Pluto 4D Monitor 3 Marine Seismic Survey Environment Plan

Global Wells and Seismic Australia

March 2026

Revision: 1

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1. INTRODUCTION

1.1 Overview

Woodside Burrup Pty. Ltd. (Woodside), as titleholder under the Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2023 (Cth) (referred to as the Environment Regulations), proposes to undertake the following activities within Permit Areas described in Table 3-1:

- four-dimensional (4D) seismic data acquisition using a seismic survey vessel towing an acoustic source array and receiver cables (streamers)
- support operations from a support vessel and chase vessel.

These activities will hereafter be collectively referred to as the Petroleum Activity and form the scope of this Environment Plan (EP). The activities are described in Section 3. This EP has been prepared as part of the requirements under the Environment Regulations, as administered by the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA).

1.2 Purpose of the Environment Plan

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

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

1.3 Environment Plan summary

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

Table 1-1: Environment Plan summary

EP summary material requirement	Relevant section of this EP containing EP summary material
The location of the activity	Section 3.3
A description of the receiving environment	Section 4
A description of the activity	Section 3
Details of the environmental impacts and risks	Section 6
The control measures for the activity	Section 6
The arrangements for ongoing monitoring of the titleholder's environmental performance	Section 7
Response arrangements in the oil pollution emergency plan	Appendix G and Appendix H
Consultation already undertaken and plans for ongoing consultation	Section 5 and Section 7.9
Details of the titleholder's nominated liaison for the activity	Section 1.5.1

1.4 Structure of the Environment Plan

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

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Table 1-2: Environment Plan process phases, applicable Environment Regulations and relevant section of this plan

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

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Criteria for acceptance	Content requirements/relevant regulations	Elements	Section of EP
Regulation 34(f): Does not involve the activity or part of the activity, other than arrangements for environmental monitoring or for responding to an emergency, being undertaken in any part of a declared World Heritage property within the meaning of the EPBC Act.	Regulations 21(1) to 21(3): • 21(1) Description of the activity • 21(2) Description of the environment • 21(3) Without limiting Regulation 21(2)(b), relevant values and sensitivities may include any of the following: – (a) the world heritage values of a declared World Heritage property within the meaning of the EPBC Act – (b) the national heritage values of a National Heritage place within the meaning of that Act – (c) the ecological character of a declared Ramsar wetland within the meaning of that Act – (d) the presence of a listed threatened species or listed threatened ecological community within the meaning of that Act – (e) the presence of a listed migratory species within the meaning of that Act – (f) any values and sensitivities that exist in, or in relation to, part or all of: ▪ (i) a Commonwealth marine area within the meaning of that Act, or ▪ (ii) Commonwealth land within the meaning of that Act	No activity, or part of the activity, undertaken in any part of a declared World Heritage property	Section 3 Section 4
Regulation 34(g): (i) the Titleholder has carried out the consultations required by Regulation 25 (ii) the measures (if any) that the Titleholder has adopted, or proposes to adopt, because of the consultations are appropriate	Regulation 25: • Consultation with relevant authorities, persons and organisations, etc Regulation 24(b): • Report on all consultations under Regulation 25 of any relevant person by the titleholder, that contains: – (i) a summary of each response made by a relevant person, and – (ii) an assessment of the merits of any objection or claim about the adverse impact of each activity to which the environment plan relates, and – (iii) a statement of the titleholder's response, or proposed response, if any, to each objection or claim, and – (iv) a copy of the full text of any response by a relevant person	Consultation undertaken in the preparation of this EP	Section 5 Appendix F

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Criteria for acceptance	Content requirements/relevant regulations	Elements	Section of EP
Regulation 34(h): Complies with the Act and the regulations	Regulation 21(4)(a): • Describe the requirements, including legislative requirements, that apply to activity and are relevant to the environmental management of the activity Regulation 23: • Details of the titleholder and liaison person Regulation 24(a): • A statement of the titleholder's corporate environmental policy Regulation 24(c): • Details of all reportable incidents in relation to the proposed activity	All contents of the EP must comply with the *Offshore Petroleum and Greenhouse Gas Storage Act 2006* (Cth) (OPGGS Act) and the Environment Regulations	Section 1.5.1 Section 7.10 Appendix A Appendix B

1.5 Description of the titleholder

Woodside Burrup Pty. Ltd. is the titleholder for this activity, on behalf of its joint venture partners MidOcean Pluto Pty Ltd and Kansai Electric Power Australia Pty Ltd.

1.5.1 Details of titleholder and nominated liaison

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

1.5.1.1 Titleholder

Woodside Burrup Pty. Ltd.

11 Mount Street

Perth, Western Australia (WA)

Telephone: 08 9348 4000

Australian Company Number: 120 237 416

1.5.1.2 Nominated liaison

Nicolas Wirtz

Corporate Affairs Manager

11 Mount Street

Perth, Western Australia

Telephone: 08 9348 4000

Email: feedback@woodside.com

1.5.2 Arrangements for notifying change

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

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1.6 Woodside Management System

The Woodside Management System (Our WMS) is an internal management system that applies to entities, including Woodside Burrup Pty. Ltd. Our WMS sets out the core activities that support setting global expectations to unify governance, risk and compliance and enable its people to achieve objectives, manage uncertainty and meet obligations to deliver value for applicable entities, including Woodside Burrup Pty.

1.6.1 Woodside Management System purpose

Our WMS is a series of integrated business processes that contribute to value delivery. A process is defined as the core mandatory activities that are material to converting inputs to outputs for value delivery from the defined business area. A process must reflect relevant corporate drivers and may have associated tools that support its implementation. Our WMS activities are divided into two categories: Deliver Value Chain, for activities directly involved in value delivery; and Enable Value Chain, for activities supporting the enterprise and value delivery (Figure 1-2). The Health, Safety and Environment (HSE) sub-category is included in the Enable Value Chain category. Given this, there is interdependence between processes across these activities.

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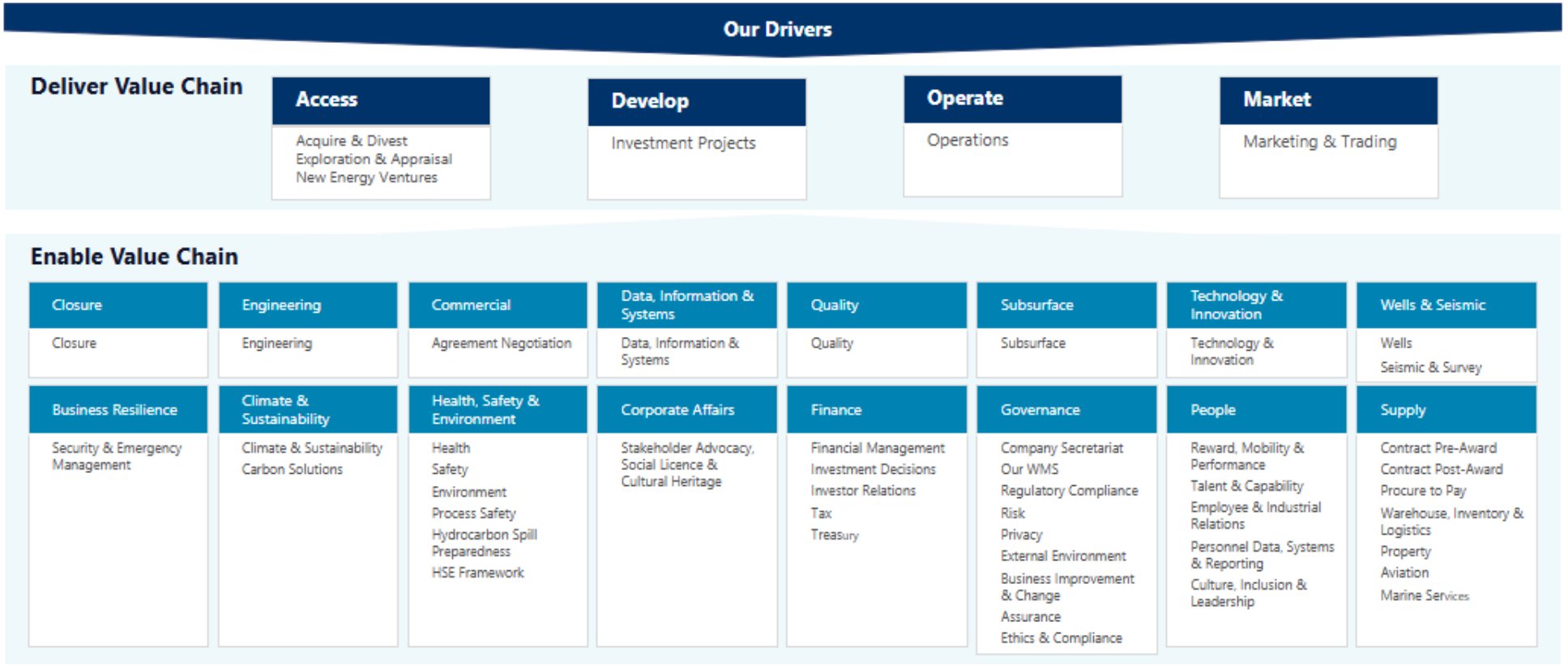


Figure 1-1: Our WMS structure

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Our WMS content is structured in a hierarchy, as illustrated in Figure 1-2. This hierarchy begins with the 'why' through Our Drivers, which are defined by Woodside's governing body (the Board) and those to whom the Board delegates (the Executive and the Line). It is followed by the 'what' with Our Expectations, which establish mandatory requirements for executing process activities to deliver value in accordance with the relevant Our Drivers. Finally, it includes the 'how' through Tools, which support the implementation, execution or understanding of Our Expectations. Additionally, there is non-WMS content that is subordinate to, but sits outside, Our WMS.

Adaptations of Our WMS tools may, as applicable and justified, be created for regional application.

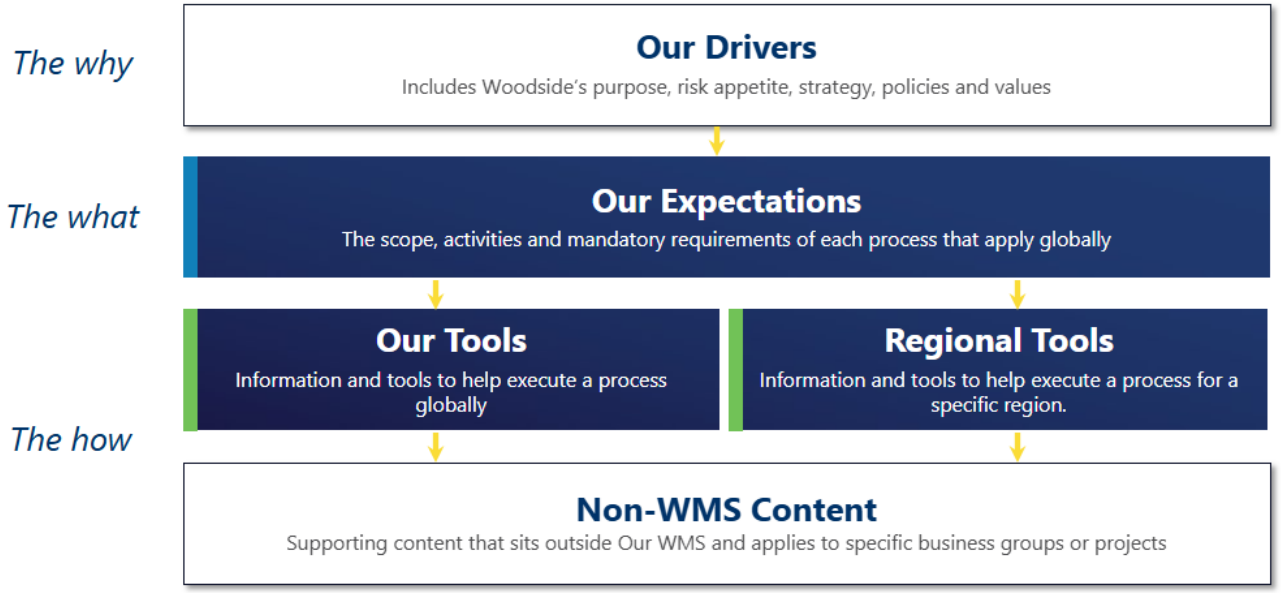


Figure 1-2: Our WMS information structure and document hierarchy

1.6.2 Environment and Biodiversity Policy

In accordance with Regulation 24(a) of the Environment Regulations, Woodside's Environment and Biodiversity Policy is provided in Appendix A of this EP.

The Environment and Biodiversity Policy is reviewed regularly and is updated as required. It is made available on our website: https://www.woodside.com/who-we-are/corporate-governance-and-policies. This EP will be implemented in accordance with the current Environment and Biodiversity Policy as shown on our website.

1.7 Description of relevant requirements

In accordance with Regulation 21(4) of the Environment Regulations, the requirements, including legislative, that apply to the activity and are relevant to managing the risks and impacts of the Petroleum Activity are detailed in Appendix B and summarised in the next sections.

1.7.1 *Offshore Petroleum and Greenhouse Gas Storage Act 2006* (Cth)

The OPGGS Act sets up a system for regulating offshore petroleum and greenhouse gas (GHG) activities beyond three nautical miles (NM) from the baseline at which the breadth of the territorial sea is measured to the outer limits of the continental shelf.

Under the OPGGS Act, the Environment Regulations apply to petroleum and GHG activities in an offshore area and are administered by NOPSEMA. The objective of the Environment Regulations is to ensure petroleum or GHG activities in an offshore area are carried out in a manner:

- consistent with the principles of ESD set out in section 3A of the EPBC Act
- by which the environmental impacts and risks of the activity will be reduced to ALARP
- by which the environmental impacts and risks of the activity will be of an acceptable level.

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This EP has been prepared in accordance with the relevant requirements of the OPGGS Act and the Environment Regulations.

Decommissioning requirements under Section 572 of the OPGGS Act are not relevant to this activity.

1.7.2 *Environment Protection and Biodiversity Conservation Act 1999* (Cth) (EPBC Act)

The EPBC Act includes the objective to protect and manage nationally and internationally important flora, fauna, ecological communities and heritage places in Australia. These are defined under Part 3 of the EPBC Act as 'matters of national environmental significance' (MNES). The EPBC Act sets a regime that aims to ensure actions taken on (or impacting upon) Commonwealth land or waters are consistent with the principles of ESD.

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

1.7.2.1 Recovery plans and threat abatement plans

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

> *'A Commonwealth agency must not take any action that contravenes a recovery plan or a threat abatement plan.'*

In respect to offshore petroleum activities in Commonwealth waters, these requirements are implemented by NOPSEMA. Specifically:

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

An assessment of the Petroleum Activity against all relevant recovery plans and threat abatement plans is contained in Section 6.9.

1.7.2.2 Australian Marine Parks

Under the EPBC Act, Australian Marine Parks (AMPs) are recognised for conserving marine habitats and the species that live and rely on these habitats. The Director of National Parks (DNP) is responsible for managing AMPs (supported by Parks Australia) and is required to publish management plans for them. Under Section 362 of the EPBC Act, other parts of the Australian Government must not perform functions or exercise powers in relation to these parks that are inconsistent with management plans. Therefore, NOPSEMA is required to consider potential impacts from petroleum activities on AMPs.

Specific zones within AMPs have been allocated conservation objectives based on the Australian International Union for Conservation of Nature (IUCN) reserve management principles outlined in Schedule 8 of the Environment Protection and Biodiversity Conservation Regulations 2025 (EPBC Regulations) 2025. The principles for each zone determine what activities are acceptable within a protected area under the EPBC Act. Section 4 describes the AMPs that are overlapped by the Operational Area and environment that may be affected (EMBA) and the relevant zones the Petroleum Activity is likely to interact with. The south-eastern extent of the Operational Area overlaps the Montebello AMP – Multiple Use Zone (refer to Section 3.6).

The DNP has issued class approvals that allow petroleum activities in designated IUCN Category VI AMP zones (Multiple Use Zones). These approvals outline the specific zones where such activities are permitted

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and include various conditions. For the Petroleum Activity the North-west Marine Parks Network Mining Operations Class Approval is relevant, as detailed in Table 1-3.

Table 1-3: Conditions from North-west Marine Parks Network Mining Operations Class Approval

Number	Condition	Relevant section of EP
1	The Approved Actions must be conducted in accordance with: (a) an Environment Plan accepted under the Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2023 (b) the EPBC Act (c) the EPBC Regulations 2025 (d) the North-west Network Management Plan (e) any prohibitions, restrictions or determinations made under the EPBC Regulations 2025 by the Director of National Parks, and (f) all other applicable Commonwealth and state laws (to the extent those laws are capable of operating concurrently with the laws and instruments described in paragraphs (a) to (e)).	Conditions 1a, b, c and f are met by the submitted EP Condition 1d: The impacts on the marine park values have been considered in Sections 6.7 and 0 Condition 1e: Consultation has been undertaken with the DNP and no prohibitions, restrictions or determinations have been made (Section 5 and Appendix F)
2	If requested by the DNP, an Approved Person must notify the Director prior to conducting Approved Actions within Approved Zones. Note: The timeframe for prior notice will be agreed to by the DNP and the Approved Person.	Section 7.10.2
3	If requested by the DNP, an Approved Person must provide the Director with information relating to undertaking the Approved Actions (or gathered while undertaking the Approved Actions), that is relevant to the Director's management of the Approved Zones. Note: The information required, and timeframe within which it is required, will be agreed to by the DNP and the Approved Person.	Section 7.10.2

1.7.2.3 World Heritage properties

Australian World Heritage properties are listed as MNES under the EPBC Act and must be assessed accordingly in EPs.

Schedule 5 of the EPBC Regulations 2025 establishes the Australian World Heritage management principles, which are designed to ensure World Heritage properties within Australia are managed in a way that maintains their values. Table 1-4 outlines the principles that are relevant to assessing impacts from the Petroleum Activity on World Heritage properties within the EMBA, which are identified in Section 4. The Operational Area does not overlap any World Heritage properties.

Table 1-4: Relevant management principles under Schedule 5 – Australian World Heritage management principles of the EPBC Regulations 2025

Number	Principle	Relevant section of the EP
3	***Environmental impact assessment and approval*** 3.01 This principle applies to the assessment of an action that is likely to have a significant impact on the World Heritage values of a property (whether the action is to occur inside the property or not).	3.01 and 3.02: One World Heritage property is considered relevant to the Petroleum Activity (Ningaloo Coast). The Petroleum Activity does not include an action that is likely to have a significant impact on the World Heritage values of a property. This EP contains an assessment of risks and impacts outlined in Section 6. Principles are met by the submitted EP.
	3.02 Before the action is taken, the likely impact of the action on the World Heritage values of the property should be assessed under a statutory environmental impact assessment and approval process.	

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Number	Principle	Relevant section of the EP
	3.03 The assessment process should: • (a) identify the World Heritage values of the property that are likely to be affected by the action, and • (b) examine how the World Heritage values of the property might be affected, and • (c) provide for adequate opportunity for public consultation.	3.03 (a): World Heritage values are identified in Woodside's Master Existing Environment (Ningaloo Coast). See Section 2.2.3 of this EP. 3.03 (b): The World Heritage values that may be affected are considered in an assessment of impacts and risks for the Petroleum Activity in Section 6.8, specifically: • Unplanned risks applicable to World Heritage properties are assessed in Section 6.8.2. 3.03 (c): Relevant persons consultation and feedback received in relation to impacts and risks to World Heritage properties are included in Section 4.9.1 and Appendix F. Woodside also facilitates ongoing consultation for the duration of the EP approval and life of the EP, as outlined in Section 5.7. Principles are met by the accepted EP.
	3.04 An action should not be approved if it would be inconsistent with the protection, conservation, presentation or transmission to future generations of the World Heritage values of the property. 3.05 Approval of the action should be subject to conditions that are necessary to ensure protection, conservation, presentation or transmission to future generations of the World Heritage values of the property. 3.06 The action should be monitored by the authority responsible for giving the approval (or another appropriate authority) and, if necessary, enforcement action should be taken to ensure compliance with the conditions of the approval.	3.04, 3.05 and 3.06: The management plans and objectives relevant to Ningaloo Coast are: • Ningaloo Coast Strategic Management Framework (2011) • Ningaloo Marine Park Management plan (2002) • Ningaloo Marine Park and Muiron Islands Marine Management Plan (2005 and amended in 2016) • Nyinggulu (Ningaloo) Coastal Reserves: Red Bluff to Winderabandi Joint Management Plan 101 (2022). These management plans give effect to the duties and obligations of Australia under the World Heritage Convention and facilitate the protection, conservation, presentation or transmission to future generations of the World Heritage values of the properties. For further consideration of the above management plans, their objectives (where relevant to the Petroleum Activity) including a demonstration of how this EP activities are not inconsistent with the protection, conservation, presentation or transmission to future generations associated with these plans, refer to Section 6. Specifically: • Unplanned risks applicable to World Heritage properties are assessed in Section 6.8.2. Principles are met by acceptance and implementation of the EP.

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

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2. ENVIRONMENT PLAN PROCESS

2.1 Overview

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

2.2 Environment Plan process

Figure 2-1 illustrates the EP development process. Each element of this process is discussed further in the next sections.

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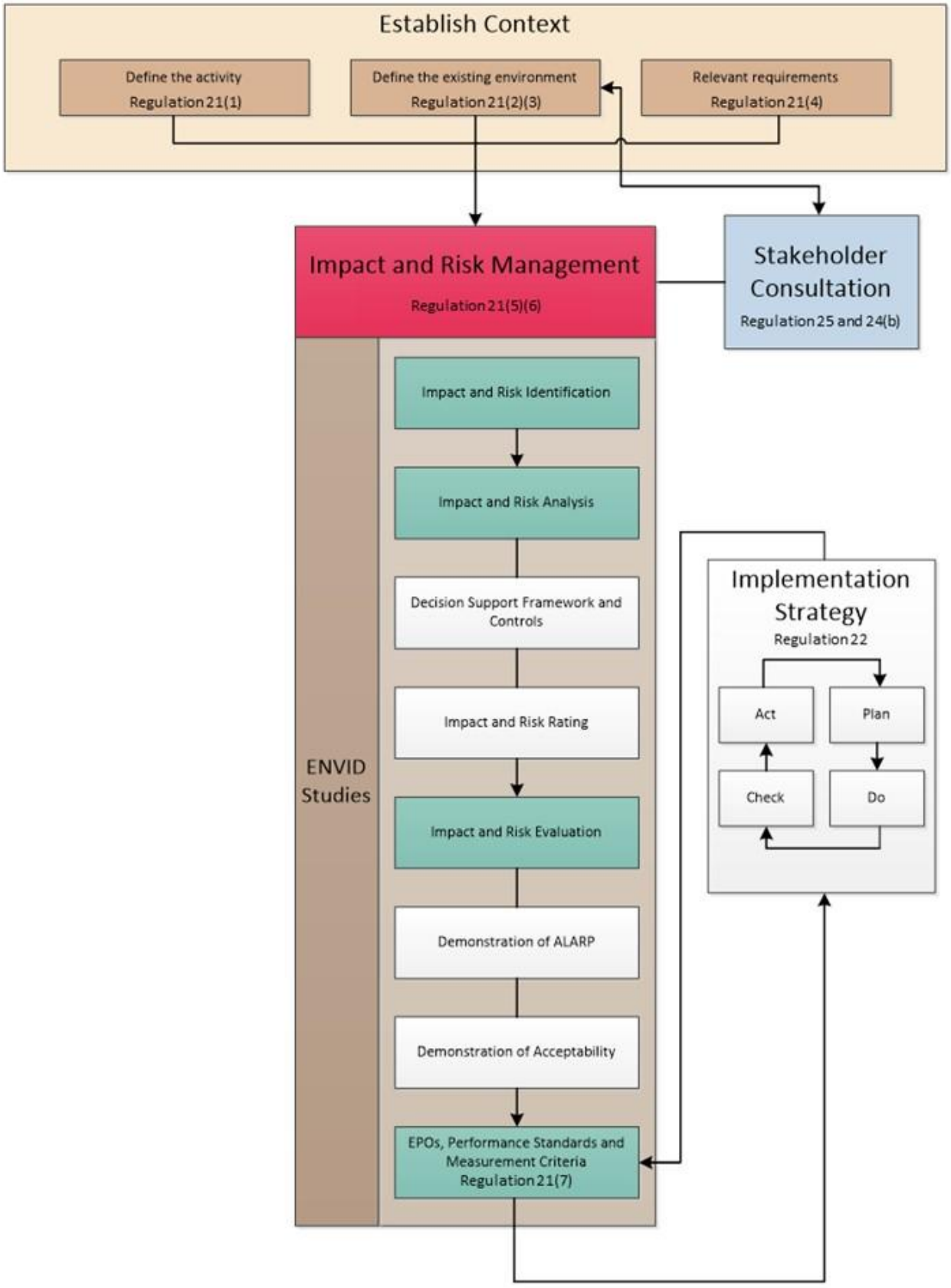


Figure 2-1: Environment Plan development process

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2.2.1 Establish the context

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

2.2.2 Describe the activity

Describing the activity involves evaluating whether the activity meets the definition of a 'Petroleum Activity' as defined in the Environment Regulations. The EP describes the activity, including:

- the location or locations of the activity; general details of the construction and layout of the facility used in undertaking the activity
- an outline of the activity and proposed timetables for undertaking the activity
- additional information relevant to considering environmental impacts and risks of the activity.

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

This activity is described in Section 3 and is referred to as the Petroleum Activity.

2.2.3 Describe the existing environment

The values and sensitivities relevant to environment where the Petroleum Activity is proposed to be undertaken have been identified in Section 4 to the extent required to assess impacts and risks to environmental receptors from the Petroleum Activity.

The values and sensitivities relevant to the Petroleum Activity are fully described within the Master Existing Environment document. In accordance with Regulation 56(1) of the Environment Regulations, references to the Master Existing Environment within this EP refer to Appendix C of the accepted Julimar Operations EP, which is available on NOPSEMA's website using the following link: https://docs.nopsema.gov.au/A1225379.

2.2.4 Environmental legislation and other requirements

Legislation and other requirements that apply to the Petroleum Activity are presented in Section 1.7 and Appendix B. These requirements have been considered when developing this EP.

2.2.5 Impact and risk management

2.2.5.1 Impact and risk identification and analysis

The first step in managing impacts and risks is to identify all credible sources of environmental impacts and risks, including those directly and indirectly associated with the Petroleum Activity and potential emergency and accidental events. This may include environment impacts and risk that are a consequence of the proposed activity but are not within Woodside's control. In this EP:

- planned (routine and non-routine) activities, including contingent activities, that have the potential for inherent changes to the environment, are termed environmental 'impacts'
- unplanned events, including potential emergency and accidental events, that have the potential to result in a change to the environment, are termed environmental 'risks.'

An environmental impacts and risks identification and assessment workshop (ENVID) was undertaken by multidisciplinary teams comprising relevant operational, technical and environmental personnel with sufficient breadth of knowledge, training and experience to reasonably assure that risks and impacts were identified, and their potential environmental consequences assessed. Impacts and risks were identified during the ENVID for both planned (routine and non-routine) activities and unplanned (accidents, incidents, emergency conditions) events. During this process, risks identified as not applicable (not credible) were removed from the assessment.

During the ENVID, environmental impacts and risks were assessed, and controls were assigned to manage them. The ENVID also helped to identify relevant stakeholders to consult when developing this EP (Section 5).

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The output of the ENVID, an environmental impacts and risk register, was then used as a basis to develop the risk and impact assessment section of this EP (Section 6).

2.2.5.2 Decision support framework

To support the impact and risk assessment process and Woodside's determination of acceptability, Woodside's HSE risk management procedures include using a decision support framework based on principles set out in the Guidance on Risk-Related Decision-Making (Oil and Gas UK, 2014). The decision support framework is applied to confirm:

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

The framework allows a decision type (A, B, or C) to be selected for each impact and risk, based on several criteria; the decision type is documented in the environmental impacts and risk register. Figure 2-2 summarises the framework, criteria and resulting level of assessment for each decision type, discussed further below.

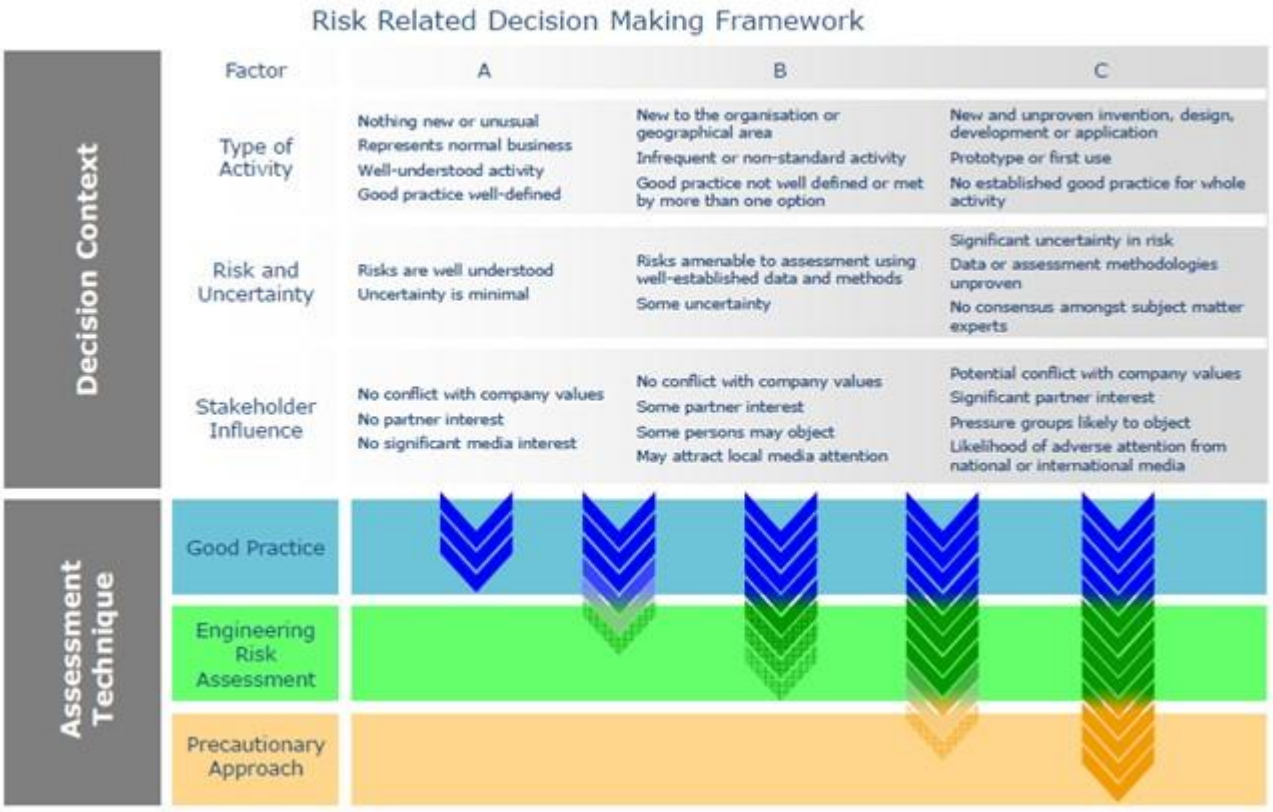


Figure 2-2: Risk-related decision-making framework

Source: Oil and Gas UK (2014)

2.2.5.2.1 Decision Type A

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

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2.2.5.2.2 Decision Type B

Decision Type B risks and impacts typically involve greater uncertainty and complexity and are considered higher-order impacts and risks. These impacts and risks may deviate from established practice or have some lifecycle implications, and therefore require further engineering risk assessment to support the decision and ensure the risk is ALARP.

2.2.5.2.3 Decision Type C

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

2.2.5.3 Decision support framework tools

The below framework tools were applied, as appropriate, when assessing each impact and risk to help identify control measures based on the selected decision type, described above:

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

2.2.5.4 Decision calibration

To determine that the decision type and the control measures are suitable, the following tools may be used for calibration (i.e. checking):

- **LCS/verification of predictions:** verification of compliance with applicable LCS and GP
- **peer review:** independent peer review of PJs, supported by RBA, where appropriate
- **benchmarking:** where appropriate, benchmarking against a similar facility or activity type or situation that has been deemed to represent acceptable risk
- **internal stakeholder consultation:** consultation within Woodside to inform the decision and verify CV are met
- **external stakeholder consultation:** consultation to inform the decision and verify SV are considered.

Where appropriate, additional calibration tools may be selected specific to the decision type and the activity.

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2.2.6 Control measures

Once impacts and risks have been identified, the potentially impacted receptors have been identified and understood, and the decision type has been selected, impact and risk reduction measures (i.e. controls) can be applied. Controls are prioritised and categorised in accordance with the hierarchy of controls listed below, where risk reduction measures at the top of the hierarchy take precedence over those further down:

- elimination of the impact or risk by removing the hazard[1]
- substitution of a hazard with a less hazardous one
- engineering controls, including design measures, to prevent or reduce the frequency, or detect or control, the impact or risk event (limiting the magnitude, intensity and duration), such as:
  - prevention: design measures that reduce the likelihood of a hazardous event occurring
  - detection: design measures that facilitate early detection of a hazardous event
  - control: design measures that limit the extent/escalation potential of a hazardous event
  - mitigation: design measures that protect the environment if a hazardous event occurs
  - response equipment: design measures or safeguards that enable cleanup/response after a hazardous event
- procedures and administration, including management systems and work instructions to prevent or mitigate environmental exposure to hazards
- emergency response and contingency planning, including methods to enable recovery from the impact of an event (e.g. protection barriers deployed near the sensitive receptor).

2.2.7 Impact and risk classification

Environmental impacts and risks are assessed to determine their potential impact consequence level or risk rating, which can then be evaluated, along with other criteria, against the ALARP and acceptability requirements under the Environment Regulations. The full process for classifying impacts and risks is described in the next subsections.

2.2.7.1 Impact classification

Using the Woodside Environment Risk and Impact Rating Tool as a guide, environmental impacts are assessed to determine the potential consequence level. The process for determining the consequence levels is described in Section 2.2.7.1.1.

2.2.7.1.1 Assign the consequence level

The consequence level (Severe, Major, Moderate, Minor, Localised and Low-Level, and No Lasting Effect) is determined through a classification framework that incorporates:

- significance[2] of the feature or area
- scale of the impact on the feature (e.g. species, population, habitat) or area (size)
- recoverability, defined as the ability of the feature or area to naturally recover from the impact within a nominal period.

2.2.7.1.2 Consequence level descriptions

Table 2-1 describes the possible environment, community and culture consequence levels for each identified impact and risk, assuming all controls (preventative and mitigative) are absent or have failed. Where multiple

[1] A hazard has the potential to cause harm to the environment.

[2] References to significance in Section 2.2.7, for the purposes of describing the Woodside Environment Risk and Impact Rating Tool, use significance as defined in the Woodside Environment Risk and Impact Rating Tool.

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receptors have the potential to be impacted, the worst-case consequence level is carried into the final impact and risk assessment and evaluation.

Table 2-1: Woodside impact and impact risk matrix (environment and community and culture) consequence descriptions

Environment	Community and culture	Consequence level	
Severe impact on a sensitive feature(s) or receiving environment, such as permanent impairment on a highly sensitive area or feature.	Severe, long-term impact to a community, social infrastructure or highly valued areas or items of international cultural and social significance.	**Severe**	***A***
Major impact on environmental feature(s) or area(s), such as impact on feature or area of national importance with limited ability to recover.	Major, long-term impact to a community, social infrastructure or highly valued areas or items of national cultural significance.	**Major**	***B***
Moderate impact on environmental feature(s) or area(s), such as impact on feature or area of heightened sensitivity with limited ability to recover.	Moderate, medium-term impact to a community, social infrastructure or highly valued areas or items of national cultural significance.	**Moderate**	***C***
Minor impact on environmental feature(s) or area(s) such as impact on feature of low significance with some ability to recover.	Minor, short-term impact to a community or areas or items of cultural significance.	**Minor**	***D***
Localised and low-level impact on environmental feature(s) or area(s) of low significance.	Slight, short-term impact to a community or areas or items of cultural significance.	**Localised and Low Level**	***E***
No lasting effect, localised impact not significant to environmental receptors.	Temporary localised impact not significant to areas or items of cultural significance.	**No Lasting Effect**	***F***

2.2.7.2 Risk classification

The risk rating process assigns a level of risk to each risk event, measured in terms of consequence (Section 2.2.7.1.1) and likelihood (Section 2.2.7.2.2). The assigned risk rating is determined with controls in place; therefore, the risk rating is determined after identifying the decision type and appropriate control measures. The risk ratings are assigned using the Woodside risk matrix (refer to Table 2-3).

2.2.7.2.1 Assign the likelihood level

Likelihood is determined based on the chance of the selected worst-case consequence occurring, assuming reasonable effectiveness of preventative and mitigative controls (Table 2-2).

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Table 2-2: Woodside risk matrix likelihood levels

	Likelihood description					
	Remote	***Highly unlikely***	***Unlikely***	***Possible***	***Likely***	***Highly likely***
Frequency	1 in 100,000–1,000,000 years	1 in 10,000–100,000 years	1 in 1,000–10,000 years	1 in 100–1,000 years	1 in 10–100 years	>1 in 10 years
Experience	Unheard of in the industry	Has occurred once or twice in the industry	Has occurred many times in the industry but not in the company	Has occurred once or twice in the company	Has occurred frequently in the company	Has occurred frequently in the location or activity
Likelihood level	***0***	***1***	***2***	***3***	***4***	***5***

2.2.7.2.2 Determine the risk rating

The risk rating is derived from the consequence and likelihood levels determined above, in accordance with the Woodside Risk Matrix summarised in Table 2-3. This risk rating is used as an input into the risk evaluation process and ultimately for prioritising further risk reduction measures. Once each risk is treated to ALARP, the risk rating articulates the ALARP baseline risk in the environmental impacts and risk register for the EP (Section 2.3).

Table 2-3: Woodside risk matrix determination of risk rating

Consequence level	Likelihood level					
	0	***1***	***2***	***3***	***4***	***5***
A	A0	A1	A2	A3	A4	A5
B	B0	B1	B2	B3	B4	B5
C	C0	C1	C2	C3	C4	C5
D	D0	D1	D2	D3	D4	D5
E	E0	E1	E2	E3	E4	E5
F	F0	F1	F2	F3	F4	F5

Risk rating
Severe
Very High
High
Moderate
Low

Note: Very High and Severe risks based on HSE impacts are intolerable – action required.

2.3 Impact and risk evaluation

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

2.3.1 Demonstration of 'as low as reasonably practicable'

The descriptions in Table 2-4 articulate how Woodside demonstrates that each impact and risk identified within this EP are ALARP.

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Table 2-4: Summary of Woodside's criteria for 'as low as reasonably practicable' demonstration

Risk	Impact	Decision type
Low and Moderate (C, D, E or F level consequence)	***No Lasting Effect, Localised and Low-Level, or Minor (D, E or F)***	***A***
Woodside demonstrates these impacts, risks and decision types are reduced to ALARP if: • identified controls meet legislative requirements, industry codes and standards, applicable company requirements and industry guidelines, or • further effort towards impact and risk reduction (beyond using opportunistic measures) is not reasonably practicable without sacrifices that are grossly disproportionate to the benefit gained.		
High, very High or Severe (A or B level consequence)	***Moderate and above (C, B or A)***	***B and C***
Woodside demonstrates these higher-order risks, impacts and decision types are reduced to ALARP where it can be shown good industry practice and RBA have been employed, if legislative requirements are met, societal concerns are accounted for, and the alternative control measures are grossly disproportionate to the benefit gained.		

2.3.2 Demonstration of acceptability

The descriptions in Table 2-5 articulate how Woodside demonstrates how each impact and risk identified within this EP are acceptable.

Table 2-5: Summary of Woodside's criteria for acceptability

Risk	Impact	Decision type
Low and moderate (C, D, E or F level consequence)	***No Lasting Effect, Localised and Low Level or minor (D, E or F)***	***A***
Woodside demonstrates these lower order impacts, risks and decision types are 'broadly acceptable' if they meet the ALARP requirements for lower order risks and impacts described above (Table 2-4).		
High, very high or severe (A or B level consequence)	***Moderate and above (C, B or A)***	***B and C***
Woodside demonstrates these higher-order risks, impacts and decision types are of an 'acceptable' level if it can be demonstrated using GP and RBA, if legislative requirements are met and societal concerns are accounted for, and the alternative control measures are grossly disproportionate to the benefit gained. In undertaking this process for moderate and high risks, Woodside evaluates: • the principles of ESD as defined under the EPBC Act • the internal context – the proposed controls and consequence/risk level are consistent with Woodside policies, procedures and standards • the external context – the environment consequence and stakeholder acceptability are considered • other requirements – the proposed controls and consequence/risk level are consistent with national and international industry standards, laws and policies and consider applicable plans for management and conservation advice, conventions and significant impact guidelines (e.g. MNES). Additionally, very high and severe risks require 'escalated investigation' and mitigation. If after further investigation the risk remains in the very high or severe category, the risk requires appropriate business engagement with increasing involvement of senior management to accept the risk, in accordance with Woodside's Risk Management Procedure. This includes due consideration of regulatory requirements.		

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2.4 Recovery plan and threat abatement plan assessment

To demonstrate acceptability, a separate assessment is undertaken to demonstrate the EP is not inconsistent with any relevant recovery plans or threat abatement plans. This assessment follows the below process:

- Identify relevant listed threatened species and ecological communities (Section 4.5).
- Identify relevant recovery plans and threat abatement plans (Section 6.9).
- List all objectives and (where relevant) the action areas of these plans and assess whether these objectives and action areas apply to government, the titleholder, and the Petroleum Activity (Section 6.9).
- For those objectives and action areas applicable to the Petroleum Activity, identify the relevant actions of each plan, and evaluate whether impacts and risks resulting from the activity are clearly not inconsistent with that action (Section 6.9).

2.5 Environmental performance objectives/outcomes, standards and measurement criteria

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

- legislation (such as the OPGGS Act)
- regulator guidance notes such as the Matters of National Environmental Significance – Significant impact guidelines (Department of the Environment, Water, Heritage and the Arts, 2013), or
- specific agreements with other relevant persons (e.g. fishers or other marine users).

For each evaluated impact and risk, controls adopted during the ENVID and when demonstrating ALARP are paired with activity-specific EPOs, EPSs and MC. EPOs, EPSs and MC form the basis for monitoring and auditing. They allow Woodside’s environmental performance to be measured when implementing this EP to ensure impacts and risks will be managed to a level that is ALARP and acceptable. EPOs, EPSs and MC are defined for each identified credible impact and risk in Section 6.

2.6 Implement, monitor, review and report

An implementation strategy for the Petroleum Activity describes the specific measures and arrangements to be implemented for the duration of the program. The strategy is based on the requirements of the Environment Regulations, and demonstrates:

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

The implementation strategy is presented in Section 7.

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2.7 Stakeholder consultation

Woodside undertakes consultation when preparing EPs. The consultation, along with the process for ongoing engagement and consultation throughout the activity, is presented in Section 5. The full text from correspondence is provided in Appendix E.

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3. DESCRIPTION OF THE ACTIVITY

3.1 Overview

This section has been prepared in accordance with Regulation 21(1) of the Environment Regulations and describes the activities to be undertaken as part of the Petroleum Activity under this EP.

3.2 Project overview

The proposed Petroleum Activity comprises a third monitor (M3) 4D marine seismic survey (MSS) as part of a reservoir management and surveillance program of the Pluto gas field. The MSS will acquire time lapse data that will be used to review subtle changes of fluid movement and gas pressure saturation in the gas reservoirs, caused by hydrocarbons being depleted through production. To obtain these updated time-lapse seismic images, the MSS will follow as accurately as possible the same survey sail lines acquired by previous monitor surveys (Pluto 4D Baseline and Monitor 1 in 2016 and Pluto 4D Monitor 2 in 2020).

Table 3-1: Petroleum Activity overview

Item	Description
Petroleum Licence Area/Infrastructure Licence	WA-34-L
Other titleholder licence areas (subject to Access Authority and Special Prospecting Authority)	WA-49-L, WA-46-L, WA-47-L, WA-48-L, WA-21-R, and WA-23-R
Survey Acquisition Area	780 km²
Active Source Area	1,540 km²
Operational Area	3,785 km²
Water depth in the Survey Acquisition Area	73 to 1,185 m
Water depth in the Operational Area	50 to 1,185 m
Vessels	Three vessels (seismic survey, support and chase)

3.3 Location

The Petroleum Activity will take place in Commonwealth waters within the North Carnarvon Basin, Exmouth Plateau, about 28 km north-west of the Montebello Islands and 150 km north-west of Dampier.

For the purposes of this EP, three areas have been defined for the MSS based on the type of activities that will be undertaken and the discharge of seismic source:

- Survey Acquisition Area (SAA)
- Active Source Area (ASA)
- Operational Area.

These areas are presented in Figure 3-1 and Figure 3-2 and described in the next sections.

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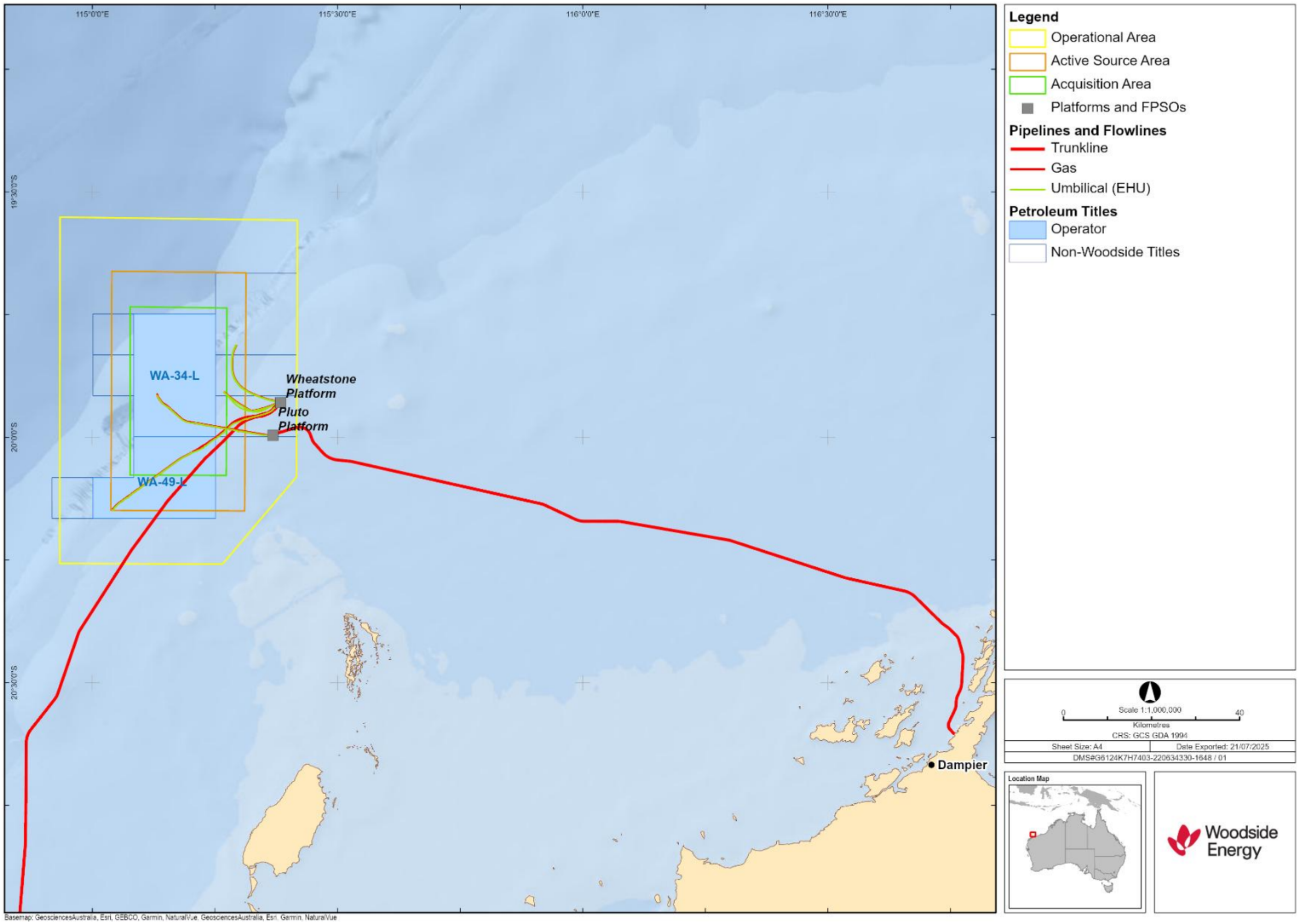


Figure 3-1: Location of the Petroleum Activity

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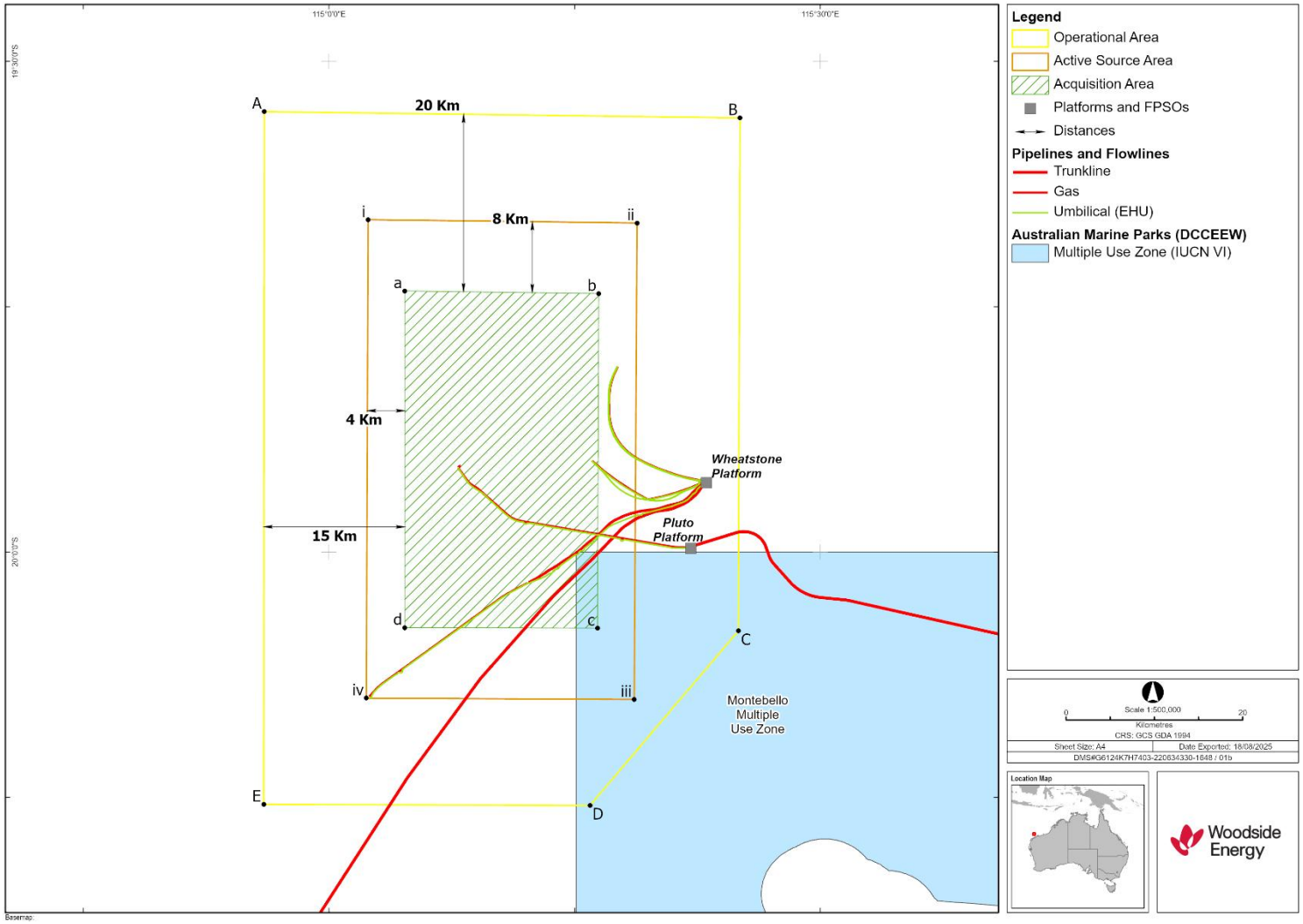


Figure 3-2: Petroleum Activity overview

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3.4 Survey Acquisition Area

The SAA applicable to the scope of this EP is shown in Figure 3-1 and the extent is provided in Table 3-2. The SAA is defined as the area within which seismic recording will occur when acquiring data for subsurface imaging. There has been no change to the SAA from previous monitor surveys in 2016 and 2020. Sail lines will be acquired on a north-south orientation within the SAA.

3.5 Active Source Area

The ASA applicable to the scope of this EP is shown in Figure 3-1 and the extent is provided in Table 3-2. The ASA is defined as the area where the seismic source may be discharged and is within the bounds of the Operational Area. The seismic source will only be discharged within the ASA, which includes all source activity including soft starts, bubble tests, run-ins and run-outs. A 30-minute soft start period is needed to ramp up the source array to full power at the start of each acquisition line. The ASA fully surrounds the SAA and extends 8 km to the north and south to accommodate soft starts and run-ins and run-outs, and 4 km on the eastern and western flanks to allow for seismic survey vessel/sail line manoeuvring for possible reshoots. The seismic source will not be discharged outside of the ASA.

3.6 Operational Area

The Operational Area applicable to the scope of this EP is shown in Figure 3-1 and the extent is provided in Table 3-2. The Operational Area includes a 15 km buffer around the SAA that has been extended to 20 km north and south. The extension to the north and south is a result of lessons from the 2020 survey where vessel movements were constrained. The south-eastern extent of the Operational Area is truncated to avoid water shallower than 50 m near the Montebello Islands. The Operational Area is required for manoeuvring the vessel and conducting line turns and sail lines run-ins and run-outs beyond the ASA, as well as bunkering activity (refer to Section 3.9.1).

Vessel-related activities within the Operational Area will comply with this EP. Vessels supporting the Petroleum Activity when outside the Operational Area must adhere to applicable maritime regulations and other requirements. This EP applies to activities undertaken within the Operational Area, as described in this section.

