430613mE 8012242mN Zone 51 [Reliable]	
19999	Broome Bird Observatory Solar Panel Site	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Midden / Scatter	*Registered Knowledge Holder names available from DPL	430567mE 8012430mN Zone 51 [Reliable]	
20252	SPB27 - Sandy Point Burial	Yes	Yes	No Gender Restrictions	Registered Site	Artefacts / Scatter, Midden / Scatter, Skeletal Material / Burial	*Registered Knowledge Holder names available from DPL	Not available when location is restricted	
20253	SPB26 - Sandy Point Burial	Yes	Yes	No Gender Restrictions	Registered Site	Artefacts / Scatter, Midden / Scatter, Skeletal Material / Burial	*Registered Knowledge Holder names available from DPL	Not available when location is restricted	

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ID	Name	File Restricted	Boundary Restricted	Restrictions	Status	Type	Knowledge Holders	Coordinate	Legacy ID
20254	SPB25 - Sandy Point Burial	Yes	Yes	No Gender Restrictions	Registered Site	Artefacts / Scatter, Midden / Scatter, Skeletal Material / Burial	*Registered Knowledge Holder names available from DPL	Not available when location is restricted	
20255	SPB24 - Sandy Point Burial	Yes	Yes	No Gender Restrictions	Registered Site	Artefacts / Scatter, Midden / Scatter, Skeletal Material / Burial	*Registered Knowledge Holder names available from DPL	Not available when location is restricted	
20256	SPB23 - Sandy Point Burial	Yes	Yes	No Gender Restrictions	Registered Site	Artefacts / Scatter, Midden / Scatter, Skeletal Material / Burial	*Registered Knowledge Holder names available from DPL	Not available when location is restricted	
20257	SPB21 - Sandy Point Burial	Yes	Yes	No Gender Restrictions	Registered Site	Artefacts / Scatter, Midden / Scatter, Skeletal Material / Burial	*Registered Knowledge Holder names available from DPL	Not available when location is restricted	
20258	SPB20 - Sandy Point Burial	Yes	Yes	No Gender Restrictions	Registered Site	Artefacts / Scatter, Midden / Scatter, Skeletal Material / Burial	*Registered Knowledge Holder names available from DPL	Not available when location is restricted	
21512	Railway 4	No	No	No Gender Restrictions	Registered Site	Midden / Scatter	*Registered Knowledge Holder names available from DPL	662797mE 7754831mN Zone 50 [Reliable]	
21526	Robe River (Gadjiwura)	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Ceremonial, Modified Tree, Mythological, Camp, Named Place, Other: sacred place	*Registered Knowledge Holder names available from DPL	440442mE 7593651mN Zone 50 [Reliable]	
21607	Roller/Skate Site 2	No	No	No Gender Restrictions	Registered Site	Midden / Scatter, Shell	*Registered Knowledge Holder names available from DPL	281838mE 7597255mN Zone 50 [Reliable]	
21609	Roller/Skate Site 4	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Midden / Scatter, Shell	*Registered Knowledge Holder names available from DPL	281301mE 7595354mN Zone 50 [Unreliable]	
22111	WCL05-4	No	No	No Gender Restrictions	Registered Site	Engraving	*Registered Knowledge Holder names available from DPL	516850mE 7721170mN Zone 50 [Reliable]	
24415	Buller River	No	No	No Gender Restrictions	Registered Site	Mythological, Natural Feature	*Registered Knowledge Holder names available from DPL	269522mE 6831723mN Zone 50 [Reliable]	
24416	Bowes River	No	No	No Gender Restrictions	Registered Site	Mythological, Natural Feature	*Registered Knowledge Holder names available from DPL	266821mE 6860041mN Zone 50 [Reliable]	