Table 3-2: Operational Area, Active Source Area and Survey Acquisition Area coordinates of the Petroleum Activity

Location point	Latitude (GDA94)	Longitude (GDA94)
Survey Acquisition Area		
a	19° 44' 02.451" S	115° 04' 37.853" E
d	20° 04' 37.104" S	115° 04' 37.946" E
c	20° 04' 39.019" S	115° 16' 23.684" E
b	19° 44' 11.842" S	115° 16' 28.804" E
Active Source Area		
i	19° 39' 40.850" S	115° 02' 23.670" E
ii	19° 39' 52.999" S	115° 18' 48.903" E
iii	20° 09' 00.490" S	115° 18' 38.558" E
iv	20° 08' 55.690" S	115° 02' 17.055" E
Operational Area[1]		
A	19° 33' 04.683" S	114° 56' 03.125" E
E	20° 15' 25.575" S	114° 56' 01.032" E
D	20° 15' 29.330" S	115° 15' 56.152" E
C	20° 04' 49.110" S	115° 24' 59.927" E
B	19° 33' 27.728" S	115° 25' 05.996" E

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1. *If* any activities conducted within the Operational Area are not covered by Woodside's existing titles, Woodside will obtain all necessary authorisations before proceeding with those activities.

3.7 Timing

The planned survey window is about 40 days from late December 2026 to February 2027. The sound source will not be discharged during December to avoid the pygmy blue whales' peak southern migration. This survey activity period is also aligned with the timing of previous surveys, aiming to replicate similar prevailing weather conditions and ocean currents. This approach attempts to replicate previous Pluto monitor survey activities as closely as practicable and to minimise variables. The survey duration factors in weather downtime and technical standby based on lessons learned from the 2020 Pluto 4D Monitor 2 survey. Seismic data will be acquired over a 24-hour period, subject to necessary shutdowns and standby periods.

The MSS is subject to vessel availability, operational constraints, prevailing weather conditions, and granting of the required regulatory approvals and access authorities. In the event the Petroleum Activity does not occur during the late December 2026 to February 2027 period, as a contingency this EP covers the same period the subsequent year (i.e. late December 2027 to February 2028, with the seismic data being acquired only in January and February 2028).

3.8 Marine seismic survey

The MSS is a typical seismic survey, similar to others conducted in Australian marine waters, in terms of technical methods and procedures. No unique or unusual equipment or operations are proposed. The seismic survey vessel will acquire time lapse data used to review subtle changes of fluid movement and gas pressure saturation in the gas reservoirs, caused by hydrocarbon being depleted through production. To obtain these time lapse images, the MSS will replicate the previous monitor survey as accurately as possible.

A purpose-built seismic survey vessel will traverse pre-determined sail lines within the SAA at a speed of about 4 to 5 knots (7 to 9 km/hr). The survey sail lines have been defined based on the same sail lines acquired during past surveys over the field, including survey optimisation considerations. As the seismic survey vessel travels along the survey sail lines, acoustic pulses (about every ten seconds based on the shot point interval) will be discharged and directed down through the water column and into the subsurface. The released sound will be attenuated and reflected at geological boundaries within the subsurface and the reflected signals detected using sensitive microphones, arranged within an array of receiver cables (streamers) towed behind the seismic survey vessel. The reflected sound data will then be computer-processed over several months, using geophysical algorithms and techniques to provide information in the form of seismic imaging that details the structure and composition of geological formations below it. Differences will then be compared between the previous Monitor 2 and the new M3 surveys to determine changes in the reservoirs due to production.

Three vessels (seismic survey, support and chase vessel) are required for the MSS (Section 3.9). The seismic survey vessel will deploy a towed array comprising the seismic source and streamer arrays, which include header buoys, starboard and port deflectors or baravanes, streamers and tail buoys. A 3 NM Safe Navigation Area (SNA) will be in place around the seismic survey vessel and towed array.

3.8.1 Airgun array

The seismic source will comprise an airgun array with a volume of about 3,150 in³ with an operating pressure of about 13,800 kPa (2,000 psi). The source array will be towed at a depth of 5 m (±1 m). The source arrays will be fired alternately with a shot point interval of 18.75 m horizontal distance using a dual source configuration ('flip-flop' discharge). The 3,150 in³ seismic source will produce far-field source energy levels up to a maximum of 255 dB re 1 µPa²m² (peak) and per-pulse source sound exposure levels (SEL) of 227 to 230 dB re 1 µPa²m² (at 10 Hz to 2,000 Hz) directly beneath the array.

Table 3-3 provides further details on the survey acquisition parameters.

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Table 3-3: Marine seismic survey acquisition parameters

Parameter		Pluto 4D M3
General parameters	Survey Acquisition Area	780 km²
	Active Source Area	1,540 km²
	Operational Area	3,785 km²
	Maximum sail line length in ASA	About 52 km
	Line separation (nominal)	300 m
	Line orientation	0° / 180° north-south
	Water depths in Survey Acquisition Area	73 to 1,185 m
	Planned acquisition period	Quarter (Q)4 2026 to Q1 2027
	Contingency acquisition period	Q4 2027 to Q1 2028
	Planned survey duration (including weather downtime and standby)	40 days
Acoustic emissions	Source configuration	Dual source (flip/flop)
	Airgun array capacity (approximate)	3,150 in³
	Operating pressure	2,000 psi
	Airgun array tow depth	5 m (±1 m)
	Shot point interval	18.75 m
	Peak frequency range	2 to 200 Hz
Acoustic reception	No. of streamers (approximate)	12
	Streamer length (approximate)	+7,000 m
	Streamer spacing	100 m
	Streamer depth (approximate)	15 to 18 m

3.8.2 Streamer array

The seismic survey vessel will tow 12 solid streamers at a depth of about 15 to 18 m, with streamer spacing (separation) of 100 m (refer Table 3-3). Solid streamers will be used to reduce the potential risk of damaged streamers releasing fluid to the environment. The streamers contain steering devices in the form of plastic streamer fins (60 to 80 cm long), which enable controlled depth and horizontal steering. Streamer fins also minimise the effect of entanglement with marine debris and have failsafe points for excessive strain. Horizontal streamer steering reduces feather (where the streamer tends to veer offline due to wind and currents) correction and enables safe streamer separation control and active steering.

Streamer recovery devices (SRDs) will be fitted to the streamers. If the streamers go below about 50 m depth, the SRDs will automatically deploy inflatable air bags to raise the streamer to the surface for retrieval and repair. SRDs (if activated) have plastic end caps (about 12 cm diameter) that will be dropped to the marine environment.

3.9 Project vessels

A seismic survey vessel will undertake the MSS accompanied by support and chase vessels. The support vessel will resupply the seismic survey vessel with fuel and other logistical and operational supplies, including taking the seismic survey vessel under emergency tow if required. Typical vessel specifications are provided in Table 3-4. Vessel sizes may vary depending on contractor availability.

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Table 3-4: Indicative vessel specifications

Specification	Seismic survey vessel	Support vessel	Chase vessel
Registered tonnage	About 13,000 to 15,000	About 3,000 to 5,000	<400
Length overall	About 110 m	About 65 m	About 22 m
Breadth	About 40 m	About 20 m	About 6 m
Draft (max)	8 m	7 m	About 2 m
Persons on-board	Up to 75	Up to 35	4 to 12
Fuel type	Marine gas oil (MGO)	MGO	MGO
Fuel capacity	About 2,000 m³ total (individual tanks 50 to 250 m³)	Up to 1,000 m³ total (individual tanks 20 to 105 m³)	

An SNA will extend to a radius of 3 NM around the seismic survey vessel and towed equipment. The support and chase vessels will also be used to manage interactions with third-party vessels and restrict them from approaching or entering the SNA.

All project vessels must typically undergo a Woodside Marine Assurance assessment and inspection process to review their suitability, which includes confirming compliance with mandated maritime protocols and Woodside safety and environment requirements. Refer to Section 7.5.2.1 for a summary of the marine assurance process.

Project vessels have appropriate lighting to enable a safe working environment. They also have appropriate navigational lighting as per maritime requirements.

Potable water, primarily for accommodation and associated domestic areas, will be generated by a reverse osmosis plant on the main project vessels. This process will produce brine, which is diluted and discharged at the sea surface. The vessels will also discharge deck drainage from open drainage areas, bilge water from closed drainage areas, putrescible waste, treated sewage and grey water.

No bulk chemicals are expected to be stored or discharged as part of the Petroleum Activity. Aqueous film-forming foam (AFFF) may be discharged where project vessel helideck testing requirements (typically annual) fall within the on-hire period, or in an emergency. Generated hazardous and non-hazardous wastes are removed from the vessels and disposed of onshore. Woodside maintains a chemical assessment process for operational chemicals used and discharged during petroleum activities (see Section 7.2.1).

Project vessels will use low-sulphur diesel (MGO/marine diesel oil) and will be provisioned in port/ designated bunkering facilities. Low-sulphur marine diesel may be bunkered to the seismic survey vessel in the Operational Area, as described below.

3.9.1 Marine diesel bunkering

Low-sulphur marine diesel (or MGO) will be bunkered to the seismic survey vessel via a bunker hose reel that is located on the support vessel. Depending on fuel consumption during operations, this may occur once or twice during the survey. Bunkering is planned to only begin during daylight hours but may continue into the hours of darkness. Marine diesel will be supplied at flow rate of about 100 m³/hr via a hose fitted with dry-break couplings. The marine diesel will then be held onboard the seismic survey vessel in the designated fuel tanks before being pumped into the settling tanks, then finally distributed to the service tanks for onboard fuel demands.

3.10 Helicopters

Helicopters may be used to transport personnel and urgent freight to and from the vessels. They may also be used as a means of evacuating personnel in an emergency. Helicopter support is typically supplied from Karratha Airport. Helicopter use for the activity is limited to occasional periods of short duration.

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4. DESCRIPTION OF THE EXISTING ENVIRONMENT

4.1 Overview

In accordance with Regulations 21(2) and 21(3) of the Environment Regulations, this section describes the existing environment that may be affected by the activity (planned and unplanned, as described in Section 3), including details of the particular relevant values and sensitivities of the environment, which were used for the risk assessment.

The EMBA represents the largest spatial extent where unplanned events could have an environmental or sociocultural consequence on the surrounding environment. For this EP, the EMBA is the potential spatial extent of surface and in-water hydrocarbons at concentrations above ecological impact thresholds, in the event of the worst-case credible spill. The ecological impact thresholds used to delineate the EMBA are defined in Section 6.8.1.1.2. The worst-case credible spill scenario for this EP is a vessel collision resulting in hydrocarbon release. No shoreline accumulation of hydrocarbons above threshold concentrations (100 g/m²) resulted from the modelled worst-case credible spill (refer to Section 6.8.2).

Woodside recognises hydrocarbons may be visible at lower concentrations than the ecological impact thresholds defined in Table 4-1. These visible hydrocarbons have the potential to cause sociocultural impacts. In respect of this, the EMBA also includes hydrocarbon thresholds where sociocultural impact could occur. Receptors relevant to the sociocultural hydrocarbon thresholds include cultural values and heritage, Commonwealth and State marine protected areas, National and Commonwealth Heritage listed places, areas of tourism and recreation, and commercial and traditional fisheries. For this EP, the sociocultural hydrocarbon thresholds for surface hydrocarbons encompass an area fully within the boundaries of the EMBA for ecological impacts. The EMBA and socioeconomic EMBA are shown in Figure 4-1 and described in Table 4-1.

The EMBA does not represent the predicted coverage of any one hydrocarbon spill nor depict a slick or plume at any point in time. Rather, the EMBA represents a composite of many theoretical paths, integrated over the full duration of the simulations under various metocean conditions.

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

Hydrocarbon type	Ecological hydrocarbon thresholds[1]	Sociocultural hydrocarbon thresholds[1]	Planning area for operational and scientific monitoring
Surface	10 g/m² This represents the minimum oil thickness (0.01 mm) at which ecological impacts (e.g. to birds and marine mammals) are expected to occur.	1 g/m² This represents a wider area where a visible sheen may be on the surface and, therefore, the concentration at which sociocultural impacts to the visual amenity of the marine environment may occur. However, it is below concentrations at which ecological impacts are expected to occur. This low exposure value also establishes the planning area for scientific monitoring (NOPSEMA, 2019).	
Dissolved	50 ppb This represents potential toxic effects, particularly sublethal effects to highly sensitive species (NOPSEMA, 2019). As dissolved hydrocarbons are within the water column and not visible, impacts to sociocultural receptors are associated with ecological impacts. Therefore, dissolved hydrocarbons at this threshold also represent the level at which sociocultural impacts may occur.		10 ppb This low exposure value establishes the planning area for scientific monitoring (based on potential for exceeding water quality triggers) (NOPSEMA, 2019). This area is described further in Appendix G. In the event of a spill, DNP will be notified of AMPs that may be contacted by hydrocarbons at this threshold (Table 4-16).
Entrained	100 ppb This represents potential toxic effects, particularly sublethal effects to highly sensitive species (NOPSEMA, 2019). As entrained hydrocarbons are within the water column and not visible, impacts to sociocultural receptors are associated with ecological impacts. Therefore, entrained hydrocarbons at this threshold also represent the level at which sociocultural impacts may occur.		
Shoreline	100 g/m² This represents the threshold that could impact the survival and reproductive capacity of benthic epifaunal invertebrates living in intertidal habitat.	10 g/m² This represents the volume where hydrocarbons may be visible on the shoreline but is below concentrations at which ecological impacts are expected to occur.	N/A.

1. *Further details, including the source of the thresholds used to define the EMBA in this table, are provided in Section 6.8.1.*

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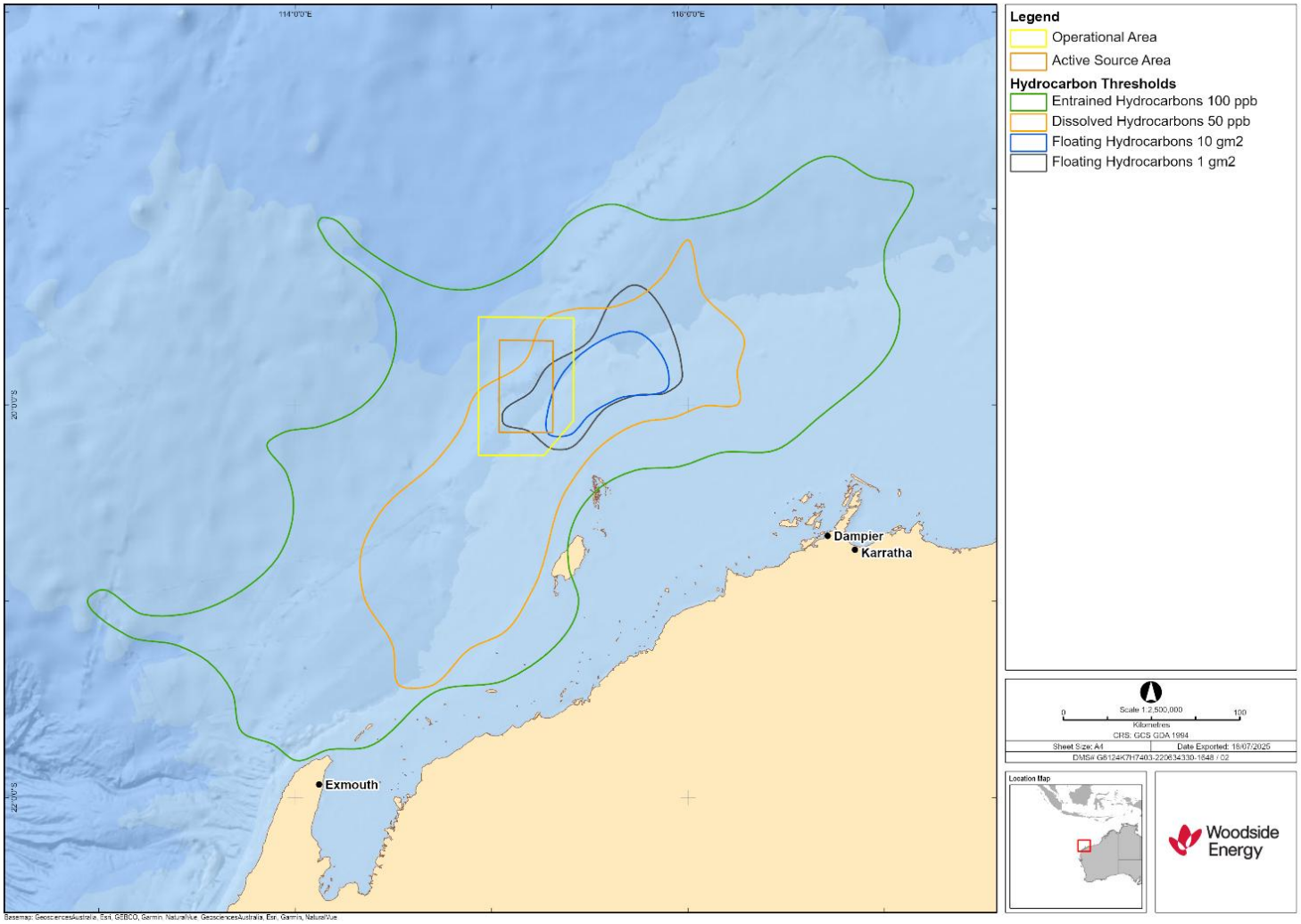


Figure 4-1: Hydrocarbon thresholds which, combined, represent the environment that may be affected by the Petroleum Activity

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4.2 Regional context

The Operational Area is located in Commonwealth waters within the North-west Marine Region (NWMR), as defined under the Integrated Marine and Coastal Regionalisation of Australia (IMCRA v4.0) (DSEWPaC, 2012a), in water depths of about 50 m (in the south-east extent of the Operational Area) to 1,185 m (in the north-west extent of the Operational Area). Within the NWMR, the Operational Area lies within the Northwest Province and the North West Shelf (NWS) Province (Figure 4-2). The EMBA partially overlaps with additional provincial bioregions of the NWMR, including the Northwest Transition and Central Western Shelf Transition.

Woodside's Master Existing Environment (refer to Section 2.2.3) summarises the characteristics for the relevant marine bioregions.

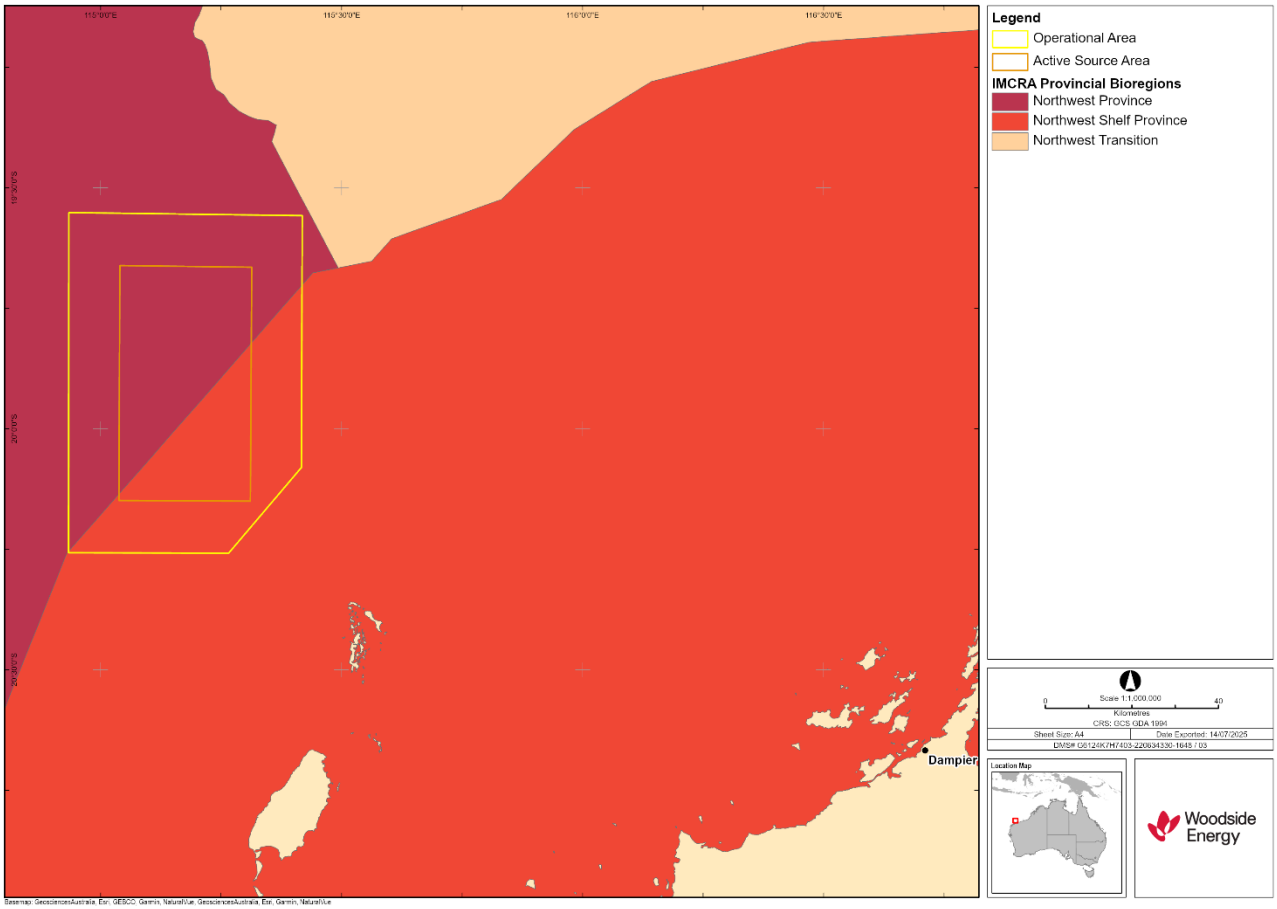


Figure 4-2: Location of the Operational Area and relevant marine bioregions

4.3 Matters of national environmental significance (EPBC Act)

Table 4-2 summarises the MNES overlapping the Operational Area and EMBA, according to Protected Matters Search Tool (PMST) results (Appendix C). It should be noted the EPBC Act PMST is a general database that identifies areas in which protected species have the potential to occur. The PMST conducts searches to determine the presence or absence of MNES based on a conservative grid-based search function. Marine areas (>30 km) from the coast use 32 km × 32 km grid cells to determine the spatial overlap with listed MNES. Accordingly, the PMST report (Appendix C) can indicate the presence of MNES, that do not actually intersect with the Operational Area or EMBA. To accurately consider any impacts from the Petroleum Activity on MNES, shapefiles (provided by Department of Climate Change, Energy, the Environment and Water [DCCEEW]) have been assessed using geographic information system software to determine the actual presence and distance to MNES.

More information about these MNES is provided throughout this section and described in detail in Woodside's Master Existing Environment (refer to Section 2.2.3).

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Table 4-2: Summary of relevant matters of national environmental significance identified by the EPBC Act Protected Matters Search Tool as potentially occurring within the Operational Area and EMBA

MNES	Number of MNES in Operational Area	Number of MNES in EMBA
World Heritage properties	None	1
National Heritage places	None	1
Wetlands of International Importance (Ramsar)	None	None
Commonwealth Marine Area	1	1
Listed threatened ecological communities	None	None
Listed threatened species	26	36
Listed migratory species	44	61

4.4 Physical environment

The Operational Area is located in Commonwealth waters within the Northwest Province and NWS Province and overlaps the 'Continental Slope Demersal Fish Communities' and 'Ancient Coastline at 125 m Depth Contour' key ecological features (KEF) (refer to Section 4.7). The Operational Area is characterised by both the continental shelf and the continental slope of the NWMR.

The seabed in the North West Shelf Province has a gentle (0.05º) seaward gradient, extending to a relatively steep outer slope about 200 to 300 km offshore in water depths of around 200 m (Dix, et al., 2005). The continental slope then descends more rapidly from the shelf edge to deeper than 1,000 m to the north-west (James, et al., 2004).

The Ancient Coastline at 125 m Depth Contour and Continental Slope Demersal Fish Communities KEFs are distinctive geomorphic features, with seafloor features combining both soft sediment and hard substrates including outcrops, terraces, continental slopes and escarpments. Beyond the steep slope at the north-west portion of the Operational Area, the seabed is relatively flat and featureless, which is consistent with the broader Northwest Province (James, et al., 2004; Woodside, 2006).

Woodside's Master Existing Environment (refer to Section 2.2.3) summarises the physical characteristics of the environment within the EMBA.

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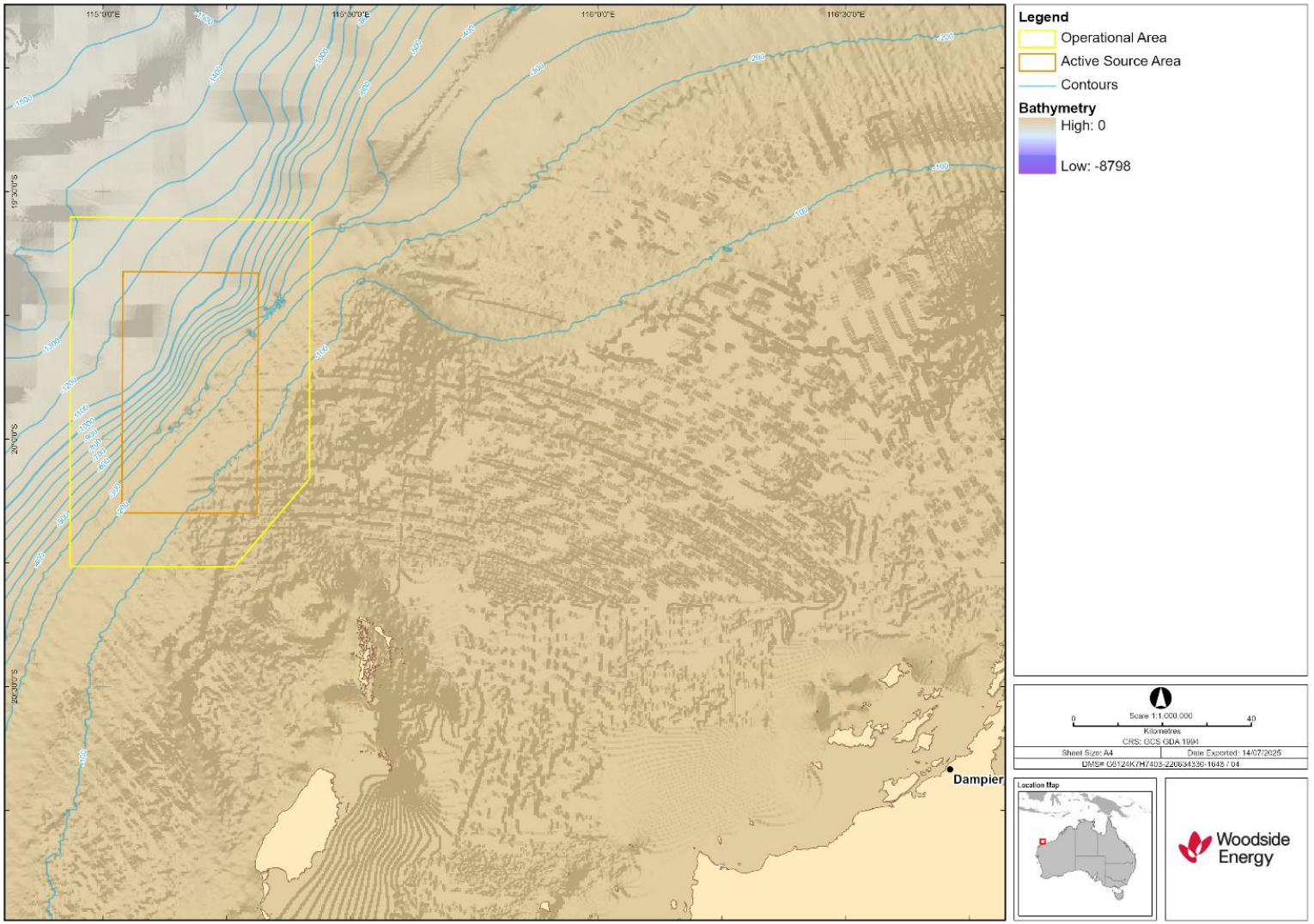


Figure 4-3: Regional bathymetry

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4.5 Habitats and biological communities

Sediments in the outer NWMR are relatively homogenous and are typically dominated by sands and a small portion of gravel (Baker, et al., 2008). Sediments sampled in 2021 around the Pluto Facility infrastructure (including within title area WA-34-L, which is within the Operational Area) were predominantly well sorted, medium to coarse sands with very low total organic carbon content (BMT, 2022). Fine sediment size classes (e.g. muds) increase with proximity to the shoreline and the shelf break, but are less prominent in the intervening continental shelf (Baker, et al., 2008). Carbonate sediments typically account for the bulk of sediment composition, with both biogenic and precipitated sediments present on the outer shelf (Dix, et al., 2005). Beyond the shelf break within the NWMR (200 m depth contour), the proportion of fine sediments increases along the continental slope towards the abyssal plain (Baker, et al., 2008).

In 2021, the benthic habitats around the Pluto Facility were surveyed (BMT, 2022). Results showed habitats predominantly comprised unconsolidated (soft) sand and mud of possible biogenic origins containing shell fragments and a low cover (<20%) of biota that mostly consisted of a mixed community of poriferans (erect, crust, cup-like and massive forms) and cnidarians (sea whips, sea pens, sea fans, soft corals and hydroids) (BMT, 2022).

Within WA-34-L on the continental slope, sediments ranged from fine sands to silts, with sediments generally becoming finer with increasing water depth down to 600 m for both slope and canyon transects. Below 600 m, sediment became slightly coarser, but still relatively fine compared to continental shelf sediments (between 150 m and 200 m) (SKM, 2006). While the Operational Area is likely to comprise mainly soft sediments, two KEFs overlap the Operational Area (Ancient Coastline at 125 m Depth Contour, Continental Slope Demersal Fish Communities; refer to Figure 4-10). Areas of hard substrate may be associated with these KEFs, which are considered to support more diverse benthic communities that are characteristic of the wider region. KEFs are further discussed in Section 4.7 and Woodside's Master Existing Environment (refer to Section 2.2.3).

Habitats and ecological communities within the EMBA are identified in Table 4-3 and described in Woodside's Master Existing Environment (refer to Section 2.2.3).

Table 4-3: Habitats and communities within the EMBA (distance calculated from Operational Area)

Habitat/community	Key locations within the EMBA
Seabed characteristics	
NWS Province	Overlapping the Operational Area
Northwest Province	Overlapping the Operational Area
Ancient Coastline at 125 m Depth Contour KEF	Overlapping the Operational Area (note, there is no planned interaction with the seabed during the Petroleum Activity)
Continental Slope Demersal Fish Communities KEF	Overlapping the Operational Area (note, there is no planned interaction with the seabed during the Petroleum Activity)
Reefs, banks and shoals	• Glomar Shoal (120 km east of the Operational Area) • Rankin Bank (18 km east of the Operational Area) • Wilcox Shoal (21 km east of the Operational Area) • Tryal Rocks (10 km south-of the Operational Area) • Rosily Shoals (116 km south of the Operational Area)
Various other KEFs	Described in Table 4-15
Marine primary producers	
Coral	• Montebello Islands Group (28 km south-east of the Operational Area) • Barrow Island Group (49 km south of the Operational Area)
Seagrass beds and macroalgae	• Montebello Islands Group (28 km south-east of the Operational Area) • Barrow Island Group (49 km south of the Operational Area)

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Habitat/community	Key locations within the EMBA
Mangroves	• Montebello Islands Group (28 km south-east of the Operational Area) • Barrow Island Group (49 km south of the Operational Area)
Sandy beaches	• Montebello Islands Group (28 km south-east of the Operational Area) • Barrow Island Group (49 km south of the Operational Area) • Muiron Islands (161 km south-west of the Operational Area)
Other communities and habitats	
Plankton	Plankton is expected throughout the Operational Area and EMBA and is also expected to be representative of plankton within the wider NWMR, as detailed in Woodside's Master Existing Environment (refer to Section 2.2.3).
Pelagic and demersal fish populations	Pelagic and demersal fish are expected throughout the Operational Area and EMBA and are also expected to be representative of pelagic and demersal fish within the wider NWMR, as detailed in Woodside's Master Existing Environment (refer to Section 2.2.3).
Epifauna and infauna	Epifauna and infauna are expected throughout the Operational Area and EMBA and are also expected to be representative of epifauna and infauna within the wider NWMR, as detailed in Woodside's Master Existing Environment (refer to Section 2.2.3).

4.6 Protected species

A total of 70 EPBC Act listed species considered to be MNES were identified as potentially occurring within the EMBA, of which 49 species were identified as potentially occurring within the Operational Area. The full list of marine species identified from the PMST reports is in Appendix C. Species identified in the PMST that are not known to inhabit shorelines, nor rely on the marine environment for their diet, are not included or assessed.

Key species identified as potentially occurring within the Operational Area and EMBA, BIAs or habitat critical to the survival of the species (habitat critical) that overlap the Operational Area and EMBA, are described in the next sections. Key threatened and migratory species and associated biologically important behaviours in the EMBA are further described in Woodside's Master Existing Environment (refer to Section 2.2.3).

4.6.1 Fish, sharks and rays

A total of 14 EPBC Act listed threatened and migratory fish, shark and ray species have been identified to potentially occur within the EMBA, all of which occur in the Operational Area (Table 4-4). A full list of EPBC Act listed species identified in the PMST search is in Appendix C.

The Operational Area overlaps the foraging BIA (northward from Ningaloo along the 200 m isobath) for whale sharks (Figure 4-4 and Table 4-5). A high-density foraging area is 195 km south-west of the Operational Area and within the EMBA. Further detail on the presence of whale sharks within the Operational Area is provided in Section 4.6.1.1.

BIAs are further described in Woodside's Master Existing Environment (refer to Section 2.2.3).

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Table 4-4: Threatened and migratory fish, shark and ray species predicted to occur within the Operational Area and EMBA

Species name	Common name	EPBC Act (Cth) (as per PMST report Appendix C)		Potential for interaction	
		Threatened status	*Migratory status*	*Operational Area*	*EMBA*
Anoxypristis cuspidata	Narrow sawfish	N/A	Migratory	Species or its habitat may occur in area	Species or its habitat known to occur in area
Carcharhinus longimanus	Oceanic whitetip shark	N/A	Migratory	Species or its habitat likely to occur in area	Species or its habitat likely to occur in area
Carcharias taurus	Grey nurse shark	N/A	Migratory	Species or its habitat likely to occur in area	Congregation or aggregation known to occur in area
Carcharias taurus (west coast population)	Grey nurse shark (west coast population)	Vulnerable	N/A	Species or its habitat likely to occur in area	Congregation or aggregation known to occur in area
Carcharodon carcharias	Great white shark	Vulnerable	Migratory	Species or its habitat may occur in area	Species or its habitat known to occur in area
Isurus oxyrinchus	Shortfin mako	N/A	Migratory	Species or its habitat likely to occur in area	Species or its habitat likely to occur in area
Isurus paucus	Longfin mako	N/A	Migratory	Species or its habitat likely to occur in area	Species or its habitat likely to occur in area
Mobula alfredi	Reef manta ray	N/A	Migratory	Species or its habitat likely to occur in area	Species or its habitat known to occur in area
Mobula birostris	Giant manta ray	N/A	Migratory	Species or its habitat likely to occur in area	Species or its habitat known to occur in area
Pristis clavata	Dwarf sawfish	Vulnerable	Migratory	Species or its habitat known to occur in area	Species or its habitat known to occur in area
Pristis pristis	Freshwater sawfish	Endangered	Migratory	Species or its habitat may occur in area	Species or its habitat likely to occur in area
Pristis zijsron	Green sawfish	Vulnerable	Migratory	Species or its habitat known to occur in area	Species or its habitat known to occur in area
Rhincodon typus	Whale shark	Vulnerable	Migratory	Foraging, feeding or related behaviour known to occur in area	Foraging, feeding or related behaviour known to occur in area

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Species name	Common name	EPBC Act (Cth) (as per PMST report Appendix C)		Potential for interaction	
		Threatened status	***Migratory status***	***Operational Area***	***EMBA***
Sphyrna lewini	Scalloped hammerhead	Conservation-dependent	N/A	Species or its habitat known to occur in area	Species or its habitat known to occur in area

Table 4-5: Fish, shark and ray biologically important areas within the Operational Area and EMBA

Species	BIA type	Approx. distance and direction of BIA from Operational Area (km)
Whale shark	Foraging (northward from Ningaloo along 200 m isobath), refer to Figure 4-4.	Overlaps
	Foraging (high density in Ningaloo Marine Park and adjacent Commonwealth waters), refer to Figure 4-4.	195 km south-west

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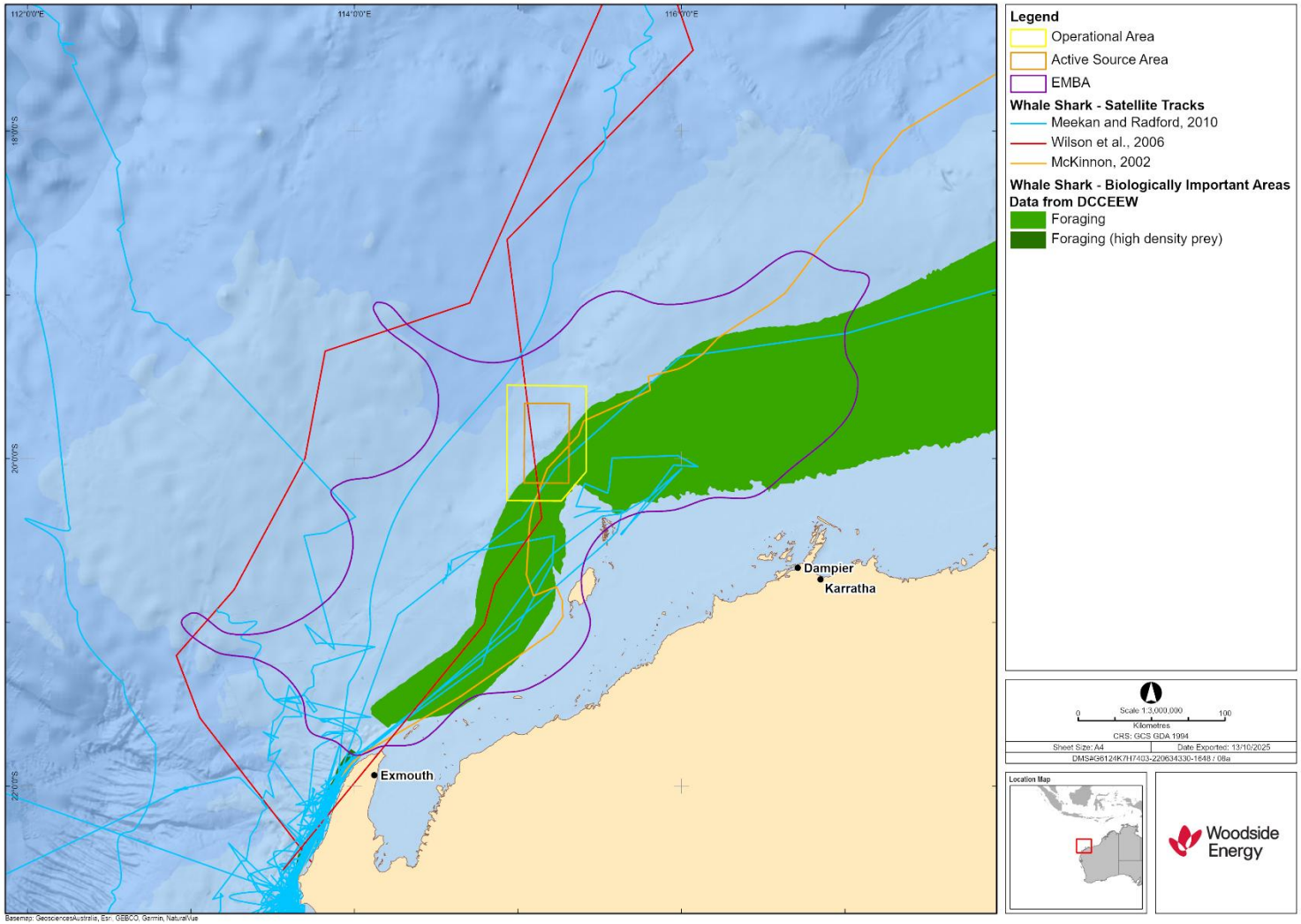


Figure 4-4: Whale shark biologically important areas overlapping the EMBA and tagged whale shark satellite tracks

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4.6.1.1 Whale shark

Whale sharks (*Rhindocon typus*) are planktivorous sharks, feeding on a variety of planktonic organisms including krill, jellyfish, and crab larvae (Last & Stevens, 2009).

Whale sharks form seasonal aggregations at Ningaloo Reef between March and July (TSSC, 2015b). However, seasonal aggregation can be variable, with whale sharks recorded to be present at Ningaloo year - round (Norman, et al., 2017).

The annual migration of whale sharks occurs along the 200 m isobath of the WA coast between July and November (TSSC, 2015b). Timing of their migration to and from Ningaloo coincides with the coral mass spawning period, when there is an abundance of food (krill, planktonic larvae and schools of small fish) in the waters adjacent to Ningaloo Reef (DCCEEW, 2024d). Whale sharks remain within a few kilometres of the shore while at the Ningaloo Reef in water depths between 30 and 50 m (Wilson, et al., 2006). After the aggregation period, their distribution is largely unknown. Satellite tracking (Figure 4-4) has shown the sharks may follow three migration routes from Ningaloo (Wilson, et al., 2006; Meekan & Radford, 2010):

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

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

The proposed Petroleum Activity is restricted to a period between late December to February (refer to Section 3.7) and does not overlap with the peak seasonal migration for whale sharks. While whale sharks may traverse the vicinity of the Operational Area, their presence would be of a relatively short duration and not in significant numbers, given the main aggregations are recorded in coastal waters, particularly the Ningaloo Reef edge (Department of Parks and Wildlife, 2013; Marine Parks and Reserves Authority, 2005).

4.6.2 Marine reptiles

A total of seven EPBC Act listed threatened and migratory marine reptile species have been identified to potentially occur within the EMBA, of which six occur in the Operational Area (Table 4-6). A full list of EPBC Act listed species identified in the PMST search is provided in Appendix C.

BIAs that overlap the EMBA are presented in Figure 4-5 and Table 4-7. Habitat critical overlapping the EMBA is presented in Figure 4-6 and Table 4-8. The Operational Area overlaps the internesting buffer BIA for flatback turtles and habitat critical for flatback turtles (Figure 4-5, Table 4-7; Figure 4-6, Table 4-8).

BIAs are further described in Woodside's Master Existing Environment (refer to Section 2.2.3).

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Table 4-6: Threatened and migratory marine reptile species predicted to occur within the Operational Area and EMBA

Species name	Common name	EPBC Act (Cth) (as per PMST report Appendix C)		Potential for interaction	
		Threatened status	***Migratory status***	***Operational Area***	***EMBA***
Aipysurus apraefrontalis	Short-nosed sea snake	Critically endangered	N/A	Species or its habitat may occur in area	Species or its habitat known to occur in area
Aipysurus foliosquama	Leaf-scaled sea snake	Critically endangered	N/A	N/A	Species or its habitat known to occur in area
Caretta caretta	Loggerhead turtle	Endangered	Migratory	Species or its habitat known to occur in area	Breeding known to occur in area
Chelonia mydas	Green turtle	Vulnerable	Migratory	Species or its habitat known to occur in area	Breeding known to occur in area
Dermochelys coriacea	Leatherback turtle	Endangered	Migratory	Species or its habitat likely to occur in area	Species or its habitat known to occur in area
Eretmochelys imbricata	Hawksbill turtle	Vulnerable	Migratory	Species or its habitat known to occur in area	Breeding known to occur in area
Natator depressus	Flatback turtle	Vulnerable	Migratory	Congregation or aggregation known to occur in area	Breeding known to occur in area

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Table 4-7: Marine turtle biologically important areas within the EMBA and Operational Area

Species	BIA type	Approx. distance and direction of BIA from Operational Area (km)
Flatback turtle	Reproduction (internesting buffer) (Montebello Islands, Barrow Island)	Overlaps
	Reproduction (internesting buffer) (Thevenard Island – south coast)	35 km south
	Aggregation (coral reef habit west of the Montebello group)	28 km south-east
	Reproduction (internesting buffer) (Dampier Archipelago, islands to the west of the Burrup Peninsula)	47 km south-east
	Reproduction (nesting) (Barrow Island, Montebello Islands, Thevenard Island – south coast)	27 km south-east (Montebello Islands)
	Reproduction (mating) (Montebello Islands, Barrow Island, coral reef habitat west of the Montebello group)	27 km south-east (Montebello Islands)
	Foraging (Montebello Islands, Barrow Island, coral reef habitat west of the Montebello group)	27 km south-east (Montebello Islands)
Green turtle	Reproduction (internesting buffer) (coral reef habitat west of the Montebello group, Barrow Island, Montebello Islands)	2 km south-east (Montebello Islands)
	Reproduction (internesting buffer) (Ningaloo Coast, North West Cape, Thevenard Island)	139 km south-west
	Reproduction (mating) (Barrow Island, Montebello Islands, coral reef habitat west of the Montebello group)	22 km south-east (Montebello Islands)
	Reproduction (nesting) (Middle Island, Barrow Island, North West Cape, Montebello Islands, North and South Muiron Island)	22 km south-east (Montebello Islands)
	Foraging (Montebello Islands, coral reef habitat west of the Montebello group, Barrow Island)	22 km south-east (Montebello Islands)
	Aggregation (coral reef habitat west of the Montebello group)	28 km south-east
	Resting (Basking) (Barrow Island)	46 km south
Hawksbill turtle	Reproduction (internesting buffer) (Ningaloo Coast, Thevenard Island, Barrow Island, Lowendal Islands Group, Montebello Islands)	7 km south-east (Montebello Islands)
	Reproduction (nesting) (Barrow Island, Montebello Islands)	27 km south-east (Montebello Islands)
	Reproduction (mating) (Barrow Island, Montebello Islands)	27 km south-east (Montebello Islands)
	Foraging (Barrow Island, Montebello Islands)	27 km south-east (Montebello Islands)

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Species	BIA type	Approx. distance and direction of BIA from Operational Area (km)
Loggerhead turtle	Reproduction (internesting buffer) (Montebello Islands, Muiron Islands, Lowendal Islands Group, Ningaloo Coast)	14 km south-east (Montebello Islands)
	Reproduction (nesting) (Ningaloo Coast, Muiron Islands)	34 km south-east (Montebello Islands)

Table 4-8: Habitat critical to the survival of the marine turtles predicted to occur within the EMBA

Species	Location of habitat critical	Approx. distance and direction from Operational Area (km)
Flatback turtle	Nesting (Dampier Archipelago including Delambre Island and Hauy Island, Barrow Island, Montebello Islands, coastal islands from Cape Preston to Locker Island)	Overlaps (Montebello Islands)
Hawksbill turtle	Nesting (Cape Preston to mouth of Exmouth Gulf including Montebello Islands and Lowendal Islands, Dampier Archipelago including Delambre Island and Rosemary Island)	8 km south-east (Montebello Islands)
Green turtle	Nesting (Barrow Island, Montebello Islands, Exmouth Gulf and Ningaloo Coast)	8 km south-east (Montebello Islands)
Loggerhead turtle	Nesting (Ningaloo Coast, Muiron Islands)	140 km south-west (Muiron Islands)

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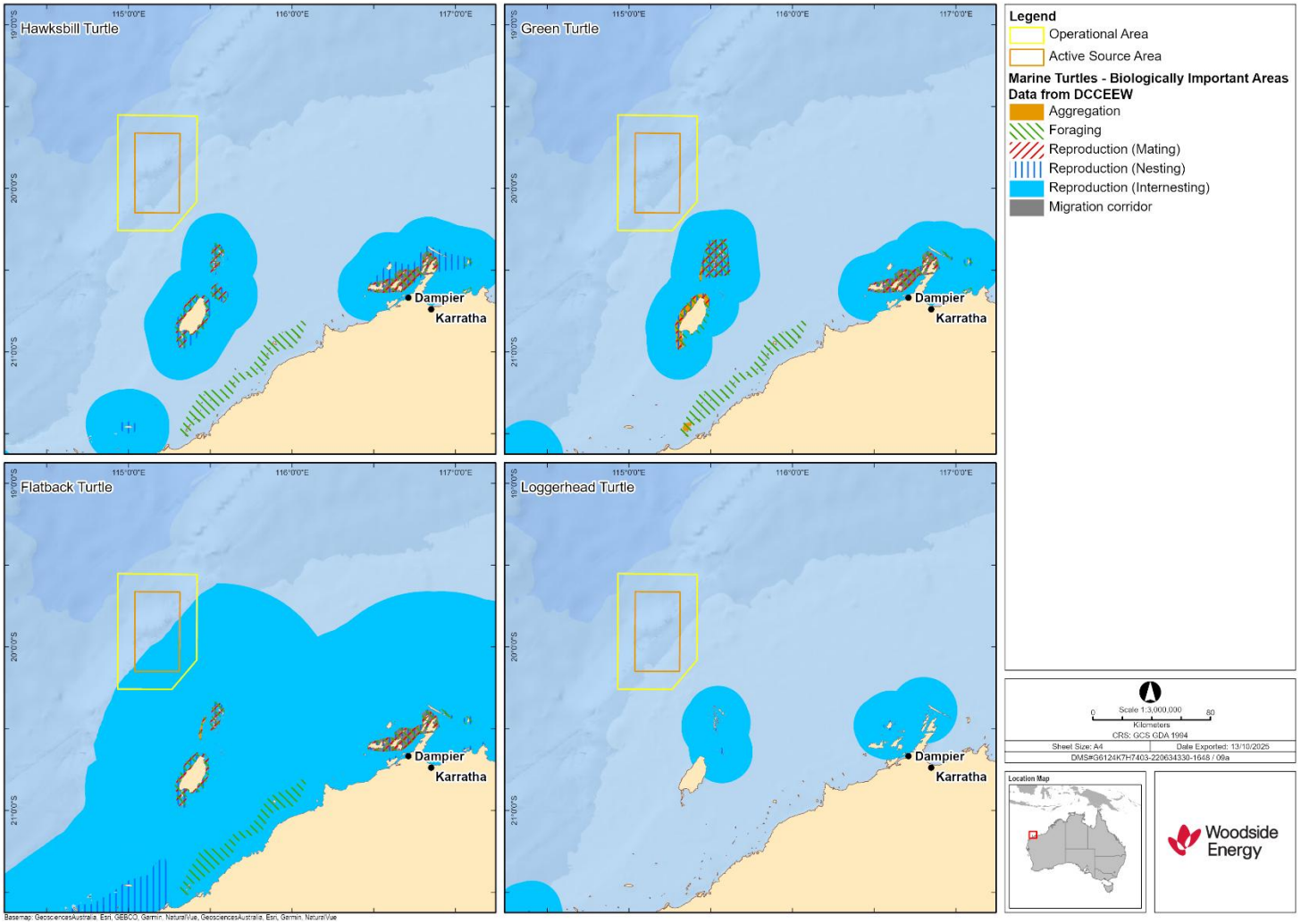


Figure 4-5: Marine turtle biologically important areas near the Operational Area

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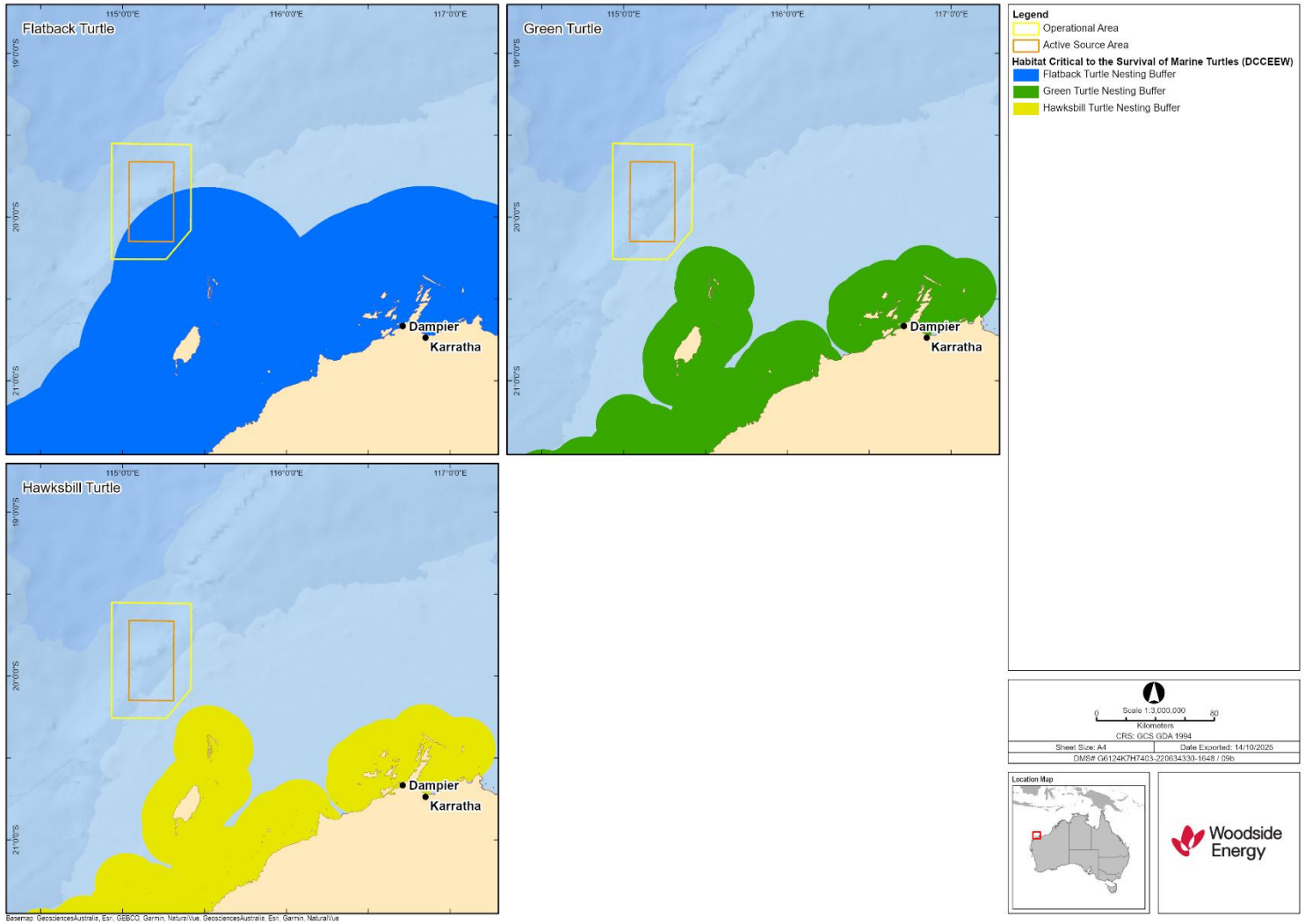


Figure 4-6: Habitat critical to the survival of marine turtles near the Operational Area

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4.6.2.1 Flatback turtle

Flatback turtle reproduction (nesting) on Barrow Island occurs between October and March, with peak nesting activity occurring between November and February (Commonwealth of Australia, 2017). On Barrow Island, nesting activity is concentrated on the east coast on sandy, low-sloped, low-energy beaches with wide, shallow intertidal zones (Pendoley, 2005; Pendoley, et al., 2014). The Montebello Islands and Barrow Island are identified as nesting habitat critical to the survival of the species, as is the 60 km internesting buffer (Figure 4-6) around the Montebello Islands (Commonwealth of Australia, 2017).

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

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

Another recent study involving satellite tracking data for 11 flatback turtles after nesting on the Lacepede Islands (Thums, et al., 2017) found flatback turtles remained at an average of 15.75±12.25 km from the nesting beach in water depths of <20 m.

Other studies (Dobbs, 2007; Guinea, et al., 2006; Pendoley Environmental, 2010) have also noted internesting behaviour was only observed in water depths of <40 m. One of these studies, Pendoley Environmental (2010) further indicates internesting flatback turtles have relatively shallow dives, with 85% of the time spent in ≤20 m water depth, of which most was spent in 5 to 10 m (27±2.7%) and 10 to 15 m (22.3±3.5%) water depths.

The Operational Area is in water depths ranging from 50 to 1,185 m and about 28 km from the nearest island (Montebello Islands). As such it is not likely internesting flatback turtles occur in the Operational Area.

4.6.2.2 Short-nosed sea snake

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 (Whiting, 2005). Key locations of suitable habitat are Ashmore Reef, Exmouth Gulf, and coral habitat fringing the Muiron Islands and the Montebello Islands (Udyawer, 2020). This species is primarily found on reef flats or in shallow waters of outer reef edges to depths of 10 m ((Minton, 1975)). Typically, movement is restricted to within 50 m of reef flat habitat (Whiting, 2005).

The Operational Area is in water depths ranging from 50 to 1,185 m and about 28 km from the nearest island (Montebello Islands). As such, it is not likely short-nosed sea snakes occur in the Operational Area.

4.6.3 Marine mammals

A total of 14 EPBC Act listed threatened and migratory marine mammal species have been identified to potentially occur within the EMBA, of which 11 occur in the Operational Area (Table 4-9). A full list of EPBC Act listed species identified in the PMST search is in Appendix C.

BIAs that overlap the EMBA are presented in Table 4-10, Figure 4-7 and Figure 4-8. The Operational Area overlaps the migration BIA for pygmy blue whales and is 2 km north-west of the humpback whale migration BIA (Table 4-10, Figure 4-7, Figure 4-8).

BIAs are further described in Woodside's Master Existing Environment (refer to Section 2.2.3).

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Table 4-9: Threatened and migratory marine mammal species predicted to occur within the Operational Area and EMBA

Species name	Common name	EPBC Act (Cth) (as per PMST report Appendix C)		Potential for interaction	
		Threatened status	*Migratory status*	*Operational Area*	*EMBA*
Balaenoptera bonaerensis	Antarctic minke whale	N/A	Migratory	N/A	Species or its habitat likely to occur in area
Balaenoptera borealis	Sei whale	Vulnerable	Migratory	Species or its habitat likely to occur in area	Foraging, feeding or related behaviour likely to occur in area
Balaenoptera edeni	Bryde's whale	N/A	Migratory	Species or its habitat likely to occur in area	Species or its habitat likely to occur in area
Balaenoptera musculus	Blue whale	Endangered	Migratory	Migration route known to occur in area	Migration route known to occur in area
Balaenoptera omurai	Omura's whale	N/A	Migratory	Species or its habitat likely to occur in area	Species or its habitat likely to occur in area
Balaenoptera physalus	Fin whale	Vulnerable	Migratory	Species or its habitat likely to occur in area	Foraging, feeding or related behaviour likely to occur in area
Dugong dugon	Dugong	N/A	Migratory	N/A	Breeding known to occur in area
Eubalaena australis	Southern right whale	Endangered	Migratory	N/A	Species or its habitat likely to occur in area
Megaptera novaeangliae	Humpback whale	N/A	Migratory	Breeding known to occur in area	Breeding known to occur in area
Orcaella heinsohni	Australian snubfin dolphin	Vulnerable	Migratory	Species or its habitat may occur in area	Species or its habitat known to occur in area
Orcinus orca	Killer whale	N/A	Migratory	Species or its habitat may occur in area	Species or its habitat may occur in area
Physeter macrocephalus	Sperm whale	N/A	Migratory	Species or its habitat may occur in area	Species or its habitat may occur in area
Sousa sahulensis	Australian humpback dolphin	Vulnerable	Migratory	Species or its habitat may occur in area	Species or its habitat known to occur in area

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Species name	Common name	EPBC Act (Cth) (as per PMST report Appendix C)		Potential for interaction	
		Threatened status	*Migratory status*	*Operational Area*	*EMBA*
Tursiops aduncus	Spotted bottlenose dolphin (Arafura/Timor Sea populations)	N/A	Migratory	Species or its habitat likely to occur in area	Species or its habitat known to occur in area

Table 4-10: Marine mammal biologically important areas within the EMBA

Species	BIA type	Approx. distance and direction from Operational Area (km)
Pygmy blue whale	Foraging (Ningaloo), refer to Figure 4-7	200 km south-west
	Migration (Augusta to Derby, tend to pass along the shelf edge at depths of 500 m to 1,000 m; appear close to coast in the Exmouth-Montebello Islands area on southern migration), refer to Figure 4-7	Overlaps
Humpback whale	Migration (extends from the coast to out to about 100 km offshore in the Kimberley region extending south to North West Cape), refer to Figure 4-8	2 km south-east
Dugong	Reproduction (breeding, calving and nursing) (Exmouth Gulf and Ningaloo)	175 km south-west
	Foraging (Exmouth Gulf, Ningaloo Reef at high density seagrass beds)	175 km south-west
Southern right whale	Reproduction (Exmouth Gulf and Ningaloo Reef)	182 km south-west
	Migration (Exmouth Gulf and Ningaloo Reef)	182 km south-west

Table 4-11: Habitat critical to the survival of the marine mammals predicted to occur within the EMBA

Species	Location of habitat critical	Approx. distance and direction from Operational Area (km)
Southern right whale	Reproduction (Exmouth Gulf and Ningaloo Reef)	182 km south-west

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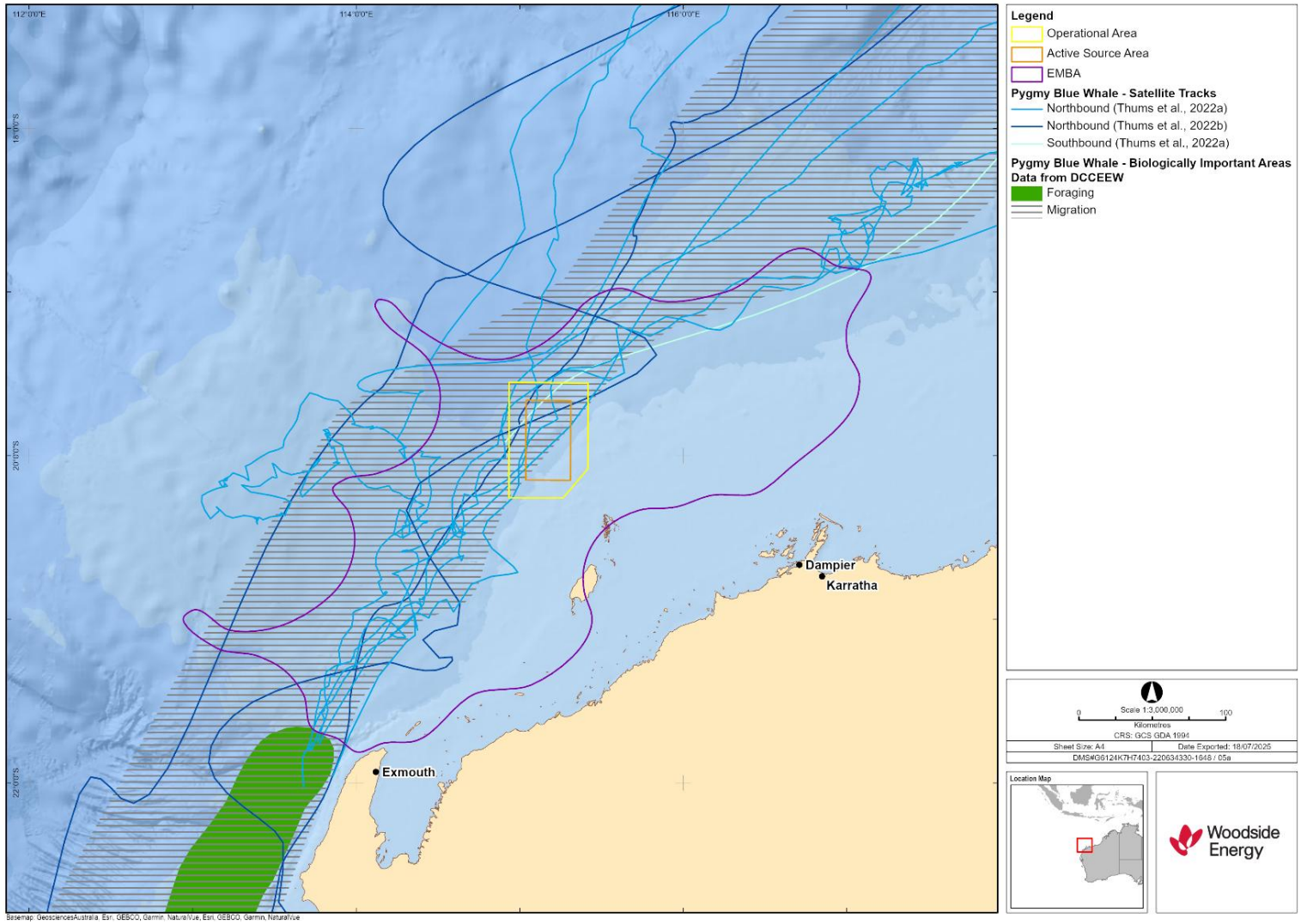


Figure 4-7: Pygmy blue whale biologically important areas overlapping the EMBA and tagged whale tracks for northbound and southbound migration

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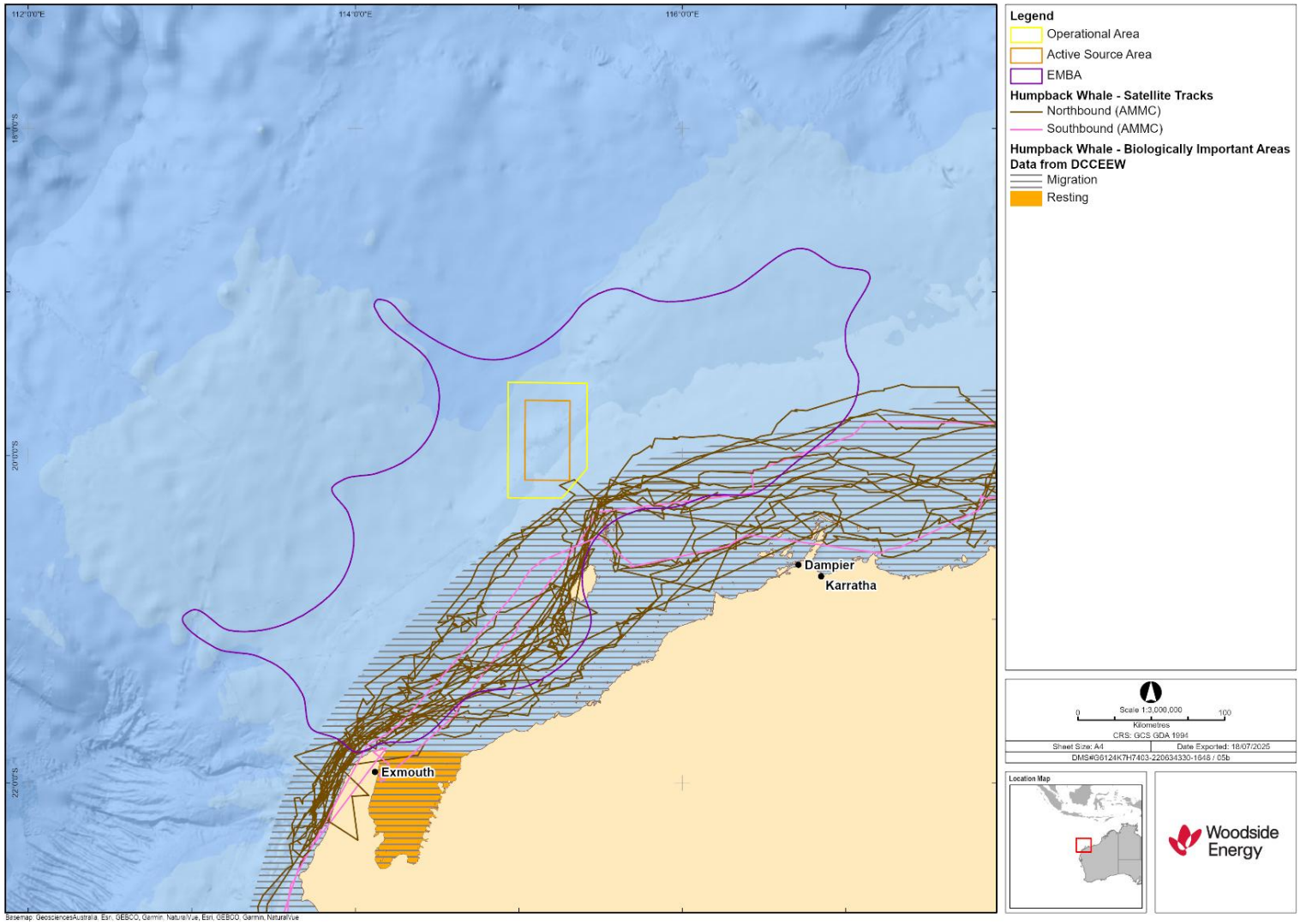


Figure 4-8: Humpback whale biologically important areas overlapping the EMBA and tagged tracks for northbound and southbound migrations

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4.6.3.1 Pygmy blue whale

There are two recognised sub-species of blue whale in the Southern Hemisphere; both are recorded in Australian waters. These are the southern (or 'true') blue whale (*Balaenoptera musculus*) and the 'pygmy' blue whale (*Balaenoptera musculus brevicauda*) (Commonwealth of Australia, 2015a). In general, southern blue whales occur in waters south of 60°S (i.e. in the Antarctic), and pygmy blue whales occur in waters north of 55°S. On this basis, blue whales sighted in the NWMR are likely to be pygmy blue whales.

The pygmy blue whale distribution range is a spatially defined area where pygmy blue whales are known to occur based on direct observations, satellite tagged whales or acoustic detections (Commonwealth of Australia, 2015a). Most of the important areas for pygmy blue whale migration in north-west Australia are within the migratory BIA (Figure 4-7) (Thums, et al., 2022). During the northern migration, occurring between April and July (peak migration occurring between May to June), the satellite tracks show the migrating whales fanning out over a wider and deeper offshore area (within and beyond the migration BIA) and this occurs in line with the northern tip of the Montebello Islands (Double, et al., 2014; Thums, et al., 2022) (refer to Figure 4-7). Additionally, the analysis identified areas from Ningaloo Reef to the Rowley Shoals as important for foraging (or breeding and resting) using the overlay of three modelled metrics (occupancy, number of whales and move persistence) by Thums, et al. (2022). The Operational Area does not intersect with these 'most important areas' as defined in Thums, et al. (2022) for foraging (Figure 4-7).

The Operational Area overlaps the pygmy blue whale migration BIA within the distribution range (refer to Figure 4-7). Thums, et al. (2022) acknowledged most of the important migration areas for north-west Australia were encompassed by the pygmy blue whale migration BIA, as shown by 20 tracks for northbound pygmy blue whale and two southbound pygmy blue whales, as presented in Figure 4-7.

Considering the pygmy blue whale migration BIA overlaps the Operational Area (within the southern portion), it is possible pygmy blue whales transit in and around the Operational Area during migratory north and south seasons (April to July and October to January, respectively) (Thums, et al., 2022; McCauley, 2011; Gavrilov, et al., 2018). However, species presence is unlikely, given the timing restrictions on the Petroleum Activity (refer to Section 3.7), which limits acoustic source discharge to outside the peak northern and southern migration period (May to June and November to December, respectively) for pygmy blue whales.

While the timing of the Petroleum Activity overlaps the southern migration of pygmy blue whale, detection of pygmy blue whales as described in Thums, et al. (2022) and acoustic detection (McCauley, 2011) suggest pygmy blue whales travel faster during the southbound migration than the northbound migration (based on the tracks of two whales, with one whale's southbound migration overlapping with the Operational Area as presented in Figure 4-7). There is no evidence of foraging occurring within the Operational Area during the southbound migration and species presence is expected to be limited to small groups or individuals.

4.6.3.2 Humpback whale

There are two genetically distinct west and east coast populations of humpback whales in Australia, with both populations' distributions influenced by migratory pathways and aggregation areas for resting, breeding and calving (DCCEEW, 2025b). The western population of humpback whales migrates north between June and September to breeding grounds in Camden Sound of the west Kimberley, after foraging in Antarctic waters during summer months (DCCEEW, 2025b; Jenner, et al., 2001). Between July and November, humpback whales begin the southbound migration, with the migration corridor typically within the 200 m isobath (DCCEEW, 2025b; Jenner, et al., 2001).

From the North West Cape, northbound humpback whales travel along the edge of the continental shelf, passing to the west of the Muiron, Barrow and Montebello islands (Figure 4-8). The southern migratory route follows a relatively narrow track between the Dampier Archipelago and the Montebello Islands.

Woodside has conducted marine megafauna aerial surveys that have confirmed the temporal distribution of migrating humpback whales off North West Cape has remained consistent since baseline surveys were first conducted in 2000 to 2001. Most of the whales occurred in depths less than 500 m, with the greatest density of whales concentrated in water depths of 200 to 300 m. Only small numbers of whales were observed in the deeper offshore waters. These survey results are consistent with satellite tagging studies (Double, et al., 2010; 2012) (Figure 4-8). Population data for humpback whales migrating along the WA coast is considerably variable (Department of Agriculture, Water and the Environment, 2022). Since whaling ceased in WA in 1963, humpback whale population has been increasing in size at a rate of about 10% per annum (Thums, et al., 2018). Population numbers were estimated to increase from 2,000 to 3,000 individuals in 1991 to between

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19,200 and 33,850 individuals in 2008 (the latest comprehensive scientific estimate) (Bannister & Hedley, 2001; Salgado Kent, et al., 2012; Bejder, et al., 2019).

Considering the proximity of the migration BIA to the Operational Area (2 km south-east), as well as the recorded presence of an individual within the distribution range that partially overlapped the Operational Area during northbound migration (Figure 4-8), humpback whales may transit within and around the Operational Area, particularly during their northern migrations past Exmouth. However, species presence is unlikely, given the timing of the Petroleum Activity (refer to Section 3.7), which limits the acoustic source discharge period to outside the peak northern and southern migration for humpback whales.

4.6.4 Seabirds and migratory shorebirds

A total of 35 EPBC Act listed threatened seabirds and migratory shorebird species have been identified to potentially occur within the EMBA, of which 18 occur in the Operational Area (Table 4-12). A full list of EPBC Act listed species identified in the PMST search is in Appendix C.

BIAs that overlap the EMBA are presented in Table 4-12 and Figure 4-9. The Operational Area overlaps the reproduction BIA for wedge-tailed shearwaters (Table 4-12, Figure 4-9). The BIAs within the EMBA are further described in Appendix C of Woodside's Master Existing Environment (refer to Section 2.2.3).

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Table 4-12: Threatened and migratory seabird and migratory shorebird species predicted to occur within the Operational Area and EMBA

Species name	Common name	EPBC Act (Cth) (as per PMST report Appendix C)		Potential for interaction	
		Threatened status	*Migratory status*	*Operational Area*	*EMBA*
Actitis hypoleucos	Common sandpiper	N/A	Migratory	Species or its habitat may occur in area	Species or its habitat known to occur in area
Anous stolidus	Common noddy	N/A	Migratory	Species or its habitat may occur in area	Species or its habitat likely to occur in area
Apus pacificus	Fork-tailed swift	N/A	Migratory	N/A	Species or its habitat likely to occur in area
Ardenna carneipes	Flesh-footed shearwater	N/A	Migratory	N/A	Species or its habitat likely to occur in area
Ardenna pacifica	Wedge-tailed shearwater	N/A	Migratory	Breeding known to occur in area[3]	Breeding known to occur in area
Calidris acuminata	Sharp-tailed sandpiper	Vulnerable	Migratory	Species or its habitat may occur in area	Species or its habitat known to occur in area
Calidris canutus	Red knot	Vulnerable	Migratory	Species or its habitat may occur in area	Species or its habitat known to occur in area
Calidris ferruginea	Curlew sandpiper	Critically endangered	Migratory	Species or its habitat may occur in area	Species or its habitat known to occur in area
Calidris melanotos	Pectoral sandpiper	N/A	Migratory	Species or its habitat may occur in area	Species or its habitat may occur in area
Calonectris leucomelas	Streaked shearwater	N/A	Migratory	Species or its habitat likely to occur in area	Species or its habitat likely to occur in area
Charadrius leschenaultii	Greater sand plover	Vulnerable	Migratory	N/A	Species or its habitat known to occur in area
Charadrius veredus	Oriental plover	N/A	Migratory	N/A	Species or its habitat may occur in area

[3] *The wedge-tailed shearwater was not captured in the PMST but may interact with the Petroleum Activity*

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Species name	Common name	EPBC Act (Cth) (as per PMST report Appendix C)		Potential for interaction	
		Threatened status	***Migratory status***	***Operational Area***	***EMBA***
Fregata ariel	Lesser frigatebird	N/A	Migratory	Species or its habitat likely to occur in area	Species or its habitat likely to occur in area
Fregata minor	Great frigatebird	N/A	Migratory	Species or its habitat may occur in area	Species or its habitat may occur in area
Glareola maldivarum	Oriental pratincole	N/A	Migratory	N/A	Species or its habitat may occur in area
Hydroprogne caspia	Caspian tern	N/A	Migratory	N/A	Breeding known to occur in area
Limnodromus semipalmatus	Asian dowitcher	Vulnerable	Migratory	N/A	Species or its habitat known to occur in area
Limosa lapponica	Bar-tailed godwit	N/A	Migratory	N/A	Species or its habitat known to occur in area
Limosa lapponica menzbieri	Northern Siberian bar-tailed godwit	Endangered	N/A	N/A	Species or its habitat known to occur in area
Macronectes giganteus	Southern giant-petrel	Endangered	Migratory	Species or its habitat may occur in area	Species or its habitat may occur in area
Numenius madagascariensis	Eastern curlew	Critically endangered	Migratory	Species or its habitat may occur in area	Species or its habitat known to occur in area
Onychoprion anaethetus	Bridled tern	N/A	Migratory	N/A	Breeding known to occur in area
Pandion haliaetus	Osprey	N/A	Migratory	Species or its habitat may occur in area	Breeding known to occur in area
Phaethon lepturus	White-tailed tropicbird	N/A	Migratory	Species or its habitat may occur in area	Species or its habitat known to occur in area
Phaethon lepturus fulvus	Christmas Island white-tailed tropicbird	Endangered	N/A	Species or its habitat may occur in area	Species or its habitat may occur in area
Phaethon rubricauda	Red-tailed tropicbird	N/A	Migratory	Species or its habitat likely to occur in area	Species or its habitat likely to occur in area

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Species name	Common name	EPBC Act (Cth) (as per PMST report Appendix C)		Potential for interaction	
		Threatened status	*Migratory status*	*Operational Area*	*EMBA*
Phaethon rubricauda westralis	Red-tailed tropicbird (Indian Ocean)	Endangered	N/A	Species or its habitat likely to occur in area	Species or its habitat likely to occur in area
Pterodroma mollis	Soft-plumaged petrel	Vulnerable	N/A	N/A	Species or its habitat may occur in area
Rostratula australis	Australian painted snipe	Endangered	N/A	N/A	Species or its habitat likely to occur in area
Sterna dougallii	Roseate tern	N/A	Migratory	N/A	Breeding known to occur in area
Sternula albifrons	Little tern	Vulnerable	Migratory	N/A	Breeding known to occur in area
Sternula nereis nereis	Australian fairy tern	Vulnerable	N/A	Foraging, feeding or related behaviour likely to occur in area	Breeding known to occur in area
Thalassarche carteri	Indian yellow-nosed albatross	Vulnerable	Migratory	N/A	Species or its habitat may occur in area
Thalasseus bergii	Greater crested tern	N/A	Migratory	N/A	Breeding known to occur in area
Tringa nebularia	Common greenshank	Endangered	Migratory	N/A	Species or its habitat likely to occur in area

Table 4-13: Seabird and shorebird biologically important areas within the Operational Area and the EMBA

Species	BIA type	Approx. distance and direction from Operational Area (km)
Wedge-tailed shearwater	Reproduction (breeding) and foraging (Montebello Islands, Barrow Island)	Overlaps
Roseate tern	Reproduction (breeding) (Montebello Islands, Barrow Island)	24 km south-east (Montebello Islands)
Fairy tern	Reproduction (breeding) (Montebello Islands, Barrow Island, Thevenard Island, Ningaloo Coast)	19 km south-east (Montebello Islands)
Lesser crested tern	Reproduction (breeding) (Montebello Islands, Lowendal Islands, Barrow Island, Thevenard Island)	21 km south-east (Montebello Islands)

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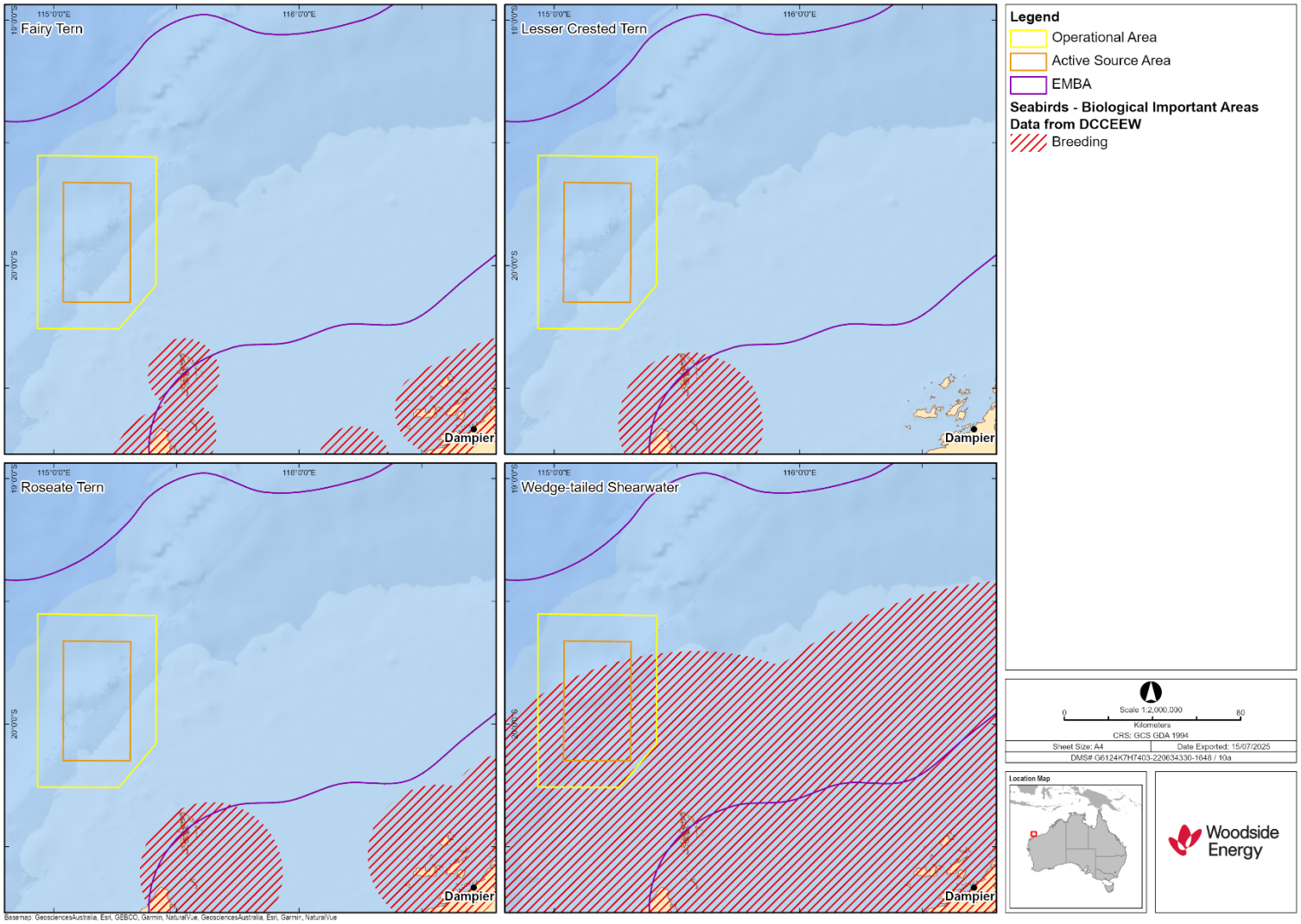


Figure 4-9: Seabird and migratory shorebird biologically important areas near the Operational Area

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4.6.4.1 Wedge-tailed shearwater

The wedge-tailed shearwater (*Arena pacific*) is a pelagic, marine seabird known from tropical and subtropical waters (DCCEEW, 2025a). Its distribution is widespread across the Indian and Pacific oceans, with most pairs breeding in Australia, mostly on islands in WA between Rottnest Island in the south to Ashmore Reef in the north (DCCEEW, 2025a).

Adults are absent from their breeding colonies during the interbreeding period and return from their tropical Indian Ocean over-wintering grounds from late June onwards to re-excavate their burrows (Pendoley Environmental, 2019). This species is highly synchronous in timing of breeding; all eggs within a colony are laid within a 10-day period (Pendoley Environmental, 2019). Once hatched, adults leave the burrows to forage locally during the day, returning at night to feed chicks until they are ready to fledge (Nicholson, 2002). Due to the high synchronicity in egg laying, fledging is restricted to the first two weeks of April (Nicholson, 2002).

This species is seen in north-west WA from June to April (DBCA, 2017). The breeding season in the Pilbara region occurs between November and April (DBCA, 2017). Breeding behaviours are typically nocturnal in wedge-tailed shearwaters, with adults returning to and departing the colony, and fledglings departing the colony at night. In the lead-up to fledging, chicks also leave their burrows to exercise their wings. This species forages relatively close to breeding islands and its diet consists of squid, fish and crustaceans (DSEWPaC, 2012b), tracking studies found that foraging activities at sea were more frequent during the day compared to night (Catry, et al., 2009; Weimerskirch, et al., 2020).

Studies indicate wedge-tailed shearwaters breeding on the Muiron Island (north) undertake extensive foraging trips during the incubation period (1,200 to 1,400 km) and shorter trips during chick rearing (<300 km (Cannell, et al., 2019)). Longer foraging trips took individuals in a northwest direction offshore towards oceanic seamounts. Conversely, the shorter tended to include waters to the west and northwest of the Muiron Islands (Cannell, et al., 2019). In addition to the Muiron Islands, this dual foraging strategy, whereby parents alternate or mix short and long trips, have been recorded in wedge-tailed shearwaters breeding in the east of Australia (Peck & Congdon, 2005), and New Caledonia (Weimerskirch, et al., 2005). However, divergent foraging strategies have been detected between colonies, which is linked to the proximity of colonies to high-productivity waters (Peck & Congdon, 2005; Weimerskirch, et al., 2005).

The Operational Area overlaps with the reproduction (breeding) BIA for this species, occurring at Montebello Islands (about 28 km south-east of the Operational Area), which may overlap with foraging wedge-tailed shearwaters during incubation. The timing of the Petroleum Activity (refer to Section 3.7) limits the survey activities to a period outside the wedge-tailed shearwater fledgling emergence period.

4.6.5 Seasonal sensitivities for protected species

Seasonal sensitivities for protected migratory species identified as potentially occurring within the Operational Area are identified in Table 4-14. Seasonal sensitivities for species in the wider NWMR are described in Woodside's Master Existing Environment (refer to Section 2.2.3).

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

Species	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Fish, sharks and rays												
Whale shark – foraging (northward from Ningaloo)[1]												
Mammals												
Pygmy blue whale – northern migration[2]												
Pygmy blue whale – southern migration[3]												
Humpback whale – northern migration[4]												
Humpback whale – southern migration[5]												
Omura's whale[6]												
Fin whale												
Marine reptiles[7]												
Flatback turtle (Pilbara genetic stock) – nesting												
Flatback turtle, Pilbara Coast genetic stock – hatching												
Green turtle, NWS genetic stock – nesting												
Green turtle, NWS genetic stock – hatching												
Hawksbill turtle WA genetic stock – nesting												
Hawksbill turtle WA genetic stock – hatching												
Loggerhead turtle – nesting												
Loggerhead turtle – hatching												
Seabirds and shorebirds												
Wedge-tailed shearwater (breeding/foraging)[8] *Fledging emergence (first two weeks of April)				*								
Red knot – non-breeding season (NWMR) [9]												
Common sandpiper – non-breeding season [10]												
Sharp-tailed sandpiper – non-breeding season [10]												
Curlew sandpiper – non-breeding season [10]												

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Species	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Streaked shearwater – non-breeding season [10]												
Lesser frigatebird – non-breeding season [10]												
Great frigatebird – non-breeding season [10]												
Eastern curlew – non-breeding (NWMR) [10]												
White-tailed tropicbird [10]												
	Species may be present in the Operational Area											
	Peak period. Presence of animals is reliable and predictable each year											

Note: Red outlined cells indicate the timing of Petroleum Activity (refer to Section 3.7).

References for species seasonal sensitivities:

1. *DCCEEW (2024a), TSSC (2015b), Norman, et al. (2017).*
2. *DCCEEW (2024a), DSEWPaC (2012a), McCauley, et al. (2018), Commonwealth of Australia (2015a), Thums, et al. (2022).*
3. *DSEWPaC (2012a), McCauley & Jenner, (2010), McCauley, et al. (2018), Commonwealth of Australia (2015a), Thums, et al. (2022).*
4. *DCCEEW (2025b), TSSC (2015a), DSEWPaC (2012a), Salgado Kent, et al. (2012).*
5. *TSSC (2015a), Commonwealth of Australia (2015a), McCauley, et al. (2018), Thums, et al. (2022), McCauley & Jenner (2010).*
6. *Cerchio, et al. (2019).*
7. *Commonwealth of Australia (2017).*
8. *Pendoley Environmental (2019), Nicholson (2002), DCCEEW (2025a).*
9. *DCCEEW (2024a).*
10. *DCCEEW (2025c).*

4.7 Key ecological features

Two KEFs overlap the Operational Area. KEFs within the Operational Area and EMBA are identified and described in Table 4-15. Woodside's Existing Environment, as previously submitted to NOPSEMA (Section 2.2.3), summarises the characteristics for the relevant KEFs. Figure 4-10 shows the spatial overlap with KEFs and the Operational Area.

Table 4-15: Key ecological features within the Operational Area and EMBA

Key ecological feature	Distance (minimum) and direction from Operational Area to KEF (km)
Continental Slope Demersal Fish Communities	Overlapping
Ancient Coastline at 125 m Depth Contour	Overlapping
Commonwealth waters adjacent to Ningaloo Reef	173 km south-west
Exmouth Plateau	55 km west
Glomar Shoal	120 km east
Canyons linking the Cuvier Abyssal Plain and the Cape Range Peninsula	132 km south-west

While the Operational Area overlaps the Ancient Coastline at 125 m Depth Contour KEF and the Continental Slope Demersal Fish Communities KEF, there are no planned interactions with the seabed during the Petroleum Activity.

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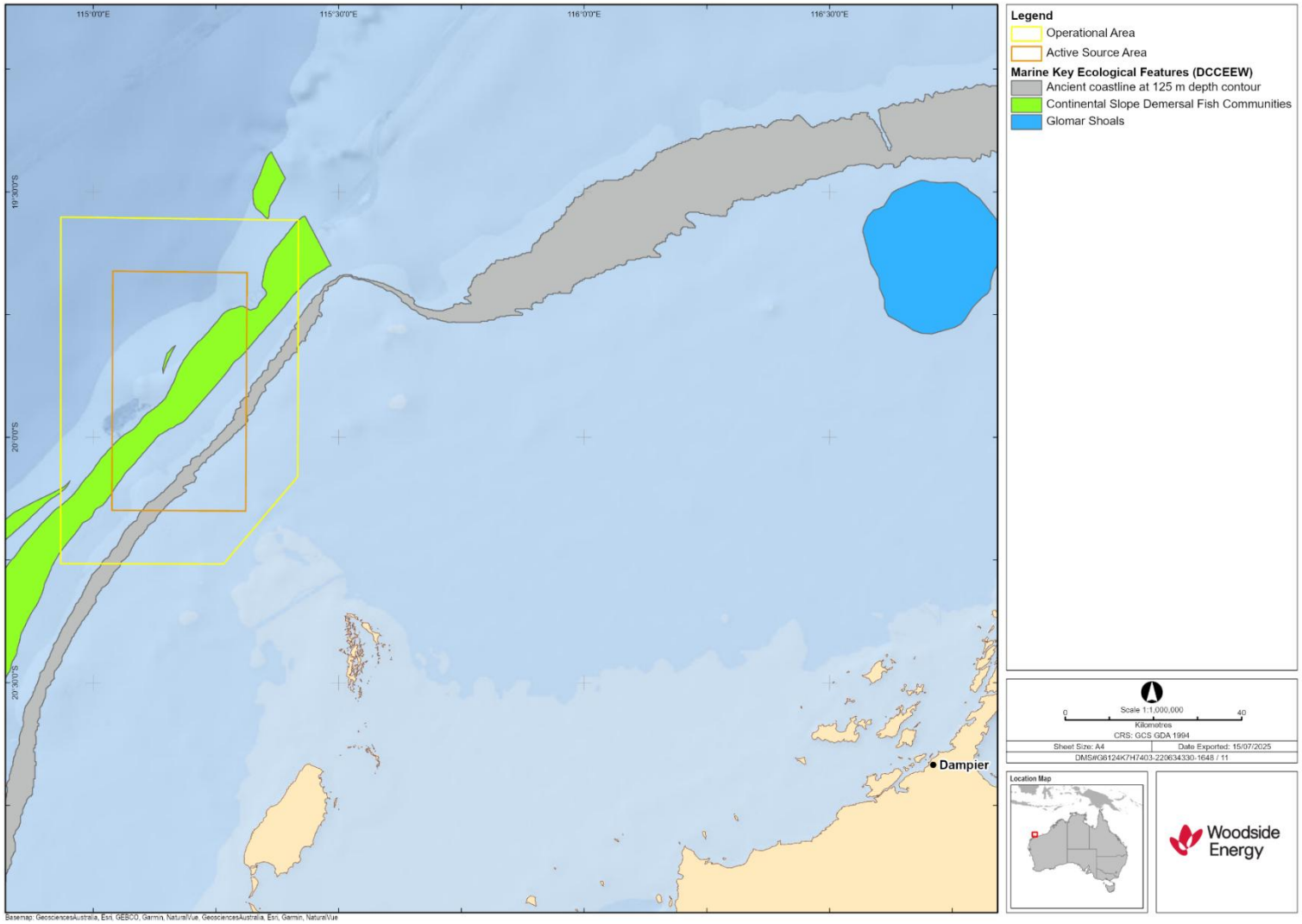


Figure 4-10: Key ecological features overlapping the Operational Area

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4.7.1 Ancient Coastline at 125 m depth contour

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

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

Although the Ancient Coastline adds extra habitat types to a representative system, the habitat types are not unique to the coastline as they are widespread on the upper shelf (Falkner, et al., 2009).

4.7.2 Continental slope demersal fish communities

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

The diversity of demersal fish assemblages on the continental slope in the Timor Province, the Northwest Transition and the Northwest Province is high compared to elsewhere along the Australian continental slope. 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).

Demersal fish species occupy two distinct demersal biomes associated with the upper slope (225 to 500 m water depths) and the mid-slope (750 to 1,000 m). Bacteria and fauna on the continental slope are the basis of the food web for demersal fish and higher-order consumers in this system.

4.8 Protected places

One protected place overlaps the Operational Area: the Montebello Marine Park (Multiple Use Zone (IUCN VI)). Protected places within the Operational Area and EMBA are identified in Table 4-16 and presented in Figure 4-11. Woodside's Master Existing Environment (refer to Section 2.2.3) outlines the values and sensitivities of protected places and other sensitive areas in the Operational Area and EMBA.

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Table 4-16: Established protected places and other sensitive areas overlapping the EMBA

	Distance and direction from Operational Area to protected place or sensitive area (km)	IUCN category* or relevant park zone overlapping the Operational Area and/or EMBA
AMPs		
NWMR		
Montebello AMP	Overlaps	VI
Gascoyne AMP	133 km south-west	VI
Ningaloo AMP	173 km south-west	IV
State Marine Parks and Nature Reserves		
Marine Parks		
Montebello Islands	20 km south-east	N/A
Barrow Island	53 km south	N/A
Ningaloo	175 km south-west	N/A
Marine Management Areas		
Barrow Island	25 km south-east	N/A
Muiron Islands	158 km south-west	N/A
Conservation Parks		
Montebello Islands	27 km south-east	N/A
Nature Reserves		
Boodie, Double, Middle islands	77 km south	N/A
Airlie Island	118 km south	N/A
Barrow Island	54 km south-east	N/A
Muiron Islands	162 km south-west	N/A

**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 – allows human use but prohibits large scale development.

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

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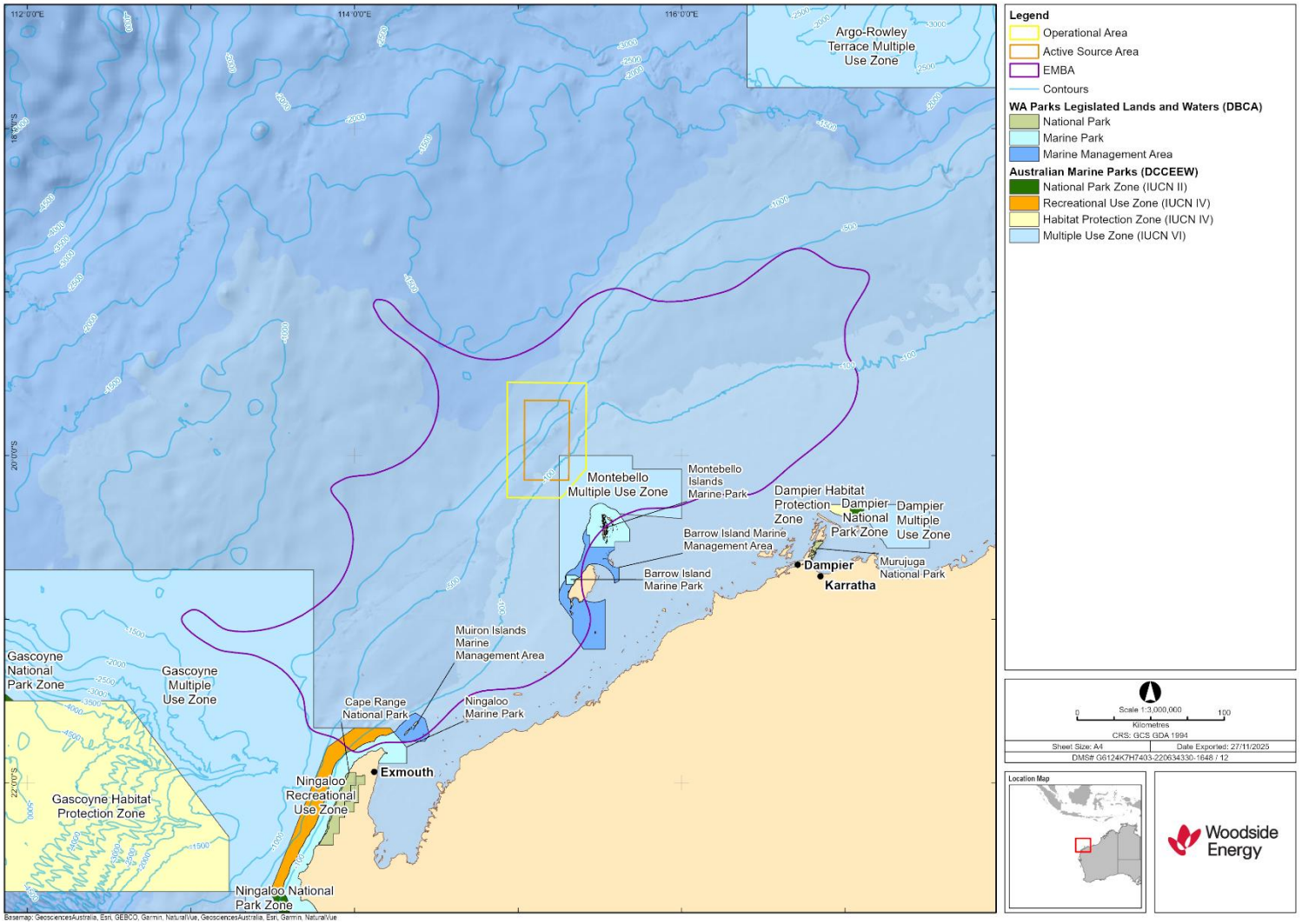


Figure 4-11: Protected areas overlapping the EMBA

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4.8.1 Montebello Marine Park

The Montebello Marine Park includes shallow shelf environments and protects shelf and slope habitats, as well as pinnacle and terrace seabed features. Ecosystems within the marine park are representative of the Northwest Shelf Province, including a dynamic environment influenced by strong tides, cyclonic storms, long-period swells and internal tides (DNP, 2018). The bioregion includes diverse and benthic and pelagic fish communities. The marine park supports the values associated with the Ancient Coastline at 125 m depth contour KEF (described in Section 4.7.1), which intersects the marine park.

As noted in the North-west Marine Park Management Plan, there is limited information about the cultural significance of this marine park (DNP, 2018). The Yamatji Marlpa Aboriginal Corporation is the Native Title Representative Body for the Pilbara region. Sea Country is valued for Indigenous cultural identity, health and wellbeing. Across Australia, Indigenous people have been sustainably using and managing their Sea Country for tens of thousands of years.

No international, Commonwealth or national listings apply to this marine park; however, this marine park is adjacent to the Western Australia Barrow Island and the Montebello–Barrow Island Marine Conservation Reserves which have been nominated for national heritage listing. This marine park contains two known shipwrecks listed under the *Historic Shipwrecks Act 1976*: Trial (wrecked in 1622), the earliest known shipwreck in Australian waters, and Tanami (unknown date).

The marine park supports important tourism, commercial fishing, mining and recreational activities.

4.9 Socioeconomic environment

4.9.1 Cultural values and heritage

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

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

In this section, the heritage value of places within the Operational Area and EMBA and the cultural features of these areas are described. Description of cultural values and heritage as they relate to the wider NWMR are described in Woodside's Master Existing Environment (refer to Section 2.2.3).

4.9.1.1 Native title

For the activity in this EP, there is one Native Title claim or determination overlapping the EMBA and a further four that are coastally adjacent to the EMBA. Table 4-17 lists these. However, it does not differentiate between claims and determinations, as rights and interests may exist within either of these.

There are no Indigenous Land Use Agreements (ILUAs) overlapping the EMBA and one that is coastally adjacent to the EMBA (Table 4-17). Figure 4-12 shows the relevant Native Title claims or determinations and ILUAs relevant to the EMBA. How Woodside considers native tile rights and interests is described in Woodside's Master Existing Environment (refer to Section 2.2.3).

4.9.1.2 Coastally adjacent First Nations groups

To identify cultural features and heritage values that may exist outside of Native Title claim, determination and ILUA areas, Woodside considers Native Title claims, determinations and ILUAs coastally adjacent to the EMBA to be an instructive means of identifying potentially relevant First Nations groups to consult (see Section 5.3.2.1).

How Woodside engages with coastally adjacent First Nations groups is described in Woodside's Master Existing Environment (refer to Section 2.2.3).

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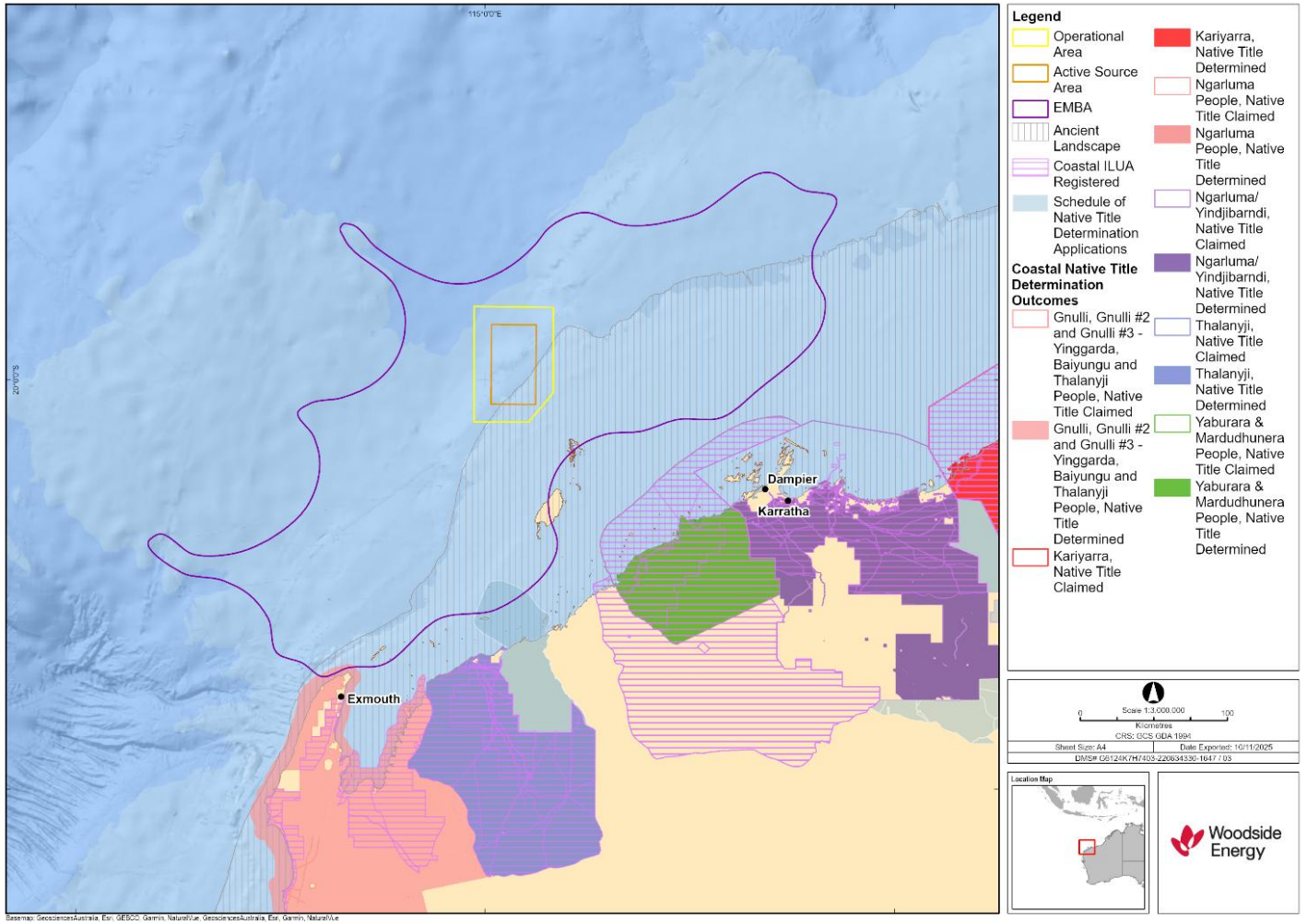


Figure 4-12: Operational Area and the EMBA in relation to Native Title claims, determinations and Indigenous Land Use Agreements

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Table 4-17: Summary of Native Title claims, determinations and Indigenous Land Use Agreements that overlap or are coastally adjacent to the EMBA

Claim/determination/ ILUA	Registered Native Title Body Corporate	Overlap with the EMBA	Coastally adjacent to the EMBA
Claim/determination			
Gnulli, Gnulli #2 and Gnulli #3 – Yinggarda, Baiyungu and Thalanyji People	Nganhurra Thanardi Garrbu Aboriginal Corporation, Yinggarda Aboriginal Corporation	Yes	Yes
Nhuwala Claim	Yamatji Marlpa Aboriginal Corporation	Yes	Yes
Thalanyji/Nhuwala Peoples	Buurabalayji Thalanyji Aboriginal Corporation	No	Yes
Kariyarra	Kariyarra Aboriginal Corporation	No	Yes
Ngarluma/Yindjibarndi	Yindjibarndi Aboriginal Corporation, Ngarluma Aboriginal Corporation	No	Yes
Thalanyji	Buurabalayji Thalanyji Aboriginal Corporation	No	Yes
Yaburara and Mardudhunera People	Wirrawandi Aboriginal Corporation	No	Yes
ILUA			
KM and YM Indigenous Land Use Agreement 2018	Wirrawandi Aboriginal Corporation, Robe River Kuruma Aboriginal Corporation	No	Yes

4.9.1.3 Marine parks

Woodside assesses cultural values within marine park management plans where the Operational Area or EMBA overlaps a marine park.

Woodside considers these management plans to determine whether cultural features and heritage values have been identified and whether there are specified Traditional Custodians or representative bodies to contact regarding potential cultural features and heritage values. The cultural features and heritage values determined to be relevant are outlined in Table 4-19.