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24575	Irvine Island Ledge Burial	Yes	Yes	Male Access Only	Registered Site	Rockshelter, Skeletal Material / Burial	*Registered Knowledge Holder names available from DPL	Not available when location is restricted	
25861	ICC 08-04	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Engraving	*Registered Knowledge Holder names available from DPL	418731mE 7694028mN Zone 50 [Reliable]	
25862	ICC 08-05	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Engraving, Grinding Patches / Grooves, Man-Made Structure, Quarry	*Registered Knowledge Holder names available from DPL	418602mE 7694739mN Zone 50 [Reliable]	
25863	ICC 08-06	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Engraving, Quarry, Other: Duplicate of 25596, 25997, 25998, 25999	*Registered Knowledge Holder names available from DPL	419369mE 7692522mN Zone 50 [Reliable]	
25864	ICC 08-07	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Quarry	*Registered Knowledge Holder names available from DPL	418694mE 7694362mN Zone 50 [Reliable]	
25869	ICC 08-17	No	No	No Gender Restrictions	Registered Site	Engraving	*Registered Knowledge Holder names available from DPL	418590mE 7694315mN Zone 50 [Reliable]	
26005	Site No. 18	Yes	Yes	No Gender Restrictions	Registered Site	Engraving	*Registered Knowledge Holder names available from DPL	Not available when location is restricted	
26006	Site No. 25	Yes	Yes	No Gender Restrictions	Registered Site	Engraving	*Registered Knowledge Holder names available from DPL	Not available when location is restricted	
26017	P08 - 02	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Engraving, Grinding Patches / Grooves, Midden / Scatter, Quarry, Shell	*Registered Knowledge Holder names available from DPL	417338mE 7694440mN Zone 50 [Reliable]	
26019	P08 - 08	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Quarry	*Registered Knowledge Holder names available from DPL	417343mE 7693660mN Zone 50 [Reliable]	
26020	P08 - 09	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Quarry	*Registered Knowledge Holder names available from DPL	417565mE 7693687mN Zone 50 [Reliable]	
26441	P09 - 01	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Shell	*Registered Knowledge Holder names available from DPL	417067mE 7693664mN Zone 50 [Reliable]	

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26444	P09 - 04	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Quarry	*Registered Knowledge Holder names available from DPL	417243mE 7695318mN Zone 50 [Reliable]	
26446	P09 - 06	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Quarry	*Registered Knowledge Holder names available from DPL	417398mE 7695442mN Zone 50 [Reliable]	
26736	ACHM - 09-05	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter	*Registered Knowledge Holder names available from DPL	416163mE 7696932mN Zone 50 [Reliable]	
27561	Sam's Creek Burial Site	Yes	Yes	No Gender Restrictions	Registered Site	Skeletal Material / Burial	*Registered Knowledge Holder names available from DPL	Not available when location is restricted	
28615	MP08-53	Yes	Yes	No Gender Restrictions	Registered Site	Ceremonial, Mythological, Water Source	*Registered Knowledge Holder names available from DPL	Not available when location is restricted	
28700	MP08 - 50	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Camp	*Registered Knowledge Holder names available from DPL	277207mE 7593251mN Zone 50 [Reliable]	
28701	MP08 - 52	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Midden / Scatter, Camp, Shell	*Registered Knowledge Holder names available from DPL	277239mE 7593099mN Zone 50 [Reliable]	
29198	CL10ENG16	Yes	Yes	Male Access Only	Registered Site	Engraving	*Registered Knowledge Holder names available from DPL	Not available when location is restricted	
32447	Gardalargun South	No	No	No Gender Restrictions	Registered Site		*Registered Knowledge Holder names available from DPL	409737mE 8060936mN Zone 51 [Reliable]	
32668	Maitland River Scatter 09	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter	*Registered Knowledge Holder names available from DPL	448318mE 7700744mN Zone 50 [Reliable]	
32879	Lower Fortescue River (Mardathuni)	No	No	No Gender Restrictions	Registered Site	Mythological, Camp, Hunting Place, Named Place, Natural Feature, Plant Resource, Water Source	*Registered Knowledge Holder names available from DPL	409714mE 7661271mN Zone 50 [Unreliable]	
34016	IOHENG07	No	No		Registered Site	Artefacts / Scatter, Engraving, Grinding Patches / Grooves, Quarry	*Registered Knowledge Holder names available from DPL	419765mE 7693293mN Zone 50 [Reliable]	



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36532	Djarindjin Law Ground	Yes	Yes	Male Access Only	Registered Site	Ceremonial, Mythological	*Registered Knowledge Holder names available from DPL	Not available when location is restricted	
37522	Mindurru (Ashburton River)	Yes	Yes		Registered Site	Mythological	*Registered Knowledge Holder names available from DPL	Not available when location is restricted	

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