The Operational Area overlaps one Commonwealth Marine Park (the Montebello Marine Park (Multiple Use Zone (IUCN VI)), managed under the North-West Marine Parks Network Management Plan (DNP, 2018). The EMBA overlaps multiple Commonwealth and State marine parks (refer to Section 4.8). Where these plans specify identifiable representative bodies who may hold knowledge of heritage values or cultural features – including Registered Native Title Bodies Corporate – Woodside consults these bodies (Section 5.3.2.1 and Appendix F). Consultation with these groups may identify heritage values and cultural features beyond those addressed in the marine park management plans. Identifiable representative bodies were specified for the marine parks overlapped by the EMBA (Table 4-18).

The Management Plan for the Ningaloo Marine Park and Muiron Islands Marine Management Area 2005–2015: Management Plan Number 52 (Marine Parks and Reserves Authority, 2005) (relating to the Muiron Islands Marine Management Area and Ningaloo Marine Park) notes the aesthetic values of the seascape as a cultural value and that “Panoramic vistas of turquoise lagoon waters, reefs, beaches, breaking surf and the blue open ocean beyond the reef line are major attractions of the reserves.” In particular, the plan notes that “Inappropriate structures along the coastline, on the islands and in the surrounding waters have the potential to degrade the aesthetic values of the reserves. Coastal developments and maritime infrastructure projects must therefore be planned with careful consideration of this issue.”

As the Petroleum Activity described in this EP does not include the addition of any structures within these parks, no impact on the aesthetic values of these parks is anticipated. In addition, the Nyinggulu (Ningaloo) Coast is highly valued by the Traditional Owners of the area, with many significant cultural values, including

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cultural heritage sites and places of ceremonial and mythological significance. Undertaking customary activities on Country is central to maintaining the cultural heritage of the land. Such activities are an important part of Traditional Owner and wider Aboriginal culture, enabling maintenance of traditional relationships with the land and water, knowledge sharing, engagement in traditional practices, and access and looking after significant places (DBCA, 2022).

Table 4-18: Summary of the Operational Area and EMBA overlap with Commonwealth and State Marine Park Management Plan areas

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

4.9.1.4 Sea Country values

Sea Country values of marine ecosystems are further described in Woodside's Master Existing Environment (refer to Section 2.2.3). An impact to marine ecosystems has the potential to impact cultural values where the impact is detectable within Sea Country. Potential impacts to these cultural values are assessed in Section 5.

Woodside initiates consultation on cultural values of Sea Country where Traditional Custodians or representative institutions are identified, or self-identify, as relevant persons.

Cultural features or heritage values related to marine species within the Operational Area or EMBA raised by Traditional Custodians when preparing the EP are outlined in Table 4-20. Values identified in publicly available literature are summarised in Table 4-19.

4.9.1.4.1 Desktop assessment of Sea Country values

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

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Table 4-19: Cultural features and heritage values identified in publicly available literature

First Nations group	Features and values	Source	Potential for overlap	
			Operational Area	***EMBA***
Gnulli (Baiyungu, Thalanyji, Yinggarda)	Feature: resources including marine animals.	Peck on behalf of the Gnulli Native Title Claim Group v State of Western Australia (2019)	Possible (unspecified)	Possible (unspecified)
	Value: traditional knowledge holds that ancestors live on the land and in the water. Therefore, Indigenous people have obligations to access and care for these places (e.g. keeping them clean).		Possible (unspecified)	Possible (unspecified)
	Feature: heritage sites in the Ningaloo region include shell middens, artefact scatters, skeletal material/burial sites, camps, meeting places, hunting places and water sources.	DBCA (2020)	No	Possible (shoreline accumulation areas)
	Feature: resources including gajalbu (emu), bundgurdi (kangaroo), bardurra (bush turkey), majun (marine turtles), turtle eggs, bilygurumarda (osprey), fish, shellfish and plants.		Possible (turtles, fish) No (other resources)	Possible (turtles, turtle eggs, fish, shellfish) No (other resources)
	Feature: mudflats, mangroves and sand dunes provide a critical breeding ground for marine and terrestrial wildlife.		No	Possible (mangroves)
	Value: the Ningaloo region contains cultural heritage dating back at least 32,000 years, including ceremonial thalu sites.		No	Possible (unspecified, but likely refers to onshore areas outside the EMBA)
	Value: connection to Country is important to the Traditional Owners' spirituality and religion.		Possible (unspecified)	Possible (unspecified, but likely due to location of EMBA)
	Value: caring for Country. *"The southern coastal reserves along the Ningaloo Coast are jointly managed by Traditional Owners and the Department of Biodiversity, Conservation and Attractions (DBCA). The Joint Management Body ensures that the Traditional Owners have an opportunity to make decisions about environmental management and land use*". Note: This document also includes information that cannot be copied, reproduced or used without consent.		No	Yes

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First Nations group	Features and values	Source	Potential for overlap	
			Operational Area	***EMBA***
	Feature: resources including mangrove crabs, gastropods, shellfish, dugong, turtle.	Morse (1993)	Possible (all but mangrove crabs)	Possible (all)
Kariyarra	Value: traditional knowledge recalls that a salt water serpent lives in the sea and brings fish to shore.	Zaunmayr (2016)	Possible (unspecified)	Possible (unspecified)
Thalanyji	Feature: resources including fish, shellfish, crabs, crustaceans, sea urchins, turtle, dugong and flora and fauna associated with mangrove communities.	Commonwealth of Australia (2002)	Possible (fish, turtle, dugong, invertebrate)	Possible (fish, turtle, dugong, invertebrate)
	Feature: archaeological sites on Barrow Island.		No	Possible (shoreline accumulation)
	Value: connection to Country.		Possible (unspecified)	Possible (unspecified)
	Feature: resources including turtles, eggs, fish, shellfish and plants.	DBCA & Parks and Wildlife Service (2002)	Possible (fish, turtle)	Possible (fish, turtle, eggs, shellfish)
	Value: connection to Country.	DBCA (2022)	Possible (unspecified)	Possible (unspecified)
	Value: transfer of knowledge.		Possible (unspecified)	Possible (unspecified)
	Value: access to Country.		Possible (unspecified)	Possible (unspecified)
	Value: access to Barrow Island and possibly Montebello Islands.	Hook, et al. (2004)	No	Possible
	Feature: artefact scatters are located in coastal sand dunes.	Hook (2020)	No	Possible (shoreline accumulation areas)
	Feature: burials are located in coastal sand dunes.		No	Possible (shoreline accumulation areas)
	Feature: archaeological sites are located on Barrow Island.	Ditchfield, et al. (2018) Paterson (2017)	No	Possible (shoreline accumulation areas)
	Feature: archaeological sites are located at Barrow and Montebello Islands.	Dortch, et al. (2019)	No	Possible (shoreline accumulation areas – Barrow Island)

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First Nations group	Features and values	Source	Potential for overlap	
			Operational Area	***EMBA***
	Feature: archaeological evidence of the use of resources including fish, turtles, marine mammals, crocodiles, crabs and sea urchins.		No	Possible (submerged, highly unlikely for most evidence of faunal use to survive inundation)
	Feature: thalu ceremonial sites for the increase of turtle, shark, ray, fish, squid, octopus, hill kangaroo and emu.	DBCA (2022)	No	No (ceremonial use) Possible (submerged thalu sites, e.g. petroglyphs)
	Feature: ceremonies.		No	No
	Value: connection to Country.		Possible	Possible
	Value: transfer of knowledge.		Possible	Possible
	Value: access to Country.		Possible	Possible
Unspecified	Feature: the ocean can include sacred sites and songlines.	Smyth (2008)	Possible (unspecified)	Possible (unspecified)
	Value: people have kin relationships to important animals, plants tides and currents.		Possible (unspecified)	Possible (unspecified)
	Feature: archaeological sites in submerged landscapes.	Crabtree, et al. (2021)	Possible	Possible
	Value: Sea Country has customary Law defining ownership and management rights and responsibilities.	Muller (2008)	Possible (unspecified)	Possible (unspecified)
	Value: knowledge of Sea Country.	Kearney, et al. (2023)	Possible (unspecified)	Possible (unspecified)
	Value: connection to Sea Country.		Possible (unspecified)	Possible (unspecified)
	Value: care for Sea Country.		Possible (unspecified)	Possible (unspecified)
	Value: the extent of Sea Country is determined by the travels of Dreaming ancestors. This is recorded and conveyed through songlines.		Possible (unspecified)	Possible (unspecified)
	Feature: archaeological sites indicate islands were occupied before sea level rise.	DBCA (2020)	No	Possible (submerged)
	Value: Mermaid Sound.		No	No

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First Nations group	Features and values	Source	Potential for overlap	
			Operational Area	***EMBA***
Murujuga Aboriginal Corporation representing Ngarda-Ngarli people (Mardudhunera, Ngarluma, Wong-Goo-Tt-Oo, Yaburara and Yindjibarndi) (MAC)	Value: Murujuga (Dampier Peninsula). *"…all living things in Mermaid Sound are connected and important…Mermaid Sound and Dampier Archipelago (Murujuga) is considered one place where the entire environment and all ecosystems hold both cultural and environmental value".*	Woodside (2023)		
	The following fauna, communities and habitats were identified as being culturally important: • dolphins		Possible	Possible
	• whales, and particularly humpback whales		Possible	Possible
	• dugongs		Possible	Possible
	• fish		Possible	Possible
	• sea snakes		No	Possible
	• turtles		Possible	Possible
	• squid		No	Possible
	• corals		Possible	Possible
	• seagrass		No	Possible
	• mangroves		No	Possible
	• microalgal communities.		No	Possible
	• subtidal soft-bottom communities		No	Possible
	• intertidal sand and mudflat communities		No	Possible
	• rocky shores.		No	Possible
Ngarluma	Value: Manggan (creative beings) used supernatural force to shape the hills, rivers, seas and landforms.	DNP (2018)	Possible (unspecified)	Possible (unspecified)

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First Nations group	Features and values	Source	Potential for overlap	
			Operational Area	***EMBA***
Ngarda-Ngarli (Mardudhunera, Ngarluma, Wong-Goo-Tt-Oo, Yaburara and/or Yindjibarndi)	Value: Creation stories.	Leach (2020)	Possible (unspecified)	Possible (unspecified)
	Value: Murujuga. *Murujuga is 'where the Law came up out of the sea and travelled inland'. The following story explains the origin of Murujuga Sea Country:* *It was the Marrga and Minkala/Mangunyba (Skygod) that named and shaped the country, then all the birds and the animals, and finally the Ngardangali (Aboriginal people) came from Marrga themselves. In other places they call this the 'dreaming', but here we call it Ngurra Nyunjunggamu – 'when the world was soft'.*		No	No
	Value: marine subsistence resources. *...marine resources were favoured by the occurrence of discarded turtle and fish bones near old fireplaces throughout the archipelago...spears for fishing and hunting turtles were made from hard woods sharpened to a point. Turtle shells were utilised for carrying and bathing babies and for cooking.*		No	Possible
	Feature: Cape Bruguieres Island.		No	No
	Feature: submerged and terrestrial archaeological sites. *Cape Bruguieres Island has high potential to reveal how Ngardangali adapted to marine transgression through the identification and analysis of submerged and terrestrial sites. p70* *The identification of an ephemeral waterway associated with engravings, grinding patches and lithics demonstrates that water would have been available to the Ngardangali during the wet season.*		No	No

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First Nations group	Features and values	Source	Potential for overlap	
			Operational Area	***EMBA***
	Value: Murujuga. *Comments by MAC Deputy Chairperson Vince Adams:* *"Everything you see at Murujuga – the hills and creeks, the trees, the spiritual places, the rock art and the camping places – it is all part of our story here. Our ancestors have been looking after this country since the world was soft, and everything you see here – that is all here because we have been keeping it strong with our Lore that was put in place for country and the Law that was given to Aboriginal people to do. From when it was a desert, all the way to what it looks like now. Country has been made strong because we had the knowledge in our Lore and Law of how to look after it all along, even when it changed. Our ancestors gave us this knowledge of Country. They taught us everything is connected. They gave us the responsibility to care for it and to pass on that knowledge to our children. Murujuga is a significant place for Aboriginal people across the Pilbara and beyond. It is the starting place for some of our songlines."*	MAC (2023b)	No (based on specific location)	No (based on specific location)
	Value: songlines.		No (based on specific location)	No (based on specific location)
	Feature: submerged landscapes. *"The songlines describe landmarks and events that occurred during ngurra nyujunggamu (when the world was 'soft'). They connect to important inland sites, such as Uluru and some of them extend across to the east coast of Australia.* *There are songlines that our Elders share today that date back to the time before sea levels rose and turned the hills and valleys of Murujuga into submerged landscapes and the islands of the Dampier Archipelago today."*		No (based on specific location)	No (based on specific location)
	Value: intergenerational knowledge. *For us, as Ngarda-Ngarli, we hope by sharing knowledge and educating people, we can fulfil our responsibilities to care for our Country going into the future.*		Possible (unspecified)	Possible (unspecified)
	Value: archaeological sites. *Archaeological sites around Shark Bay tend to be close to the shoreline. Edel Land was a particularly important place for early Aboriginal people with a stone quarry at Crayfish Bay, fresh water at Willyah Mia on Heirisson Prong, and numerous middens and camp sites. There is also a burial site at Heirisson Prong.*		No (based on specific location)	No (based on specific location)
	Value: traditional knowledge recalls that the sea is a source of creation for flying foxes.	Department of Environment	Possible (unspecified)	Possible (unspecified)
	Value: petroglyphs are understood as permanent signs left by ancestral beings.		No	No

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First Nations group	Features and values	Source	Potential for overlap	
			Operational Area	***EMBA***
	Value: petroglyphs depict the Law.	and Conservation (2013)	No	No
	Value: cultural obligations to look after places of special potency.		Possible (unspecified)	Possible (unspecified)
	Value: petroglyphs are important in initiation and education.		No	No
	Value: the sea is acknowledged a starting point for songlines, including the flying fox songline.	MAC (2023a)	Possible (unspecified)	Possible (unspecified)
	Feature: resources including fishes, turtles and dugong.	Water Corporation (2019)	Possible No (dugong)	Possible (all)
	Value: traditional knowledge recalls a sea serpent which travelled from the coast to inland pools.		Possible (unspecified)	Possible (unspecified)
	Value: traditional knowledge recalls a water serpent from the ocean now lives in an inland pool. He created many sites and punishes Law breakers.	Barber & Jackson (2011)	Possible (unspecified)	Possible (unspecified)
	Value: In a separate account a sea serpent punishing people was driven back to the sea by a freshwater serpent.		Possible (unspecified)	Possible (unspecified)
	Value: traditional knowledge recalls Manggan created the seas.	Ngarluma Aboriginal Corporation (n.d.)	Possible (unspecified)	Possible (unspecified)
	Value: traditional knowledge recalls Pannawonica Hill being carried from the sea near Barrow Island or Murujuga by a spirit bird.	Hook, et al. (2004)	No (based on specific location)	Possible
	Value: traditional knowledge recalls Murujuga is where ancestral beings emerged from the sea and brought the Law.	Australian Heritage Council (2012)	No (based on specific location)	No (based on specific location)
	Feature: submerged First Nations archaeological sites in Cape Bruguieres channel.	Benjamin et al. (2020)	No (based on specific location)	No (based on specific location)
	Feature: submerged First Nations archaeological sites in Cape Flying Foam Passage.	Benjamin et al. (2023)	No (based on specific location)	No (based on specific location)

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First Nations group	Features and values	Source	Potential for overlap	
			Operational Area	***EMBA***
	Value: traditional knowledge recalls Maarga (creation ancestors) lifted the land and sky out of the ocean.	Milroy & Revell (2013) Japingka Aboriginal Art Gallery (2023)	Possible (unspecified)	Possible (unspecified)
	Feature: submerged waterholes related to the Kangaroo songline.	Kearney, et al. (2023)	Possible (unspecified)	Possible (unspecified)
	Value: traditional knowledge holds that songlines continue beyond the current coast and across the submerged landscape.		Possible (unspecified)	Possible (unspecified)
	Value: songlines are captured through storytelling, rock art, songs and dance, and in the landmarks themselves.	Bainger (2021)	Possible (unspecified)	Possible (unspecified)
	Value: Murujuga is the start of many songlines, including the Seven Sisters.		No (based on specific location)	No (based on specific location)
	Value: songlines at Murujuga date back to times when the sea-level was lower.	MAC (2023b)	No (based on specific location)	No (based on specific location)
	Feature: rock art.	Weerianna Street Media Production (2017)	No	No
	Feature: sacred sites.		Possible (unspecified)	Possible (unspecified)
	Feature: resources including fish, turtles.	Leach (2020)	Possible	Possible
	Feature: fish traps exist throughout the archipelago.		No	Possible
	Feature: shell middens exist on coastal margins.		No	Possible
	Feature: submerged archaeological sites.		No	Possible
	Value: Law emerged from the sea and travelled inland.		Possible (unspecified)	Possible (unspecified)
	Feature: resources including mangrove seeds, turtles, turtle eggs.	Smyth (2008)	Possible (turtles only)	Possible
	Value: it is recalled that ceremonies were conducted on islands.		No	Possible

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First Nations group	Features and values	Source	Potential for overlap	
			Operational Area	***EMBA***
	Feature: archaeological sites on Murujuga.	McDonald (2015) McDonald (2023)	No	No
	Feature: archaeological sites on Enderby Island.	McDonald, et al. (2022a)	No	No
	Feature: archaeological sites on Rosemary Island.	McDonald, et al. (2022b)	No	No
	Feature: petroglyph and other archaeological sites at Murujuga.	Dortch, et al. (2019)	No	No
	Feature: archaeological evidence of the use of resources including fish, turtles, marine mammals, crocodiles, crabs and sea urchins.		Possible (unspecified)	Possible (unspecified)
Ngarluma and Yindjibarndi	Value: Creation sprits. *"In our Law it is said that in the beginning the sky was very low. When the creation spirits got up from the ground, they lifted the sky and the world out of the sea."*	Rijavec (2004)	Possible (unspecified)	Possible (unspecified)
	Value: submerged landscape. "…*sea as an inseparable extension of the land."*	Ward, et al. (2022)	Yes	Yes
	Value: songlines.	Weerianna Street Media Production (2017)	No (based on specific location)	No (based on specific location)
	Feature: rock art. *"Songlines are like historical events captured in a few different ways, through storytelling, rock art, songs and dance, and in the landmarks themselves," says Clinton Walker, a Ngarluma and Yindjibarndi man who calls Western Australia's sun-baked Pilbara home. "Aboriginal people use songlines as a means of navigation, following all the landmarks they sing about. You may not have been there, but the songs give you enough information to find your way. Our people learn hundreds of songs."*		No (based on specific location)	No (based on specific location)
	Value: Mackerel Islands.		No (based on specific location)	No (based on specific location)

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First Nations group	Features and values	Source	Potential for overlap	
			Operational Area	***EMBA***
	Value: songlines. *From here I depart for the Mackerel Islands, a cluster of isles and atolls that lie 22 kilometres off the coast. Aboriginal people followed songlines here until about 8,000 years ago, when the landforms were separated from the mainland.* *The Warlu Way, which leads to Karijini, follows a songline created by a Dreamtime sea serpent, or warlu.*		No (based on specific location)	No (based on specific location)
	Value: built heritage.		No	No
	Value: Sea Country.	DNP (2018)	Possible (unspecified)	Possible (unspecified)
	Value: rights and responsibilities over Sea Country. *"Sea Country is valued for Indigenous cultural identity, health and wellbeing."*		Possible (unspecified)	Possible (unspecified)
	Value: songlines. *It is recognised that spiritual corridors extend from terrestrial areas into nearshore and offshore waters, a number of marine animals are totems for Indigenous people, and that songlines pass through marine parks.*		Possible (unspecified)	Possible (unspecified)
	Feature: submerged fish traps. *…evidence from Traditional Owners that submerged fish traps are present along drowned waterways throughout the archipelago.*	Leach (2020)	No (based on specific location)	No (based on specific location)
	Value: archaeological sites.		No (based on specific location)	No (based on specific location)
	Feature: shell midden sites on coast.		No (based on specific location)	No (based on specific location)
	Value: Barrow Island and Montebello Islands.	Dortch, et al. (2019)	No	Possible
	Feature: submerged archaeological sites.		No	Possible
	Value: Murujuga Cultural Landscape.		No	No
	Value: archaeological sites/material.	McDonald, et al. (2022c)	No (based on specific location)	No (based on specific location)

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First Nations group	Features and values	Source	Potential for overlap	
			Operational Area	***EMBA***
	Feature: Cape Range and Montebello Islands. *"...rock art, shell middens, tools, stone artefacts that continue to demonstrate the use of the islands well before the inundation of the last Ice Age. Example of coastal people's patterns…report on sea urchin spines as evidence of intertidal zone exploitation by groups during low tide, faunal remains of species found in other archaeological assemblages from Cape Range and Montebello Islands."*		No (based on specific location)	No (based on specific location)

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4.9.1.4.2 First Nations archaeological heritage assessment

First Nations archaeological heritage in relation to the NWMR is described in Woodside's Master Existing Environment (refer to Section 2.2.3).

The Department of Planning, Lands and Heritage (DPLH) Aboriginal Heritage Inquiry System was searched, which showed two Registered Aboriginal Sites and 22 Lodged Aboriginal Sites for the EMBA (Appendix I). The exact location, access and traditional practices for some of these sites may not be disclosed and if required, such as in the event of a major oil spill, would involve prioritising further consultation with key contacts within DPLH and relevant local First Nations communities.

4.9.1.4.3 Underwater Cultural Heritage

More information about First Nations archaeological heritage in relation to the Ancient Landscape in the NWMR is described in Woodside's Master Existing Environment (refer to Section 2.2.3).

All actions involving seabed contact, and most actions undertaken near the seabed, have potential to cause adverse impact to located or unlocated underwater cultural heritage (DCCEEW, 2024e). Woodside engages a consultant to undertake a desktop review based on geophysical and bathymetric data, for the potential of submerged archaeological material, in any areas subject to new seabed disturbance. This approach is consistent with Assessing and Managing Impacts to Underwater Cultural Heritage in Australian Waters (DCCEEW, 2024e).

Planned activities do not include seabed contact. Management procedures associated with potential unplanned impacts to the seabed are outlined in Section 6.8.5.

4.9.1.4.4 Feedback received via consultation to describe the existing environment

First Nations cultural values are communally held. This is reflected in Vision 3 of Dhawura Ngilan that "Aboriginal and Torres Strait Islander heritage is managed…according to community ownership" (Heritage Chairs of Australia and New Zealand, 2020). Dhawura Ngilan also specifically notes that "Aboriginal and Torres Strait Islander…intangible knowledge systems, which are held in songlines and language, are endangered. This knowledge is held by Elders and the community…" Through consultation with relevant persons, Registered Native Title Bodies Corporate have identified or raised topics relating to environmental values of cultural interest. These include a broad interest in the marine fauna, including whales and turtles (Table 1 in Appendix F).

Feedback received on potential cultural features and heritage values during consultation are described in Table 4-20.

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 (MOC) and revision process (see Section 7.7*).*

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Table 4-20: Summary of feedback received via consultation to describe the existing environment

Relevant First Nations group/ individuals	Context	Description of value/feature/interest	Potential for overlap	
			Operational Area	*EMBA*
Buurabalayji Thalanyji Aboriginal Corporation	Raised during consultation for another EP	Value: connection to Sea Country. Enduring deep connection to Sea Country north of Onslow, extending out to islands off the Pilbara coast such as the Montebello Islands, Barrow Island and the Mackerel Islands.	Possible	Possible
Kariyarra Aboriginal Corporation	Raised during consultation for another EP	Value: turtles.	Possible	Possible
		Value: access to Sea Country. • Accessing Sea Country for fishing, trapping, crabbing catching turtle, hunting dugong, using stingray barbs for spears and collecting shellfish.	No	Possible
		• Visiting offshore islands at low tide.	No	Possible
		Value: marine species resources. Resource species of cultural interest to Kariyarra people include marine mammals, fish, molluscs including bivalves, gastropods and cephalopods.	Possible	Possible
		Value: the existence of intangible cultural heritage including the Yinta (associated with Sea Country). From Kariyarra Native Title documents it is clear Yinta are significant cultural/spiritual sites, often a pool or water source but possibly a hill or other feature. These are, at least generally, associated with creation beings and are a core part of cultural rights to land in determining who can use or speak for an area.	Possible	Possible
		Interest: coastal landforms (cultural interest).	No	Possible
		Interest: coastal native vegetation (cultural interest).	No	Possible
		Feature: cultural interest in cultural heritage sites associated with the coast and the ocean.	Possible	Possible
		Value: traditional fishing and gathering rights in the ocean.	Possible	Possible
		Value: cultural interest in intangible cultural heritage associated with the coast and the ocean. • Presence of mythic snakes.	Possible	Possible

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Relevant First Nations group/ individuals	Context	Description of value/feature/interest	Potential for overlap	
			Operational Area	***EMBA***
		Value: intergenerational knowledge. *"In addition to their immediate value as sustenance, the gathering and preparation of these resources are informed by cultural knowledge, and an inability to use these resources may result in a loss of ability to transfer that knowledge to future generations. Direct impact to communities using these resources will inherently occur when the resource disappears, is displaced or suffers a reduction in population. Therefore, these communities may be impacted where there is an impact at the species/population level. Impacts to resource collection would be limited to temporary exclusion in areas where there are hydrocarbons present, including shoreline accumulation. Relevant cultural authorities will be engaged in the event of a spill that may affect them..."*	Possible	Possible
		Value: cultural obligations to care for Country, including Sea Country.	Possible	Possible
		Value: secret habitat totems associated with Sea Country.	Possible	Possible
		Interest: assertion of sea rights in native title claim area. Interpreted as general connection to Country, assertion of rights to access Country, and cultural obligation to care for environmental values of Sea Country. Having duties to look after and protect all of Kariyarra Aboriginal Corporation's Sea Country.	No (based on Northern Territory determined area)	Possible
		Value: marine resources. Concern raised about the potential for diseases due to adverse event [hydrocarbon spill]	Possible	Possible
		Value: responsibility to care for Sea Country.	Possible	Possible
		Value: marine resources. Kariyarra explained the most important thing is the preservation of sea life and coastal areas. The ocean provides critical food sources to their community and Kariyarra Traditional Owners are coastal people so they have a strong connection to the area and a responsibility to preserve the area for future generations.	Possible	Possible
		Value: river systems are important to the food chain.	No	No
		Value: marine resources: • shellfish	Possible	Possible
		• cockles	Possible	Possible
		• oysters	Possible	Possible

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Relevant First Nations group/ individuals	Context	Description of value/feature/interest	Potential for overlap	
			Operational Area	*EMBA*
		• clam shells	Possible	Possible
		• con shells	Possible	Possible
		• mullets	Possible	Possible
		• sea cow (dugong).	No	Possible
Murujuga Aboriginal Corporation	Raised during consultation for another EP	Value: Mermaid Sound. • the ecosystem health of Mermaid Sound.	No	Possible
		Value: whales. • Whales and other species of totemic importance need to be protected, including their populations, biodiversity, and migration patterns.	Possible	Possible
		• A whale thalu is an increase at the totemic site that brings whales into the beach.	Possible	Possible
		Value: dolphins. There are cultural ceremonies associated with communicating with dolphins.	Possible	Possible
		Value: dugongs. Dugongs are a food source associated with seagrasses near Gidley Island.	No	Possible
		Value: fish. Specific mentions of fish included thalu ceremonies associated with increasing fish stocks.	Possible	Possible
		Value: sea snakes. Sea snakes were specifically mentioned as culturally important species.	Possible	Possible
		Value: turtles. • Flatback, green, hawksbill, loggerhead and leatherback turtles; songline. The songline associated with the turtle comes from Fortescue to Withnell Bay. This song is sung by four or five tribes for day and night without consuming food or water.	Possible	Possible
		• Flatback, green, hawksbill, loggerhead and leatherback turtles: They are culturally important species that move through Mermaid Sound. Turtles are most often seen in shallower areas and where there are seagrasses.	Possible	Possible

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Relevant First Nations group/ individuals	Context	Description of value/feature/interest	Potential for overlap	
			Operational Area	*EMBA*
		• Most beaches are nesting sites for turtles, including those on Gidley and Legendre Islands…which also identifies Rosemary Island as the most important hawksbill turtle nesting site in Western Australia.	No	Possible
		Feature: coral. Concerned about coral bleaching because corals are important. Beautiful colours. They also attract a lot of other things. Fish carry coral spawn like bees pollinate flowers. If fish were looked after, the corals would get brighter and brighter (by transmitting nutrients and performing other ecosystem services, fish can be symbiotic with corals). Locations identified during consultation include Withnell Bay, Conzinc Bay, and south west of Legendre Island.	No	No (based on specific locations)
		Feature: seagrass. • Seagrasses provide protection for animals.	No	Possible
		• Locations identified during consultation include Conzinc Island; between Angel and Gidley Islands.	No	No
		Feature: mangroves. Mangroves would have provided shelter, crabbing, digging for shellfish, could be turtle nurseries. Locations identified during consultation include Conzinc Bay north end; Flying Foam Passage; Searipple Passage; north-east bay of West Lewis Island.	No	No (based on specific location)
		Feature: macroalgal communities. Are important primary production sites, habitats, and food sources (not explicitly identified by Elders).	No	Possible
		Feature: subtidal soft-bottom communities. Support invertebrate diversity (not explicitly identified by Elders).	No	Possible
		Feature: intertidal sand and mudflat communities. Important primary production sites, support invertebrate diversity and provide food for shorebirds (not explicitly identified by Elders).	No	Possible
		Feature: rocky shores. Habitats for intertidal organisms and provide food for shorebirds (not explicitly identified by Elders).	No	No

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Relevant First Nations group/ individuals	Context	Description of value/feature/interest	Potential for overlap	
			Operational Area	*EMBA*
		Feature: other areas of Mermaid Sound of importance (including Conzinc Bay). Fish traps: There are known fish traps in Conzinc Bay, and others would have or do exist in coastal areas of islands, such as Angel and Gidley Islands. People still use the Conzinc Bay fish traps regularly for catching mangrove jack, trevally and other fish.	No	No
		Value: squid. Squidding (harvesting of squid from the ocean) around Conzinc Bay.	No	No (based on specific location)
		Value: appropriate cultural authority for Murujuga.	No	No
		Interest: management of onshore heritage sites.	No	No
		Interest: submerged heritage. Engage with researchers on options to identify potential submerged heritage.	Possible	Possible
		Value: songlines.	Possible (unspecified)	Possible (unspecified)
		Value: stingrays.	Possible	Possible
		Value: sharks.	Possible	Possible
		Value: crustaceans.	Possible	Possible
		Value: octopus.	Possible	Possible
		Value: sea stars.	Possible	Possible
		Value: sea urchins.	Possible	Possible
		Value: sponges.	Possible	Possible
		Value: molluscs.	Possible	Possible
		Value: submerged landscape. Potential impact to Aboriginal heritage, due to the submerged coastline at initial occupation of the region, landscape features that would have defined the first travel routes used to move through Country.	Possible	Possible

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Relevant First Nations group/ individuals	Context	Description of value/feature/interest	Potential for overlap	
			Operational Area	*EMBA*
		Interest: Murujuga seasonal calendar: Any change to the feeding, breeding or migratory behaviour of culturally significant species would impact significantly on subsistence, cultural and ceremonial activities.	Possible (unspecified)	Possible (unspecified)
Nganhurra Thanardi Garrbu Aboriginal Corporation representing Baiyungu and Thalanyji people	Raised during consultation for another EP	Value: whales and whale sharks.	Possible	Possible
		Feature: marine parks.	No	Possible
Ngarluma Aboriginal Corporation	Raised during consultation for another EP	Interest: management of onshore heritage sites.	No	No
		Interest: submerged heritage. Engage with researchers on options to identify potential submerged heritage.	Possible	Possible
Robe River Kuruma Aboriginal Corporation	Raised during consultation for another EP	Feature: coastline.	No	Possible
		Feature: underwater heritage.	Possible	Possible
		Feature: sea (ocean/water). Wanparta noted that they feel a sense of responsibility to keep looking after the ocean. They noted that they are very connected to the health of the ocean, they have a sense of responsibility to look after the ocean (Law and culture). If impacted, this would impact future generations and how Law is practiced. Wanparta legal representative explained the emblems and totems reflected on the Wanparta Aboriginal Corporation logo. She noted that the dark blue on the logo represents the ocean (and that their Native Title) extends into the ocean). The importance of water was emphasised by the group. Protection and management of marine life and healthy ocean plays a significant role in lore, culture and customs.	Possible (all)	Possible (all)

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Relevant First Nations group/ individuals	Context	Description of value/feature/interest	Potential for overlap	
			Operational Area	*EMBA*
		Value: marine species. Wanparta legal representative explained the emblems and totems reflected on the Wanparta Aboriginal Corporation logo. The animals depicted on the logo are totemic species and include: • kestrel	No	Possible
		• octopus	Possible	Possible
		• spiny brim	Possible	Possible
		• stingray.	Possible	Possible
Wirrawandi Aboriginal Corporation	Raised during consultation for another EP	Value: whales (general interest around management of impacts to whales).	Possible	Possible
		Value: turtles (general interest around management). Wirrawandi asked whether turtle monitoring programs are still in place.	Possible	Possible
		Feature: rock art. Wirrawandi asked whether air emissions from activities impacts rock art and what Woodside does to minimise impacts to rock art. Wirrawandi also asked for more community information on rock art.	No	No
		Interest: submerged heritage. Wirrawandi asked where sites of underwater heritage have been recently found. Wirrawandi asked about impacts to the seabed from planned activities, and what is considered in relation to submerged cultural heritage, particularly given the recent finding of artefacts.	Possible	Possible
Yindjibarndi Aboriginal Corporation	Consultation for this EP	No values raised.	-	-
Self-identified First Nations Representative Groups				
Ngarluma Yindjibarndi Foundation Ltd	Consultation for this EP	No values raised.	-	-
Save Our Songlines	Consultation for this EP	No values raised.	-	-

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Relevant First Nations group/ individuals	Context	Description of value/feature/interest	Potential for overlap	
			Operational Area	***EMBA***
	Raised during consultation for another EP	Feature: songlines, Dreaming and energy lines (unspecified).	Possible (unspecified)	Possible (unspecified)
		Feature: whales – including migratory patterns.	Possible	Possible
		Interest: turtles – including migration patterns.	Possible	Possible
		Interest: dugongs – unspecified.	Possible	Possible
		Interest: plankton – unspecified.	Possible	Possible
		Interest: seagrass – unspecified.	No	Possible
		Interest: where saltwater and freshwater meet.	No	Possible
		Value: caring for Country.	Possible (unspecified)	Possible (unspecified)
		Feature: whales. "*Whales carry important songlines, the whale Dreaming, and connection between land and sea*". "*As the biggest animal on earth, the whale has the greatest heart connection to songlines, people and animals and carries the songlines around the ocean, connecting places.*" "*Whale Dreaming story has a strong connection to the heart centre in each person, this story helps people to open up and to realise, understand and raise awareness of the environment and everything humans are connected to.*" "*In their own families, female whales have a caretaker or midwife role, and those who are connected to the Whale Dreaming and carry the women's lore also have obligations as caretakers of the earth.*" "*Because each animal uses songlines for migration, breeding and feeding, the disruption or distortion to the songlines causes the animals to become disoriented, confused or lost.*"	Possible (whales) Possible (songlines, unspecified)	Possible (whales) Possible (songlines, unspecified)

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Relevant First Nations group/ individuals	Context	Description of value/feature/interest	Potential for overlap	
			Operational Area	***EMBA***
		Interest: whales: Interest: pygmy blue whales: "*Potential impacts on marine species and natural environment, relevant to the natural environment, relevant to the Applicant's interests, including but not limited to:* *ii. behavioural changes (leaving or avoiding the area where the Activity occurs) to turtles, pelagic fish (such as tuna and billfish), sharks, pygmy blue whales* *iii. whales' sonar communications systems, particularly between mothers and calves, from sound and vibrations emitted by the Activity* *v. potential impacts on water quality and consequent potential impacts on marine fauna such as whales, dugongs, sharks, rays, and seabirds from the risk of unplanned chemical discharges (non-hydrocarbon)* *vi. vehicle collision and/or entanglement with marine fauna*".	Possible (whales)	Possible (whales)
		Interest: turtles. "*Other animals, such as turtles, dolphins, dugongs, and krill follow the whale's songlines, because they're all connected together - the whale creates a path for the other animals like 'grading a road'."* *"Potential impacts on marine species and natural environment, relevant to the natural environment, relevant to the Applicant's interests, including but not limited to:* *ii. behavioural changes (leaving or avoiding the area where the Activity occurs) to turtles, pelagic fish (such as tuna and billfish), sharks, pygmy blue whales* *v. potential impacts on water quality and consequent potential impacts on marine fauna such as whales, dugongs, sharks, rays, and seabirds from the risk of unplanned chemical discharges (non-hydrocarbon)* *vi. vehicle collision and/or entanglement with marine fauna*".	Possible (turtles)	Possible (turtles)
		Interest: dugongs. "*Potential impacts on marine species and natural environment, relevant to the natural environment, relevant to the Applicant's interests, including but not limited to:* *v. potential impacts on water quality and consequent potential impacts on marine fauna such as whales, dugongs, sharks, rays, and seabirds from the risk of unplanned chemical discharges (non-hydrocarbon)"*.	No (dugong)	Possible (dugong)

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Relevant First Nations group/ individuals	Context	Description of value/feature/interest	Potential for overlap	
			Operational Area	***EMBA***
		Interest: pelagic fish. "*Potential impacts on marine species and natural environment, relevant to the natural environment, relevant to the Applicant's interests, including but not limited to:* *ii. behavioural changes (leaving or avoiding the area where the Activity occurs) to turtles, pelagic fish (such as tuna and billfish), sharks, pygmy blue whales*".	Possible (fish)	Possible (fish)
		Interest: sharks. "*Potential impacts on marine species and natural environment, relevant to the natural environment, relevant to the Applicant's interests, including but not limited to:* *ii. behavioural changes (leaving or avoiding the area where the Activity occurs) to turtles, pelagic fish (such as tuna and billfish), sharks, pygmy blue whales* *v. potential impacts on water quality and consequent potential impacts on marine fauna such as whales, dugongs, sharks, rays, and seabirds from the risk of unplanned chemical discharges (non-hydrocarbon)*".	Possible (sharks)	Possible (sharks)
		Interest: plankton. "*Potential impacts on marine species and natural environment, relevant to the natural environment, relevant to the Applicant's interests, including but not limited to:* *i. chronic mortality to some marine organisms, including zooplankton*".	Possible	Possible
		Interest: water quality. "*Potential impacts on marine species and natural environment, relevant to the natural environment, relevant to the Applicant's interests, including but not limited to:* *iv. potential operational discharges associated with the presence of ships in the area, including potential impacts to water quality* *v. potential impacts on water quality and consequent potential impacts on marine fauna such as whales, dugongs, sharks, rays, and seabirds from the risk of unplanned chemical discharges (non-hydrocarbon)*".	Yes	Yes
		Interest: seabirds. "*Potential impacts on marine species and natural environment, relevant to the natural environment, relevant to the Applicant's interests, including but not limited to:* *v. potential impacts on water quality and consequent potential impacts on marine fauna such as whales, dugongs, sharks, rays, and seabirds from the risk of unplanned chemical discharges (non-hydrocarbon)*".	Possible	Possible

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Relevant First Nations group/ individuals	Context	Description of value/feature/interest	Potential for overlap	
			Operational Area	***EMBA***
		Interest: where saltwater and freshwater meet. "*The places where the saltwater from the sea and the freshwater from the land connect are where the biggest energy lines[4] are, and that connection is a core of creation relevant to a Dreaming story*."	No	Possible
		Value: rock art. "*Rocks at Murujuga symbolise stories, the totems (the depicted artwork) – whether representing plants or animals – and tell a story of their history, and how long they've been there*."	No	No (based on specific location)
		Value: bungarra, eagle, kangaroo. Identified totemic species.	No	No
		Feature: Murujuga. Potential damage to Murujuga rock art due to "*acid gas emissions from operations on the Burrup*" and climate change.	No	No

[4] *Although Save our Songlines referred to and described energy lines, these are understood to be the same as songlines and this document therefore refers to songlines.*

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4.9.1.5 Summary of cultural features and heritage values

Woodside has developed a robust understanding of cultural features and heritage values relevant to the Petroleum Activity by examination of publicly available information, studies and consultation with relevant persons under Regulation 25 of the Environment Regulations.

The cultural features and heritage values identified in Sections 4.9.1.1 to 4.9.1.6 confirm whether there is any potential for these to exist within the Operational Area or EMBA. Topics that have been raised in the context of an interest linked to the natural environment are impact- and risk-assessed in Sections 6.7 and 6.8.

Cultural features and heritage values identified through both consultation and desktop assessment are described in Table 4-21.

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Table 4-21: Summary of cultural features and heritage values

Identified cultural features and heritage values	Context	EP source		Potential for overlap	
		Consultation feedback	*Literature assessment*	*Operational Area*	*EMBA*
Archaeological heritage and landscapes					
Coastal/island archaeological sites	Coastal archaeological sites include shell middens, artefact scatters, skeletal material and burial sites, camps, meeting places, hunting places and water sources.	✓	✓	No	Possible (shoreline accumulation only)
Petroglyphs	Petroglyphs are a form of rock art. Petroglyphs are a prominent feature particularly at Murujuga where it is found on hard, volcanic rock.	✓	x	Possible (submerged)	Possible (submerged)
Fish traps	Stone arrangements constructed in intertidal areas, which fill with fish at high tide and trap them at low tide.	✓	✓	No	Possible (submerged)
Submerged archaeological sites	The Ancient Landscape extends between 125 m and 130 m below current sea level. Ancient occupation of this area may have left traces through now submerged archaeological sites.	✓	✓	No	Possible
Rivers, waterholes, tidal channels and seeps	Water sources on the Ancient Landscape that may be culturally significant or archeologically prospective.	✓	✓	No	Possible
Submerged hills	Hills on the Ancient Landscape that may be culturally significant or archeologically prospective. As sea level rose these hills would have become islands and eventually submerged.	x	✓	No	Possible
Intangible values					
Songlines	Publicly available literature talks to songlines associated with ancestral beings that travelled Sea Country.	✓	✓	Possible (unspecified)	Possible (unspecified)
Creation/Dreaming sites, sacred sites and ancestral beings	Publicly available literature talks to Creation/Dreaming and ancestral beings, including water serpents, connected to or originating from the sea generally.	✓	✓	Possible (unspecified)	Possible (unspecified)
Ceremonial sites	Places where ceremonies (e.g. thalu ceremonies) are performed. All identified ceremonial sites are onshore.	✓	✓	No	Possible (unspecified)

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Identified cultural features and heritage values	Context	EP source		Potential for overlap	
		Consultation feedback	***Literature assessment***	***Operational Area***	***EMBA***
Cultural obligations to care for Country	Cultural obligation to care for the environmental values of Sea Country. Exclusion of Traditional Custodians from Sea Country or decision-making processes may inhibit ability to care for Country.	✓	✓	Possible (unspecified)	Possible (unspecified)
Knowledge of Country/customary Law and transfer of knowledge	The preservation and transmission of knowledge depend on preservation of the environment generally. Exclusion of Traditional Custodians from Sea Country may inhibit the transfer of knowledge.	✓	✓	Possible (unspecified)	Possible (unspecified)
Connection to Country	Connection to Country is described in publicly available literature as “important to the Traditional Owners’ spirituality and religion”. Connection to Country may be damaged where people are displaced or disrupted (e.g. during colonisation) or where there is a loss of technical skills or environmental knowledge.	✓	✓	Possible (unspecified)	Possible (unspecified)
Access to Country	Limitations on Traditional Custodians accessing or enjoying areas of Sea Country.	✓	✓	No	No (No limitations on access beyond the Operational Area)
Kinship systems and totemic species	Traditional Custodians have connection to species through kinship and totemic systems. An individual may have obligation to care for or not consume a species to which they are kin.	✓	✓	Possible	Possible
Resource collection	Fishing, hunting, gathering of marine species including marine mammals, marine reptiles, fish and invertebrates.	✓	✓	No	Possible
Marine ecosystems and species					
Water quality	Interest only, raised as a natural environment interest.	✓	✓	Possible	Possible
Marine species	Generally raised in consultation and literature as an interest.	✓	✓	Possible	Possible

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Identified cultural features and heritage values	Context	EP source		Potential for overlap	
		Consultation feedback	*Literature assessment*	*Operational Area*	*EMBA*
Marine mammals: whales	Generally raised in consultation and identified in publicly available literature. Thalu species of totemic importance. Linked to songlines and Dreaming stories. Humpback whales in particular.	✓	✓	Possible	Possible
Marine mammals: dolphins	Cultural ceremonies associated with dolphins. Culturally important species.	✓	✓	Possible	Possible
Marine mammals: dugongs	Culturally important species. Used as a resource.	✓	✓	No	Possible
Marine reptiles: marine turtles	Culturally important species and migration. There are thalu ceremonies associated with turtles. Turtles and turtle eggs as a resource.	✓	✓	Possible	Possible
Fish: fish, whale sharks, sharks and rays	Culturally important species. Used as a resource. Law run through the sea, including fish. There are thalu ceremonies associated with increasing fish stocks. Fish, including bream and sting rays, are totemic species. Fish, including sharks and rays, raised as a natural environment interest.	✓	✓	Possible	Possible
Cephalopods: squid and octopus	Thalu species of totemic importance. Resource.	✓	✓	Possible	Possible
Intertidal communities: bivalves, gastropods, echinoderms (sea urchins), crustaceans	Resource.	✓	✓	No	Possible
Seabirds	Culturally important species. Birds (including shags, seagulls and osprey) and bird eggs as a resource.	✓	✓	Possible	Possible

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Identified cultural features and heritage values	Context	EP source		Potential for overlap	
		Consultation feedback	***Literature assessment***	***Operational Area***	***EMBA***
Benthic habitats: macroalgal communities	Interest only, raised as a natural environment interest.	✓	✓	No	Possible
Shoreline habitats: mangroves	Critical breeding ground for marine and terrestrial wildlife. Mangroves would have provided shelter, crabbing, digging for shellfish, could be turtle nurseries. Mangrove seeds as resource.	✓	✓	No	Possible
Shoreline habitats: intertidal sand/ mudflat communities	Interest only, raised as a natural environment interest.	✓	✓	No	Possible
Shorelines	Interest only, raised as a natural environment interest.	✓	✓	No	Possible
Marine park/coastal reserves	Interest and responsibility.	✓	✓	No	Possible

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4.9.1.6 Historic sites of significance

Historic sites of significance and heritage value are found along foreshores of the NWMR. Heritage places are protected in WA under the *Heritage Act 2018*.

There are no sites of historic cultural heritage significance within the Operational Area. Woodside's Master Existing Environment (refer to Section 2.2.3) describes cultural heritage sites that may be within the EMBA.

4.9.1.7 Historic underwater heritage

The protection of historic underwater heritage under Commonwealth and State legislation is described in Appendix B.

The Australasian Underwater Cultural Heritage database records all known Maritime Cultural Heritage (shipwrecks, aircraft, relics and other underwater cultural heritage) in Australian waters. The Australian National Shipwreck Database lists all known shipwrecks in Australian waters. A search of these databases indicated there is one shipwreck site within the Operational Area, and an additional 10 sites (shipwrecks) within the EMBA.

Table 4-22 lists sites identified within the Operational Area and EMBA.

Table 4-22: Underwater heritage sites within the Operational Area and EMBA

Vessel name (ID number)	Year wrecked	Wreck location	Distance and direction from Operational Area (km)
Wild Wave (China) (5113)	1873	Montebello Islands	Overlapping
Trial (4938)	1622	Trial Rocks	11 km south-east
Tanami (4899)	1622	Trial Rocks	11 km south-east
Tropic Queen (8284)	1975	Brooke Island	31 km south-east
Plym HMS (4667)	1952	Trimouille Island	35 km south-east
McDermott Derrick Barge No 20 (4502)	1989	Dampier	57 km east
McCormack (8223)	1989	Dampier	57 km east
Lady Ann (4359)	1982	North West Cape	148 km south-west
Gem (4144)	1893	North West Cape	180 km south-west
Wild Wave (5112)	1875	Exmouth Gulf	188 km south-west
Veronica (5061)	1928	Exmouth Gulf	168 km south-west

4.9.1.8 World, National and Commonwealth Heritage listed places

No listed heritage places overlap the Operational Area. World, National and Commonwealth Heritage places within the EMBA are identified in Table 4-23. Woodside's Master Existing Environment (refer to Section 2.2.3). outlines the values and sensitivities of these places.

Table 4-23: World, National and Commonwealth Heritage listed places within the EMBA

Listed place	Distance and direction from Operational Area to listed place (km)
World Heritage places	
The Ningaloo Coast	158 km south-west
National Heritage places	
The Ningaloo Coast	158 km south-west
Commonwealth Heritage places	
Ningaloo Marine Area – Commonwealth waters	173 km south-west

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4.9.2 Commercial fisheries

Commonwealth and State fishery management areas are located within the Operational Area and EMBA. Datasets from the Australian Bureau of Agricultural and Resource Economics and Sciences (ABARES) (Butler, et al., 2024) were used to identify if Commonwealth-managed fisheries have fished within the Operational Area and EMBA in the most recently available five-year period of catch and effort data. FishCube data were also requested from the WA Department of Primary Industries and Regional Development (DPIRD) for the most recently available five-year period of fishery catch and effort data (2019 to 2024) to analyse the potential for fisheries interacting with the Operational Area. Datasets were reviewed from the last five years as a subset of past fishing effort. This was deemed an appropriate period to represent potential future fishing effort over the lifecycle of this EP.

This information was used to determine relevant fisheries for consultation based on those which may be impacted by the proposed Petroleum Activity. Table 4-24 provides an assessment of the potential interaction and Woodside's Master Existing Environment (refer to Section 2.2.3) provides further detail on the fisheries that have been identified through desk-based assessment and consultation (Section 5). One Commonwealth-managed fishery (North West Slope Trawl Fishery) was identified as potentially interacting with the Operational Area (Table 4-24, Figure 4-13). Five State-managed fisheries were identified as having potential to interact with the Operational Area (Table 4-24, Figure 4-14, Figure 4-15). Key indicator fish species relevant to the fisheries with the potential for interacting with the Operational Area, as assessed in Table 4-24, including the distribution and status of biological stocks, habitats and reproductive biology, are summarised in Table 4-25.

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Table 4-24: Commonwealth and State commercial fishery management areas overlapping the Operational Area and EMBA

Fishery	Potential for interaction during activity (x = no spatial overlap; ✓= spatial overlap; blue shading = possibility of interaction)		Description
	Operational Area	EMBA	
Commonwealth-managed fisheries			
North West Slope Trawl Fishery	✓	✓	The North West Slope Trawl Fishery management area overlaps the Operational Area and EMBA. The fishery operates off northern WA from 114°E to 125°E, roughly between the 200 m isobath and the outer boundary of the Australian Fishing Zone (Keller & Curtotti, 2023). Fishing effort commenced in 1985 with vessel numbers between one and six vessels per year since 2005–06 (Keller & Curtotti, 2023). Three vessels operated in the 2023–24 season, consistent with the 2022–23 season and down from four vessels operating in the 2020–21 season (Keller, et al., 2025b). Total catch in the North West Slope Trawl Fishery in 2023–24 was 85.94 t, up slightly from 85.34 t in 2022–23 and 85.8 t recorded in 2021–22 (Keller, et al., 2025b). The North West Slope Trawl Fishery primarily targets Scampi species, including Australian scampi (*Metanehorps australiensis*) (65.3% total catch in 2023–24 (Keller, et al., 2025b)) and smaller quantities of velvet and Boschma's scampi (*M. velutinus* and *M. boschmai*). Refer to Table 4-25 for a summary of these species. Woodside considers it a possibility that interactions with the fishery may occur within the Operational Area and EMBA.
Southern Bluefin Tuna Fishery	✓	✓	The Southern Bluefin Tuna Fishery management area overlaps the Operational Area and EMBA. The fishery spans the Australian Fishing Zone; however, since 1992, most Australian catch has concentrated in south-eastern Australia (Patterson & Dylewski, 2023). Fishery Status Reports indicate there has been no fishing effort reported within the Operational Area or the EMBA in the last five years. The fishery exclusively targets southern bluefin tuna (Patterson, et al., 2025b). Woodside considers there to be no potential for direct interaction between the Petroleum Activity and vessels operating for this fishery. However, the southern bluefin tuna spawning ground overlaps the Operational Area and EMBA (refer to Table 4-25).

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Fishery	Potential for interaction during activity (x = no spatial overlap; ✓= spatial overlap; blue shading = possibility of interaction)		Description
	Operational Area	EMBA	
Western Deepwater Trawl Fishery	x	✓	The Western Deepwater Trawl Fishery management area overlaps the EMBA. The fishery operates in deep waters off WA, from the line approximating the 200 m isobath to the edge of the Australian Fishing Zone (Blake, et al., 2021). Fishery Status Reports indicate recent activity inside the EMBA, with one vessel active in the 2023–24 season, and between zero and three vessels historically active within the fishery since 2005–06 (Keller, et al., 2025a). Total trawl-hours have been variable but relatively low since 2005–06. In 2023–24, 15 trawl-hours were recorded in the fishery, compared to zero hours recorded in 2022–23 and 76 trawl-hours recorded in 2021–22 (Keller, et al., 2025a). The Western Deepwater Trawl Fishery primarily targets ruby snapper (*Etelis* spp.) and other finfish, and historically targeted deepwater bugs (*Ibacus* spp.). No catches of deepwater bugs have been recorded since 2019–20, and a total of 3.39 t of catch (comprising various finfish species) was landed in 2023–24, concentrated south of North West Cape (Keller, et al., 2025a). No catch was recorded in 2022–23 (Keller, et al., 2025a). Woodside considers it a possibility that interactions with the fishery may occur within the EMBA.
Western Tuna and Billfish Fishery	✓	✓	The Western Tuna and Billfish Fishery management area overlaps the Operational Area and the EMBA. However, most Australian catch has been concentrated off southwest WA with occasional activity off South Australia, outside of the EMBA (Patterson, et al., 2025a). The fishery predominantly targets yellowfin tuna (*Thunnus albacares*), bigeye tuna (*Thunnus obesus*) and broadbill swordfish (*Xiphias gladius*) (Patterson, et al., 2025a) (refer to Table 4-25). Striped marlin (*Kajikia audax*) is also targeted by the fishery, although comprises a minor proportion of catch (less than 1 t was taken in 2024, and less than 5 t has been taken since 2000 (Patterson, et al., 2025a)). The 2023 and 2024 stock assessments estimated striped marlin to be subject to and overfished (Patterson, et al., 2025a). Woodside considers there to be no potential for direct interaction between the Petroleum Activity and vessels operating for this fishery. However, the striped marlin spawning grounds may overlap the Operational Area and EMBA (refer to Table 4-25).
Western Skipjack Tuna Fishery	✓	✓	The Western Skipjack Tuna Fishery management area overlaps the Operational Area and the EMBA. The fishery spans the Australian Fishing Zone west of Victoria and the Torres Strait. The Western Skipjack Tuna Fishery historically targeted skipjack tuna (*Katsuwonus pelamis*) (Patterson, et al., 2025b). The fishery is currently not active, and no fishing has occurred since 2009 (Patterson, et al., 2025b). Woodside considers there to be no potential for direct interaction between the Petroleum Activity and vessels operating for this fishery. However, the skipjack tuna spawning grounds may overlap the Operational Area and EMBA (refer to Table 4-25).

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Fishery	Potential for interaction during activity (x = no spatial overlap; ✓= spatial overlap; blue shading = possibility of interaction)		Description
	Operational Area	EMBA	
State-managed fisheries+			
Mackerel Managed Fishery	✓	✓	The Mackerel Managed Fishery management area overlaps both the Operational Area (Area 2) and EMBA (Area 2 and 3), with catch data showing the fishery has been active in both areas within the last five years. The fishery is managed through designated Areas and extends from coastal waters to the Exclusive Economic Zone, in waters northwards of Cape Leeuwin to the Northern Territory border. Most of the Mackerel Managed Fishery catch is taken from waters off the Kimberley and Pilbara coasts (Lewis, et al., 2020), reflecting the tropical distribution of mackerel species (Molony, et al., 2015). Most fishing activity is concentrated around the coastal reefs of the Dampier Archipelago and Port Hedland area, with the seasonal appearance of mackerel in shallower coastal waters most likely associated with feeding and gonad development before spawning (Mackie, et al., 2003). Previous years' catch based on Status Reports of the Fisheries and Aquatic Resources of Western Australia annual reports provided by DPIRD include 213 t in 2022, 310 t in 2021, 290 t in 2020, 291 t in 2019, 214 t in 2018 (the lowest on record (Lewis, et al., 2020)), 283 t in 2017, 276 t in 2016, 302 t in 2015 and 322 t in 2014 (Lewis & Rynvis, 2024). There were 15 vessels recorded in 2023, primarily from May to November (Lewis & Rynvis, 2024). Spanish mackerel comprises most of the catch in the Mackerel Managed Fishery. Refer to Table 4-25 for a summary of this species. The landed catch in 2023 was 242 t for Spanish mackerel (*Scomberomorus commerson*) and less than 10 t for grey mackerel (*S. semifasciatus*) (Lewis & Rynvis, 2024). The commercial catch of grey mackerel has been consistently below 20 t since 2006 (Lewis & Rynvis, 2024). The commercial landings of other tropical large pelagic species in the North Coast bioregion and Gascoyne Coast bioregion such as amberjack (*Seriola dumerili*), and cobia (*Rachycentron canadum*) were stable, with all remaining species <10 t in 2023 (Lewis & Rynvis, 2024). For the temperate large pelagic species, only the combined West Coast and South Coast bioregions catch of samson fish in 2023 was >10 t. Woodside considers it a possibility that interactions with the fishery may occur within the Operational Area and EMBA.

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Fishery	Potential for interaction during activity (x = no spatial overlap; ✓= spatial overlap; blue shading = possibility of interaction)		Description
	Operational Area	EMBA	
Marine Aquarium Managed Fishery	✓	✓	The Marine Aquarium Managed Fishery management area overlaps the Operational Area and the EMBA, operating between the Northern Territory border and South Australian border (Newman, et al., 2024). The fishery is diver-based and typically restricted to relatively shallow waters (less than 30 m) of the EMBA. Catch data are only reported within the 60 NM block overlapping the Operational Area and catch is unlikely in the deeper waters. The fishery is typically more active in waters south of Broome and higher levels of effort occurs around the Capes region, Perth, Geraldton, Exmouth, Dampier and Broome (Newman, et al., 2024). The Marine Aquarium Managed Fishery targets over 1,500 species of marine aquarium fishes, which includes coral, live rock, algae, seagrass, syngathids and various invertebrates (Newman, et al., 2024). Twelve licences were active in the Marine Aquarium Managed Aquarium Fishery in 2023 (Newman, et al., 2024). In 2023, the total catch for the Marine Aquarium Fish Managed Fishery was 107,786 fishes and invertebrates, 18 t of coral, live rock and living sand, and 272 L of marine plants and live feed (Newman, et al., 2024). Dominant fish species caught in 2023 include scribbled angelfish (*Chaetodontoplus duboulayi*), black-axil chromis (*Chromis atripectoralis*), margined coralfish (*Chelmon marginalis*), yellowtail demoiselle (*Neopomacentrus azysron*), blue and yellow wrasse (*Anampses lennardi*), spotted blenny (*Istiblennius meleagris*) and striped catfish (*Plotosus lineatus*) (Newman, et al., 2024). Given the large number and range of species captured within the Marine Aquarium Managed Fishery, there are no identified indicator species (Newman, et al., 2024). Woodside considers it a possibility that interactions with the fishery may occur within the Operational Area and EMBA.
Onslow Prawn Managed Fishery	✓	✓	The Onslow Prawn Managed Fishery management area overlaps the Operational Area and the EMBA, with catch data reported within the EMBA around Exmouth. Catch data are only reported within the 60 NM block overlapping the Operational Area. There are less than three active authorisation holders for the fishery, with catch and effort data not reported since 2022 due to confidentially issues (Koeford, et al., 2024b). One vessel was active within the Onslow Prawn Managed Fishery in 2023–24, with relatively low catch and effort that targeted banana, brown tiger and western king prawns (Koeford, et al., 2024b). Fishing is prohibited in all waters of the Onslow Prawn Managed Fishery from 30 October to 1 April from 2025 to 2030 (DPIRD, 2025). Woodside considers there to be no potential for interaction between this fishery and the Petroleum Activity based on activity timing (Section 3.7).

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Fishery	Potential for interaction during activity (x = no spatial overlap; ✓= spatial overlap; blue shading = possibility of interaction)		Description
	Operational Area	EMBA	
Pilbara Crab Managed Fishery	✓	✓	The Pilbara Crab Managed Fishery management area overlaps the Operational Area and the EMBA, with catch data only reported within the EMBA. The fishery covers inshore waters from Onslow to Port Hedland (between longitudes 115° 5' 60" E and 120° E), with most activity around Nickol Bay and Dampier (Harris, et al., 2024). The Pilbara Crab Managed Fishery targets blue swimmer crabs, with total catches of 15.3 t in 2023, 11.2 t in 2022, 9.7 t in 2021, 0.6 t in 2020 and 19.3 t in 2019 (Harris, et al., 2024; Johnston, et al., 2023). Woodside considers it a possibility that interactions with the fishery may occur within the EMBA.
Pilbara Fish Trawl (Interim) Managed Fishery	✓	✓	The Pilbara Fish Trawl (Interim) Managed Fishery management area overlaps the Operational Area and the EMBA, with catch data reported only in the eastern region of the EMBA. It is a high-intensity fishery divided into two zones and an area governed by Schedule 5 (prohibited to trawling). In addition to the Prohibited Trawl Fishing area, no fish trawls areas are allocated in Zone 1 or Areas 3 and 6 of Zone 2 (which comprises six management areas) (Wakefield, et al., 2024b). The fishery targets over 50 demersal scalefish species, with most catch comprising the red emperor (*Lutjanus sebae*), Rankin cod (*Epinephelus rankini*) and bluespotted emperor (*Lethrinus punctulatus*). Refer to Table 4-25 for a summary of these species. Other demersal scalefish species targeted include the goldband snapper (*Pristipomoides multidens*) (see Table 4-25), saddletail snapper (*Lutjanus malabaricus*), crimson snapper (*Lutjanus erythropterus*), rosy threadfin bream (*Nemipterus furcosus),* and brownstripe snapper (*Lutjanus vitta*) (Wakefield, et al., 2024b). The fishery landed 74% (1,907 t) of total commercial catches of the demersal scale fish in the Pilbara in 2023 (Wakefield, et al., 2024b). Increasing catch rates and fishing mortality spawning biomass estimates indicate imposed effort reductions since 2010 have resulted in increased fish abundance and stock rebuilding in the fishery (Wakefield, et al., 2024b). Woodside considers it a possibility that interactions with the fishery may occur within the EMBA.

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Fishery	Potential for interaction during activity (x = no spatial overlap; ✓= spatial overlap; blue shading = possibility of interaction)		Description
	Operational Area	EMBA	
Pilbara Trap Managed Fishery	✓	✓	The Pilbara Trap Managed Fishery management area overlaps the Operational Area and EMBA, with catch data reported across both areas. The Pilbara Trap Managed Fishery operates between North West Cape and Eighty Mile Beach, north of latitude 21°44' S and between longitudes 114°9.6' E and 120°00' E, and offshore as far as the 200 m isobath (DPIRD, 2023). This region is open to trap fishing throughout the year, except Area 3 which has been closed to trapping since 1998 (DPIRD, 2023). The Pilbara Trap Managed Fishery targets over 50 demersal scalefish species, with most catch comprising the red emperor (*Lutjanus sebae*), Rankin cod (*Epinephelus rankini*) and bluespotted emperor (*Lethrinus punctulatus*). Other demersal scalefish species targeted include the goldband snapper (*Pristipomoides multidens*), saddletail snapper (*Lutjanus malabaricus*), crimson snapper (*Lutjanus erythropterus*), rosy threadfin bream (*Nemipterus furcosus)* and brownstripe snapper (*Lutjanus vitta*). Three vessels operated in the fishery in 2023, with a catch landing of 22% (573 t) of the demersal scale fish in the Pilbara (Wakefield, et al., 2024b). The total catch of the trap fishery exceeded the acceptable catch range (241 to 537 t) in 2023 (Wakefield, et al., 2024b). The total annual catch taken by the fishery has remained relatively consistent over the past decade, with an average catch of 549 t per year (Wakefield, et al., 2024b). Previous years' catch landings were 597 t in 2022, 662 t in 2021, 584 t in 2020, 680 t in 2019, 563 t in 2018, 573 t in 2017, 495 t in 2016, 510 t in 2015 and 268 t in 2014 (Wakefield, et al., 2023). Key indicator species for the North Coast Demersal Scalefish Resource (Pilbara Region) are the red emperor and blue spotted emperor and Rankin cod (Smith, et al., 2025). The status of goldband snapper has also been included in recent status assessments (Wakefield, et al., 2024a). Refer to Table 4-25 for a summary of these species. Woodside considers it a possibility that interactions with the fishery may occur within the Operational Area and EMBA.

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Fishery	Potential for interaction during activity (x = no spatial overlap; ✓= spatial overlap; blue shading = possibility of interaction)		Description
	Operational Area	EMBA	
Pilbara Line Fishery (Condition)	✓	✓	The Pilbara Line Fishery (Condition) management area overlaps the Operational Area and EMBA, with catch data reported across both areas. The fishery's nine licensees are permitted to operate anywhere within Pilbara waters (north of 21°56' S latitude and west of 120°00' E) between the high water mark on the coast out to the Australian Exclusive Economic Zone border (excluding Area 3 and other closed waters) (Smith, et al., 2025). The Pilbara Line Fishery (Condition) targets similar species to the Pilbara Trap and Trawl fisheries, but with a higher proportion of catch comprising deeper offshore species, including goldband snapper (*Pristipomoides multidens*) and ruby snapper (*Etelis boweni*) (DPIRD, 2023). Of the total commercial catches of demersal scalefish in the Pilbara in 2023, 4% (114 t) was taken by the Pilbara Line Fishery (Condition). The total annual catch taken by the fishery has remained relatively consistent over the past decade throughout the NWS (average of 120 t per year) (Wakefield, et al., 2024b). Previous catch landed by the Pilbara Line Fishery (Condition) was 104 t in 2022, 124 t in 2021, 167 t in 2020, 148 t in 2019, 93 t in 2018, 143 t in 2017, 126 t in 2016, 97 t in 2015 and 40 t in 2014 (Wakefield, et al., 2023). Between 2019 and 2023 the number of active vessels in the fishery has ranged between five and eight, with six vessels active in 2023 (Smith, et al., 2025). Refer to the Pilbara Trap Managed Fishery for a description of the indicator species used to assess stock status in the North Coast Demersal Scalefish Resource. Ruby snapper (*Etelis boweni*) is also used as an indicator species for the North Coast Demersal Scalefish Resource targeted by the Pilbara Line Fishery (Condition) (Smith, et al., 2025). Refer to Table 4-25 for a summary of this species. Woodside considers it a possibility that interactions with the fishery may occur within the Operational Area and EMBA.
Specimen Shell Managed Fishery	✓	✓	The Specimen Shell Managed Fishery management area overlaps the Operational Area and EMBA, with catch data only reported in the EMBA. The fishery is largely diver-based, targeting specimen shells in water depths mostly <30 m. Catch data from the last five years shows the fishery is active south of the Operational Area and closer to the coastline (Bruce, et al., 2024). Catch effort is concentrated primarily adjacent to population centres along the coast, such as Broome, Exmouth, Shark Bay, Geraldton, Perth, Mandurah, the Capes area, Albany and Esperance (Bruce, et al., 2024). In 2023, the total number of specimen shells collected was 5,807, an increase from 2022 and 2021 (5,074 and 5,443, respectively) (Bruce, et al., 2024). An average of about 200 species is collected annually, with effort focused on mollusc species such as cowries, cone, murexes and volutes (Bruce, et al., 2024). There are 30 licences in the Specimen Shell Managed Fishery, with 18 active in 2023 (Bruce, et al., 2024). Woodside considers it a possibility that interactions with the fishery may occur within the EMBA.

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Fishery	Potential for interaction during activity (x = no spatial overlap; ✓= spatial overlap; blue shading = possibility of interaction)		Description
	Operational Area	EMBA	
South West Coast Salmon Managed Fishery	✓	✓	The South-West Coast Salmon Managed Fishery management area overlaps the Operational Area and EMBA; however, no catch data have recently been reported within these areas. 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 Western Australian Fishing Industry Council (WAFIC) (Woodside's Master Existing Environment (Section 2.2.3)). Woodside considers there to be no potential for interaction between this fishery and the Petroleum Activity.
West Coast Deep Sea Crustacean Managed Fishery	✓	✓	The West Coast Deep Sea Crustacean Managed Fishery management area overlaps the Operational Area and EMBA. The fishery uses baited pots operated in a long-line formation in shelf edge waters (>150 m in depth) off the West Coast and Gascoyne bioregions (Tuffley & Wiberg, 2024). The fishery is prohibited from fishing landwards of the 150 m isobath (Tuffley & Wiberg, 2024). Most catch is taken in depths of 500 m to 800 m (WAFIC, 2025). The fishery is active within the EMBA and only active over the 60 NM block overlapping the Operational Area and given the distribution ranges of the species, likely limited to the southern part of that block. The West Coast Deep Sea Crustacean Managed Fishery targets the crystal crab (*Chaceon albus*), champagne crab (*Hypothalassia acerba*) and giant crab (*Pseudocarcinus gigas*) (Tuffley & Wiberg, 2024). A significant majority of the catch landed is comprised of the crystal crab, which is a key indicator species for this fishery (refer to Table 4-25). The total catch of crystal crab landed in 2023 was 123.1, consistent with catch landed in 2022 (123.2 t) (Tuffley & Wiberg, 2024) and below the catch landed in 2021 (155.5 t) and 2020 (156.1 t) (How & Wiberg, 2023). Out of seven licence holders, three vessels were active across the fishery in 2023 (Tuffley & Wiberg, 2024). Woodside considers it a possibility that interactions with the fishery may occur within the Operational Area and EMBA.
West Australian Sea Cucumber Fishery	x	✓	The Western Australian Sea Cucumber Fishery management area overlaps the EMBA. The fishery operates as wader- and diver-based in the Pilbara, Kimberley and Gascoyne regions and is typically restricted to coastal waters outside of the Operational Area. Sandfish (*Holothuria scabra*) and redfish (*Actinopyga echinites*) are the two main species targeted by the fishery. In 2023, the total catch landed was 126 t, up from 56.5 t in 2022 due to an increased effort targeting redfish in the Pilbara region (Strain, et al., 2024a). Woodside considers it a possibility that interactions with the fishery may occur within the EMBA.

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Fishery	Potential for interaction during activity (x = no spatial overlap; ✓= spatial overlap; blue shading = possibility of interaction)		Description
	Operational Area	EMBA	
Exmouth Gulf Prawn Managed Fishery	x	✓	The Exmouth Gulf Prawn Managed Fishery is a trawl fishery operating in Exmouth Gulf. Target species are generally in <50 m water depth. The fishery management area overlaps the EMBA, with catch limited to the spatial extent within the Exmouth Gulf and Muiron Islands in the southwest of the EMBA. Six vessels were active in the Exmouth Gulf during the 2023 season, with a total catch of 653 t in 2023 (Koeford, et al., 2024a). In previous years the fishery landed catches of 898 t in 2022, 777 t in 2021 and 673 t in 2020 (Wilkin, et al., 2023). The fishery's catch mostly comprises western king prawns (*Penaeus latisulcatus*), brown tiger prawns (*Penaeus esculentus*) and blue endeavour prawns (*Metapenaeus endeavouri*) (Koeford, et al., 2024a). Woodside considers it a possibility that interactions with the fishery may occur within the EMBA.
Nickol Bay Prawn Managed Fishery	x	✓	The Nickol Bay Prawn Managed Fishery management area overlaps the EMBA. The fishery is active in the EMBA; however, catch data is only reported within the 60 NM block over the eastern extent of the EMBA. The Nickol Bay Prawn Managed Fishery operates in nearshore and offshore waters of the Pilbara region along the NWS. Trawling has been reported to occur at several locations along the Pilbara coast to the east of the Burrup Peninsula, including within the waters of Nickol Bay. In 2023, 89 t of catch was landed, up from 51 t in 2022 and down from 123.4 t in 2021 and 202.4 t in 2020 (Koeford, et al., 2024b). Five vessels were active in the fishery in 2023 (Koeford, et al., 2024b). Banana prawns represented most of the catch landed by the fishery in 2023 (68 t), with minor landings of brown tiger (15 t), blue endeavour (1 t), and western king (4 t) prawns (Koeford, et al., 2024b). Woodside considers it a possibility that interactions with the fishery may occur within the EMBA.
WA North Coast Shark Fishery	✓	✓	The WA North Coast Shark Fishery management area overlaps both the Operational Area and EMBA; however, no catch data were reported in either area. The last reported fishing activity was in the 2008–09 fishing season (Braccini & Rynvis, 2023). Woodside considers there to be no potential for interaction between this fishery and the Petroleum Activity.
West Coast Rock Lobster Managed Fishery	x	✓	The Western Rock Lobster Managed Fishery management area overlaps the EMBA. The fishery operates off the west coast of WA between North West Cape and Cape Leeuwin (de Lestang & Walsh, 2024). There is no catch reported within the EMBA. Woodside considers there to be no potential for interaction between this fishery and the Petroleum Activity.

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Fishery	Potential for interaction during activity (x = no spatial overlap; ✓= spatial overlap; blue shading = possibility of interaction)		Description
	Operational Area	EMBA	
Western Australian Abalone Managed Fishery	✓	✓	The WA Abalone Managed Fishery management area overlaps the Operational Area and the EMBA. The fishery operates in shallow coastal waters off the south-west and south coasts of WA (Strain, et al., 2024a). Given the fishery method (shore-based and hand caught) and water depths of the Operational Area and EMBA, effort is unlikely. Additionally, Area 8 (extending north from Kalbarri to the Northern Territory border) has been closed since 2011 due to catastrophic mortality of Roe's abalone (*Haliotis roei*) after a marine heatwave (Strain, et al., 2024a). Woodside considers there to be no potential for interaction between this fishery and the Petroleum Activity.
Pearl Oyster Managed Fishery (Zones 1)	✓	✓	The Pearl Oyster Managed Fishery management area overlaps the Operational Area and the EMBA. Fishing effort is mostly focused within shallow coastal waters (Strain, et al., 2024b), collecting wild oysters for producing pearls. These are collected from fishing grounds primarily off the coast of Eighty Mile Beach, with smaller catches from the Lacepede Islands. Woodside considers there to be no potential for interaction between this fishery and the Petroleum Activity.

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Table 4-25: Key indicator species for commercial fisheries that have the potential to interact with the Operational Area

Species	Distribution and habitat	Biological stock range and status	Depth range	Reproduction and recruitment	Spawning season and distribution	Interaction with Petroleum Activity
Scampi (*Metanehorps* spp.)	Scampi are a benthic species, inhabiting the continental shelf typically at depths of 420 m to 500 m on *Globerigera* ooze (AFMA, 2023a). Scampi prefer building their burrows in comparatively firmer substrate, build less extensive burrows than other similar species, and may spend large periods of time outside their burrows (AFMA, 2023a).	The WA population of scampi is considered to be a single biological stock (Commonwealth of Australia, 2023). The stock is considered not subject to overfishing and not overfished (Keller, et al., 2025a).	420 to 500 m (AFMA, 2023a)	Scampi are thought to reach reproductive maturity between three to five years of age (AFMA, 2023a). About 300 to 1,200 eggs per clutch are produced by female scampi, who broods the eggs for nine to 10 months before hatching (AFMA, 2023a). Scampi typically produce 100 to 900 larvae per clutch, with larvae settling within a benthic habitat soon after hatching (AFMA, 2023a).	The timing of scampi spawning is uncertain but is thought to occur annually in September to October (AFMA, 2023a). Spawning is likely to occur within the general distribution of the species (AFMA, 2023a).	The proposed acoustic source discharge window (Section 3.7) does not overlap with scampi's likely spawning period.
Spanish mackerel (*Scomberomorus commerson*)	Spanish mackerel are a pelagic species, inhabiting the edge of the continental shelf to shallow coastal waters as well as sloping reefs (Mackie, et al., 2003). In WA, Spanish mackerel are distributed throughout waters from Geraldton northward, extending to northern New South Wales (Langstreth, et al., 2023).	The (WA) Mackerel Managed Fishery is defined as a single stock (Langstreth, et al., 2023). The latest DPIRD stock assessment for the WA Large Pelagic Fish Resource identifies the Spanish mackerel to be at medium risk of stock depletion, with the breeding stock considered to be sustainable-adequate (Smith, et al., 2025).	15 to 200 m (Newman, et al., 2012)	Spanish mackerel have high fecundity and reach reproductive maturity before the age of two years (Mackie, et al., 2004). Females spawn several times during the spawning season in aggregations, producing hundreds of thousands of eggs every two to six days (Mackie, et al., 2004). Larvae remain as plankton for less than three weeks, generally drifting southwards with the Leeuwin Current before becoming juveniles, where they inhabit estuary and foreshore nursery habitats and feeding grounds until around one years of age (Mackie, et al., 2010).	While exact spawning locations are understudied, aggregations of female Spanish mackerel are known to spawn in shallow coastal waters, typically around reef slopes and edges in the North Coast bioregion (Mackie, et al., 2004; Mackie, et al., 2010). The spawning season is variable between regions, with spawning occurring between August and November in the Kimberley region and between October and January in the Pilbara region (peaking in September to December) (Mackie, et al., 2004; Mackie, et al., 2010).	The proposed acoustic source discharge window (Section 3.7) does not overlap with the Spanish mackerel's peak spawning period within the Pilbara region (September to December).
Goldband snapper (*Pristimoides multidens*)	Goldband snapper inhabit offshore reefs and shoals, as well as areas of rocky vertical relief and flat hard-bottom surfaces (Wakefield, et al., 2024a). Goldband snappers are widely distributed throughout north WA, predominantly from Exmouth northward extending to southern Queensland (Smith, et al., 2025).	The goldband snapper population likely forms a single biological stock throughout Australia due to evidence of gene flow from goldband snapper between the Pilbara, Kimberley and Gascoyne regions, and between Northern Territory populations (Payet, et al., 2024). The latest DPIRD stock assessment for Pilbara demersal species identified the goldband snapper stock as depleting and at high risk (Wakefield, et al., 2024a).	40 to 350 m (Smith, et al., 2025)	Goldband snapper are likely to be highly fecund, serial spawners and are thought to produce up to several million eggs per season (Newman & Dunk, 2002). Goldband snapper are estimated to reach reproductive maturity at around four years of age (Wakefield, et al., 2024a). Habitats occupied by juvenile goldband snapper are not extensively documented but may occur on uniform sedimentary habitat with no relief, separate to the adult spawning biomass (Newman & Dunk, 2002).	The timing of goldband snapper spawning occurs over an eight-month period, from September to May (Smith, et al., 2025). Goldband snapper form large schools, particularly during the spawning period, occurring within habitat throughout their general range of distribution (DPIRD, 2023). The highest abundance of spawning biomass typically occurs between 80 and 120 m depth contour (Payet, et al., 2024).	The proposed acoustic source discharge window (Section 3.7) overlaps the goldband snapper's spawning period.
Red Emperor (*Lutjanus sebae*)	Red emperor are distributed throughout Australia from the Houtman Abrolhos Islands in WA, extending northwards to northern New South Wales (Smith, et al., 2025). Red emperor are widely distributed across the continental shelf in depths of up to 180 m, inhabiting rocky reefs, coral reefs lagoons, epibenthic communities, limestone sand flats and gravel patches (Wakefield, et al., 2024a; Newman, et al., 2008).	Connectivity and gene flow between populations across WA to New South Wales indicates the red emperor population throughout Australia likely forms a single biological stock (Payet, et al., 2024). The latest DPIRD stock assessment for Pilbara Demersal species identified the red emperor stock as being depleted and at severe risk (Wakefield, et al., 2024a).	10 to 180 m (Smith, et al., 2025)	Red emperor are gonochoristic broadcast spawners, with spawning occurring opportunistically over an extended spawning period (Newman, et al., 2008; Smith, et al., 2025). Juveniles typically inhabit turbid inshore mangrove and coastal and offshore reef habitats (Smith, et al., 2025). Red emperor are estimated to reach reproductive maturity at approximately five years of age (Smith, et al., 2025).	Red emperor in the Pilbara region opportunistically spawns between September and May, with peaks in spawning occurring in October and March (Smith, et al., 2025). Individuals are believed to spawn in small groups or pairs (DPIRD, 2023). There is limited data available on the spawning grounds of red emperor. For the EP, this is assumed to occur within habitat throughout their general range of distribution.	The proposed acoustic source discharge window (Section 3.7) overlaps the red emperor's extended spawning period, however, does not overlap the peaks in spawning during October and March.
Rankin cod (*Epinephalus rankini*)	Rankin cod are distributed throughout Australia in continental shelf waters, from the Houtman Abrolhos Islands in Western Australia, extending northwards to the Arafura Sea in the Northern Territory (Smith, et al., 2025). Rankin cod typically inhabit deep rocky reefs and drop-offs (Newman, et al., 2008; Bray, 2023).	There is no evidence of discrete breeding populations of Rankin cod in Western Australia, indicating there is one biological stock (Newman, et al., 2008). The latest DPIRD stock assessment for North Coast Demersal Scalefish Resource identified the (Pilbara) Rankin cod stock to be at low risk of depletion (Wakefield, et al., 2024a).	10 to 110 m (Bray, 2023)	Rankin cod are protogynous hermaphrodites (undergo female to male sex change) (Smith, et al., 2025). Female Rankin cod are estimated to reach reproductive maturity at about two years of age (Newman, et al., 2008). Juveniles typically inhabit shallow inshore reefs and are thought to move offshore to inhabit deeper waters as they mature (Newman, et al., 2008).	Rankin Cod predominantly spawn from June to December (Smith, et al., 2025). Whilst spawning locations are understudied, Rankin cods are thought to spawn individually or in small groups (Newman, et al., 2008). There is limited data available on the spawning grounds of rankin cod. For the EP, this is assumed to occur within habitat throughout their general range of distribution.	The proposed acoustic source discharge window (Section 3.7) does not overlap with the Rankin cod's spawning period (June to December).

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Species	Distribution and habitat	Biological stock range and status	Depth range	Reproduction and recruitment	Spawning season and distribution	Interaction with Petroleum Activity
Bluespotted emperor (*Lethrinus punctulatus*)	Bluespotted emperor are distributed from around the Exmouth Gulf northwards to Darwin, with the greatest abundances observed in the western Pilbara region (Smith, et al., 2025). This species inhabits the continental shelf waters and has been observed in high abundances in shelf waters adjacent to large expanses of inshore macroalgae habitats (Smith, et al., 2025) and are often associated with coral, gravel or rubble and sponge-dominated habitats (DPIRD, 2023).	There is no evidence of discrete breeding populations of bluespotted emperor in WA, indicating there is one biological stock (Smith, et al., 2025). The latest DPIRD stock assessment for Pilbara demersal species identified the bluespotted emperor stock as sustainable (Wakefield, et al., 2024a).	80 to 150 m (DPIRD, 2023)	Bluespotted emperors are highly fecund, broadcast spawners, with spawning occurring for 11 months of the year between June and April (BCI, 2025). Eggs and larvae are pelagic, with juveniles occurring exclusively in shallow inshore macroalgae habitats at depths of less than 10 m (Smith, et al., 2025). Biannual recruitment of cohorts occurs in the Dampier Archipelago corresponding to the biannual peaks in spawning (July to October, and March) (Smith, et al., 2025). Bluespotted emperor reach reproductive maturity at around 1.6 years of age (Wakefield, et al., 2024a).	Bluespotted emperors can spawn opportunistically between June and April (BCI, 2025). There are two peak spawning periods occurring from July to October, and in March, aligning with the cohort recruitment window at the Dampier Archipelago (BCI, 2025). Spawning grounds are thought to be restricted to the west Pilbara region (BCI, 2025).	The proposed acoustic source discharge window (Section 3.7) does not overlap with the blue-spotted emperor's peak spawning periods (July to October, and March) and habitat is not in the Operational Area.
Ruby snapper (*Etelis boweni*)	Ruby snapper are distributed in tropical waters of the Indo-west and Central Pacific regions (Bray, 2024). Australian populations of ruby snapper have been recorded off the south-west of WA, northwards to northeast Queensland (Bray, 2024). Ruby snapper have been observed to inhabit deepwater habitat on substrate near pinnacles, crevasses, ledges and slopes (Andrews, et al., 2021).	There are two defined biological stocks of ruby snapper. The Northen Australia stock encompasses Northern Territory and Western Australian waters to the west of the Torres Strait (Wakefield, et al., 2023). The eastern Australian stock occurs in waters from the east coast of Queensland to the south of New South Wales (Wakefield, et al., 2023). The latest DPIRD stock assessment for North Coast Demersal Scalefish Resource identified the ruby snapper stock as sustainable (Smith, et al., 2025).	200 to 400 m (Bray, 2024)	Similarly to other snapper species, ruby snapper are thought to be highly fecund serial broadcast spawners (Sumpton, et al., 2013). Ruby snapper reach reproductive maturity between four and five years of age (Wakefield, et al., 2020).	Ruby snapper (in the Indo-west region) spawn between December to April, with peak spawning occurring in January (Wakefield, et al., 2020). Spawning grounds of the ruby snapper are unknown, and are thought to occur within their general range of distribution (Wakefield, et al., 2020).	The proposed acoustic source discharge window (Section 3.7) overlaps the ruby snapper's peak spawning period (January).
Crystal crab (*Chaceon albus)*	Crystal crab are endemic to WA, distributed from North West Cape to Esperance in deepwater sand, mud and shell habitats (Department of Fisheries, 2020).	The biological stock range of the crystal crab is not currently well understood, with the entire West Australian coast currently defined as a single biological stock (de Lestang, 2023). Majority of catch occurs within a relatively small geographic area (between latitudes 26° and 27°) (Tuffley & de Lestang, 2025). The latest DPIRD stock assessment for the West Coast Deep Sea Crustacean Resource identified crystal crab stocks to be sustainable (Tuffley & de Lestang, 2025).	300 to 1,450 m (Department of Fisheries, 2020)	Preliminary tagging studies indicate reproductive maturity in male crystal crabs occurs at 12 years of age (Department of Fisheries, 2020).	Evidence suggests that crystal crabs are able to spawn year-round (Melville-Smith, et al., 2007).	Given the known distribution, the species is not considered likely to occur or spawn in the Operational Area. However, fishing effort has been reported in the 60 NM block (Table 4-24).
Broadbill Swordfish (Xiphias gladius)	Broadbill swordfish is a migratory pelagic species, found throughout the Atlantic, Indian and Pacific Oceans. They are primarily a warm-water species that moves into cooler, temperate waters for feeding during the Australian summer months and returns to warmer tropical waters for spawning and over-wintering (AFMA, 2025c).	Broadbill Swordfish in the Indian Ocean is currently considered to be a single biological stock (Patterson, et al., 2025b). The stock is considered not subject to overfishing and has not been overfished based on most recent estimates (Patterson, et al., 2025b).	0 to 500 m (AFMA, 2025c)	Broadbill swordfish have a lifespan up to about 7 years and reach reproductive maturity at 5-6 years old (AFMA, 2025c). Females are serial spawners and release eggs up to 90 times at intervals of about 2.5 days during the spawning season. Females produce 1.2-2.5 million eggs per spawning event depending on their body size (AFMA, 2025c).	Spawning appears to occur throughout the year in tropical waters, restricted to spring and summer at higher latitudes (AFMA, 2025c). Spawning typically occurs in nearshore areas with a temperature of 24°C or more (Nakamura, 1985).	The proposed acoustic source discharge window (Section 3.7) overlaps the broadbill swordfish spawning period (which may occur all year round).
Albacore Tuna (Thunnus alalunga)	Albacore tuna is a migratory pelagic species, which occur throughout the Pacific and Indian Oceans. Adults make a spawning migration toward more tropical waters during the spring and summer months (October to March, in the southern hemisphere) (AFMA, 2025d). Albacore tuna tend to school by size, as well as with other tuna species. Juveniles tend to school in shallower waters than adults (AFMA, 2025d).	Albacore tuna in the Indian Ocean is currently considered to be a single biological stock (Patterson, et al., 2025b). The stock is considered not subject to overfishing and has not been overfished based on most recent estimates (Patterson, et al., 2025b).	0 to 200 m (AFMA, 2025d)	Albacore tuna have a lifespan up to about 7 years. Most albacore tuna reach reproductive maturity at 5-7 years of age (AFMA, 2025d). Eggs are released in at least two batches. Females produce 2-3 million eggs per season depending on their body size (AFMA, 2025d).	Spawning typically occurs in small aggregations during the spring and summer, however there is evidence spawning may occur all year round (Buenafe, et al., 2025)The peak spawning period in the southern hemisphere occurs in spring and summer (AFMA, 2025d; Buenafe, et al., 2025).	The proposed acoustic source discharge window (Section 3.7) overlaps the albacore tuna spawning period (which may occur all year round).

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Species	Distribution and habitat	Biological stock range and status	Depth range	Reproduction and recruitment	Spawning season and distribution	Interaction with Petroleum Activity
Yellowfin Tuna *(Thunnus albacares)*	Yellowfin tuna is a migratory pelagic species, found throughout the Pacific, Atlantic and Indian Oceans. Yellowfin tuna tend to school by size, as well as with other tuna species. Juveniles form schools with skipjack tuna and juvenile bigeye tuna in shallow waters (AFMA, 2025e).Larger adults are found in deeper water (Schultz & Bray, 2022).	Yellowfin tuna in the Indian Ocean is currently considered to be a single biological stock (Patterson, et al., 2025b). The stock is considered not subject to overfishing and has not been overfished based on most recent estimates (Patterson, et al., 2025b).	0 to 250 m (AFMA, 2025e)	Yellowfin tuna have a lifespan up to about 7 years. Most yellowfin tuna reach reproductive maturity at two years of age (AFMA, 2025e). In tropical waters females spawn almost daily, almost entirely at night. Females can produce over 0.2-8 million eggs per spawning event depending on their body size (AFMA, 2025e).	Spawning occurs throughout the year in tropical waters and seasonally in subtropical waters. The peak spawning period in the southern hemisphere occurs in summer (AFMA, 2025e; Buenafe, et al., 2025).	The proposed acoustic source discharge window (Section 3.7) overlaps the yellowfin tuna's spawning period (which may occur all year round).
Bigeye Tuna *(Thunnus obesus)*	Bigeye tuna is a migratory pelagic species which occur in the tropical waters of the Pacific, Atlantic and Indian Oceans. Juveniles and sub-adults usually school at or near the surface with other tuna species (AFMA, 2025f). Larger adults are found in deeper water (Bray & Schultz, 2026).	Bigeye tuna in the Indian Ocean is currently considered to be a single biological stock (Patterson, et al., 2025b). The Indian Ocean bigeye tuna stock of Australia is subject to overfishing (based on most recent fishing mortality estimates), however has not been overfished based on most recent estimates (Patterson, et al., 2025b).	0 to 250 m (AFMA, 2025f)	Bigeye tuna have a lifespan up to about 11 years. Most bigeye tuna reach reproductive maturity at about two years of age (AFMA, 2025f). Females may spawn every two to three days during the spawning season, which primarily occurs at night. Females produce 2.9-6.3 million eggs per spawning event (AFMA, 2025f).	Spawning occurs throughout the year in tropical waters, although the majority of spawning appears to occur in the eastern Pacific Ocean. Peak spawning periods in the southern hemisphere are between summer and autumn (AFMA, 2025f; Buenafe, et al., 2025).	The proposed acoustic source discharge window (Section 3.7) overlaps the bigeye tuna's spawning period (which may occur all year round).
Southern bluefin tuna (*Thunnus maccoyii*)	Southern bluefin tuna is a migratory pelagic species occurring throughout the Atlantic, Pacific and Indian oceans (Patterson, et al., 2025b). Southern bluefin tuna migrate southwards down the coast of Western Australia from their spawning ground (in the north-east Indian Ocean) after spawning occurs (AFMA, 2025b). From December to April, southern bluefin tuna congregate near the surface in the coastal waters off the southern coast of Australia to the Great Australian Bight, and travel to deep, temperate oceanic waters in winter months (Patterson, et al., 2018).	The global population of southern bluefin tuna in waters between 30°S and 50°S is considered to be one biological stock (Grewe, et al., 1997). The stock is considered not subject to overfishing and has not been overfished based on most recent estimates (Patterson, et al., 2025b).	0 to 500 m (AFMA, 2025b)	Southern bluefin tuna reach reproductive maturity between 11 and 12 years of age (AFMA, 2025b). During spawning, females spawn daily, producing between 14 million and 15 million eggs (AFMA, 2025b). It is unknown if mature fish spawn annually, every few years or once in their lifetime (AFMA, 2025b).	Southern bluefin tuna exclusively spawn in the north-east Indian Ocean, south of Java and around Christmas Island and the Cocos Islands (Patterson, et al., 2025b). The spawning ground extends southward into the Exclusive Economic Zone (Patterson, et al., 2025b). Adults migrate to the spawning grounds between September and April to spawn (Farley, et al., 2007). Southern bluefin tuna are not known to spawn over this entire area, and spawning is not synchronised for the stock as a whole, with a high turnover of individuals arriving and departing spawning grounds throughout the spawning season (Farley, 1998).	The proposed acoustic source discharge window (Section 3.7) overlaps the southern bluefin tuna's spawning period (September to April).
Skipjack tuna (*Katsuwonus pelamis*)	Skipjack tuna is a migratory, pelagic species that occurs throughout tropical waters of the Pacific, Atlantic and Indian oceans (AFMA, 2023b).	Skipjack tuna on the west coast of Australia are part of a larger stock in the Indian Ocean, managed under the Indian Ocean Tuna Commission, and is currently considered to be a single biological stock (Patterson, et al., 2025b). No Australian vessels were active in 2024. The stock is considered not subject to overfishing and has not been overfished based on most recent estimates (Patterson, et al., 2025b).	0 to 260 m (AFMA, 2023b)	Reproductive maturity in female skipjack tuna occurs between one and two years of age (AFMA, 2023b). Skipjack tuna are highly fecund, broadcast spawners (Grande, et al., 2014). Spawning females in tropical waters can spawn almost daily, producing between 800,000 to two million eggs per spawning season (AFMA, 2023b).	Specific spawning locations are unknown; however, skipjack tuna are generally known to spawn in tropical waters of the Indian Ocean throughout the whole year, and have been observed spawning off the NWS (AFMA, 2023b). Periods of more intensive spawning have been observed in the western Indian Ocean during the north-east monsoon (November to March) and the south-west monsoon seasons (June to July) (Grande, et al., 2014).	The proposed acoustic source discharge window (Section 3.7) overlaps the skipjack tuna's spawning period (which may occur all year round).

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Species	Distribution and habitat	Biological stock range and status	Depth range	Reproduction and recruitment	Spawning season and distribution	Interaction with Petroleum Activity
Striped marlin (*Kajikia audax*)	Striped marlin are a highly migratory pelagic species, occurring in tropical to temperate waters of the Pacific and Indian oceans (AFMA, 2025a). They are not typically observed in coastal waters, except for where sharp drop-offs occur into deeper waters (AFMA, 2025a). In Western Australia, the species is most densely distributed off northwestern Australia (Nakamura, 1985).	Striped marlin in the Indian Ocean is currently considered to be a single biological stock (Patterson, et al., 2025b). The latest stock assessment for the Western Tuna and Billfish Fishery identified striped marlin stocks to be subject to overfishing and as overfished stock (Patterson, et al., 2025b).	0 to 289 m (AFMA, 2025a)	Striped marlin are highly fecund broadcast spawners, releasing up to 120 million eggs per spawning season, with females releasing eggs every few days between four and 41 times throughout the spawning season (AFMA, 2025a). Striped marlin reach reproductive maturity between the ages of two and three (AFMA, 2025a).	Known spawning locations and timing are poorly understood for the species in the Indian Ocean (Mamoozadeh, et al., 2020); however, they are thought to spawn between 10°S and 20°S in northeastern Indian Ocean during summer months (Nakamura, 1985). Spawning occurs in small groups (AFMA, 2025a). Larvae have been reported to occur in the Banda and Timor seas in January and February, and in the eastern Indian Ocean (between 6°N and 6°S) in October and November (Nakamura, 1985). Given this, striped marlin may spawn off the NWS between October and February; however, it is not likely a significant spawning ground.	The proposed acoustic source discharge window (Section 3.7) overlaps the striped marlin's likely spawning period (which may occur between October and February).

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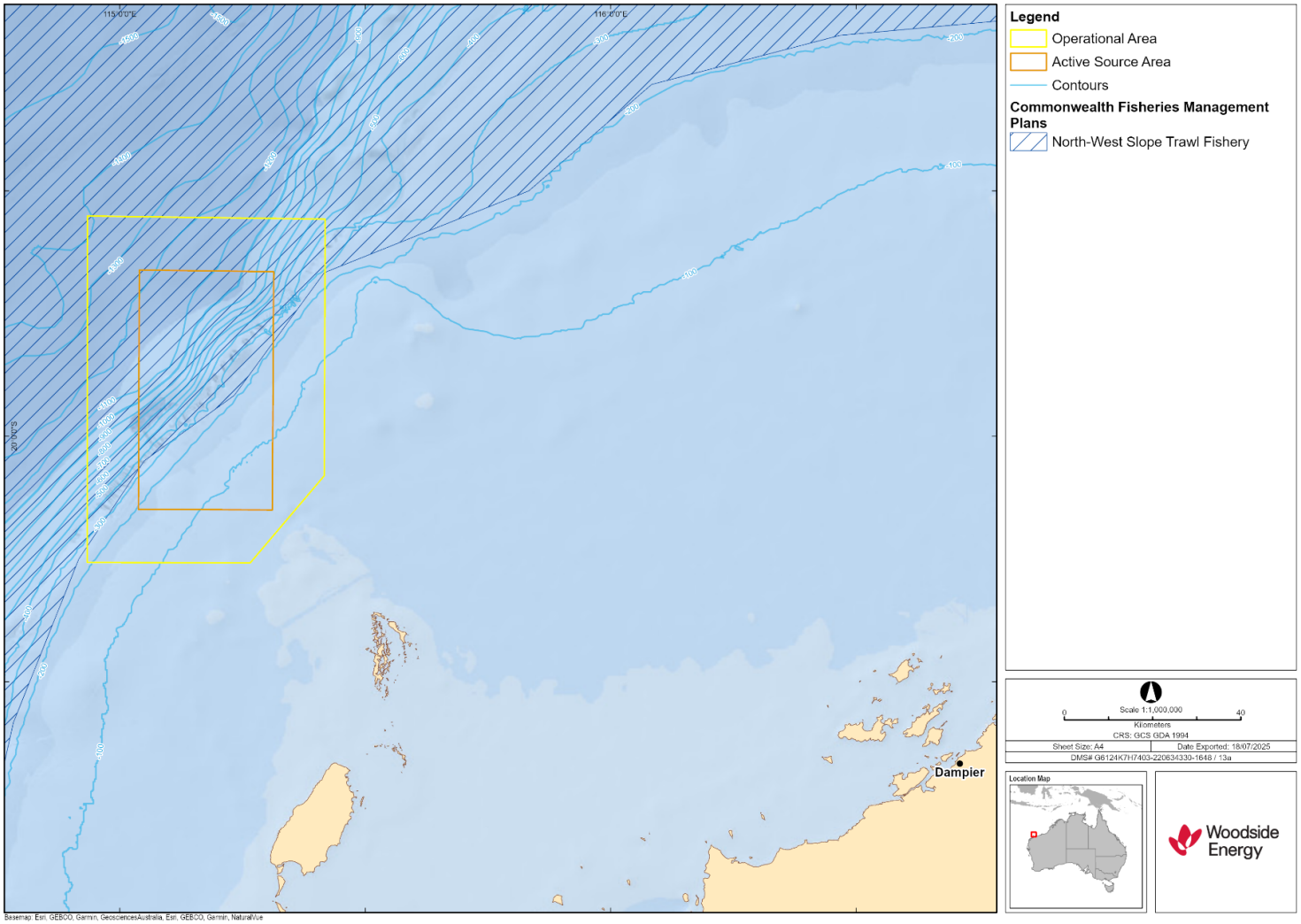


Figure 4-13: Commonwealth-managed fisheries with the potential for interaction within the Operational Area

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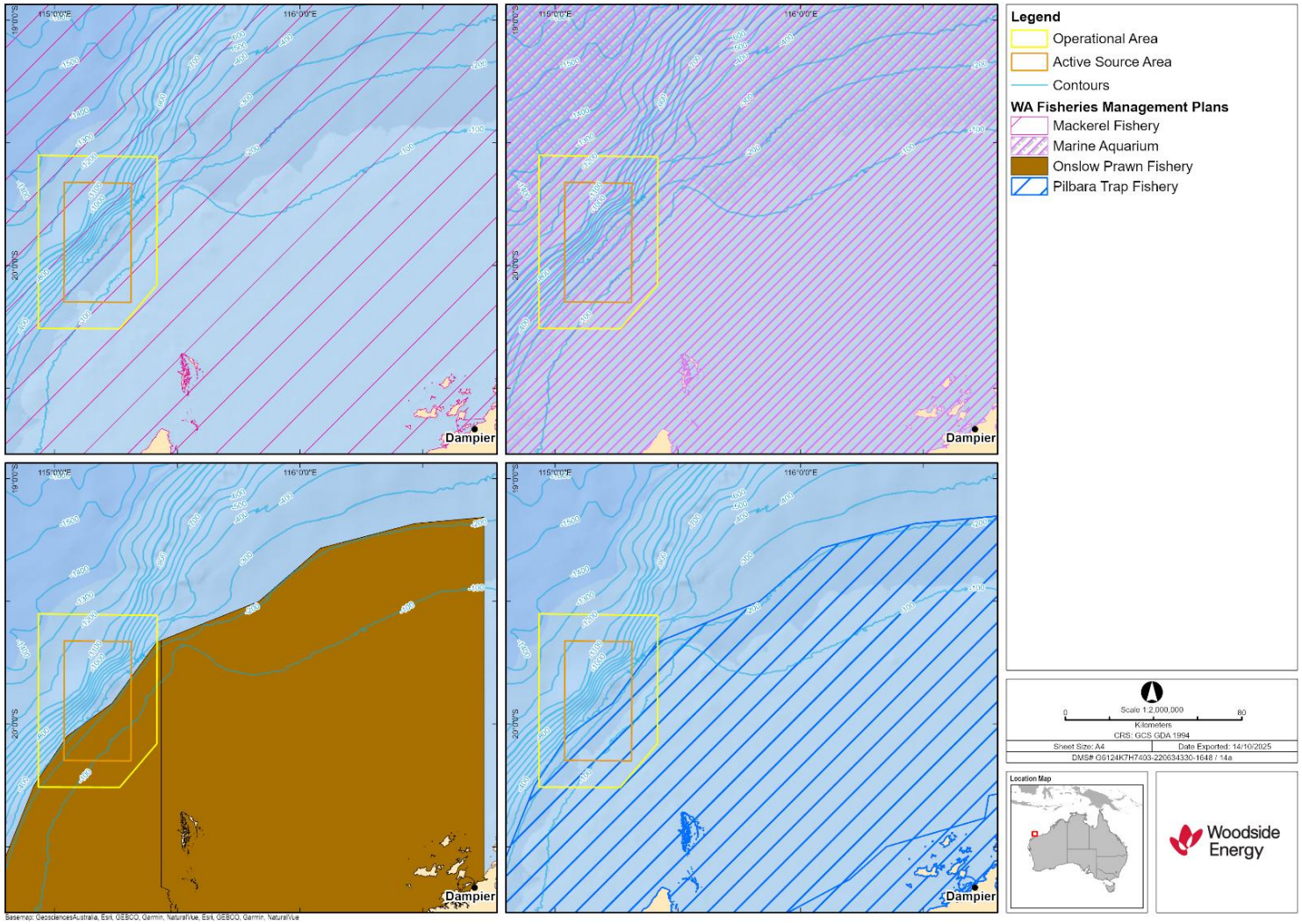


Figure 4-14: State-managed fisheries with the potential for interaction within the Operational Area

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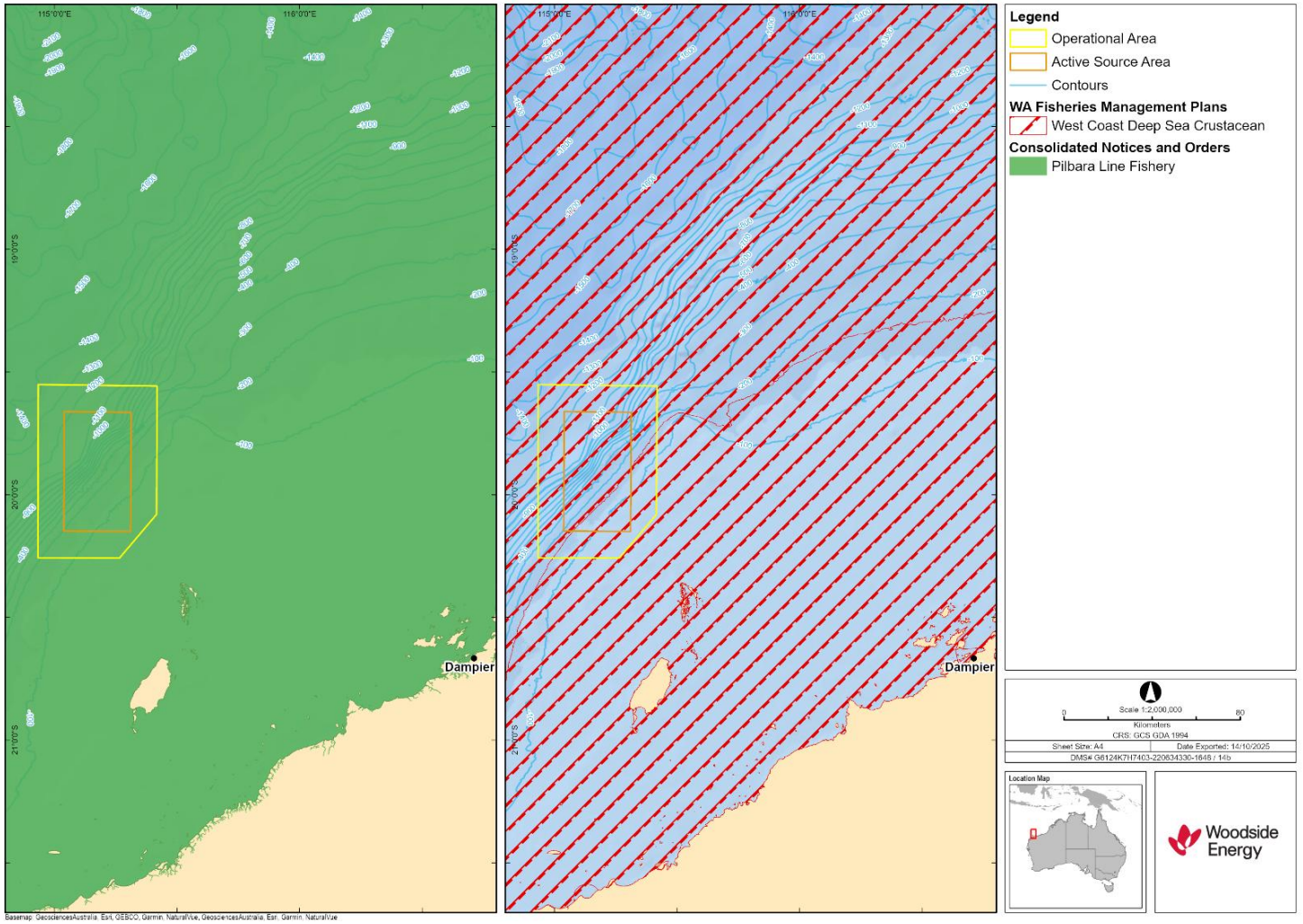


Figure 4-15: State-managed fisheries with the potential for interaction within the Operational Area

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4.9.3 Traditional and customary fishing

Traditional or customary fishing is typically carried out in shallow coastal waters or areas with structures such as reef. The WA Recreational Fishing Guide (DPIRD, 2024) states that First Nations people do not need a recreational fishing licence, in any waters, if it is in accordance with continuing tradition, for individual or familial consumption, and not for a commercial purpose.

There are no traditional or customary fisheries within the Operational Area. However, it is recognised Barrow Island and Montebello Islands, both within the EMBA, have a history of fishing when areas were occupied (as from historical records) (Department of Environment Conservation, 2007). Areas that are covered by registered Native Title claims are likely to practice Aboriginal fishing techniques at sections of the WA coastline.

Traditional fishing methods in the NWMR are further described in Woodside's Master Existing Environment (refer to Section 2.2.3).

4.9.4 Tourism and recreation

The Operational Area is considered too far offshore for significant recreational fishing or tourism activities to occur. While FishCube data (2019 to 2024) indicates tour operators have been recorded in the Operational Area, based on the location and prevailing weather conditions, their presence during the survey period is expected to be minimal.

The nearest tourism areas include the Montebello Islands (28 km south-east of the Operational Area at the closest point), where fishing, surfing, snorkelling and diving activities may occur year-round. Some charter boat operators also take visitors to these islands (Department of Environment Conservation, 2007). Additionally, recreational fishing and boat charter tours also occur at Tryal rocks (10 km south of the Operational Area), which is the site of two coral reefs close together, about 2 km long and located 14 km north-west of the Montebello Islands (Department of Environment Conservation, 2007). Recreational fishing in the Pilbara and Gascoyne regions is mainly concentrated around the coastal waters and islands. It has grown considerably with the expanding regional centres, seasonal tourism and increasing residential and fly in/fly out workforce, particularly in the Pilbara region (Fletcher, et al., 2017).Occasional recreational fishing occurs at Rankin Bank, about 18 km east of the Operational Area.

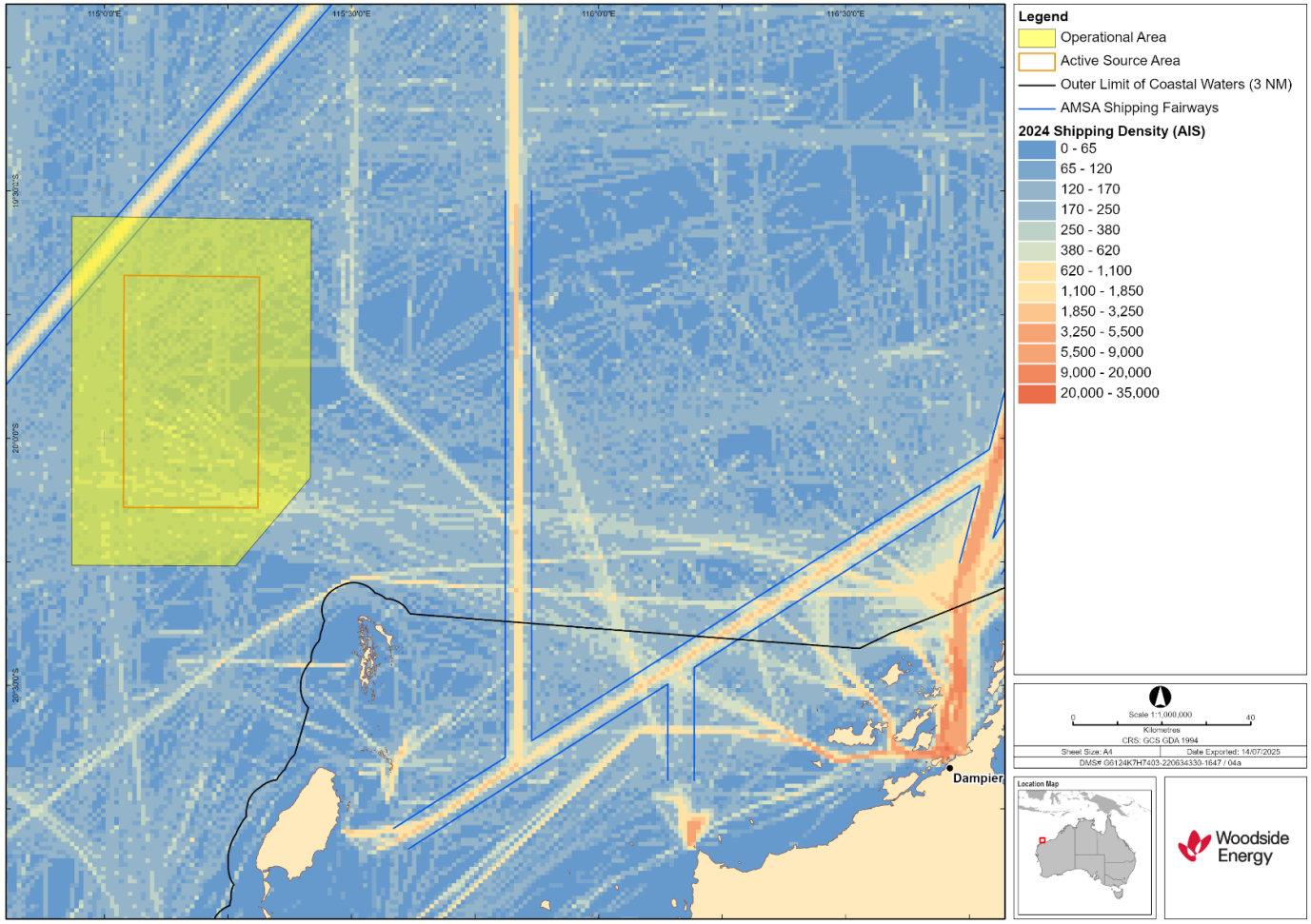
Potential for growth and further expansion in tourism and recreational activities in the Pilbara and Gascoyne regions is recognised, particularly with the development of regional centres and a workforce associated with the resources sector (Gascoyne Development Commission, 2012). Due to the distance from access nodes, such as Dampier and Onslow (about 150 km south-east and 190 km south-west from the Operational Area at the closest point respectively), recreational fishing effort is expected to be restricted to relatively large vessels and hence interactions are considered unlikely.

Tourism and recreation in the context of the wider NWMR is further described in Woodside's Master Existing Environment (refer to Section 2.2.3).

4.9.5 Commercial shipping

The Australian Maritime Safety Authority (AMSA) has introduced a network of marine fairways across the NWMR to reduce the risk of vessel collisions with offshore infrastructure. None of these intersect with the ASA; the nearest fairway intersects the north-west corner of the Operational Area (Figure 4-16). Vessel tracking data suggest shipping is concentrated within or close to the fairway in the north-west of the Operational Area and is mostly associated with international vessel movements between Australia and Asia. The nearest port to the Operational Area is Dampier, located about 150 km to the southeast.

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Data derived from AMSA satellite tracking system data (vessels include cargo, liquefied natural gas (LNG) tanker, passenger vessels, support vessels, and others/unnamed vessels)

Figure 4-16: Vessel density map for the Operational Area

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4.9.6 Oil and gas facilities, infrastructure and other industries

The Operational Area is situated within a region of established oil and gas operations, with additional infrastructure in the broader NWS region. Table 4-26 details other facilities and assets overlapping the Operational Area. Figure 4-17 shows other oil and gas infrastructure within the vicinity of the Operational Area. The Petroleum Activity is not required to enter the 500 m petroleum safety zones (PSZs) that are established around the Wheatstone and Pluto platforms. PSZs are also around infrastructure, as detailed in

Table 4-27.

Woodside's Master Existing Environment (refer to Section 2.2.3) describes current oil and gas development within the NWMR.

The Operational Area overlaps other title licence areas, which are included in Table 3-1, Section 3.1. Access is subject to Access Authority and Special Prospecting Authority.

Table 4-26: Other oil and gas facilities and infrastructure overlapping the Operational Area

Facility or asset	Operator
Wheatstone platform	Chevron
Wheatstone trunkline (live)	
Jansz-Io pipeline (live)	
Pluto platform	Woodside
Pluto pipeline (live)	
Scarborough trunkline (live)	

Table 4-27: Petroleum safety zones around other infrastructure overlapping the Operational Area

Infrastructure	Distance (m)
Julimar East – 1	500
WST-1 production manifold and wells	500
WST-2 production manifold and wells	500
WST-3 production manifold and wells	500
IAG-1 production manifold and wells	500
IAG-2 production manifold and wells	500
JUB1A production well	500
JUB1B production well	500
JULB manifold	500
Brunello production and crossover manifolds and production wells	250
JULA manifold	250

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4.9.6.1 Historical seismic surveys

Historical seismic surveys in the vicinity of the Operational Area are described in Table 3-1.

Table 4-28: Historical seismic surveys in the last 15 years with the potential to interact with the Operational Area

Title	Survey Start	Duration	Operator	Distance to Operational Area
Wheatstone MAZ 3D	16/11/2011	146 days	Chevron Australia Pty Ltd	Overlaps
Harmony 3D MSS 2013	24/03/2013	57 days	Apache Julimar Pty Ltd	Overlaps
Aperio 3D	12/04/2013	42 days	Chevron Australia Pty Ltd	Overlaps
Davros MC 3D MSS 2015	03/03/2015	103 days	CCG Services Australia Pty Ltd	Overlaps
Pluto 4D Monitor 2015	27/11/2015	70 days	Woodside Burrup Pty Ltd	Overlaps
Pluto 4D M2 2020	5/01/2020	31 days	Woodside Burrup Pty Ltd	Overlaps
Harmony 4D M1 2020	12/02/2020	21 days	Woodside Energy Julimar Pty Ltd	Overlaps

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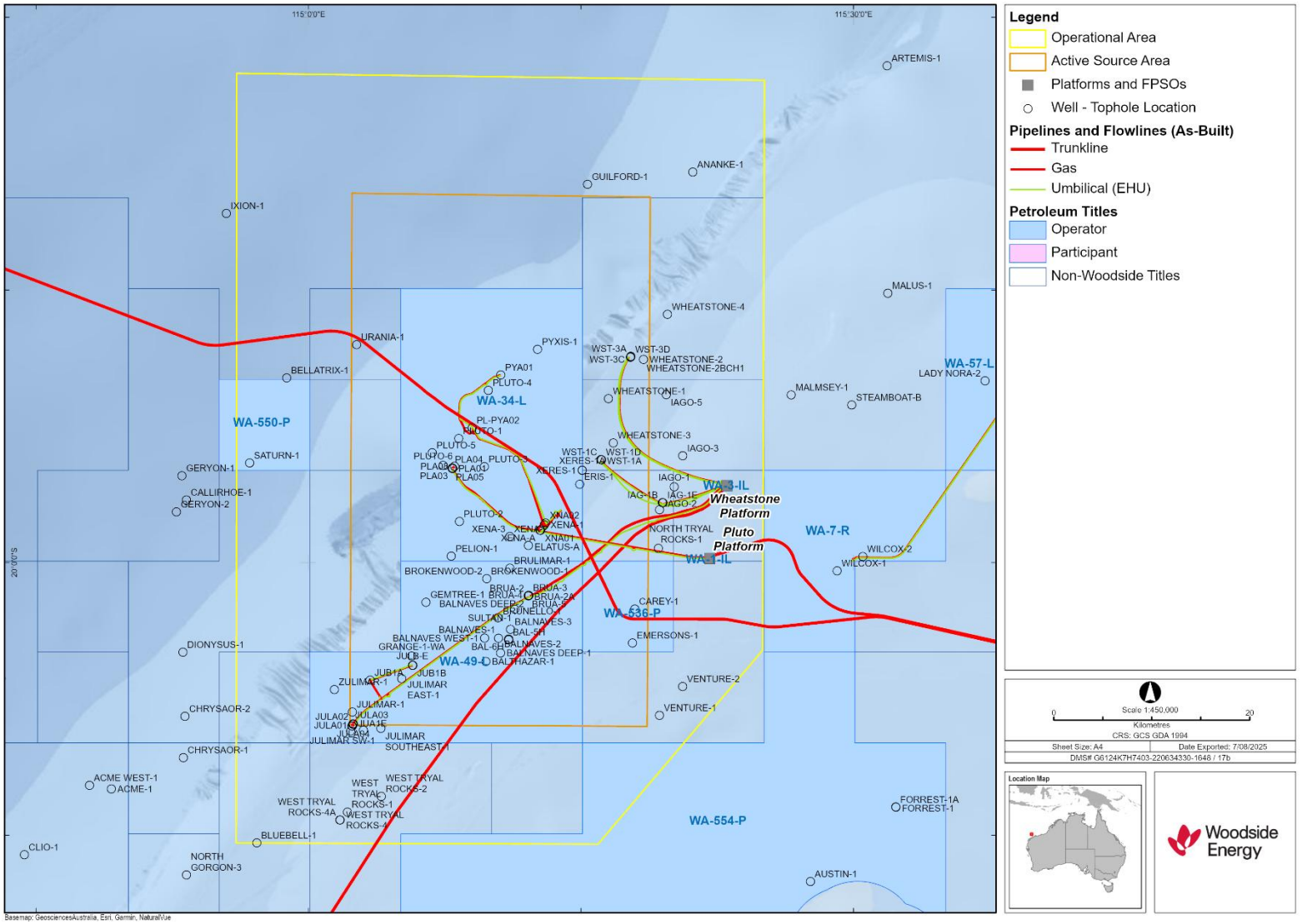


Figure 4-17: Oil and gas infrastructure within the Operational Area

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4.9.7 Submarine communication infrastructure

The Petroleum Activity is in a region with submarine communications infrastructure. The Operational Area overlaps the Scarborough Fibre Optic Cable and the Chevron Fibre Optic Cable routes. Additional submarine communications infrastructure is present within the EMBA. The submarine communications infrastructure located within the Operational Area is presented in Figure 4-18.

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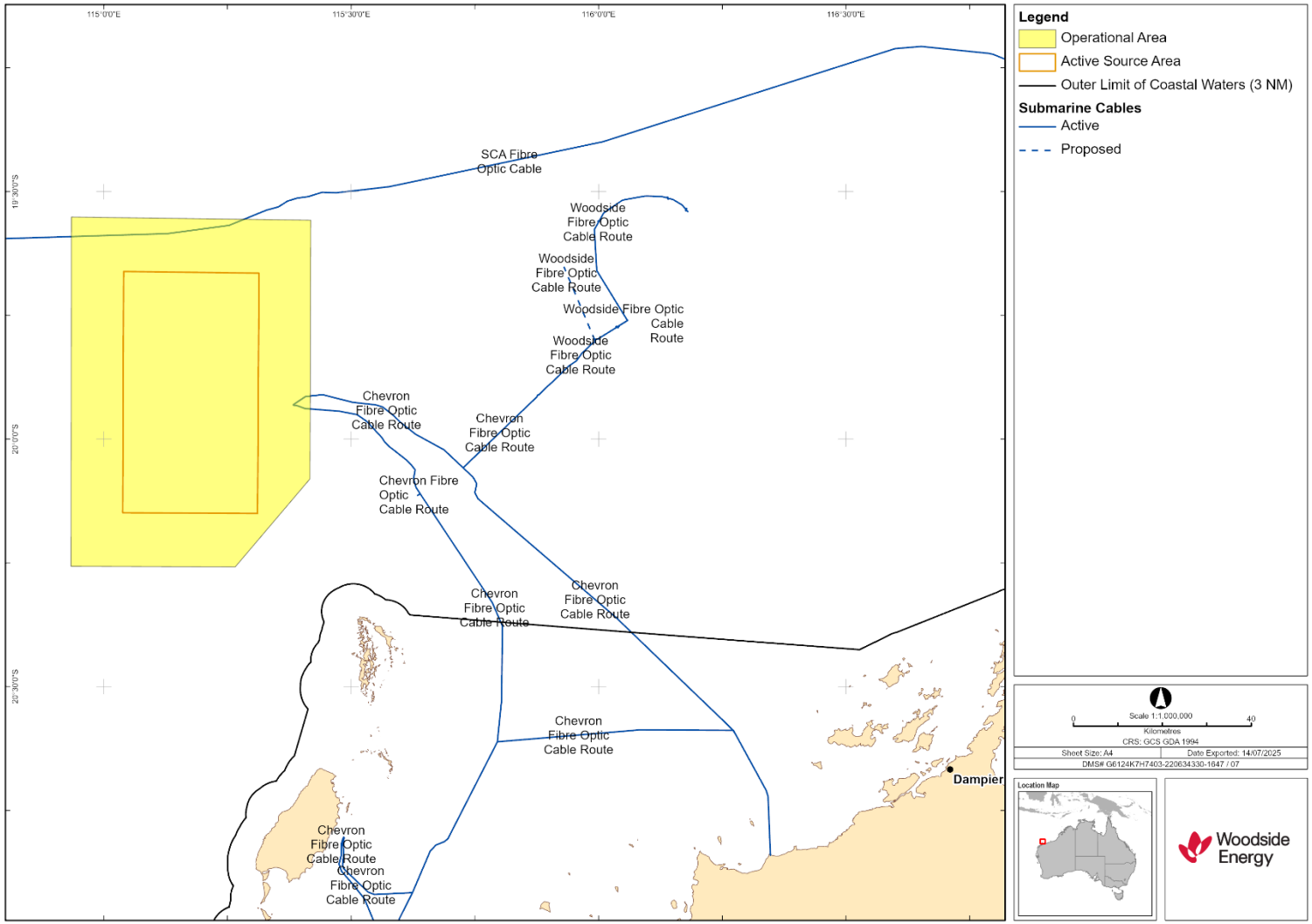


Figure 4-18: Submarine communication infrastructure within the Operational Area

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4.9.8 Defence

There are designated defence practice and training areas in the offshore marine waters off Ningaloo and the North West Cape in the EMBA. The Operational Area partially overlaps the north-western tip of one of these defence training areas, the North West Exercise Area accessed by Royal Australian Air Force Base Learmonth. Additionally, the EMBA overlaps the Learmonth Air Weapons Range practice area. The closest site where unexploded ordnance is known to occur is 20 km north-west of Bessieres Island, located outside of the EMBA. Defence areas within the Operational Area and EMBA are presented in Figure 4-19.

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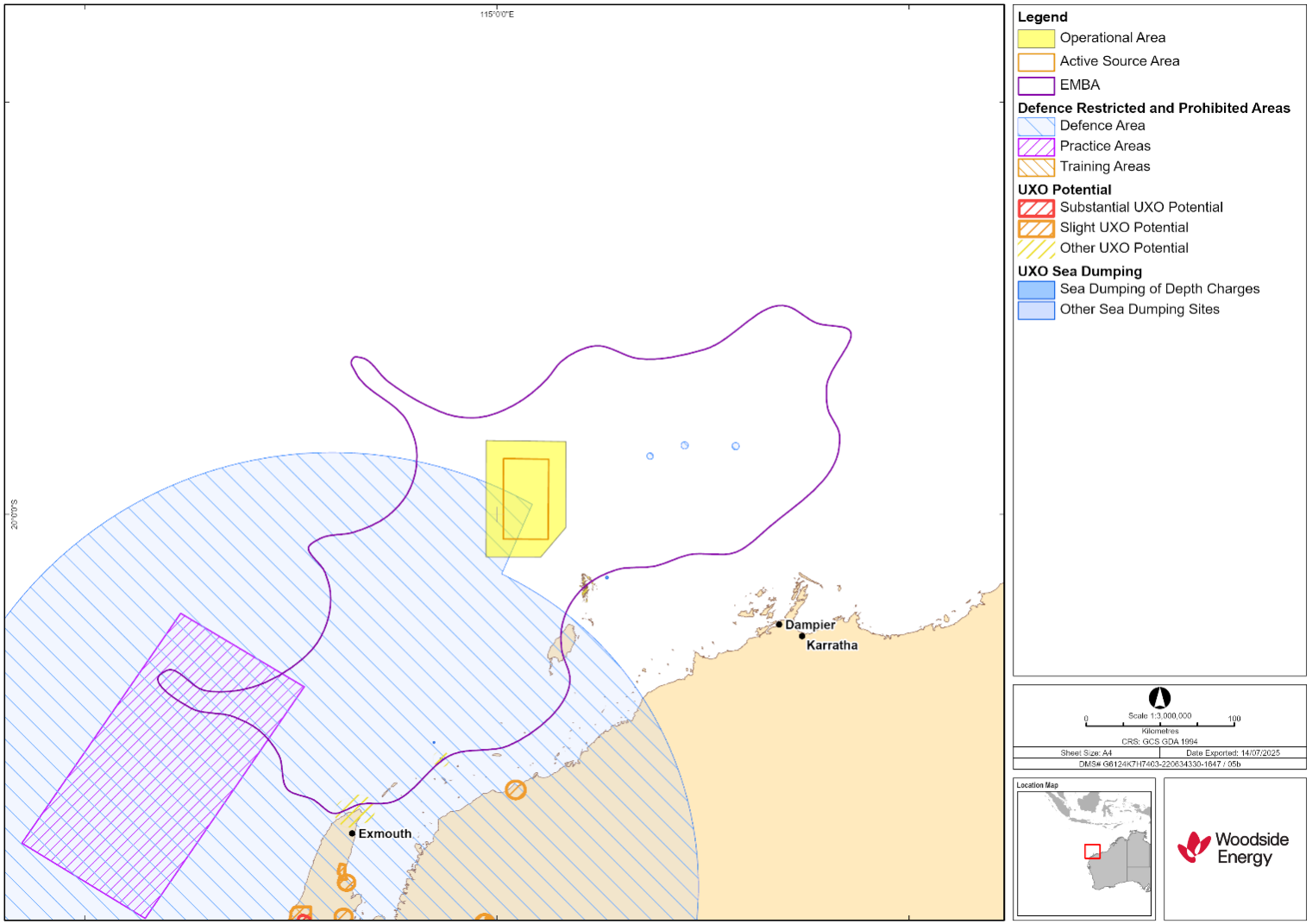


Figure 4-19: Defence areas in the Operational Area and EMBA

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5. STAKEHOLDER CONSULTATION

5.1 Summary

Woodside consults relevant persons when preparing an EP, in accordance with Regulation 25. (In this section, references to 'regulations' are to the Environment Regulations, unless otherwise stated).

The consultation process is designed to identify relevant persons and provide them with sufficient information, and a reasonable period, to allow them to make an informed assessment of the possible consequences of the proposed activity on their functions, interests or activities. This enables Woodside to assess the merits of objections or claims about the adverse impact of each activity to which the EP relates, as received from relevant persons, and for Woodside to adopt appropriate measures (if any) in response to those objections or claims, so the activity is carried out in a manner by which the environmental impacts and risks will be reduced to ALARP and will be of an acceptable level.

Consultation is informed by both the Environment Regulations and the findings of relevant Courts, including the Federal Court of Australia – Full Court (FCAFC) in the Santos NA Barossa Pty Ltd v Tipakalippa [2022] FCAFC 193 (Tipakalippa Appeal) (see Sections 5.2 and 5.5.1) and Munkara v Santos NA Barossa Pty Ltd (No 3) [2024] FCA 9 (Munkara Case).

For this EP, Woodside has considered both the Operational Area and the broader EMBA in undertaking consultation (see further discussion in Section 5.2). The broadest extent of the EMBA has been determined by reference to the highly unlikely event of a hydrocarbon release resulting from activities in the Operational Area (see Section 4).

Woodside's consultation methodology is divided into two parts:

- The first section (Sections 5.2 to 5.5) provides an overview of Woodside's consultation methodology for its EPs, including how we apply Regulation 25(1) to identify relevant persons.
- The second section (Sections 5.6 to 5.7) details Woodside's approach to accepting feedback and assessing the merits of each objection or claim about the adverse impact of each activity to which the EP relates, and engaging in ongoing consultation for this EP.

Woodside's consultation record is in Appendix F and includes a summary of the:

- assessment and identification of relevant persons
- consultation information provided to relevant persons, feedback received, Woodside's assessment of the merits of objections or claims, and Woodside's response to relevant persons and other stakeholders Woodside chose to consult
- engagement with persons or organisations Woodside chose to contact who are 'not relevant' persons for the purposes of Regulation 25(1) (see Section 5.3.4)
- opportunities provided to persons or organisations to participate in consultation.

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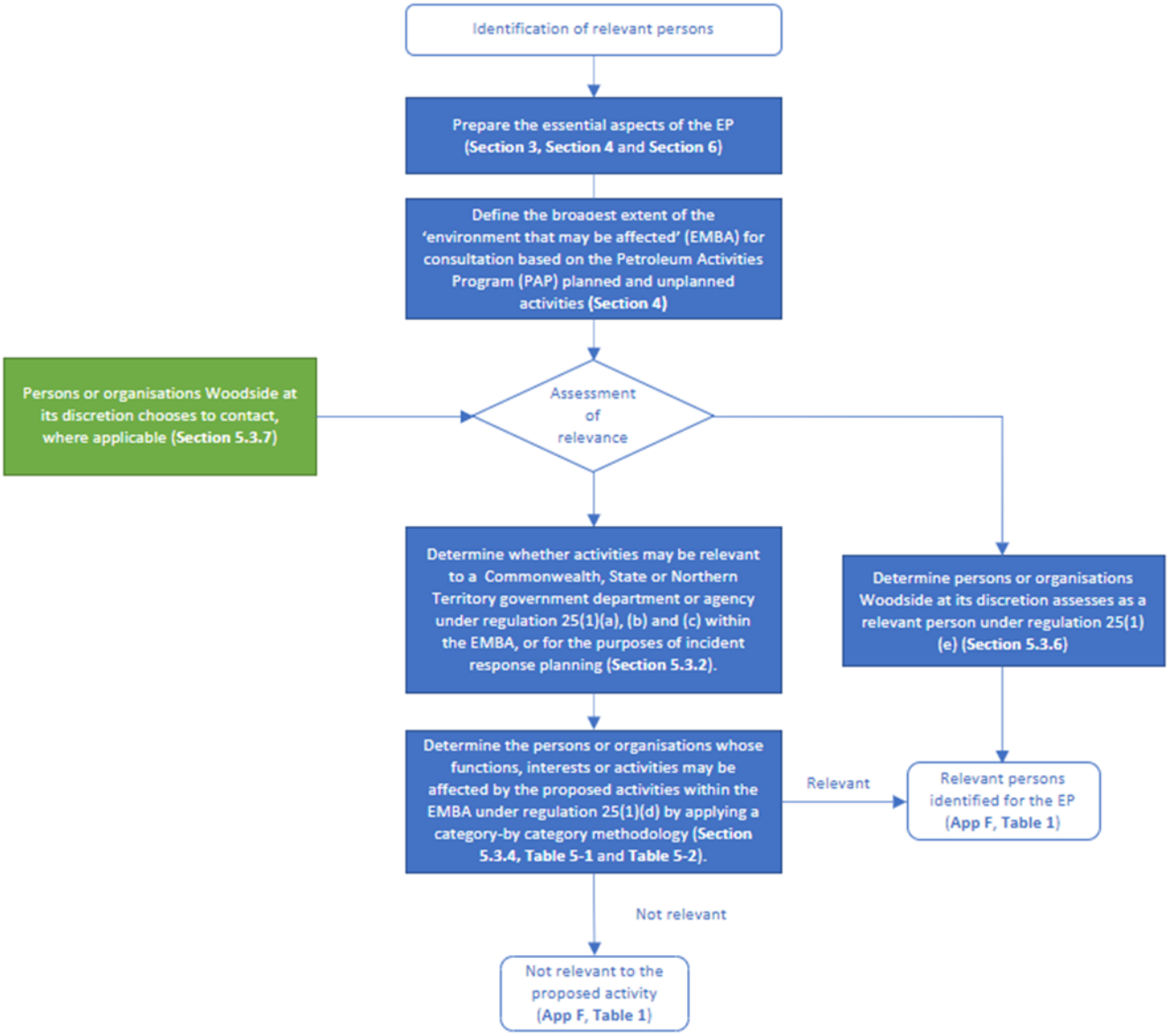


Figure 5-1: Overview of Woodside's methodology to identify relevant persons

5.2 Consultation – general context

Woodside has a portfolio of quality oil and gas assets and more than 40 years of operating experience. We have a strong history of working with local communities, the relevant regulators and a broad range of persons and organisations, to better understand the potential risks and impacts associated with our proposed activities and to develop appropriate measures to manage them.

The length of time we have operated in Commonwealth and State waters, and the history of continued engagement with a wide range of persons and organisations, enables Woodside to develop an extensive consultation list to inform its consultation process. This consultation list is not used as a definitive list of persons to consult but, rather, assists Woodside as an input to its understanding of relevant persons with whom to consult on a Petroleum 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.

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Woodside acknowledges NOPSEMA's GL2086 – Consultation in the course of preparing an environment plan guideline (May 2023) as well as judicial guidance in the Tipakalippa Appeal on the intent of consultation:

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 the titleholder has ascertained, understood and addressed all the environmental impacts and risks that might arise from its proposed activity. Consultation facilitates this outcome because it gives the titleholder an opportunity to receive information that it might not otherwise have received from others affected by its proposed activity. Consultation enables the titleholder to better understand how others with an objective stake in the environment in which it proposes to pursue the activity perceive those environmental impacts and risks. As the Regulations expressly contemplate, it enables the titleholder to refine or change the measures it proposes to address those impacts and risks by taking into account the information acquired through the consultations. Objectively, the scheme intends that this is likely to improve the minimisation of environmental impacts and risks from the activity.*

The Tipakalippa Appeal and Munkara Case have also been further considered in the context of specific methods for consulting First Nations' relevant persons (Section 5.5.1).

To undertake consultation, Woodside has developed a methodology for identifying relevant persons in accordance with Regulation 25(1) (Section 5.3). This methodology is consistent with NOPSEMA's Guideline and demonstrates that, to meet the requirements of Regulation 34 (criteria for EP acceptance) when preparing the EP, Woodside understands:

- our planned activities in the Operational Area, being the area in which our planned activities are proposed to occur (see Section 3.3)
- the geographical extent to which the environment may be affected by risks and impacts from our activities (unplanned) (identified in Section 4.1 and assessed in Section 6.7).

Woodside has undertaken consultation when preparing this EP in compliance with Regulation 25, which requires a titleholder to:

- consult with each of the following (a relevant person) when preparing an EP:
  - each Commonwealth, State or Northern Territory agency or authority to which the activities to be carried out under the EP may be relevant
  - if the plan relates to activities in the offshore area of a State – the department of the responsible State Minister
  - if the plan relates to activities in the Principal Northern Territory offshore area – the department of the responsible Northern Territory Minister
  - a person or organisation whose functions, interests or activities may be affected by the activities to be carried out under the EP
  - any other person or organisation the titleholder considers relevant (Regulation 25(1)).
- give each relevant person sufficient information to allow them to make an informed assessment of the possible consequences of the activity on their functions, interests or activities (Regulation 25(2))
- allow a relevant person a reasonable period for the consultation (Regulation 25(3))
- tell each relevant person that the titleholder consults with, that the relevant person may request that particular information it provides in the consultation not be published and any information subject to such a request is not to be published (Regulation 25(4)).

Further, Woodside seeks to carry out consultation in a manner that:

- is consistent with the principles of ESD set out in section 3A of the EPBC Act – see Section 2

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- is intended to reduce the environmental impacts and risks from the activity to ALARP and an acceptable level (Regulation 4)
- is intended to minimise harm to the relevant person and the environment from the proposed Petroleum Activity and to enable Woodside to consider measures that may be taken to mitigate the potential adverse environmental impacts from the Petroleum Activity
- provides opportunities for relevant persons to provide feedback throughout the life of the EP through its ongoing consultation process (refer to Section 5.7 and Section 7.9)
- is collaborative. Woodside respects that, for a relevant person, consultation is voluntary. Where the relevant person seeks to engage, Woodside engages with the relevant person with the aim of seeking genuine and meaningful two-way dialogue.

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

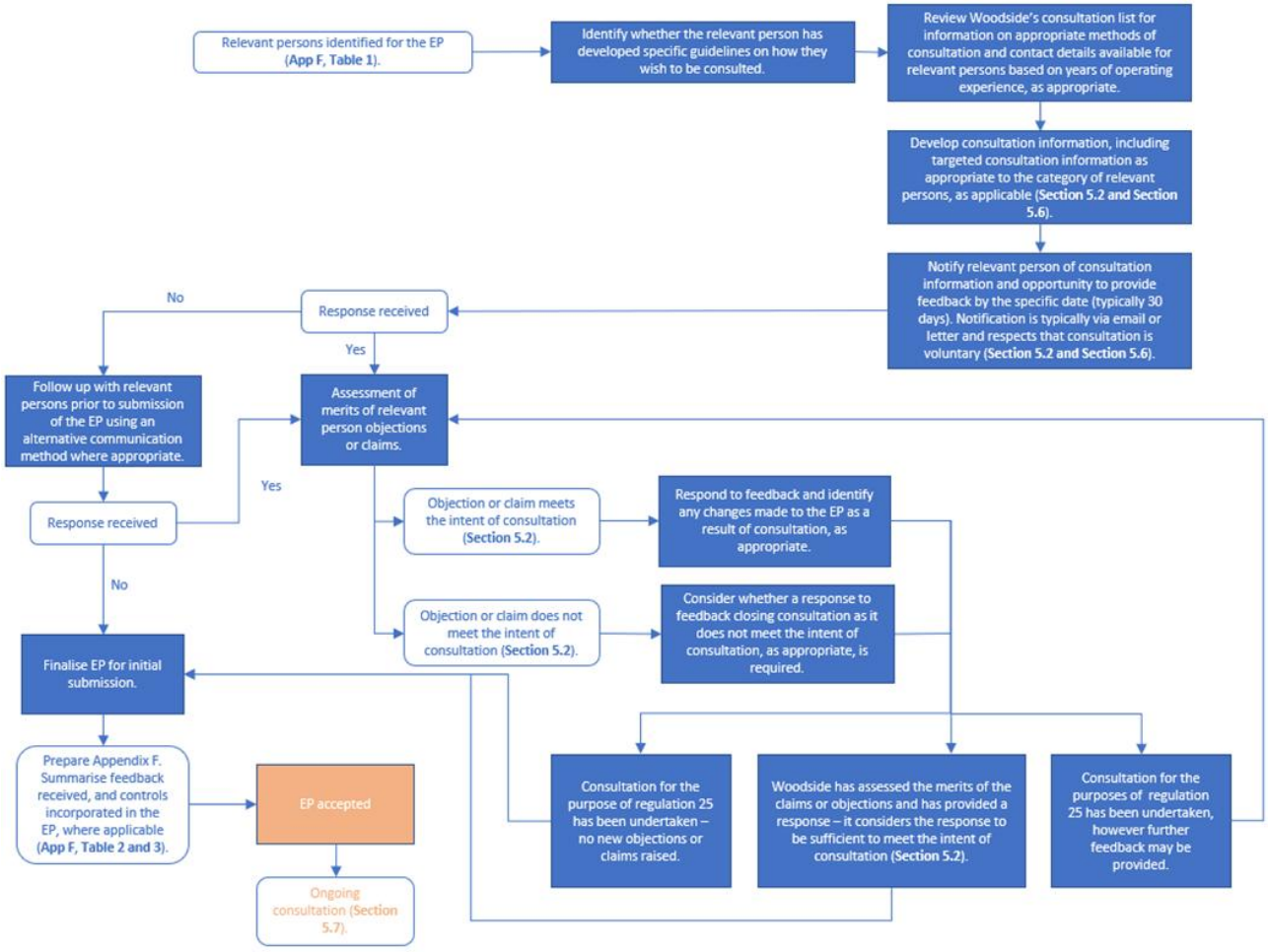


Figure 5-2: Overview of Woodside's consultation approach

The methodology for consultation for this activity has been informed by various guidelines and relevant information for consultation on planned activities, including:

Federal Court:

- Santos NA Barossa Pty Ltd v Tipakalippa [2022] FCAFC 193
- Munkara v Santos NA Barossa Pty Ltd (No 3) [2024] FCA 9

NOPSEMA:

- GL2086 – Consultation in the course of preparing an environment plan – May 2024
- GN1847 – Responding to public comment on environment plans – January 2024

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- GN1344 – Environment plan content requirements – September 2020
- GL1721 – Environment Plan decision making – January 2024
- GN1488 – Oil pollution risk management – July 2021
- GN1785 – Petroleum activities and Australian Marine Parks – January 2024
- GL 1887 – Consultation with Commonwealth agencies with responsibilities in the marine area – August 2024
- PL9028 Managing gender-restricted information – December 2023
- Consultation on offshore petroleum environment plans – Information for the community

Department of Mines, Petroleum and Exploration (DMPE):

- Guideline for the development of Petroleum, Geothermal and Pipeline Environment Plans in Western Australia (November 2024)
- Guideline – Decommissioning of petroleum and geothermal energy property, equipment and infrastructure in Western Australian onshore areas and State coastal waters (March 2024)

DCCEEW:

- Sea Countries of the North-West; Literature review on Indigenous connection to and uses of the North-West Marine Region

Australian Fisheries Management Authority (AFMA):

- Petroleum industry consultation with the commercial fishing industry

Commonwealth Department of Agriculture, Fisheries and Forestry:

- Fisheries and the Environment – *Offshore Petroleum and Greenhouse Gas Act 2006*
- Offshore Installations Biosecurity Guide

WA DPIRD:

- Guidance statement for oil and gas industry consultation with the Department of Fisheries

WA Department of Transport and Major Infrastructure (DTMI):

- Offshore Petroleum Industry Guidance Note

WAFIC:

- Oil and Gas Consultation Framework

Good practice consultation:

- International Association for Public Participation – Public Participation Spectrum
- Interim Engaging with First Nations People and Communities on Assessments and Approvals under the *Environment Protection and Biodiversity Act 1999*.

5.3 Identification of relevant persons for consultation

5.3.1 Regulations 25(1)(a), (b) and (c)

The question for determining relevant persons under Regulations 25(1)(a) and (b) is whether the activities to be carried out under the EP may be relevant to one of the government departments or agencies in those regulations. The government departments and agencies relevant to the EP are listed inAppendix E, Table 1. In accordance with Regulation 25(1)(b), Woodside consults with the department of the relevant State Minister.

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5.3.1.1 Identification of relevant persons under Regulations 25(1)(a), (b) and (c)

Woodside's methodology for identifying relevant persons under Regulations 25(1)(a), (b) and (c) is as follows:

Woodside considers the defined responsibilities of each department and agency to which the activities to be carried out in the EMBA under the EP may be relevant. This list of relevant departments and agencies is formulated by reference to the responsibilities of the government departments, as set out on their websites, in NOPSEMA's GL1887 – Consultation with Commonwealth agencies with responsibilities in the marine area guideline (January 2024), which describes where the department is a relevant agency under the Environment Regulations, and the experience and knowledge Woodside has gained from years of operating. This list is revised periodically; for example, to accommodate government restructures, department renaming, shifting portfolios, and to account for new agencies that might arise.

Woodside has categorised government department or agency groups as shown in Table 5-1.

Table 5-1: Relevant government departments and agencies

Government departments/agencies – marine	Agencies with legislated responsibilities for use of the marine environment
Government departments/agencies – environment	Agencies with legislated responsibilities for protecting the environment
Government departments/agencies – industry	The legislated department of the responsible Commonwealth, State or Northern Territory Minister for Industry

Woodside considers the responsibilities of the departments and agencies, determining whether those responsibilities overlap with potential risks and impacts specific to the Operational Area in the EMBA. The assessment is both activity and location based.

Woodside also considers the responsibilities of the 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 Australian Hydrographic Office (AHO) is responsible for maritime safety and Notices to Mariners. To undertake proposed activities 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 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 for planning incident response specific to the Operational Area for the unlikely event of a worst-case hydrocarbon release. Feedback received, if any, is assessed in accordance with the intended outcome of consultation.

The list of government departments and agencies assessed as relevant is set out in Appendix F, Table 1.

Feedback received, if any, is assessed in accordance with the intended outcome of consultation and summarised at Appendix F, Table 2 and Table 3 as appropriate to the relevance assessment.

Woodside does not consult with departments or agencies with interests that do not overlap with risks and impacts specific to the Operational Area or the EMBA or would not be involved in incident response planning.

5.3.2 Regulation 25(1)(d)

To identify a relevant person for the purposes of Regulation 25(1)(d), the meaning of "functions, interests or activities" needs to be understood. The phrase should be construed broadly and consistently with the objects of the Environment Regulations (Regulation 4) and the objects of the *EPBC Act* (Section 3A).

In developing its methodology for consultation, Woodside acknowledges the guidance in Table 5-2 from NOPSEMA's GL2086 – Consultation in the course of preparing an environment plan guideline (May 2023).

Table 5-2: Definitions of functions, interests and activities

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, regardless of whether the interest amounts to a legal right or is a proprietary or financial interest or relates to reputation.
Activities	Broader than the definition of 'activity' in Regulation 5 of the Environment Regulations and is likely be directed to what the relevant person is already doing.

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Woodside's methodology for determining 'relevant persons' for the purpose of Regulation 25(1)(d) includes considering:

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

5.3.2.1 Identification of relevant persons under Regulation 25(1)(d)

Relevant persons under Regulation 25(1)(d) are defined as persons or organisations whose functions, interests or activities may be affected by the activities to be carried out under the EP. In identifying relevant persons, Woodside considers:

- the planned activities to be carried out under the EP (described in Section 3)
- the EMBA by unplanned activities (identified in Section 4 and assessed in Section 6).

To identify relevant persons who fall within Regulation 25(1)(d), Woodside adopts the following methodology, then consults the relevant persons.

As a general proposition, Woodside assesses whether a person or organisation is a relevant person by considering:

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

This assessment will include applying judgement, knowledge and considering available, relevant literature.

To assist in identifying the full range of relevant persons, Woodside considers the impacts and risks associated with its proposed activities, and considers the broad categories of relevant persons who may be affected by the activities to be carried out under the EP. The broad categories are identified in Table 5-3 and the identification methodology is set out in Table 5-4.

The list of those persons or organisations assessed as relevant persons or organisations Woodside separately chose to contact is set out in Appendix F, Table 1.

Feedback received, if any, is assessed in accordance with the intended outcome of consultation and applying the categories of relevant persons methodology outlined in Table 5-4, as appropriate.

Feedback from relevant persons is summarised at Appendix F, Table 2. Feedback from persons assessed as 'not relevant' but whom Woodside chose to contact, or self-identified and Woodside assessed as 'not relevant', are summarised at Appendix F, Table 3.

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Table 5-3: Categories of relevant persons

Category	Explanation
Commercial fisheries (Commonwealth and State) and peak representative bodies	Commonwealth or State commercial fishery with a fishery management plan recognised under the Commonwealth *Fisheries Management Act 1991* and the WA *Fish Resources Management Act 1994*, which may be amended periodically. Commonwealth peak fishery representative bodies are identified by AFMA. WAFIC is the peak representative body for state fishers in WA.
Recreational marine users and peak representative bodies	Charter boat, tourism and dive operators identified by DPIRD specific to the location of the proposed activity. Representative bodies are the recognised peak organisation(s) for recreational marine users.
Titleholders and operators	Registered holder of an offshore petroleum title or GHG title under the OPGGS Act and associated regulations.
Peak industry representative bodies	Recognised peak organisation(s) for the oil and gas sector.
Traditional Custodians (individuals or groups/entity)	First Nations Australians with cultural rights and interests or cultural functions or who perform cultural activities over particular lands and waters. Where a First Nations person, group or entity self-identifies and asserts cultural rights, functions, interests or activities, they will be considered under the definition of Traditional Custodian for the purpose of this EP (as appropriate).
Nominated representative corporations	Traditional Custodians nominated as representative institutions such as Prescribed Body Corporates (PBCs). PBCs are established under the *Native Title Act 1993* (Cth) by Traditional Custodians to represent their entire Traditional Custodian group (defined broadly by reference to descents from an ancestor set who were known to be the Traditional Custodians at the time of European colonisation) and their interests, including, among other things, management and protection of cultural values.
Native Title Representative Bodies	A Representative Aboriginal/Torres Strait Islander Body is a regional organisation appointed under the *Native Title Act* with prescribed functions, set out in Part 11 of the *Native Title Act*, that relate to facilitation and assistance, certification, dispute resolution, notifications, and 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 managing marine heritage.
Local government and elected parliamentary representatives and recognised local community reference/liaison groups or organisations	Local government body formed under the *Local Government Act 1995* (WA) and elected parliamentary representatives who are responsible for representing the local community. Recognised local community reference or liaison group or organisation in relation to oil and gas matters.
Other non-government groups, organisations or individuals	Non-government organisation with public website material targeting the proposed activity. Individual who demonstrates the proposed activity could impact their interests, functions or activities.
Research institutes and local conservation groups or organisations	Research institutes are government or private institutions that conduct marine or terrestrial research. Local conservation groups are local non-government organisations that regularly conduct conservation activities focused on the local environment or wildlife.

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Table 5-4: Methodology for identifying relevant persons within the EMBA undertaken under Regulation 25(1)(d) – by category

Category	Relevant person identification methodology
Commercial fisheries (Commonwealth and State) and peak representative bodies	Woodside assesses relevance for commercial fisheries (Commonwealth and State) and their representative bodies using the next steps in its methodology: • Define the parameters with regard to timing, location and duration of the proposed Petroleum Activity. • Confirm whether the EMBA overlaps with the fisheries management area (i.e. the spatial area the fishery is legally permitted to fish in) (see Section 4.8.1). • Woodside acknowledges WAFIC's consultation guidance[5], that titleholders develop separate consultation strategies for significant unplanned events (for example, an oil spill) where titleholders can demonstrate the likelihood of such events occurring is extremely low. WAFIC's guidance is that consultation on unplanned events resulting in an emergency scenario should only be undertaken if an incident occurs (see Appendix G). • For Commonwealth and State commercial fisheries, assess the potential spatial and temporal extent for interaction with the fishery by reviewing AFMA, ABARES and DPIRD FishCube data within the Operational Area and EMBA (see Section 4.9.2). Assessment of relevance: • State commercial fisheries that have been assessed as having a potential for interaction within the Operational Area or EMBA (see Section 4.9.2) are assessed as relevant to the proposed activity. However, to avoid over-consulting and as requested in WAFIC's guidance, Woodside only consults individual licence holders based on WAFIC's advice. Woodside also uses WAFIC's consultation service whereby WAFIC: – directly consults fishery licence holders that are assessed as having a potential for interaction in the Operational Area – consults fisheries that are assessed as having a potential for interaction in the EMBA only in the event of an unplanned emergency scenario. • Commonwealth commercial fisheries that have been assessed as having a potential for interaction within the Operational Area or EMBA (see Section 4.9.2) are assessed as relevant to the proposed activity. • Based on advice from AFMA, a Commonwealth fishery's representative body is assessed as relevant where the EMBA overlaps the fishery's management area, even if the fishery itself has been assessed as not relevant based on potential for interaction. This approach recognises the representative body's role in representing fishing entitlements within the management area and the use of that area for stock assessment, management strategies and other fisheries management purposes. Recognised Commonwealth fishery representative bodies are identified by AFMA through information published on its website. For State fisheries, representative bodies are assessed as relevant where the fishery they represent is assessed as relevant. WAFIC is the only recognised State fishery representative body.

[5] *Consultation Approach for Unplanned Events – WAFIC*.

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Category	Relevant person identification methodology
Recreational marine users and peak representative bodies	Woodside assesses relevance for recreational marine users and peak representative bodies using the next steps in its methodology: • Using Woodside knowledge and operating experience, apply knowledge of recreational marine users in the area. This assessment is both activity and location based. • Define the parameters with regard to timing, location and duration of the proposed Petroleum Activity. • Assess 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 five years. Assessment of relevance: • Recreational marine users that have been active in the past five years within the EMBA are assessed as relevant to the proposed activity. DPIRD provides Woodside with the contact details of charter, boat tourism and dive operators specific to the region of the EMBA to consult with the relevant persons. • If Woodside has identified recreational marine users as relevant persons, 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	Woodside assesses relevance for other titleholders and operators using the following steps in its methodology: • Use GPInfo to determine overlap with other titleholders' or operators' permit areas within the EMBA. • Using Woodside knowledge and operating experience, apply knowledge of other operators in the area. • Produce a map showing the outcome of this assessment. Assessment of relevance: • Titleholders and operators whose permit areas are identified as having an overlap within the EMBA are assessed as relevant.
Peak industry representative bodies	Woodside assesses relevance for peak industry representative bodies using the following steps in its methodology: • Review peak industry representative bodies' responsibilities that Woodside actively participates in, considering overlap between industry focus area and Woodside's proposed activities within the EMBA. • Review Woodside's existing consultation list. • Search websites to identify whether any additional peak industry representative bodies have been created whose responsibilities may overlap with Woodside's proposed activities within the EMBA. Assessment of relevance: • Peak industry representative bodies whose responsibilities are identified as having an overlap with Woodside's proposed activities within the EMBA are assessed as relevant.

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Category	Relevant person identification methodology
Traditional Custodians (individuals and groups/entity) and nominated representative corporations	Consistent with its understanding of the matters discussed in Section 4.8.1, Woodside identifies relevant Traditional Custodian groups or individuals by using the following steps in its methodology: • Use existing systems of recognition to identify First Nations groups who overlap or are coastally adjacent to the EMBA (for example, recognition provided under Native Title or cultural heritage legislation, or marine park management plans, or identified by other First Nations groups or entities). • Notify and invite consultation with First Nations people through their nominated representative corporation (for example, PBCs), or, in the case of native title and where appropriate, the Native Title Representative Body • Request the nominated representative body to forward the notifications and invitations to consult to their members (members are individual communal rights holders). • Request advice about other First Nations groups or individuals that should be consulted. • Advertise widely to invite self-identification and consultation by First Nations groups and individuals. Further detail to Woodside's methodology is as follows. • Use the databases of the National Native Title Tribunal to understand whether: – there are any Native Title claims (historical or current) or determinations overlapping or coastally adjacent to the EMBA – there are any relevant ILUAs, registered with the National Native Title Tribunal that overlap or are adjacent to the EMBA, that may identify Traditional Custodians or representative bodies to contact regarding potential cultural values. • Where there is a positive determination of Native Title, contact the PBC or, where their representative is a Native Title Representative Body, contact the Native Title Representative Body. • Where appropriate, contact the relevant Native Title Representative Body to request a list of any First Nations groups asserting Traditional Custodianship over an area of coastline adjacent to the EMBA. • Review Commonwealth and State marine park management plans that overlap the EMBA and may identify Traditional Custodians or representative bodies to contact regarding potential cultural values. • In Victoria, use the Victorian Aboriginal Heritage Council data to determine whether there are any Registered Aboriginal Parties appointed under the *Aboriginal Heritage Act 2006* (Vic) that overlap or are adjacent to the EMBA. • Identify First Nations groups or individuals through a Traditional Custodian, nominated representative corporation or Native Title Representative Body. • Request the PBC to distribute Woodside consultation materials through its membership. Woodside is unable to contact this membership through any other means. • Use one of Woodside's public notification and information sharing processes by which individual Traditional Custodians can become aware of the proposed activity, its risks and impacts, and self-identify. • Provide individuals that consider their functions, interests or activities to be affected by a proposed activity an opportunity to self-identify. Woodside does not presume self-identification for an activity, covered by another EP, automatically means an individual(s) functions, interests and activities may be affected by other activities where EMBAs overlap. This decision is for the individual to make. The public notification, information sharing and consultation processes Woodside puts in place enable Traditional Custodians to become aware of proposed activities, assess risks and impacts to their values, and enable individuals to self-identify. Assessment of relevance: • Traditional Custodian groups, entities or individuals and nominated representative corporations who are identified through the above methodology and overlap or are coastally adjacent to the EMBA are assessed as relevant.

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Category	Relevant person identification methodology
Native Title Representative Bodies	Woodside assesses the relevance of Native Title Representative Bodies using the following steps in its methodology: • Review National Native Title Tribunal Representative Aboriginal/Torres Strait Islander Body areas that overlap or are coastally adjacent to the EMBA. Assessment of relevance: • Where the area for which a Native Title Representative Body is recognised under the *Native Title Act*, overlaps with the EMBA or is coastally adjacent to the EMBA, Woodside assesses the Native Title Representative Body as relevant.
Historical heritage groups or organisations	Woodside assesses relevance for groups or organisations whose responsibilities are focused on historical heritage using the following steps in its methodology: • Use the Australasian Underwater Cultural Heritage Database to assess known records of Maritime Cultural Heritage sites (shipwrecks, aircraft and relics) within the EMBA (see Section 4.9.1). Assessment of relevance: • Where there is a known underwater heritage site (shipwrecks, aircraft and relics) within the EMBA, Woodside assesses the relevant group or organisation that manages the site as relevant.
Local government and recognised local community reference/liaison groups or organisations	Woodside assesses relevance for local government and recognised local community reference/liaison groups or organisations using the following steps in its methodology: • Review Woodside maps (developed based on data from the WA Local Government, Sport and Cultural Industries 'My Council' database and WA Local Government Association Local Government Directory maps to assess overlap between the local government's defined area of responsibility and the EMBA. • Host 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. • Review the community reference/liaison group's terms of reference to determine its area of responsibility and overlap with the EMBA. For example, the Exmouth Community Liaison Group's area of responsibility in relation to Woodside's operational, development and planning activities, is defined in the terms of reference as the Exmouth sub-basin. Comparatively, the Karratha Community Liaison Group's area of responsibility is the Pilbara region (i.e. onshore). Assessment of relevance: • 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.

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Category	Relevant person identification methodology
Other non-government groups, organisations or individuals	Woodside assesses relevance for other non-government groups, organisations or individuals using the following steps in its methodology: • Review Woodside's existing consultation list. • Search websites of registered non-government groups or organisations (i.e. registered with an Australian Business Number with publicly available contact information) that may have public website or social media material specific to the proposed activity at the time of developing the EP. • Review organisations' publicly available statement (or purpose) that clearly describes their collective functions, interests or activities. • Review current website and social media material to identify targeted information that demonstrates functions, interests or activities relevant to the potential risks and impacts associated with planned activities associated with the EMBA. • Review an organisation's/individual's feedback to consider whether their functions, interests or activities within the EMBA may be affected by the activities to be carried out under the EP. Interests outside the EMBA would be considered too remote and contrary to the purpose of EP consultation. Assessment of relevance: • Registered non-government groups or organisations with current targeted public material specific to the proposed activity at the time of developing the EP and who have demonstrated functions, interests or activities relevant to the potential risks and impacts associated with planned activities in accordance with the intended outcome of consultation are assessed as relevant. • Individuals who demonstrate their functions, interests or activities may be impacted are assessed as relevant.
Research institutes and local conservation groups or organisations	Woodside assesses relevance for research institutes and local conservation groups or organisations using the following steps in its methodology: • Review Woodside's existing consultation list. • Search websites for research institutes that may operate within the EMBA. This assessment is both activity and location based. • Search websites for local conservation groups or organisations that regularly conduct conservation activities within the EMBA. Assessment of relevance: • Where there is known research being undertaken by an institute within the EMBA, the institute that is conducting the research is assessed as relevant. • Local environmental conservation groups who regularly conduct conservation activities or have demonstrated conservation functions, interests or activities within the EMBA are assessed as relevant. This assessment is both activity and location based.

5.3.3 Regulation 25(1)(e)

In addition to assessing relevance under Regulation 25(1)(d), Woodside has discretion to categorise any other person or organisation as a relevant person under Regulation 25(1)(e).

5.3.3.1 Identification of relevant persons under Regulation 25(1)(e)

Woodside adopts a case-by-case approach for each EP to assess relevance under Regulation 25(1)(e).

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5.3.4 Persons or organisations Woodside chooses to contact

In addition to consulting with relevant persons under Regulation 25(1), periodically there are persons or organisations Woodside chooses to contact in relation to a proposed activity. For example, these are persons or organisations:

- that are 'not relevant' pursuant to Regulation 25(1) but that Woodside has chosen to seek additional guidance from; for example, to inform the correct contact person Woodside should consult, or engage with
- that are 'not relevant' pursuant to Regulation 25(1) but have been contacted because of changing consultation requirements or updated guidance from the regulator
- where it is unclear what their functions, interests or activities are, or whether their functions, interests or activities may be affected. In this circumstance, engagement is used to inform relevance under Woodside's methodology. Woodside follows the same methodology for assessing a person or organisation's relevance as it does during its initial assessment (as described in Figure 5-1 and Section 5.3).

5.3.5 Assessment of relevant persons for the proposed activity

The result of Woodside's assessment of relevant persons in accordance with Regulation 25(1) is outlined at Appendix F, Table 1 and Table 2.

Persons or organisations that Woodside assessed as 'not relevant' but chose to contact at its discretion in accordance with Section 5.3.4, or self-identified and Woodside assessed as 'not relevant', are summarised at Appendix F, Table 1 and Table 3.

5.4 Consultation material and timing

Regulation 25(2) provides that a titleholder must give each relevant person sufficient information to allow the relevant person to make an informed assessment of the possible consequences of the Petroleum Activity on the functions, interests or activities of the relevant person. Regulation 25(3) provides that the titleholder must allow a relevant person a reasonable period for the consultation.

As set out in Section 5.2, Woodside notifies relevant persons of the proposed activities, respecting that consultation is voluntary, and collaborates on a consultation approach where further engagement is sought by the relevant person. The consultation process aims to be appropriate for the category of relevant persons, as not all persons or organisations will require the same level of engagement. Woodside recognises the level of engagement depends on the nature and scale of the Operational Area. Woodside acknowledges published guidance for good practice consultation, relevant to different sectors and disciplines. Woodside's methodology for providing relevant persons with sufficient information as well as a reasonable period of time to provide feedback is set out in this section.

5.4.1 Sufficient information

Woodside produces a Consultation Information Sheet for each EP. This is provided to relevant persons and organisations and is also available on Woodside's website for interested parties to access and provide feedback. 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
- a summary of relevant risks and mitigation and management control measures relevant to the proposed Petroleum Activity.

It also sets out contact details to provide feedback to Woodside.

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The level of information necessary for a person or organisation to understand the impacts of the proposed activity on their functions, interests or activities may vary, and may depend on the degree to which a relevant person is affected. For example, Woodside considers that relevant persons who may be impacted by planned activities in the Operational Area, because of temporary displacement due to exclusion zones, may require more targeted information relevant to their functions, interests or activities. Sufficient information may have been provided to a relevant person even where all documents requested by a relevant person have not been provided. Woodside acknowledges NOPSEMA's brochure entitled 'Consultation on offshore petroleum environment plans information for the community', which advises persons being consulted that they may inform titleholders that they only want to be consulted in the very unlikely event of an oil spill.

Woodside places advertisements in selected local, state and national newspapers. This typically includes:

- the name of the EP Woodside is seeking feedback on
- an overview of the activity
- the date by which to provide feedback
- the ways in which a person or organisation can provide feedback.

Advertising in the newspaper local to 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 5.3 to determine relevance, and evidenced in Appendix F, Table 1 as appropriate.

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

- Consultation Information Sheet available on Woodside's website and shared directly with relevant persons
- Summary Consultation Information Sheet, presentations or summaries specific to a particular relevant person group
- subscription available on Woodside's website to receive notification of new consultation information sheets for Woodside EPs
- emails
- letters
- phone calls
- face-to-face meetings (virtual or in person) with presentation slides or handouts as appropriate
- Let's Talk newsletter – digital and hard copy
- maps outlining a person or organisation's defined area of responsibility in relation to the proposed activity; for example, a fisheries management area or defence training area
- community meetings, as appropriate
- attendance at community events or planned regional roadshows
- broader awareness campaigns on how to be involved in the EP consultation process.

Woodside recognises information may be provided to relevant persons in an iterative manner during the consultation process. Woodside considers that genuine two-way engagement may be demonstrated be providing the relevant persons with information about incorporated controls, where applicable, so they understand how their input has been considered when developing the EP.

Woodside communicates with relevant persons in different ways. These forms of communication may evolve; for example, due to changes to organisation representation, as relationships are further established, or if a person or organisation expresses a preference for an alternative form of communication. There might also be limitations in how Woodside can consult with relevant persons.

Typical forms of communications for categories of relevant persons are set out in Table 5-5. Other forms of communication, such as phone calls, meetings and presentation briefings, are used on request.

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Table 5-5: Typical forms of communication in the ordinary course of business

Category of relevant person	Typically accepted form of communication
Government departments/agencies – marine	Woodside applies NOPSEMA's guideline for engaging with Commonwealth government departments or agencies (GL1887 – Consultation with Commonwealth agencies with responsibilities in the marine area – January 2023) by using email for its consultation unless another form of communication is requested.
Government departments/agencies – environment	
Government departments/agencies – industry	
Commercial fisheries and peak representative bodies	Commonwealth commercial fisheries: Email is used as the primary form of communication. State commercial fisheries and recreational marine users: The WA DPIRD has responsibility for managing the *Fish Resources Management Act* and *Aquatic Resources Management Act 2016*, 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 on request. Peak representative bodies: Email is used as the primary form of communication with commercial fishery and recreational marine user peak representative bodies.
Recreational marine users and peak representative bodies	
Titleholders and operators	Email is used as the primary form of communication.
Peak industry representative bodies	Email is used as the primary form of communication.
Traditional Custodians and nominated representative corporations	Woodside uses many forms of communication on a case-by-case basis and as appropriate to or requested by the specific group, such as email, phone calls, meetings and community forums.
Native Title Representative Bodies	
Historical heritage groups or organisations	NOPSEMA's guideline (GL1887) is used as a reference for Woodside's approach.
Local government and recognised local community reference/liaison groups or organisations	Local government: NOPSEMA's guideline (GL1887) is used as a reference for Woodside's approach. Community reference/liaison groups and chambers of commerce: Email and presentations are used as the primary form of communication.
Other non-government groups or organisations	Email is used as the primary form of communication.
Research institutes and local conservation groups or organisations	Email is used as the primary form of communication.

Information provided to relevant persons for the purposes of consultation about this EP is summarised at Appendix F, Table 2.

Appendix F, Table 3 sets out the information that is provided to persons or organisations that are 'not relevant' for the purposes of Regulation 25 but which Woodside has chosen to contact.

When engaging in consultation, Woodside notifies relevant persons or organisations that, in accordance with Regulation 25(4), the relevant person or organisation may ask the titleholder to notify NOPSEMA that particular information it provides in the consultation not be published, and that information subject to that request will not be published under the Environment Regulations.

5.4.2 Reasonable period for consultation

Woodside uses consultation to help prepare its EP. Woodside recognises that what constitutes a reasonable period for consultation should be considered on a case-by-case basis, with reference to the nature, scale and complexity of the activity.

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

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Woodside's methodology allows relevant persons a reasonable period for consultation (Regulation 25(3)). A reasonable period for all relevant persons, including Traditional Custodians, to participate in consultation for this EP has been provided. The consultation period under this EP has also satisfied benchmark periods under other relevant legislative processes:

- Regulation 30 sets out a public consultation period of 30 days.
- DMPE's Guidelines for Consultation with Indigenous People by Mineral Explorers directs a period of 21 to 30 days of consultation with Traditional Custodians.
- While repealed, guidance from the *Aboriginal Cultural Heritage Act 2021* – Consultation Guidelines (Government of Western Australia, 2023) suggests up to 12 weeks may be a reasonable period for identifying, contacting and getting a response from First Nations peoples (subject to any alternative timeframe being agreed through co-design of consultation).

This period of consultation demonstrates Woodside has provided a "reasonable period" for relevant persons to consult in accordance with Regulation 25(3). Commentary in the Tipakalippa Appeal judgement limits consultation to a process that must be capable of being discharged within a reasonable time:

> *…it must be taken to be the regulatory intention that the consultation requirement cannot be one that is incapable of being complied with within a reasonable time…*[6]

Woodside uses feedback to help prepare its EP. What constitutes a reasonable period for consultation is considered on a case-by-case basis, with reference to the person being consulted and the nature, scale and complexity of the activity.

Woodside's typical approach to providing a reasonable period for consultation is as follows:

- Advertise in selected local, state and national newspapers to give persons or organisations the opportunity to understand the activity and identify whether their functions, interests or activities may be affected.
- Provide consultation materials directly to identified relevant persons and those who are 'not relevant' but Woodside chose to contact, and provide a target date for feedback. Woodside acknowledges feedback may be received from relevant persons after the target date.
- Acknowledge 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.
- Follow up with relevant persons before submitting the EP. Where possible, endeavour to use an alternative method of communication to contact the relevant person.
- Engage in two-way dialogue with relevant persons or organisations where feedback is received.

Appendix F, Table 2 and Table 3 set out a history of ongoing consultation and demonstrates a reasonable period of consultation has been provided.

Woodside considers that consultation for this EP has closed.

As detailed in Section 5.6, if comments and feedback are received after the EP has been submitted, Woodside will consider those comments and update controls as appropriate and at all stages of the life of the EP, as per Woodside's ongoing consultation approach described in Section 5.7.

5.4.3 Discharge of Regulation 25

The FCAFC made clear in the Tipakalippa Appeal that consultation should be approached in a "reasonable", "pragmatic" and "not so literal" way, so consultation obligations were capable of being met by titleholders (Section 5.5.1).[7] Consultation is a "real world activity" and must be capable of reasonable discharge.[8] The

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

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

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

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FCAFC referred to Native Title cases as an illustration that reasonable limits should be applied to consultation efforts to ensure the process is workable.[9]

When the titleholder demonstrates it has provided sufficient information and a reasonable period for consultation, Regulation 25 consultation requirements are met.[10] Meeting these obligations requires evaluative judgement to determine reasonable satisfaction of the consultation obligation and, as such, the regulator uses its discretion to determine if these criteria are met. The nature of the person being consulted and their function, interest and activity that may be affected, will inform the manner of consultation and the reasonable period to be afforded.[11]

While a titleholder is required to provide an opportunity to consult, the titleholder is not required to obtain consent to engage in the activity from a person being consulted, or confirmation from a person being consulted, that consultation is complete. The Federal Court has commented that a "reasonable opportunity" for consultation must be afforded to relevant persons.[12] A reasonable opportunity may not be every opportunity requested and is limited to reasonable opportunities to consult.

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

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

Appendix F, Table 2 and Table 3 of this EP sets out the history of consultation under Regulation 25. To the extent a relevant person says they have more information to share or claims that consultation under Regulation 25 has not been completed, Appendix F, Table 2 and Table 3 provide reasons why Woodside considers consultation under Regulation 25 has been met, in relation to that relevant person.

5.5 Context of consultation approach with Traditional Custodians

To comply with Regulation 25, Woodside identifies and consults Traditional Custodians whose functions, interests or activities may be affected by the activities under an EP.

5.5.1 Approach to methodology − Woodside's interpretation of Tipakalippa Appeal

Woodside has implemented a consultation methodology consistent with Regulation 25 and guidance provided in the Tipakalippa Appeal (Section 5.2). Woodside's consultation methodology allows for determining a sufficiently broad band of Traditional Custodian relevant persons, provides for informed consultation, follows cultural protocols, and allows a reasonable opportunity for consultation with Traditional Custodians whose functions, interests or activities may be affected by the activity described in this EP (Sections 5.3.2 to 5.3.4).

Woodside notes the FCAFC discussed several *Native Title Act* cases in response to a submission made in that case that a requirement under Regulation 25 to consult "each and every" relevant person would be *"*unworkable". The reference to Native Title cases dealt with how decision-making processes under the *Native Title Act* requiring "all" members of a group to be contacted for communal approval are interpreted by courts in a "reasonable", "pragmatic" and "not so literal" way,[13] and how obligations to consult "each and every" person under Regulation 25 should be interpreted in a similarly pragmatic way, so consultation is workable. The reference to *Native Title Act* authorities was made by analogy:

> *It can be seen that the terms of [the Native Title legislation] are somewhat absolute – "all". However, [the Native Title legislation] has consistently been construed in a way that is not so literal…The cases concerning [the Native Title legislation]…have reiterated…that [the Native Title legislation] does not require that "all" of the members of the relevant claim*

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

[10] *Explanatory Statement, Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2023, page 29.*

[11] *Explanatory Statement, Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2023, page 30 and Santos NA Barossa Pty Ltd v Tipakalippa [2022] FCAFC 193 at [153].*

[12] *Cooper v National Offshore Petroleum Safety and Environmental Management Authority (No 2) [2023] FCA 1158 at paragraph [11]; Santos NA Barossa Pty Ltd v Tipakalippa [2022] FCAFC 193 at [153].*

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

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> *group be involved in the decision. The key question will be whether a reasonable opportunity to participate in the decision-making process has been afforded by the notice for a relevant meeting."*[14]
>
> *We consider the authorities in relation to processes under the* Native Title Act *to be illustrative of how a seemingly rigid statutory obligation to consult persons holding a communal interest may operate in a workable manner*[15]*.*
>
> *…there is no definition of what constitutes "consultation" for the purpose of reg 11A [now Regulation 25]…A titleholder will need to "demonstrate" to NOPSEMA that what it did constituted consultation appropriate and adapted to the nature of the interests of the relevant persons"*[16]*.*

The judgement in the Tipakalippa Appeal makes it clear a titleholder will have some choice in identifying which person(s) are to be approached, how the information will be given to allow the "relevant person" to assess the possible consequence of the proposed activities on their functions, interests or activities, and how the requisite consultation is undertaken.[17] Consultation is not fixed to a rigid process and will be adapted so it is informed by the relevant person or group. Woodside has met its Regulation 25 requirements through its consultation methodology (Section 5.2).

Consistent with the Tipakalippa Appeal, Woodside considers *Native Title Act*-style "full group" meetings are not required for there to be compliance with Regulation 25. Nominated representative corporations, such as PBCs established under the *Native Title Act*, have the designated role of representing the views of their member Traditional Custodians. They have established methods for engaging with their own members. Woodside will not undermine the purpose and authority of nominated representative corporations by requiring full group meetings where the nominated representative corporations have not requested engagement of members via full group meetings. It is not appropriate for titleholders to direct or challenge the nominated representative corporations on how to engage with their members.

Woodside's approach described below demonstrates sufficient information and a reasonable opportunity is provided to individual Traditional Custodians to give feedback on Woodside activities beyond the opportunity provided to nominated representative corporations.

5.5.2 Consultation method

Woodside's First Nations Team has experience engaging and working with Traditional Custodian organisations and individuals, including within the Commonwealth native title and cultural heritage systems, and state and territory cultural heritage and land rights systems. The team understands the complexities of making information accessible to groups and individuals and engaging in accordance with Traditional Custodian groups' established channels of communication and methods of consultation. Woodside's First Nations Team exercises its professional judgement and is respectful of long-standing relationships (where in place) for consulting with Traditional Custodian groups. The team's approach is also informed by the established systems of recognition for Traditional Custodian groups and their nominated representative corporations within particular jurisdictions.

For example, the methodology for engaging with Traditional Custodian groups in the Northern Territory ('not relevant' for this EP) tends to centre around engaging through Aboriginal land councils (under the *Aboriginal Land Rights (Northern Territory) Act 1976* (Cth)) as well as community meetings that target clan groups where they do not have PBCs or other nominated representative corporations to represent them.

By contrast, recognition for Traditional Custodian groups and their nominated representative corporations in WA falls under the *Native Title Act* (Cth) because most of the WA coastline is settled under the Native Title regime. This means the methodology and process for consultation in WA places greater emphasis on, but is not limited to, Native Title Representative Bodies and PBCs.

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

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

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

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

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Native Title determinations provide certainty about the appropriate Traditional Custodian groups that have the cultural authority to speak for Country adjacent to the EMBA, and who help Woodside identify Traditional Custodian persons and groups asserting Traditional Custodianship. The judgment in the Tipakalippa Appeal endorses methods of consultation with groups of relevant persons that are appropriate and adapted to the characteristics of groups[18]. Woodside's consultation methodology is adapted and appropriate to the recognised systems of communal interests in WA.

In WA (relevant for this EP), Woodside has sought to follow the established, effective and respectful means of communication used by Native Title Representative Bodies and nominated representative corporations (including PBCs) with their respective Traditional Custodian communities. Woodside follows these processes for the appropriate broad capture of individuals' awareness of our activities, to self-identify (Section 5.5.4), and to provide feedback to inform the management of environmental impacts and risks.

Using these processes, Woodside communicates information about EPs in these ways:

- Advertise in relevant Indigenous and non-Indigenous newspapers. This encourages self-identification, by advertising proposed activities widely through newspapers that have national and intra-state circulation, i.e. Koori Mail, National Indigenous Times, The West Australian.
- Create carefully considered summary consultation information sheets with content developed by Woodside's First Nations Team to remove jargon and present information in a simplified format.
- Direct any contact through nominated representative corporations.
- Use social media (i.e. Facebook/Instagram), texts, phone calls and emails. These mediums are the preferred communication methods of Traditional Custodians throughout WA and, on that basis, used by Native Title Representative Bodies and other government agencies and industry, to engage with Traditional Custodians or call meetings. Professor Bronwyn Castle is a First Nations woman who, through 10 years of research, found "Social media is an intrinsic part of daily life. The use of Facebook is around 20 per cent higher [among First Nations people] than the national average across all geographical locations" (Carlson & Frazer, 2018).
- For ongoing consultation after Regulation 25 consultation, support ongoing engagement with Traditional Custodians. Woodside is committed to ongoing engagement and support to care for and manage Country, including Sea Country.
- Base members of Woodside's First Nations Team in Karratha and Roebourne, to serve as on-Country points of contact for Traditional Custodian organisations and individuals. These team members have broad local knowledge and established, on-the-ground relationships within communities. This helps contribute to positive outcomes, including distributing information and providing notice to the community to support Traditional Custodian attendance and involvement at Woodside's information sessions and community roadshows.
- Ensure that from when engagement with Traditional Custodians begins, Woodside seeks direction on how they prefer to be consulted and has consulted accordingly. Consultation processes are informed by Traditional Custodians and co-designed on a case-by-case basis, and includes their direction as to cultural protocols, structure of consultation, and who to appropriately consult with (such as Elders).
- Hold meetings on Country at a place and time agreed with Traditional Custodians, and offer and provide financial assistance for meeting expenses (as appropriate).
- Provide information specifically designed to be easily understood and to reach all relevant people, and give a reasonable period of time for those people to make an informed assessment of the possible consequences of the proposed activity on them.

The First Nations Team approach to consultation is also consistent with the Federal Court's decision in the Munkara Case. The Munkara Case notes that the word "culture" (and hence the word "cultural") has a communal aspect to it. To establish cultural features, it is necessary that the beliefs and values are held by the relevant people as a people. For values, features or beliefs that are expressed by an individual to be "cultural" they cannot simply be an individual's belief – the belief must have a communal aspect too, and demonstrate

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

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the “individual beliefs are broadly representative of the beliefs of other members of the group”[19]. The phrase “cultural features”, when applied to “people” as constituent parts of an ecosystem, is not directed to idiosyncratic views or beliefs of an individual[20]. When the First Nations Team is told by an individual Traditional Custodian that a particular value is cultural, that information is taken back to the relevant cultural authority to test its broad acceptance. In the case of gender-sensitive information, that information would be restricted to the specific gender within the community.

5.5.3 Identification of relevant persons

To undertake consultation, Woodside has developed a methodology for identifying relevant persons, in accordance with Regulation 25(1) (Sections 5.2 and 5.3).

Specific to Woodside’s approach for identifying relevant Traditional Custodians, Woodside’s First Nations Communities Policy and consultation approach is guided by Traditional Custodians by directing consultations through their nominated representative corporation. Woodside has implemented this by consulting with a nominated representative corporation, where that corporation has advised Woodside it acts as the representative body for a Traditional Custodian group, and has requested Woodside engages with it as such.

Woodside asks nominated representative corporations (such as PBCs) and Native Title Representative Bodies to identify individuals that should be consulted, and enables individuals to self-identify in response to national and local advertising, social media and community engagement opportunities (Section 5.5.4). Where there is a nominated representative corporation for an area, unless directed by that corporation, Woodside does not directly approach individuals for consultation, because this could undermine the role of the nominated representative corporation. Approaching individuals directly is a practice that is no longer considered acceptable because it has shown to cause divisions in communities. In addition to asking them to identify individuals, Woodside asks nominated representative corporations to distribute consultation information to whomever they deem appropriate, including members of the nominated representative corporations who are communal rights holders.

Having said this, as further detailed in Section 5.5.4, individuals are also given the opportunity to self-identify, consult and provide their own feedback on the proposed activity. When approached in this way, Woodside will engage individuals as relevant persons and will also (subject to any confidentiality or cultural restrictions) advise the nominated representative body of the consultation where it relates to cultural values. These methods of consultation are consistent with requirements for notification under the *Native Title Act*, such as under the future act provisions (section 29), which requires notification of the Native Title Representative Body, the PBC (or nominated representative) and notification through newspapers. The notification process has been selected as a respectful, practical and pragmatic analogue for consulting First Nations peoples, rather than requiring members to be notified via a formal authorisation process that seeks, from members, authorisation of agreements and Native Title/compensation claims under the *Native Title Act*[21].

In this consultation, Woodside requested nominated representative corporations to identify any potential relevant persons for consultation. Woodside requests nominated representative corporations to distribute consultation materials to their members. However, Woodside recognises the process is voluntary and it cannot compel nominated representative corporations (such as PBCs) to do so. Woodside also recognises it would not be appropriate to audit the nominated representative corporations for compliance with any member consultation request.

5.5.4 Opportunity to self-identify and identifying other individuals

Woodside asks nominated representative corporations and Native Title Representative Bodies to identify other individuals to consult or who may seek to self-identify for a proposed activity. Woodside also advertises broadly through Indigenous, national and local advertising, social media and community engagement opportunities to give individuals an opportunity to consult. Woodside does not directly approach individuals for consultation, as

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

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

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

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this undermines the role of the nominated representative corporations. Woodside's approach to giving individual Traditional Custodians the opportunity to self-identify and consult for an EP is as follows:

- Woodside applies the principles of self-determination when consulting with Traditional Custodians by consulting through the Traditional Custodians' authorised representative entities.
- Recognising the function of nominated representative corporations (such as PBCs) and Native Title Representative Bodies to represent communal interests and manage cultural values, Woodside requests that the information provided to representative entities is provided to their members, recognising the process is voluntary and Woodside cannot compel them to do so, nor seek to audit the representative entities for compliance with any request.
- Representative entities cannot provide membership details to Woodside due to confidentiality.
- Woodside requests advice about who else it should consult but recognises the process is voluntary and cannot compel nominated representative corporations to provide this information.
- Modern Indigenous engagement practices rely on building and maintaining respectful relationships. To date, most nominated representative corporations have requested that relationship be built where one does not already exist.
- While Woodside has, in some cases, approached individual directors and Elders outside of this process due to requirements imposed in EP consultation, this approach is considered inappropriate by modern Indigenous engagement standards, fundamentally undermining the authority of the authorised representative entity and sometimes detrimental to the relationship.

Woodside has not been directed to engage individual Traditional Custodians by nominated representative corporations for this proposed activity. Woodside has nevertheless provided reasonable opportunity for individual Traditional Custodians to engage in consultation through appropriate and adapted consultation methods.

5.5.5 Sufficient information

Woodside recognises the information sufficient to allow a person or organisation to make an informed assessment of the possible consequences of the proposed activity on their functions, interests or activities may vary and may depend on the degree to which a relevant person is potentially affected.

Woodside produces consultation information sheets for each EP, which are provided to relevant persons and organisations for the purpose of seeking feedback on the activity (Section 5.4.1). In response to feedback from Traditional Custodians on information provisions, Woodside has tailored effective consultation methods for its activities. These methods are specifically designed for Traditional Custodians, so information is provided in a form that is readily accessible and appropriate. Woodside develops and its First Nations Team reviews the targeted Summary Consultation Information Sheet to ensure content is appropriate to the intended recipients, which is then provided to relevant Traditional Custodian groups. Phone calls are made to provide context.

Where face-to-face consultation meetings are requested, Woodside coordinates engagement at the Traditional Custodians' location of choice (where practicable) and with their nominated attendees. Along with members of Woodside's First Nations Team, key project personnel and environmental experts are typically present to enable effective communication and prompt response to questions. Materials for these sessions incorporate visual aids such as photos, maps and videos, and plain language suitable for people with a non-technical background.

During consultation, Woodside provides relevant persons with extra information as appropriate in response to requests. There is no requirement to provide relevant persons with all information or documents requested; a titleholder will have provided sufficient information even where it has not.

Woodside has sought to provide sufficient information to individual members of nominated representative corporations (such as PBCs) by providing information to representative bodies and requesting dissemination with members.

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5.5.6 Reasonable period for consultation

Woodside consults Traditional Custodians to help it prepare EP. Woodside recognises that what constitutes a reasonable period for consultation should be considered on a case-by-case basis, with reference to the nature, scale and complexity of the activity (Section 5.4.2).

5.5.7 Discharge of Regulation 25

Woodside's consideration and approach to discharging Regulation 25 for relevant persons is discussed in Section 5.4.3. Woodside has also considered the application of Regulation 25 specific to Traditional Custodians based on the Tipakalippa Appeal.

In relation to Traditional Custodian relevant persons (and all relevant persons), Woodside has discharged its duty under Regulation 25 of the Environment Regulations. Woodside considers that consultation under Regulation 25 is complete (Section 5.4.3).

5.6 Providing feedback and assessment of merit of objections or claims

Feedback can be provided in multiple ways. It can be provided through the Woodside feedback email or via the Woodside feedback tollfree phone line, as outlined in the Consultation Information Sheet and the Woodside website. Where appropriate, consultation may also be supported by phone calls or meetings. An EP feedback form is also available on Woodside's website, enabling stakeholders to provide feedback on proposed activities or to request more information.

Woodside consults widely on its EPs and receives feedback 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 these at risk go beyond those boundaries.

Woodside accepts feedback and engages in consultation to achieve the aims set out in Section 5.2. Woodside recognises some persons and organisations take a view that Woodside's operations and growth projects should be stopped or at least delayed as far as possible. While 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, it may not be able to be considered if it is outside the scope or purpose of the EP and approval process. For example, statements of fundamental objection to offshore petroleum activities or information containing personal threats or profanities. Under Regulation 34(g), there is no requirement for a relevant person to agree or confirm they have been adequately consulted.

During consultation relevant persons may seek to introduce other issues (such as agreements) not specific to EP consultation. While concepts of agreements may be associated with broader consultation processes, consultation for specific EPs can occur in parallel.

Woodside reviews feedback from relevant persons and assesses the merits 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 by reviewing data and literature for relevance to the nature and scale of the activity outlined in the EP. Consistent with the aim of consultation (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 Sections 5.3.2.1 and 5.3.4). This information is summarised in Appendix F, Table 1 and Table 2 and includes a statement of Woodside's response or proposed response, if any, to each objection and claim.

In accordance with Regulation 26(8), sensitive information (if any) in an EP, and the full text of any response by a relevant person to consultation under Regulation 25, must be contained in the 'sensitive information' part of the plan and not anywhere else in the plan.

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5.7 Ongoing consultation

Consultation can continue during the life of an EP, including after an EP has been accepted by NOPSEMA.

As per Woodside's ongoing consultation approach (refer to Section 7.9), feedback and comments received from relevant persons continue to be assessed and responded to, as required, throughout the life of an EP, including during its assessment and once accepted, in accordance with the intended outcome of consultation.

Should consultation feedback be received, after acceptance of an EP, that identifies a measure or control that Woodside considers requires implementation or updates to meet the intended outcome of consultation, Woodside will apply its MOC and revision process as appropriate (see Section 7.7).

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

6.1 Overview

This section presents the impact and risk analysis and evaluation, EPOs, EPSs and MC for the Petroleum Activity, using the methodology described in Section 2 of this EP. Impacts and risks associated with the Petroleum Activity are summarised in Table 6-1 and evaluated throughout this section.

6.2 Impact and risk analysis evaluation

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

Impacts and risks identified during the ENVID workshops (including decision type, current risk level, acceptability of impacts and risks, and tools used to demonstrate acceptability and ALARP) have been divided into two broad categories:

- planned (routine and non-routine) activities
- unplanned events (accidents, incidents or emergency situations).

Within these categories, impact and risk assessment groupings are based on environmental aspect (e.g. emissions, physical presence). For all hazardous events considered, the worst-case risk was assumed.

During the ENVID in August 2025, six impacts and seven risks were identified as associated with the Petroleum Activity. Planned activities and unplanned events are summarised in Table 6-1.

The analysis and evaluation for the Petroleum Activity indicates current environmental risks and impacts associated with the activity are reduced to ALARP and are of an acceptable level, as discussed further in Sections 6.7 and 6.8.

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

Aspect	EP section	Risk rating				Acceptability of impact/ risk
		Impact/ consequence	Potential impact/consequence level	Likelihood	Current risk rating	
Planned activities (routine and non-routine)						
Physical presence: disturbance to other marine users	6.7.1	F	Temporary localised impact not significant to areas or items of cultural significance.	-	-	Broadly acceptable
Routine acoustic emissions: seismic survey array	6.7.2	E	Localised and low-level impact on environmental feature(s) or area(s) of low significance.	-	-	Broadly acceptable
Routine acoustic emissions: project vessels and helicopter operations	6.7.3	F	No lasting effect, localised impact not significant to environmental receptors.	-	-	Broadly acceptable
Routine atmospheric and greenhouse gas emissions: fuel combustion	6.7.4	F	No lasting effect, localised impact not significant to environmental receptors.	-	-	Broadly acceptable
Routine light emissions: external lighting from project vessels	6.7.5	E	Localised and low-level impact on environmental feature(s) or area(s) of low significance.	-	-	Broadly acceptable
Routine and non-routine discharges: project vessels	6.7.6	F	No lasting effect, localised impact not significant to environmental receptors.	-	-	Broadly acceptable
Unplanned activities (accidents, incidents, emergency situations)						
Unplanned hydrocarbon release: vessel collision	6.8.2	C	Moderate impact on environmental feature(s) or area(s), such as impact on feature or area of heightened sensitivity with limited ability to recover.	1	M	Acceptable if ALARP
Unplanned hydrocarbon release: bunkering	6.8.3	E	Localised and low-level impact on environmental feature(s) or area(s) of low significance.	2	M	Acceptable if ALARP
Unplanned discharge: deck spills	6.8.4	F	No lasting effect, localised impact not significant to environmental receptors.	3	M	Acceptable if ALARP
Physical presence: disturbance to seabed from dropped objects and equipment loss	6.8.5	F	No lasting effect, localised impact not significant to environmental receptors.	3	M	Acceptable if ALARP

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Aspect	EP section	Risk rating				Acceptability of impact/ risk
		Impact/ consequence	Potential impact/consequence level	Likelihood	Current risk rating	
Physical presence: vessel collision/ entanglement with marine fauna	6.8.6	E	Localised and low-level impact on environmental feature(s) or area(s) of low significance.	2	M	Acceptable if ALARP
Physical presence: loss of towed equipment	6.8.7	E	Localised and low-level impact on environmental feature(s) or area(s) of low significance.	3	M	Acceptable if ALARP
Physical presence: introduction and establishment of invasive marine species	6.8.8	D	Minor impact on environmental feature(s) or area(s) such as impact on feature of low significance with some ability to recover.	0	L	Broadly acceptable

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6.3 Impacts and risks not deemed credible or outside the scope of this Environment Plan

During the ENVID several risks and impacts were identified as either being outside the scope of this EP, or not relevant to the Petroleum Activity. These are described below:

6.3.1 Shallow/nearshore activities

The Petroleum Activity is in water deeper than 50 m, about 28 km from the nearest landfall (Montebello Islands). Consequently, risks and impacts associated with shallow and nearshore activities, such as survey equipment and vessel grounding, were assessed as not credible.

6.3.2 Cumulative impacts associated with concurrent activities in WA-22-R and WA- 15- R

During stakeholder consultation (Section 5) Chevron provided details about activities in WA-22-R and WA-15-R relating to Gorgon Stage 3 (GS3).

While the Operational Area overlaps permit WA-15-R, the SAA is located about 8 km to the west of the permit the boundary. The ASA is located about 18 km from the boundary of WA-22-R.

While there is the potential for ensonified areas to overlap if Chevron Gorgon Stage 3 drilling and construction occur concurrently with the Pluto 4D MSS, cumulative impacts are not anticipated. A concurrent activity noise assessment was completed (Section 6.3.2) for concurrent Woodside Pluto 4D MSS and Julimar Plug and Abandonment (P&A) (located in the Operational Area). Based on the footprints (Figure 6-4 and Figure 6-5), even with both Julimar P&A and Pluto 4D MSS activities combined, underwater noise is not expected to create a barrier to blue whale migratory behaviour. It is possible some animals may experience repeated behavioural disturbance, but migratory behaviour is expected to be able to continue. Given the distance of the Gorgon Stage 3 activities from the SAA and the results from the Julimar P&A and Pluto 4D MSS concurrent activities assessment cumulative impacts are not anticipated.

6.3.3 Cumulative impacts associated with Woodside Greater Western Flank piling activity

Woodside has identified that the Greater Western Flank Phase 4 anchor hold testing and installation has the potential to occur concurrently with the Pluto 4D MSS. Piling associated with this activity is located about 22 km east of SAA. No impacts are predicted to the pygmy blue whale migration BIA. Although there is potential for ensonified areas to overlap, underwater noise is not expected to create a barrier to blue whale migratory behaviour. Given the distance of the activities from the SAA and the results from the Julimar P&A and Pluto 4D MSS concurrent activities assessment, cumulative impacts are not anticipated.

6.4 Cumulative impacts

Woodside has assessed the cumulative impacts of the Petroleum Activity in relation to other relevant petroleum activities that could realistically result in overlapping temporal and spatial extents. Woodside has identified:

- infrastructure and activities relating to the Pluto and Wheatstone platforms and the ongoing operations (refer to Section 4.9.6)
- P&A of Woodside wells, including Julimar East-1, Brunello-1 ST1, Balnaves Deep-1 and Brulimar-1. This activity is currently planned for Q4 2026. The nearest well P&A is within the Operational Area.

Woodside has engaged with other titleholders to determine if any petroleum activities in nearby permits have the potential for cumulative impacts with the Pluto 4D MSS. As presented in Section 6.3.2, Chevron provided Woodside with details of Gorgon Stage 3, but cumulative impacts are not anticipated.

Where relevant, cumulative impacts are considered in the risk and impact assessments in Sections 6.7 and 6.8. The Petroleum Activity is not required to enter the PSZ around the Pluto and Wheatstone platforms.

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6.5 Environmental performance outcomes, standards and measurement criteria

Regulation 21(7) of the Environment Regulations requires that an EP includes EPOs, EPSs and MC that address legislative and other controls to manage the environmental risks and impacts of the activity to ALARP and an acceptable level.

As defined in Regulation 5 of the Environment Regulations, an EPO "for an activity, means a measurable level of performance required for the management of environmental aspects of the activity to ensure environmental impacts and risks of the activity will be of an acceptable level".

The EPOs, EPSs and MC specified throughout this section and in Appendix G are consistent with legislative requirements and Woodside's standards and procedures. They have been developed based on the LCS, GP and PJ outlined in Section 2.2.6 and Section 2.2.7 as part of the acceptability and ALARP justification process. A breach of these EPOs or standards constitutes a 'recordable incident' under the Environment Regulations (refer to Section 7.10.4).

For the physical and biological receptors within the EMBA, Woodside has set EPOs that are consistent with the Matters of National Environmental Significance – Significant impact guidelines 1.1 (Department of the Environment, Water, Heritage and the Arts, 2013). EPOs are set so they are consistent with the principles of ESD as defined in section 3A of the EPBC Act and demonstrated through the acceptability process (described in Section 2.3.2), which is applied to the aspects/receptors in Section 4. The EPOs for planned activities have been set at a level that considers the planned activities and associated level of environmental impact.

For social receptors, including fishing and other commercial activities, the EPOs that have been set reflect the requirements in the section 280(2) of the OPGGS Act, in that the activities undertaken as a part of the Petroleum Activity should not interfere with other marine users, to a greater extent than is necessary for the exercise of right conferred by the titles granted.

6.6 Presentation

The environmental impact and risk analysis and evaluation, demonstration of ALARP and acceptability, EPOs, EPSs and MC are presented in tabular form throughout this section, as shown in the example below. Italicised text in this example table denotes the purpose of each part of the table, with reference to the relevant sections of the Environment Regulations and this EP.

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Context *Description of the context for the impact/risk. Regulation 21(1), 21(2) and 21(3)*		
Description of the activity – Regulation 21(1)	*Description of the environment – Regulations 21(2)(3)*	*Consultation – Regulation 25 and 24(b)*

Impact and risk evaluation summary Summary of ENVID outcomes													
Source of impact/risk *Regulation 21(1)*	***Environmental value potentially impacted*** *Regulations 21(2)(3)*						***Evaluation*** *Regulations 21(5)(6)*						
	Marine sediment	Water quality	Air quality (incl odour)	Ecosystems/habitat	Species	Socioeconomic	Decision type	Consequence/impact	Likelihood	Risk rating	ALARP tools	Acceptability	Outcome
Summary of source of risk/ impact													

Description of source of impact or risk
Description of the identified risk/impact, including sources or threats that may lead to the impact/risk or identified event. Regulation 21(1).

Impact or consequence assessment
Environmental value(s) potentially impacted
Discussion and assessment of the potential impacts to the identified environment value(s) in accordance with Regulations 21(5) and 21(6). *Description of potential impacts to environmental values aligned to Woodside impacts and risk classifications (Section 2.2.7).*

Demonstration of ALARP				
Control considered	***Control feasibility (F) and cost/sacrifice (CS)[22]***	***Benefit in impact/risk reduction***	***Proportionality***	***Control adopted***
ALARP/hierarchy of control tools used – Section 2.2.6				
Summary of control considered to ensure the impacts and risks are continuously reduced to ALARP. *Regulation 21(5)(c).*	*Technical/logistical feasibility of the control.* *Cost/sacrifice required to implement the control (qualitative measure).*	*Qualitative commentary of impact/risk that could be averted/ environmental benefit gained if the cost/ sacrifice is made and the control is adopted.*	*Proportionality of cost/sacrifice vs environmental benefit. If proportionate (benefits outweigh costs), the control will be adopted. If disproportionate (costs outweigh benefits), the control will not be adopted.*	*If control is adopted, reference to Control No. provided.*
ALARP statement: *Made on the basis of the environmental impact/risk assessment outcomes, use of the relevant tools appropriate to the decision type (Section 2.2.5.2) and a proportionality assessment in accordance with Regulation 34(b).*				

[22] *Qualitative measure.*

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Demonstration of acceptability
Acceptability statement: *Made on the basis of applying the process described in Section 2.3 in accordance with Regulation 34(c).*

EPOs, EPSs and MC			
Environmental performance outcomes	***Controls***	***Performance standards***	***Measurement criteria***
EPO No. *S: Specific performance that addresses the legislative and other controls that manage the activity, and against which performance by Woodside in protecting the environment will be measured.* *M: Performance against the outcome will be measured through implementation of the controls via the MC.* *A: Achievability/feasibility of the outcome demonstrated via discussion of feasibility of controls in ALARP demonstration. Controls are directly linked to the outcome.* *R: The outcome will be relevant to the source of risk/impact and the potentially impacted environmental value.*[23] *T: The outcome will state the timeframe during which the outcome will apply or by which it will be achieved.*	*C No.* *Identified control adopted to ensure that the impacts and risks are continuously reduced to ALARP.* *Regulation 21(5) (c).*	*PS No.* *Statement of the performance required of a control measure. Regulation 21(7)(a).*	*MC No.* *Measurement criteria for determining whether the environmental performance outcomes and environmental performance standards have been met. Regulation 21(7)(c).*

[23] *Where impact/consequence descriptors are presented within EPOs, the descriptors are aligned with the definitions provided in the Woodside Risk Matrix (refer Section 2).*

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6.7 Planned activities (routine and non-routine)

6.7.1 Physical presence: disturbance to other marine users

Context		
Project vessels – Section 3.9 Marine seismic survey – Section 3.8	Socioeconomic environment – Section 4.8.1	Stakeholder consultation – Section 5

Impact evaluation summary

Source of impact	*Environmental value potentially impacted*						*Evaluation*						
	Marine sediment	Water quality	Air quality (incl odour)	Ecosystems/habitat	Species	Socioeconomic	Decision type	Impact	Likelihood	Risk rating	ALARP tools	Acceptability	Outcome
Presence of project vessels (and towed equipment) excluding or displacing other marine users from the Operational Area (commercial fishing, commercial shipping, tourism and recreation, and other oil and gas operations)						X	A	F	-	-	LCS GP	Broadly acceptable	EPO 1 EPO 2

Description of source of impact

Project vessels (seismic survey, support and chase) will be physically present in the Operational Area during the Petroleum Activity. The seismic survey vessel and towed array, comprising the airgun array and streamer array, which includes header buoys, starboard and port deflectors or baravanes, streamers and tail buoys, are surrounded by a 3 NM radius SNA (refer to Section 3.8.2). Marine users are requested to avoid this area during the survey to ensure the safety of the seismic survey vessel and third-party vessels. Support and chase vessels will also accompany the seismic survey vessel to manage interactions with third party vessels.

Impact assessment

Environmental value(s) potentially impacted

Exclusion and displacement of other users

Interaction with other marine users due to the physical presence of the Petroleum Activities may result in localised changes to the functions, interests or activities of other users.

Commercial fishing

There are four Commonwealth and 13 State managed fisheries with management areas that overlap the Operational Area. One Commonwealth (the North West Slope Trawl Fishery) and five State-managed fisheries (Mackerel Managed Fishery, Marine Aquarium Managed Fishery, Pilbara Trap Managed Fishery, Pilbara Line Fishery (Condition), West Coast Deep Sea Crustacean Managed Fishery) are considered to have potential for interaction with the Petroleum Activity, based on their catch effort drawn from ABARES (Commonwealth) and FishCube (WA state) data (Table 4-24, Section 4.9.2). Should commercial fishing activities occur within the Operational Area during the Petroleum Activity, commercial fishers may be asked to deviate from fishing grounds periodically to accommodate survey operations. Potential interactions with commercial fisheries would be localised and temporary due to the transient nature of the MSS, the small area occupied by the project vessels (and associated towed equipment in the SNA behind the seismic survey vessel) at any one time, limited to operational inconvenience (navigational hazard) and temporary displacement from fishing grounds within the Operational Area. Impact to the economic viability of the fisheries is not anticipated, given the short duration (about 40 days, refer to Section 3.7) and small size of the Operational Area (3,785 km²) in relation to the overall area of the commercial fisheries. The Operational Area represents less than 1% of the ground available to the Commonwealth and State managed fisheries (with the potential for interaction) that overlap with the Operational Area.

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Cultural values and heritage

In line with Woodside's First Nations Communities Policy (Woodside, 2022), Woodside seeks to avoid damage or disturbance to cultural heritage (including intangible heritage). If avoidance is not possible, Woodside will seek to minimise and mitigate impacts by consulting with First Nations communities and Traditional Custodians.

Environmental impacts may impact rights and obligations to care for Sea Country. Excluding Traditional Custodians from Sea Country (e.g. by restricting access) or decision-making processes (e.g. by not conducting ongoing consultation) is another potential source of impact. While operational safety exclusion zones will apply, these are spatially limited and temporary, and therefore not expected to prevent Traditional Custodians from maintaining cultural connections to Sea Country or fulfilling obligations to care for Country. Ongoing consultation is intended to facilitate access arrangements where feasibly safe to do so, and to support appropriately informed decision-making processes.

Intangible values associated with Sea Country may potentially be impacted where they are physically interrupted by disturbance activities. Songlines can become lost, fragmented, or broken when there is a loss of Country or forced removal from Country (Neale & Kelly, 2020). Physical sites that have been identified as comprising a component of a songline are important to protect, to prevent the fragmenting or breaking apart of songlines and loss of sacred cultural knowledge. It is noted that oil and gas activities exist in many areas of the NWS, and songlines are still acknowledged and recognised. It is inferred that if there were to be any impacts to surviving songlines, these would be significantly more likely to be described as qualitative (i.e. 'weaken' a songline) rather than binary or absolute (i.e. destroy a songline).

Marine fauna have been identified through consultation and existing literature as an important resource in Sea Country, particularly as food. Direct impacts on communities that use these resources may occur where the resources are lost, displaced, or experience a reduction in population. Therefore, these species (as resources) are likely to be impacted where there is an impact at the species or population level. Recognising that First Nations communities do not distinguish environment from culture, Woodside manages environmentally based cultural values by using the environmental management measures outlined in Sections 6.7 and 6.8.

Intangible cultural heritage may also include transmitting cultural knowledge about marine species, such as nesting areas, hunting areas and migratory patterns. Cultural knowledge may be conveyed through stories, such as the turtle being trapped in the sea as a result of its greed for berries, as recounted by Capewell (2020). Such cultural knowledge may be associated with various cultural functions and activities that support the social and economic life of a community (Fijn, 2021). Activities that impact marine species populations and their environment may indirectly impact on some Aboriginal communities, as this can limit access to cultural sites or deplete hunting areas that would threaten local food security (Delisle, et al., 2018). Inter-generational transmission of cultural knowledge (including songlines) relating to marine species may be impacted where changes to population or behaviour result in reduced sightings (e.g. through population decline, changes to migration routes or changes to migration seasonality). This transfer of knowledge may be integral to managing a group's intangible cultural heritage (United Nations Educational, Scientific and Cultural Organisation, 2003). Mitigation of intangible heritage can include any measure or control aimed at ensuring the viability of the cultural heritage and its intergenerational transmission. This can include reducing impacts and risks to environmental features that are of significant value by applying the environmental management measures outlined in Sections 6.7 and 6.8.

Ongoing connection to Sea Country is maintained by Traditional Custodians through living cultural traditions, including the use of resources and the practice of cultural activities such as ceremonies and Dreaming stories. Woodside invites ongoing engagement with relevant Traditional Custodian stakeholders to ensure this connection is uninterrupted by the Petroleum Activity. Any potential impacts to cultural values (both tangible and intangible) associated with Sea Country are not expected to be significant.

Recreational fishing and tourism operations

Tourism and recreation activity in the Operational Area is expected to be infrequent. Recreational and charter fishing from vessels are the only tourism and recreation activities identified as potentially occurring in the Operational Area. While FishCube data (2019 to 2024) indicate tour operators have been recorded in the Operational Area, based on the location and prevailing weather conditions, their presence during the survey period is expected to be minimal. Impacts to recreational and charter fishing from vessels are limited to the short duration of the Petroleum Activity (about 40 days, refer to Section 3.7). Occasional recreational fishing occurs at Rankin Bank, about 18 km east of the Operational Area. Given the offshore location of the Petroleum Activity, which is a significant distance from access nodes such as Dampier and Onslow (about 150 km south-east and 190 km south-west from the Operational Area at the closest points, respectively), recreational fishing activity is restricted to relatively large vessels. Any potential interactions with recreational fishing and tourism operators would be temporary and localised.

Commercial shipping

The presence of project vessels and towed equipment may cause temporary disruptions to commercial shipping. The north-west corner of the Operational Area partially overlaps a shipping fairway where there is an increased presence of shipping vessels (Figure 4-16). Any potential interactions with this area would be slight and short term, due to the transient nature of the seismic survey vessel and the small area occupied by the seismic survey vessel (and SNA) at any one time, and limited to operational inconvenience (navigational hazard). AMSA strongly recommends using the fairways, but it is not mandatory. Australian Ship Reporting System data from AMSA indicates cargo ships and tankers routinely navigate within the established fairways. No survey acquisition or bunkering is planned to be undertaken in the shipping lane.

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The potential impacts to commercial shipping vessels are expected to be limited to a temporary and localised displacement of vessels as they make slight course alterations to avoid the project vessels (and associated towed equipment in the SNA).

Oil and gas activities

Two oil and gas production facilities are within the Operational Area: Woodside's Pluto and Chevron's Wheatstone platforms (Section 4.9.6). Uncontrolled access by project vessels in the vicinity of these platforms could increase the potential for interference with these facilities and the movements and operations of platform support vessels. However, the Petroleum Activity scope does not require survey activities to be conducted within the PSZ around the platforms. Both the Pluto and Wheatstone platforms are within the broader Operational Area but outside the defined ASA. PSZs are in place around the production wells and crossover manifolds that tie back to the Wheatstone Platform, which prohibit vessels from entering unless authorised, as detailed in

Table 4-27. Physical interaction with the seabed is not planned as part of the Petroleum Activity; therefore, there is no impact on the subsea infrastructure within the Operational Area.

Before starting the Petroleum Activity, Woodside will consult the titleholders/proponents within and adjacent to the Operational Area to establish whether there is any likelihood of concurrent operations, which could interfere with or displace project vessels for both parties. Concurrent operations within tens of kilometres of each other are routinely managed via concurrent operations plans and time-sharing arrangements. Operations that may potentially occur at the time of the survey are:

- Julimar Brunello P&A of Julimar East-1, Brunello-1 ST1 Balnaves Deep-1 and Brulimar-1; activity is planned for Q4 2026 but may potentially overlap if schedule is delayed
- drilling activities for Chevron's Gorgon Stage 3 project; as presented in Section 6.3.2, during stakeholder consultation Chevron advised it may have activities in field in WA-22-R and WA-15-R in Q4 2026/Q1 2027, and in WA-22-R in Q4 2027/Q1 2028
- Greater Western Flank Phase 4, which may have activities in the field in Q1 2027 and Q1 2028.

No other known MSS are currently planned to occur in the surrounding petroleum titles. The potential cumulative impact to other marine users, due to the Petroleum Activities in conjunction with other oil and gas operations, is considered to be temporary and localised.

Defence

Although the Operational Area partially overlaps with a defence practice and training area, defence did not identify any activities within the North West Exercise Area overlapping the Operational Area. Given there is no interaction with the seabed during the Petroleum Activity, it was determined there is no credible risk from unexploded ordnances.

Cumulative impacts

As described above, one Commonwealth-managed fishery and five State-managed fisheries (Mackerel Managed Fishery, Marine Aquarium Managed Fishery, Pilbara Trap Managed Fishery, Pilbara Line Fishery (Condition), West Coast Deep Sea Crustacean Managed Fishery) are considered to have potential for interacting with the Petroleum Activity.

The Petroleum Activity requires vessel activity in the Operational Area, in addition to other petroleum activities overlapping the Operational Area described above. Any cumulative impacts would occur for the short duration of the Petroleum Activity (40 days, refer to Section 3.7).

Given the short duration of the Petroleum Activity any cumulative impact would be temporary and localised. Woodside will continue to identify potential concurrent activities within the Operational Area.

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Demonstration of ALARP				
Control considered	***Control feasibility (F) and cost/ sacrifice (CS)[24]***	***Benefit in impact reduction[25]***	***Proportionality***	***Control adopted***
Legislation, codes and standards				
Vessels comply with Marine Orders for safe vessel operations, specifically: • Marine Order 21 (Safety and emergency arrangements) • Marine Order 27 (Safety of navigation and radio equipment) • Marine Order 30 (Prevention of collisions).	F: Yes. CS: Minimal cost. Standard practice.	Compliance with Marine Orders 21, 27 and 30 is required under Australian regulations and implementation is standard practice for commercial vessels as applicable to vessel size, type and class. Compliance reduces the likelihood of adverse interactions between other marine users and the Petroleum Activity.	Control based on legislative requirement – must be adopted.	Yes C 1.1
Establish a 3 NM radius SNA around the seismic survey vessel and towed array.	F: Yes. CS: Minimal cost. Standard practice.	Presence of the SNA will reduce the likelihood of interfering with other marine users.	Benefits outweigh cost/sacrifice. Control is also standard practice.	Yes C 1.2
Seismic acquisition in other titleholders' exploration permits will be undertaken in accordance with Ingress Agreements with the relevant titleholders and an Access Authority granted by National Offshore Petroleum Titles Authority. An Access Authority will also be in place for acquisition over open acreage.	F: Yes. CS: Minimal cost. Standard practice.	Communicating the Petroleum Activity to other titleholders so they are informed and aware, thereby reducing the likelihood of interfering with other titleholders.	Benefits outweigh cost/sacrifice. Control is also standard practice.	Yes C 1.3
Good practice				
Notify AHO of activities and movements no less than four weeks before the scheduled activity start date.	F: Yes. CS: Minimal cost. Standard practice.	Notifying AHO will enable the generation of navigation warnings (Maritime Safety Information Notifications and Notices to Mariners (including AUSCOAST warnings where relevant)), thereby reducing the likelihood of unplanned interactions with other vessels.	Benefits outweigh cost/sacrifice. Control is also standard practice.	Yes C 1.4
Notify AMSA Response Centre of activities and movements 24 to 48 hours before operations begin.	F: Yes. CS: Minimal cost. Standard practice.	Communicating the Petroleum Activity to other marine users so they are informed and aware, thereby reducing the likelihood of interfering with other marine users.	Benefits outweigh cost/sacrifice. Control is also standard practice.	Yes C 1.5

[24] *Qualitative measure.*
[25] *Measured in terms of reduction of consequence.*

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Demonstration of ALARP				
Control considered	***Control feasibility (F) and cost/ sacrifice (CS)[24]***	***Benefit in impact reduction[25]***	***Proportionality***	***Control adopted***
Notify relevant government departments, fishing industry representative bodies, fishery licence holders, and other oil and gas operators (as requested during consultation) of activities before starting and upon completing activities.	F: Yes. CS: Minimal cost. Standard practice.	Communicating the Petroleum Activity to other marine users so they are informed and aware, thereby reducing the likelihood of interfering with other marine users.	Benefits outweigh cost/sacrifice. Control is also standard practice.	Yes C 1.6
Develop a Concurrent Operations (CONOPS)/ Simultaneous Operations (SIMOPS) Plan to manage interactions with other facilities/vessels, where applicable. The CONOPS/ SIMOPS Plan will contain information on: • minimum separation distances • communications • vessels/activities involved in CONOPS/SIMOPS • exclusion zone entry and exit processes • helicopter operations • key roles, responsibilities and emergency contacts.	F: Yes. CS: Minimal cost. Standard practice.	A CONOPS/ SIMOPS Plan informs nearby facilities and vessels of the Petroleum Activity and allows vessel movements to be managed to reduce the likelihood of interactions.	Benefits outweigh cost/sacrifice. Control is also standard practice.	Yes C 1.7
Have a dedicated chase/support vessel available to manage the SNA.	F: Yes. CS: Minimal cost. Standard practice.	Support and chase vessels can discourage third party vessels from entering the SNA. This will provide a small reduction in likelihood of an interaction with a third-party vessel.	Benefits outweigh cost/sacrifice. Control is also standard practice.	Yes C 1.8
Project vessels to operate Automatic Identification System (AIS), and streamer tail buoys to be fitted with lights, global navigation satellite system (GNSS) and virtual AIS.	F: Yes. CS: Minimal cost. Standard practice.	Use of AIS on project vessels, and lights, virtual AIS and GNSS on streamer tail buoys, will reduce the likelihood of an interaction with a third-party vessel.	Benefits outweigh cost/sacrifice. Control is also standard practice.	Yes C 1.9

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Demonstration of ALARP				
Control considered	***Control feasibility (F) and cost/ sacrifice (CS)[24]***	***Benefit in impact reduction[25]***	***Proportionality***	***Control adopted***
Publish a publicly available interactive map showing the location of the seismic survey vessel.	F: Yes. CS: Minimal cost.	A publicly available interactive map will allow transparency of the activity for other marine users. The interactive map provides an additional/ alternate method for marine users to obtain information on the timing of activities, thereby reducing the likelihood of interaction with other marine users.	Benefits outweigh cost/sacrifice.	Yes C 1.10
Notify the DNP upon EP approval, and 10 days before entering the Montebello AMP – Multiple Use Zone, and after activities are complete.	F: Yes. CS: Minimal cost. Standard practice.	Communicating the Petroleum Activity to other marine users to allow management, thereby reducing the likelihood of interfering with other marine users.	Benefits outweigh cost/sacrifice.	Yes C 1.11
Notify Department of Defence of activities and movements no less than five weeks before the scheduled activity start date.	F: Yes. CS: Minimal cost. Standard practice.	Communicating the Petroleum Activity to other marine users allows management, thereby reducing the likelihood of interfering with other marine users.	Benefits outweigh cost/sacrifice.	Yes C 1.12
A grievance process (Appendix J) is available for commercial fishing licence holders to claim loss of catch, displacement, and lost or damaged fishing equipment as a consequence of survey activities. Claims can be considered where: • there is genuine displacement from undertaking normal fishing activities that results in demonstratable economic loss • deployed fishing equipment has been accidentally lost or damaged by any activities under Woodside's control • it can be demonstrated there is a loss of catch due to the seismic activity.	F: Yes. CS: Minimal to Moderate cost.	A grievance process that considers compensation to reduce or eliminate financial consequences as a result of the Petroleum Activity can be used as a basis for managing impacts to commercial fishers.	Benefits outweigh cost/sacrifice.	Yes C 1.13
Provide daily lookahead reports to fisheries stakeholders and other key	F: Yes. CS: Minimal cost. Standard practice.	Communicating the Petroleum Activity to other marine users so they are	Benefits outweigh cost/sacrifice.	Yes C 1.14

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Demonstration of ALARP				
Control considered	***Control feasibility (F) and cost/ sacrifice (CS)[24]***	***Benefit in impact reduction[25]***	***Proportionality***	***Control adopted***
on-the-water stakeholders, where requested, notifying of planned acquisition and vessel location in upcoming 24-hour and 72-hour periods.		informed and aware, thereby reducing the likelihood of interfering with other marine users.		
Implement and maintain a communications protocol to ensure fishing stakeholders are informed of seismic survey activities before and during operations, and that effective two way communication is available throughout the survey period	F: Yes. CS: Minimal cost.	Communicating the Petroleum Activity to other marine users so they are informed and aware, thereby reducing the likelihood of interfering with other marine users.	Benefits outweigh cost/sacrifice.	Yes C.1.15
Apply a 'living heritage'[26] management approach. Woodside engages with Traditional Custodians and seeks to incorporate cultural knowledge, where appropriate across activities. Cultural safety considerations are factored for our workforce and the First Nations community.	F: Yes. CS: Minimal cost.	A 'living heritage' approach acknowledges and respects First Nations communities. It supports the transfer of cultural knowledge and is an effective strategy to manage intangible cultural values.	Benefits outweigh cost/sacrifice.	Yes C 2.1
Project inductions to relevant personnel, before the individual starts the activity, will include information on cultural values and heritage, including tangible and intangible cultural heritage.	F: Yes. CS: Minimal cost.	Workforce is suitably aware of cultural values and heritage in the area they are operating.	Benefits outweigh cost/sacrifice.	Yes C 2.2
Professional judgement – eliminate				
Limit activities to avoid commercial fishing season.	F: No. CONOPS with fishing seasons cannot be eliminated as fishing occurs year round. CS: Not considered – control not feasible.	Not considered – control not feasible.	Not considered – control not feasible.	No

[26] 'Living heritage' supports community and individual identity. Intangible cultural heritage is 'living heritage' that is inherited from ancestors and passed on to their descendants. It is comprised of many influences, including oral traditions, art, social practices, rituals and ceremonies, cultural knowledge and practices. It is transmitted from generation to generation and evolves in response to the environment. Woodside applies a 'living heritage' approach to its cultural heritage management. This approach invites Traditional Custodians to identify interests, transmit information and express concerns so they can be considered in the context of Woodside's activities. Woodside works with Traditional Custodians to support and follow appropriate cultural protocols, including calling to Country, conducting smoking ceremonies (in areas where this custom is appropriate), and providing cultural awareness. Woodside will collaborate and provide relevant information it holds to groups such as Heritage Management Committees where they are established.

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Demonstration of ALARP				
Control considered	***Control feasibility (F) and cost/ sacrifice (CS)[24]***	***Benefit in impact reduction[25]***	***Proportionality***	***Control adopted***
Reduce or remove the SNA.	F: No. The SNA is a safety and environmental critical element. It cannot be reduced or removed. The 3 NM SNA for seismic surveys is accepted as best practice. CS: Not considered – control not feasible.	Not considered – control not feasible.	Not considered – control not feasible.	No
Eliminate use of vessels.	F: No. The use of vessels is required to conduct the Petroleum Activity. The number and type of vessels used for the Petroleum Activity are similar to other MSS undertaken in Australia. CS: Not considered – control not feasible.	Not considered – control not feasible.	Not considered – control not feasible.	No
Avoid shipping lanes.	F: No. The Operational Area is required to replicate historical surveys and provide a timelapse. CS: Not considered – control not feasible.	Not considered – control not feasible.	Not considered – control not feasible.	No
Professional judgement – substitute				
None identified.				
Professional judgement – engineered solution				
None identified.				
ALARP statement: Based on the environmental impact assessment outcomes and use of the relevant tools appropriate to the decision type (i.e. Decision Type A; Section 2.2.5.2) and Woodside's criteria for demonstrating ALARP (Section 2.3.1), Woodside considers the adopted controls appropriate to manage potential impacts to other marine users from the Petroleum Activity. As no reasonable additional/alternative controls were identified that would further reduce the impacts and risks without grossly disproportionate sacrifice, the impacts and risks are considered ALARP.				

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Demonstration of acceptability
Acceptability statement: The impact assessment has determined that, given the adopted controls, physical presence of the project vessels (and associated towed equipment in the SNA) is unlikely to result in potential impact greater than localised and temporary impact to other marine users. In addition, project vessel activities will not interfere with other marine users' rights to a greater extent than is necessary. Further opportunities to reduce the impacts and risks have been investigated above. The adopted controls are considered good oil-field practice/industry best practice and meet AMSA and AHO expectations as provided during consultation. The potential impacts and risks are considered broadly acceptable if the adopted controls are implemented. Therefore, Woodside considers the adopted controls appropriate to manage the impacts of physical presence of the project vessels (and associated towed equipment in the SNA) to a level that is broadly acceptable.

EPOs, EPSs and MC			
EPO	***Controls***	***Performance standards***	***MC***
EPO 1 Prevent adverse interactions between vessels and other marine users during the Petroleum Activity.	C 1.1 Vessels comply with Marine Orders for safe vessel operations, specifically: • Marine Order 21 (Safety and emergency arrangements) • Marine Order 27 (Safety of navigation and radio equipment) • Marine Order 30 (Prevention of collisions).	PS 1.1.1 Contracted vessels comply with Marine Orders as required by vessel size, type and class.	MC 1.1.1 Marine verification records demonstrate compliance with relevant Marine Orders.
	C 1.2 Establish a 3 NM radius SNA around the seismic survey vessel and towed array.	PS 1.2.1 SNA established, communicated around the seismic vessel and towed array during the Petroleum Activity.	MC 1.2.1 Records demonstrate the SNA has been established and details have been communicated to approaching third-party vessels.
	C 1.3 Seismic acquisition in other titleholders' exploration permits will be undertaken in accordance with Ingress Agreements with the relevant titleholders and an Access Authority granted by National Offshore Petroleum Titles Authority. An Access Authority will be in place for acquisition over open acreage.	PS 1.3.1 Ingress Agreements and Access Authority granted before the activity takes place.	MC 1.3.1 Records demonstrate Ingress Agreements and Access Authority are in place.
	C 1.4 Notify AHO of activities and movements no less than four working weeks before the scheduled activity start date.	PS 1.4.1 Notification to AHO of activities and movements no less than four working weeks before the scheduled activity start date.	MC 1.4.1 Notification records demonstrate AHO notifications are complete.

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EPOs, EPSs and MC			
EPO	***Controls***	***Performance standards***	***MC***
	C 1.5 Notify AMSA Response Centre of activities and movements 24 to 48 hours before operations begin.	PS 1.5.1 Notification to AMSA Response Centre of activities and movements 24 to 48 hours before operations begin.	MC 1.5.1 Notification records demonstrate AMSA's Response Centre is notified.
	C 1.6 Notify relevant government departments, fishing industry representative bodies, fishery licence holders, and other oil and gas operators (as requested during consultation) of activities before and upon completing activities.	PS 1.6.1 Notification to AFMA, Commonwealth Fisheries Association (CFA), Department of Agriculture, Fisheries and Forestry (fisheries), WAFIC, DPIRD, Recfishwest, individual Commonwealth fishery licence holders in the Operational Area and other oil and gas operators (if agreed during consultation) ten days before activity begins, and after completing activities, as per Table 7-5.	MC 1.6.1 Consultation records demonstrate listed relevant persons have been notified before activities began and on completion.
	C 1.7 Develop a CONOPS/ SIMOPS Plan to manage interactions with other facilities/vessels, where applicable. The CONOPS/ SIMOPS Plan will contain information on: • minimum separation distances • communications • vessels/activities involved in CONOPS/ SIMOPS • exclusion zone entry and exit processes • helicopter operations • key roles, responsibilities and emergency contacts.	PS 1.7.1 A CONOPS/ SIMOPS Plan developed for any concurrent activities identified.	MC 1.7.1 Records demonstrate Woodside engaged with identified proponent before starting the Petroleum Activity and developed a CONOPS/ SIMOPS Plan (if required).
	C 1.8 Have a dedicated chase/support vessel available to manage the SNA.	PS 1.8.1 At least, one vessel employed to help the seismic survey vessel mitigate interactions with third-party vessels.	MC 1.8.1 Records demonstrate a second vessel is employed for the Petroleum Activity.
	C 1.9 Project vessels to operate AIS, and streamer tail buoys to be fitted with lights, GNSS and virtual AIS.	PS 1.9.1 Project vessels operating AIS and streamer tail buoys fitted with lights, GNSS and virtual AIS.	MC 1.9.1 Records demonstrate project vessels operating AIS, and streamer tail buoys are fitted with lights, GNSS and virtual AIS.

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EPOs, EPSs and MC			
EPO	***Controls***	***Performance standards***	***MC***
	C 1.10 Publish a publicly available interactive map showing the location of seismic survey vessel.	PS 1.10.1 Activity interactive map publicly available and maintained throughout the Petroleum Activity.	MC 1.10.1 Records demonstrate interactive map was publicly available throughout activities.
	C 1.11 Notify the DNP upon EP approval, and 10 days before entering the Montebello AMP – Multiple Use Zone, and after activities are complete.	PS 1.11.1 Notification to the DNP upon EP approval and 10 days before entering the Montebello AMP – Multiple Use Zone, and following completion of the activities.	MC 1.11.1 Notification records demonstrate the DNP was notified.
	C 1.12 Notify Department of Defence of activities and movements no less than five weeks before the scheduled activity start date.	PS 1.12.1 Notification to Department of Defence of activities and movements no less than five weeks before the scheduled activity start date.	MC 1.12.1 Notification records demonstrate Department of Defence was notified.
	C 1.13 A grievance process (Appendix J) is available for commercial fishing licence holders to claim loss of catch, displacement, and lost or damaged fishing equipment as a consequence of survey activities. Claims can be considered where: • there is genuine displacement from undertaking normal fishing activities that results in demonstratable economic loss • deployed fishing equipment has been accidentally lost or damaged by any activities under Woodside's control • it can be demonstrated there is a loss of catch due to the seismic activity.	PS 1.13.1 Raised grievances will be closed out and evidence-based claims will be considered for compensation.	MC 1.13.1 Records demonstrate raised grievances are closed out and evidence-based claims were considered for compensation.
	C 1.14 Provide daily lookahead reports to fisheries stakeholders and other key on-the-water stakeholders, where requested, notifying of planned acquisition and vessel location in upcoming 24-hour and 72-hour periods.	PS 1.14.1 Daily lookahead reports provided to fisheries stakeholders and other key on-the-water stakeholders, where requested, during the Petroleum Activity.	MC 1.14.1 Records demonstrate fisheries stakeholders and other key on-the-water stakeholders received daily lookahead reports, where requested, during the Petroleum Activity.

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EPOs, EPSs and MC			
EPO	***Controls***	***Performance standards***	***MC***
	C 1.15 Implement and maintain a communications protocol to ensure fishing stakeholders are informed of seismic survey activities before and during operations, and that effective two way communication is available throughout the survey period	PS 1.15.1 Communications protocol that identifies relevant fishing stakeholders, lists details of survey location, timing, duration, and contact points.	MC 1.15.1 Records demonstrate communication protocol implemented for fisheries stakeholders including records of stakeholder notifications, communications, and issues raised, during the Petroleum Activity.
EPO 2 Woodside supports ongoing engagement and consultation with Traditional Custodians for the purpose of assessing and avoiding impacts to cultural heritage values.	C 2.1 Apply a 'living heritage' management approach. Woodside engages with Traditional Custodians and seeks to incorporate cultural knowledge, where appropriate across activities. Cultural safety considerations are factored for our workforce and the First Nations community.	PS 2.1.1 Woodside will continue to invite Traditional Custodians to identify interests, transmit information and express concern through ongoing consultation, as identified in Section 7.9.	MC 2.1.1 Records demonstrate Change Management and Management of Knowledge processes have been followed where new controls or management measures are identified.
		PS 2.1.2 Woodside will assess and, where deemed practicable, implement appropriate cultural protocols where requested by Traditional Custodians.	MC 2.1.2 Records demonstrate Woodside implemented cultural protocols as requested.
	C 2.2 Project inductions to relevant personnel, before the individual starts the activity, will include information on cultural values and heritage, including tangible and intangible cultural heritage.	PS 2.2.1 Relevant personnel have completed project inductions that include information on cultural values, including tangible and intangible cultural heritage for awareness.	MC 2.2.1 Records demonstrate relevant personnel have completed inductions that include cultural awareness.

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6.7.2 Routine acoustic emissions: seismic survey array

Context		
Project vessels – Section 3.9 Marine seismic survey – Section 3.8	Physical environment – Section 4.4 Biological environment – Section 4.5 Protected species – Section 4.6 Protected places – Section 4.7.1 Socioeconomic – Section 4.8.1	Stakeholder consultation – Section 5

Impact evaluation summary

Source of impact	***Environmental value potentially impacted***						***Evaluation***						
	Marine sediment	Water quality	Air quality (incl odour)	Ecosystems/habitat	Species	Socioeconomic	Decision type	Consequence/impact	Likelihood	Risk rating	ALARP tools	Acceptability	Outcome
Generation of noise from seismic equipment				X	X	X	A	E	-	-	LCS GP	Broadly acceptable	EPO 3a EPO 3b EPO 2

Description of source of impact

The Petroleum Activity will use a seismic source, consisting of an airgun array with a maximum capacity of up to 3,150 in³, towed at a water depth of about 5 m (±1 m) (refer to Table 3-3 for more details of the acquisition parameters). The source will be used to generate acoustic pulses by periodically discharging compressed air into the water column, at intervals of about 10 seconds as the vessel transits along planned survey lines within the ASA.

The seismic survey array focuses acoustic signals at the seabed but will also ensonify the surrounding water column to a lesser extent. The 3,150 in³ seismic source is expected to produce far-field source levels up to a maximum of 255 dB re 1 µPa m (peak) and per-pulse SEL of 227 to 230 dB re 1 µPa2m²s (at 10 to 2,000 Hz) in the vertical plane directly beneath the array. In the horizontal (broadside) plane, the seismic source is expected to produce far-field source levels up to a maximum of 248 dB re 1 µPa m (peak) and per-pulse SEL of 224 dB re 1 µPa2m²s (at 10 to 2,000 Hz). The acoustic noise generated by the array will be strongest at the source and rapidly decrease with distance from the source.

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Impact assessment

Environmental value(s) potentially impacted

Potential impacts to marine fauna are highly variable depending on exposure, susceptibility, behaviour and their proximity to the sound source. The actual sound levels experienced in both near-field and far-field conditions are determined by several factors, including the size and capacity of the acoustic source, the array configuration, local water depth, position within the water column, distance from the source, and the acoustic characteristics of the seabed. Elevated underwater noise can affect marine fauna, including marine mammals (cetaceans), turtles and fishes, in three main ways (Richardson, et al., 1995; Simmonds, et al., 2004):

- By causing direct physical effects, including injury or hearing impairment. Hearing impairment may be temporary (temporary threshold shift – TTS), or permanent (permanent threshold shift – PTS), with PTS generally considered to represent a form of injury, though as discussed within Accomando, et al. (2025) and National Marine Fisheries Service (NMFS, 2024), intense noise exposures can cause auditory injury in marine mammals without PTS occurring.
- Through disturbance leading to behavioural changes or displacement from important areas. The occurrence and intensity of disturbance is highly variable and depends on a range of factors relating to the animal and situation.
- By masking or interfering with other biologically important sounds (including vocal communication, echolocation, signals and sounds produced by predators or prey).

The area over which seismic sound may adversely impact marine species depends upon multiple factors, including the extent of sound propagation relative to the location of receptors, and the sensitivity and range of spectral hearing of different species (Slabbekoorn, et al., 2010; Popper & Hawkins, 2012).

Without adequate control measures in place, noise emitted from the seismic source used during the Petroleum Activity has the potential to impact a range of receptor groups, being:

- zooplankton
- benthic invertebrates
- fish, sharks and rays
- cetaceans
- marine reptiles (turtles and sea snakes)
- seabirds and migratory shorebirds
- commercial fisheries
- marine protected areas.

Sound metric terminology

Sound levels and the decibel scale

The decibel (dB) scale is used to measure the amplitude or 'loudness' of a sound wave. For underwater sounds, the dB scale is denoted relative to the reference pressure of 1 micropascal (µPa), e.g. dB re 1 µPa, whereas the reference pressure level used in air is 20 µPa, which was selected to match human hearing sensitivity. Because of these differences in reference standards, dB sound levels in air are not comparable to underwater sound levels; i.e. dB sound levels underwater are much quieter than the same dB sound levels in air (Carroll, et al., 2017).

Sound metrics

Marine seismic surveys emit pulses of underwater sound. These sounds are termed 'impulsive' sounds as they are brief and intermittent with rapid rise times, and decay back to ambient levels within a few seconds.

There are four main metrics used to measure and describe underwater sound pressure and energy that are applied to assess these types of sound, all of which use the decibel scale (adapted from ISO/DIS 18405.2:2017):

- **Zero-to-peak sound pressure (PK)**, the greatest magnitude of the sound pressure during a specified time interval (Figure 6-1); unit: dB re 1 µPa. PK levels are relevant when assessing potential physical injury and impairment impacts to marine fauna and biota resulting from a single seismic pulse.
- **Peak-to-peak sound pressure (PK-PK)**, the sum of the peak compressional pressure and the peak rarefactional pressure during a specified time interval (around double the zero-to-peak pressure) (Figure 6-1); unit: dB re 1 µPa. PK-PK levels, like PK levels, are relevant when assessing potential physical injury and impairment impacts to marine fauna and biota resulting from a single seismic pulse.
- **Sound pressure level (SPL)**, the root-mean-square pressure level in a stated frequency band over a specified time window (i.e. the duration of a single seismic pulse) (Figure 6-1); unit: dB re 1 µPa. Because the SPL represents the effective sound pressure over the full duration of the acoustic event rather than the maximum instantaneous peak pressure, it is regularly used to represent the effective loudness of a sound and to assess the potential for a behavioural response from marine fauna.

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- **Sound exposure level**, a measure related to the sound energy (instead of the sound pressure) in one or more pulses, or the ratio of the time-integrated squared sound pressure to the specified reference value; unit: dB re 1 µPa².s. SEL is specified in terms of either per-pulse or accumulated (SEL_{cum}) from multiple pulses over a given period. SEL recognises that the effects of sound can be a function of exposure duration as well as maximum instantaneous peak pressure. SEL can therefore be considered a dose-type measurement, with SEL_{cum} being used to assess dose-type impacts such as the potential for the gradual onset of TTS in marine fauna hearing because of prolonged exposure to high sound levels. It is standard practice for SEL_{cum} to be assessed over a summation period of 24 hours (SEL_{24h}).

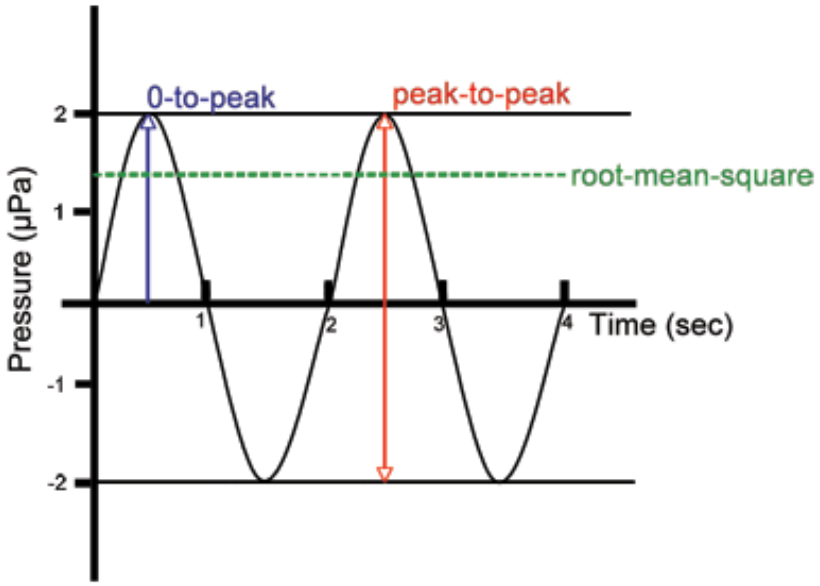


Figure 6-1: Simplified sound wave and sound pressure metrics (University of Rhode Island and Inner Space Center, 2017)

Particle motion

The particle motion component of sound is also relevant when assessing potential impacts to marine fauna. Acoustic particle motion refers to the physical motion caused by a sound wave within the water, seabed or other medium. Unlike pressure, particle motion is directional in nature, although the actual to-and-fro particle displacements that constitute sound are extremely small, in the order of nanometres (Popper & Hawkins, 2018). Particle motion can be described in terms of particle displacement (m), velocity (m/s) or acceleration (m/s^2) (Carroll, et al., 2017; Popper, et al., 2014). Alternatively, it is sometimes expressed in dB with respect to a reference value of displacement (dB re 1 µm), velocity (dB re 1 nm/s) or acceleration (dB re 1 µm/s²) (Nedelec, et al., 2016).

Particle motion is important because marine invertebrates and most fishes are primarily sensitive to particle motion rather than sound pressure. Therefore, particle motion is the most relevant metric for how invertebrates and most fish species perceive underwater sound (Popper & Hawkins, 2019). However, there is currently limited information available to quantify the particle motion sensitivity of fishes and invertebrates. It is complex and challenging to directly measure particle motion compared to sound pressure; hence, most research is presented in the context of sound pressure or exposure levels instead (Carroll, et al., 2017; Popper & Hawkins, 2018). Therefore, while the assessment of underwater noise impacts in this EP considers the role of particle motion and its effect on fishes and invertebrates, the acoustic modelling and impact threshold criteria are based upon sound pressure and sound exposure metrics and PK-PK sound energy is considered to be a suitable indicator for potential impact to invertebrates (Connell, et al., 2025) (Appendix E).

It should be noted particle motion is most relevant close to the source where it is the dominant component of a sound wave, while pressure will dominate a sound wave propagating over distance (Popper & Hawkins, 2018; Nedelec, et al., 2016; Radford, et al., 2012; Morley, et al., 2014). Sound pressure levels received at increasing distance from a source do not, therefore, reliably represent particle motion. Organisms (e.g. invertebrates and fish without a bladder) that are sensitive only to particle motion have typically been found to be sensitive only at close range, where these particle motions are greatest (Popper & Hawkins, 2018; Popper, et al., 2014; Edmonds, et al., 2016).

Sound frequency and hearing sensitivity

Different animals are sensitive to different sound frequencies, which are measured in Hertz (Hz) and kilohertz (kHz). Therefore, if an animal is sensitive to a particular frequency range, a sound in that range will seem louder to that animal than to an animal that is less sensitive to those frequencies. For example, some large baleen whales are sensitive to very low frequency sounds (7 Hz to 35 kHz), while other toothed whales and dolphin species are considered more sensitive to mid- to high-frequency (HF) sounds (150 Hz to 160 kHz), with their peak hearing

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frequency somewhere between these frequency ranges (NMFS, 2024). Therefore, how loud a sound will be perceived will differ between species.

In some cases, a sound level is specified relative to a given frequency range or is weighted according to the auditory sensitivity of an animal (e.g. low-frequency (LF), medium-frequency and HF groups of cetaceans). This has the advantage of placing the sound into a more biologically relevant context for that animal. If a frequency range or weighting is not specified, the frequency of the sound is generally referred to as 'broadband' sound – i.e. the sound level accounts for sound across all frequencies – noting again that a particular animal may not be able to detect all the sound frequencies and associated energy that are emitted.

Therefore, the frequency of a sound and how sensitive different animals are to sound can make a considerable difference to how loud the sound is perceived to be and any resultant impact.

Acoustic modelling

To assess the potential magnitude and extent of impacts from underwater noise produced during the Petroleum Activity, Woodside commissioned JASCO Applied Sciences to model sound propagation at a number of sites that were representative of the different water depths, bathymetry and seabed properties within the ASA (Connell, et al., 2025) (Appendix E).

The objective of this acoustic modelling study was to determine distances from operations where underwater sound levels reached thresholds corresponding to criteria (e.g. potential injury and behavioural disruption) for marine fauna, including cetaceans, marine reptiles, fishes, elasmobranchs and zooplankton. The modelling also provides information to support the evaluation of potential effects of sound on the marine fauna as well as socioeconomic receptors such as commercial fisheries and marine protected areas.

The modelling considered an airgun array with a volume of about 3,150 in^3, towed at 5 m depth in a double source configuration behind a single seismic survey vessel. Single-impulse sound fields were predicted at 12 sites within the ASA, selected to cover a range of water depths along the survey lines that will acquire seismic survey, and the sound propagation characteristics that may arise during acquisition. The modelled sites and acquisition lines are shown in Figure 6-2 along with the Operational Area, ASA and SAA and environmental sensitivities of interest. An accumulated sound exposure field was predicted for one representative scenario for likely survey operations over 24 hours. This accumulated SEL scenario assumed a seismic survey vessel sailed along survey lines at about 4.5 knots, with an impulse interval of 18.75 m.

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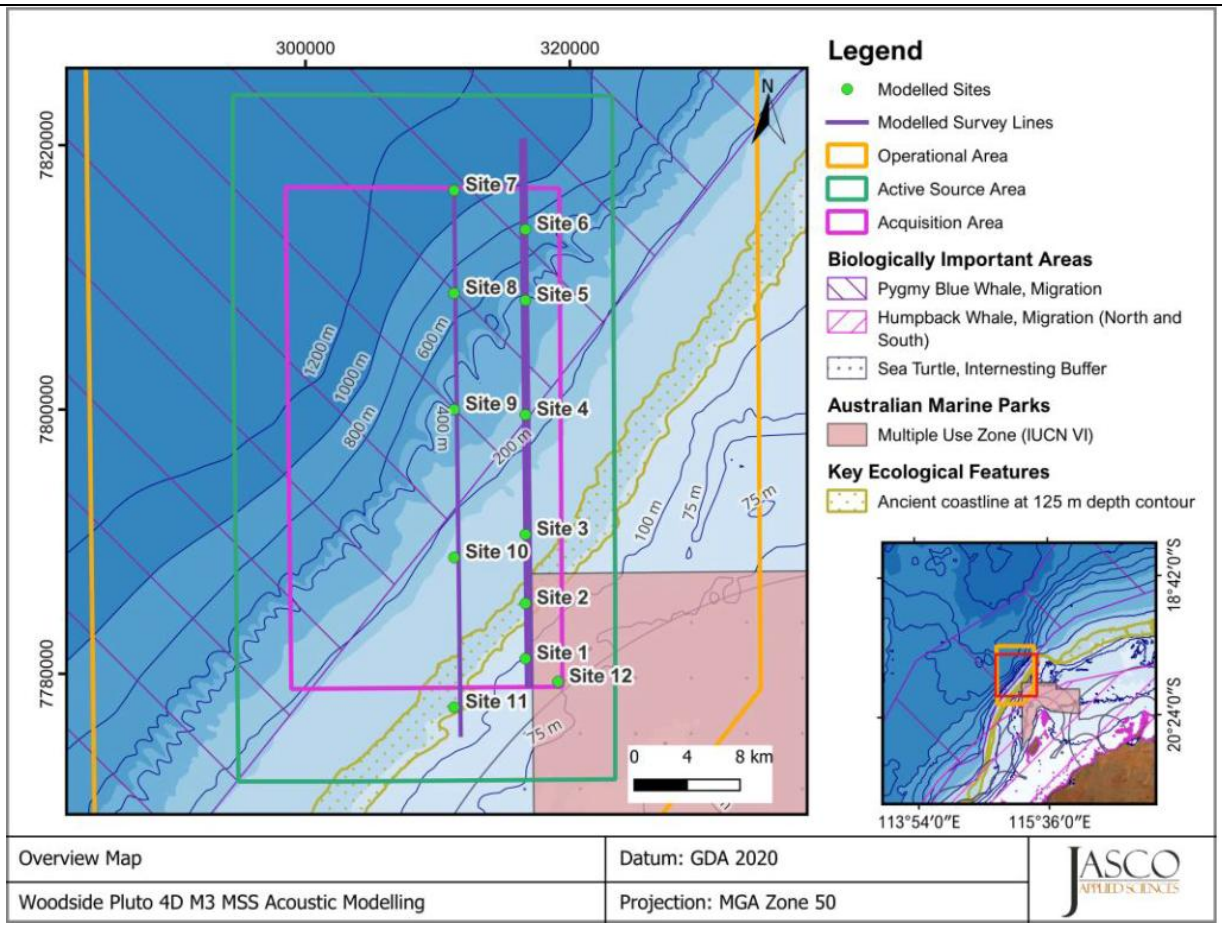


Figure 6-2: Overview of the modelled sites, acquisition lines and features for the seismic survey (Connell, et al., 2025)

The modelling methodology considered source directivity and range-dependent environmental properties. Estimated underwater acoustic levels were presented as sound pressure levels (SPL, Lp), zero-to-peak pressure levels (Lpk), peak-to-peak pressure levels (Lpk-pk), and either single-impulse (i.e. per-pulse) or accumulated sound exposure levels (LE) as appropriate for different noise effect criteria on marine fauna. The duration period for SEL accumulation is defined as a 24-hour period over which sound energy is integrated (abbreviated to SEL_{24h}).

Contours of the modelled underwater sound fields were computed as the maximum value over all modelled depths (maximum-over-depth) or at the seafloor for the single-pulse locations, and cumulative SEL_{24h} scenario. The modelled distances to each noise effect criterion for marine fauna were computed from these contours.

Two distances relative to the source are reported for each sound level:

- R_{max} – the maximum range to the given sound level over all azimuths
- $R_{95\%}$ – the range to the given sound level after the 5% farthest points were excluded.

The difference between R_{max} and $R_{95\%}$ depends on the source directivity and the non-uniformity of the acoustic environment. In some environments a sound level contour might have small anomalous isolated fringes, in which case the use of R_{max} can misrepresent the area of the region exposed to such effects. In these instances $R_{95\%}$ is considered more representative. In environments that have bathymetric features that affect sound propagation, the $R_{95\%}$ may neglect to account for these; therefore, R_{max} might better represent the region of effect in specific directions. For this impact assessment the R_{max} values have been considered. In many of the impact assessments, the maximum R_{max} values resulting from the various modelling sites have been referenced (unless specified), providing a further level of conservatism to the assessment.

The results of the acoustic modelling are presented in relation to the noise effect criteria relevant to marine fauna. The detailed results are provided in the acoustic modelling report (Connell, et al., 2025) (Appendix E).

Note that SEL_{24h} is a cumulative metric that reflects the dosimetric effect of noise levels within 24 hours, based on the assumption a receiver (e.g. an animal) is consistently exposed to such noise levels at a fixed position. More realistically, marine mammals, fish and sea turtles would not stay in the same location for 24 hours – especially in the absence of location-specific habitat – but rather a shorter period, depending on the animal's behaviour and the source's proximity and movements. Therefore, a reported radius for the SEL_{24h} criteria does not mean marine fauna travelling within this radius of the source will be impaired, but rather that an animal could be exposed to the sound

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level associated with impairment (either TTS or PTS) if it remained within the ensonified area for 24 hours. A more realistic representation of the potential exposures for southbound migrating pygmy blue whales (*Balaenoptera musculus brevicauda*) was undertaken using animal movement modelling (animat modelling), refer below.

Animal movement and exposure modelling (animat modelling)

In addition to the propagation modelling outlined above, Woodside commissioned JASCO to perform an acoustic exposure analysis study to investigate and predict the potential for pygmy blue whales to be exposed to the above criteria during southbound migration (Connell, et al., 2025) (Appendix E). While acoustic modelling inherently assumes static animals, the JASCO 'animal simulation model including noise exposure' (JASMINE) combines modelled sound fields with biologically meaningful animal movement rules to predict whether animals might be impacted through sound exposure. The exposure ranges account for animats sampling the sound field vertically and horizontally based on species-specific diving and movement parameters.

Animat modelling was used to address the line acquisition plan for survey operations over 24 hours. Sound exposure distribution estimates were determined by moving large numbers of simulated animals (animats) through a modelled time-evolving sound field, computed using the existing sound source and sound propagation model. This approach provides the most realistic prediction of the maximum expected SPL and SEL for comparison against the relevant thresholds.

Animal movement modelling simulations were run for migrating pygmy blue whales, considering the nominal 24-hour acquisition scenario. Detailed information on pygmy blue whale migration was derived from a range of sources that used multi-sensor tags to record fine-scale dive and movement behaviour (Owen, et al., 2016; Thums, et al., 2025), as well as satellite tags to record travel speed (Thums & Ferreira, 2021).The behaviour of migrating pygmy blue whales was modelled to reflect animats transiting through the modelling area on a 225° track for their southbound migration. This represents the animals migrating along the west coast of Australia from their breeding grounds in Indonesia to feeding areas south of Australia (Thums & Ferreira, 2021; Double, et al., 2014). The migration direction follows the alignment of the eastern edge of the migration BIA in this area. The speed of travel for both exploratory and migratory movements was calculated from data presented in Thums & Ferreira (2021), who analysed data from satellite tags deployed on pygmy blue whales in the NWMR.

Animats were considered either restricted to the pygmy blue whale migration BIA or unrestricted throughout the modelling area. In the unrestricted seeding scenarios, animats are randomly placed, or seeded, within the entire simulation area at a specified density (animats/km²) within the species' preferred depth range. Restricted seeding limits the animats' movement to within its respective BIA.

The results of the animat modelling are discussed below (marine mammal impact assessment), and detailed results are provided in the acoustic modelling report (Connell, et al., 2025) (Appendix E).

Zooplankton

Species sensitivity and sound exposure thresholds

Plankton is a collective term for all marine organisms that are unable to swim against a current. This group is diverse and includes phytoplankton (plants) and zooplankton (animals), as well as fish and invertebrate eggs and larvae. There is no scientific information on the potential for noise-induced effect in phytoplankton and no functional cause-effect relationship has been established. Noise-induced effects on zooplankton, such as copepods, cladocerans, chaetognaths and euphausiids, have been investigated in sound exposure experiments.

Zooplankton includes fish eggs and larvae that are transported by currents and winds and cannot take evasive behaviour to avoid seismic sources. Studied larval fish species appear to have hearing frequency ranges similar to those of adults and similar acoustic startle thresholds (Popper, et al., 2014). Swim bladders may develop during the larval stage and may render larvae susceptible to pressure-related injuries such as barotrauma. Effects of sound upon eggs, and larvae containing gas bubbles, are focused on barotrauma rather than hearing (Popper, et al., 2014). Larval stages are often considered more sensitive to stressors than adult stages, but exposure to seismic sound reveals no differences in larval mortality or abundance for fish, crabs or scallops (Carroll, et al., 2017).

Vereide, et al. (2025) investigated the effects of a seismic survey on zooplankton mortality and distribution across varying distances and nearby (<50 m) via an ongoing seismic survey using a full airgun array (total volume 3,060 in³) in the North Sea. Zooplankton biomass exhibited a consistent distribution in line with hydrography and chlorophyll distribution, before and after airgun exposure. Immediate mortality was uniform across sound levels, never exceeding 35.9%. Zooplankton were exposed while submerged in bags and displayed low immediate mortality (<10%), with an increasing trend (<30%) up to seven days after exposure. Vereide et al. (2025) note that accounting for background mortality is essential for accurately assessing the effects of anthropogenic disturbances on zooplankton. In areas without seismic activities, natural mortalities range from 11.6 to 59.8% (Tang, et al., 2014), reflecting high natural non-predatory mortality due to factors like senescence, turbulence, temperature or parasitism. Vereide et al. (2025) concluded the data show limited direct impacts of seismic activity on zooplankton mortality and distribution, and a potential for a delayed impact due to delayed mortality. The natural variation in mortality and vertical distribution exceeded the effect of seismic exposure on in situ zooplankton, indicating direct effects of seismic surveys on zooplankton are limited and species-specific.

Parry, et al. (2002) studied the abundance of plankton after exposure to airgun sounds but found no evidence of mortality or changes in catch rate at a population level. Other studies have also noted limited negative impacts on

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zooplankton, fish eggs, larvae or fry; most have reported that impacts occur within a few metres or tens of metres from the source (Kostyuchenko, 1973; Dalen & Knutsen, 1987; Kosheleva, 1992; Turnpenny & Nedwell, 1994; Payne, et al., 2009). These studies included exposures to sound pressures up to about 242 dB re 1 µPa, comparable to those predicted in close range to the Pluto M3 4D MSS seismic source.

McCauley, et al. (2017) found that after exposure to sounds generated with a single airgun (150 cui), zooplankton abundance decreased and mortality in adult and larval zooplankton increased two- to three-fold when compared with controls. In this large-scale field experiment on the impact of seismic activity on zooplankton, a sonar and net tows were used to measure the effects on plankton, and a maximum effect range of 1.2 km horizontal was determined. The findings contradicted the conventional idea of limited and very localised impact of intense sound in general, and seismic airgun signals in particular, on zooplankton, with the results indicating there may be noise-induced effects on these taxa and these effects may even be negatively affecting ocean ecosystem function and productivity.

The study measured zooplankton abundance and the proportion of the population that was dead at three distances from a single 150 cui airgun: 0 m, 200 m and 800 m. The experiment estimated the proportion of the zooplankton that was found to be dead, both before and after exposure to airgun noise, using net samples to measure zooplankton abundance, and bioacoustics to identify their distribution. In this study, copepods dominated the mesozooplankton (0.2 to 20 mm), and impacts were not assessed on microzooplankton (0.02 to 0.2 mm) or macrozooplankton (>20 mm).

McCauley, et al. (2017) provide three findings from the experiment to show zooplankton were affected by the seismic source:

- the proportion of the mesozooplankton community that was dead increased two- to three-fold
- the abundance of zooplankton estimated by net samples declined by 64%
- the opening of a ‘hole’ in the zooplankton backscatter, observed via acoustics.

They found exposure to airgun noise significantly decreased zooplankton abundance, and increased the mortality rate from a natural level of 19% per day to 45% per day (on the day of exposure, and that these impacts were observed out to the maximum range assessed (1.2 km) (McCauley, et al., 2017)).

Australian Petroleum Production and Exploration Association contracted scientists from CSIRO’s Oceans and Atmosphere Business Units to undertake a desktop study that: a) critically reviewed the methodologies and findings of the McCauley, et al. (2017) experiment; and b) simulated the large scale impact of a seismic survey on zooplankton in the NWS region, based on the mortality rate associated with airgun noise exposure reported by McCauley, et al. (2017).

CSIRO’s review of the McCauley, et al. (2017) study raised three primary questions about the results of the experiment, all of which warrant further investigation (Richardson, et al., 2017):

- Why was there no attenuation of the impact with distance? There is no consistent decline in the proportion of zooplankton that are dead with increasing distance away from the airgun. The energy of the sound waves at 1.2 km is substantially lower than at the source.
- Why was there an immediate decline in abundance? It is unclear why there would be a near immediate drop in zooplankton abundance as measured by net samples and acoustic data. If zooplankton were killed, they would not immediately sink from the surface layers, or be rapidly eaten. A drop in abundance would be more likely once the dead zooplankton either sunk to the bottom or were removed by predation.
- Was there sufficient replication to be confident in the study findings?

The conclusions by McCauley, et al. (2017) were based on a relatively small number of zooplankton samples. A total of 24 samples were collected – two tows, each sampling time × three distances from the gun (0 m, 200 m, 800 m) × two levels (Control, Exposed) × two replicate experiments (Day 1, Day 2). Therefore, only 12 samples were collected under conditions exposed to the airgun, six on each day of the two experiments. The major confounding explanation for this study is that a different water mass entered the area on each day of the experiment and had lower abundance and higher quantities of dead zooplankton. Richardson, et al. (2017) concluded that “although this is relatively unlikely, it cannot be discounted because of the relatively few samples collected and only two replicate experiments conducted.”

Independently of the Australian Petroleum Production and Exploration Association/CSIRO study, the International Association of Geophysical Contractors reviewed the McCauley, et al. (2017) paper. They concluded: “While we found the study interesting, we are also troubled by the small sample sizes, the large day-to-day variability in both the baseline and experimental data, and the large number of speculative conclusions that appear inconsistent with the data collected over a two-day period. Both statistically and methodologically, this project falls short of what would be needed to provide a convincing case for adverse effects from geophysical survey operations.” (International Association of Geophysical Contractors, 2017).

The second component of the CSIRO study (Richardson, et al., 2017) was to estimate the spatial and temporal impact of seismic activity on zooplankton on the NWS from a large-scale seismic survey, considering mortality estimates of McCauley, et al. (2017), and accounting for typical growth rates, natural mortality rates, and the ocean circulation in the region. The approach modelled a hypothetical 3D survey (2,900 km² in size, over a 35-day period, in water depths of 300 to 800 m) on the edge of the NWS during summer. To simulate the movement of zooplankton by currents, the

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researchers used a hydrodynamic model that seeded 0.5 million particles into CSIRO's Ocean Forecast Australia Model. Zooplankton particles could be hit multiple times by airgun pulses if they were carried by currents into the future survey path. The greatest limitation in this approach was accurate knowledge of the natural growth and mortality rates of zooplankton; to address this, the CSIRO researchers tested the sensitivity of the model to different recovery (growth-mortality) rates, and the sensitivity of the results to ocean circulation by undertaking simulations with and without water motion (Richardson, et al., 2017).

The results of the simulations, that included ocean circulation, showed the impact of the seismic survey on zooplankton biomass was greatest in the survey region (defined as the acquisition area with a 2.5 km impact zone around it) (22% of the zooplankton biomass was removed), and declines as one moves beyond it to the survey region + 15 km (14% of biomass removed), and the survey region + 150 km (2% of biomass removed). The time to recovery (to 95% of the original level) for the survey region and survey region + 15 km recovery was 39 days (38 to 42 days) after the start of the survey and three days (two to six days) after the end of the survey (Richardson, et al., 2017).

The CSIRO study found there was substantial impact of seismic activity on zooplankton populations on a local scale within or close to the survey area; however, on a regional scale the impacts were minimal and were not discernible over the entire NWS bioregion. Additionally, the study found that the time for the zooplankton biomass to recover to pre-seismic levels inside the survey area, and within 15 km of the area, was only three days after completing the survey. This relatively quick recovery was due to the fast growth rates of zooplankton, and the dispersal and mixing of zooplankton from inside and outside of the impacted region (Richardson, et al., 2017).

A more recent study by Fields, et al. (2019) exposed zooplankton (copepods) to seismic pulses at various distances up to 25 m from a seismic source. The source levels were estimated to be 221 dB re 1 µPa².s. The study observed an increase in immediate mortality rates of up to 30% of copepods in samples compared to controls at distances of 5 m or less from the airguns. Mortality one week after exposure was significantly higher by 9% relative to controls in the copepods placed 10 m from the airguns. Fields, et al. (2019) also reported no sublethal effects of seismic exposure to the copepods. These findings of the study are consistent with numerous other field studies referenced above, indicating that the potential effects of seismic pulses to zooplankton are limited to within about 10 m from the seismic source. Fields, et al. (2019) note the findings of the McCauley, et al. (2017) study are difficult to reconcile with other available research. The findings of the McCauley, et al. (2017) study may, therefore, provide an overly conservative estimate of the potential effects of seismic pulses to zooplankton.

Impact assessment

For this impact assessment the sound exposure thresholds for mortality/potential mortal injury (PMI) to fish eggs and larvae from Popper, et al. (2014) were applied and consider both PK and SEL_{24h} metrics; refer to Table 6-2 and Appendix E (Connell, et al., 2025). The thresholds were based on limited data, and were selected on the basis that Popper, et al. (2014) note they are likely to be conservative. While research (refer to above) generally suggests limited impacts to plankton beyond about 10 m distance from seismic sources, the precautionary Popper, et al. (2014) thresholds for larval mortality/PMI have been selected to indicate the magnitude and extent of potential impacts from the Pluto M3 4D MSS.

Table 6-2: Maximum predicted distance (R_{max}) to mortality/potential mortal injury thresholds in the water column for fish eggs and larvae, and zooplankton for modelled scenarios

Sound exposure threshold	R_{max} distance (km)
207 dB re 1 µPa (PK)	0.11
210 dB re 1 µPa².s (SEL_{24h})	Threshold was not reached within the limits of the modelling resolution

As shown in Table 6-2 and the acoustic modelling study (Connell, et al., 2025) (Appendix E), the maximum modelled distance (R_{max}) to mortality/PMI thresholds for fish eggs and larvae, and zooplankton, applying the single-pulse (PK) 207 dB re 1 µPa threshold from Popper, et al. (2014) is 110 m (observed at acoustic modelled Sites 7 and 9).

Any potential mortality/PMI impacts to zooplankton communities have to be assessed in the context of natural mortality in these populations. Any mortality or mortal injury effects to zooplankton (including fish eggs and larvae) resulting from seismic noise emissions are likely to be inconsequential compared to natural mortality rates, which are very high – exceeding 50% per day in some species and commonly exceeding 10% per day (Tang, et al., 2014). For example, in a review of mortality estimates (Houde & Zastrow, 1993), the mean mortality rate for marine fish larvae was M = 0.24, a rate equivalent to a loss of 21.3% per day. In the experiment undertaken by McCauley, et al. (2017), zooplankton mortality rate background levels were 19%. Sætre & Ona (1996) calculated that under the 'worst-case' scenario, the number of larvae killed during a typical seismic survey was 0.45% of the total population, and they concluded mortality rates caused by exposure to airgun sounds are so low compared to natural mortality that the impact from seismic surveys must be regarded as insignificant.

The magnitude of such localised impacts (≤110 m from the seismic source) has no lasting effect and is not expected to be discernible at the regional scale, when considering the large natural spatial and temporal variability and scale of plankton and spawning biomass in the NWMR. Phytoplankton and zooplankton biomass, particularly, in the oceans can vary significantly at spatial scales ranging from hundreds of metres to hundreds of kilometres, and temporal scales of hours, days, seasons and inter-annually, due to tidal and large-scale currents, bathymetry, temperature, salinity, water chemistry parameters and other environmental factors (Holliday, et al., 2011; McKinnon, et al., 2008;

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Pearce, et al., 2000; Sutton & Beckley, 2017). Therefore, changes in zooplankton abundance are likely to be replenished and indistinguishable from natural levels and distributions within hours of a seismic survey vessel passing. Furthermore, impacts to predator/prey interactions, given the highly localised impact (<110 m from seismic source) and temporary nature of the impacts (hours), are unlikely.

Zooplankton – impact assessment conclusion

The potential impacts of noise emissions from the seismic source on zooplankton during the seismic acquisition are considered to be localised and low-level, and the activity is not likely to result in any ecologically significant impacts at a population level for any zooplankton, fish eggs or larvae that may be in the water column within the ensonified area.

Benthic invertebrates

Species sensitivity and sound exposure thresholds

Research is ongoing into the relationship between sound and its effects on benthic invertebrates, including the relevant metrics for effect and impact. Marine invertebrates lack a gas-filled bladder and are unable to detect the pressure component of sound waves (Carroll, et al., 2017; Parry & Gason, 2006) or 'hear' sound in the way that mammals and fish can. Instead, invertebrates detect sound by sensing the particle motion component in water and seabed sediments through physiological structures such as sensory hairs, statocysts and muscles, and therefore detect sound at close range (Carroll, et al., 2017; Popper & Hawkins, 2018; Edmonds, et al., 2016; Parry & Gason, 2006; McCauley, 1994; André, et al., 2016; Roberts, et al., 2016).

Statocysts, found in a wide range of invertebrates, are used by animals to maintain their orientation, direct their movements through the water, and may play a key role in controlling the behaviour responses of invertebrates to a range of stimuli. Although directly sensitive to particle motion and not to sound pressure, most available research on seismic impacts to invertebrates characterises received sound levels in terms of the sound pressure. Therefore, available literature suggests particle motion, rather than sound pressure, is a more important factor for benthic invertebrates such as crustacean and molluscs. Water depth and seismic source size are related to the particle motion levels at the seafloor, with larger arrays and shallower water being related to higher particle motion levels, thus more relevant to effects on crustaceans and bivalves (Connell, et al., 2025) (Appendix E).

A range of physiological responses have been identified in some studies; however, the received sound is typically at levels that would be received within tens or a few hundred metres from the source or have been from repeated exposure at the same sound levels, which is not typical of an actual seismic survey (Carroll, et al., 2017; Edmonds, et al., 2016; Salgado Kent, et al., 2016; Webster, et al., 2018).

Studies by Christian, et al. (2003), Department of Fisheries and Oceans (2004) and Payne, et al. (2008; 2007) have exposed crustaceans to seismic sound levels of about 197 to 237 dB re 1 µPa PK-PK. No acute or chronic lethal or sublethal effects were observed in the weeks to months after exposure, except Payne, et al. (2008; 2007), who noted a decrease in serum enzymes and an increase in food consumption in the weeks to months after exposure, which may indicate stress effects or potential osmo-regulatory disturbance.

Research by Day, et al. (2016a; 2016b) in Australian waters exposed captive southern rock lobster (*Jasus edwardsii*) to multiple passes of a seismic source element in 10 to 12 m water depths. Maximum received sound exposures were 209 to 212 dB re 1 µPa PK-PK, 186 to 190 dB re 1 µPa²·s per-pulse SEL, and SEL_{cum} of 192 to 199 dB re 1 µPa²·s. Exposed lobsters and control lobsters were sampled up to a year after exposure. The findings of the study are:

- Exposure to seismic sound did not result in any mortalities to adult lobsters.
- Potential sublethal changes in adult lobsters were observed, including some long-term impairment to lobsters' statocysts, which was also linked to a short delay in the lobsters' ability to right themselves when upturned.
- Haemocyte count (indicative of immune response function) also showed some evidence of decline over time.
- The condition or development of eggs carried by female lobsters at the time of exposure, even at proximity directly beneath the seismic source, were not affected.

The significance of the seismic exposures and whether the sublethal effects may have wider ecological implications (e.g. ability to feed, avoid predators and resist disease) warrants further consideration. Day, et al. (2016a; 2016b) reported that some of the control lobsters used in the experiments were collected from a marine reserve and were found to have a high level of pre-existing impairment to statocysts, similar to that induced by the seismic exposure experiments, which was considered to be the result of long-term exposure to shipping noise. Some experiments showed no significant differences in righting times between control and exposed lobsters, while in some instances the control lobsters demonstrated slower righting times than exposed lobsters. Lobsters with pre-existing statocyst impairment demonstrated the fastest righting times of all experiments, which Day, et al. (2016a; 2016b) suggested may indicate lobsters are able to adapt or compensate for long-term statocyst impairment. Therefore, the level of statocyst impairment resulting from seismic exposure is not clear. Monitoring of the lobster population at the same reserve where the lobsters with pre-existing statocyst impairment were taken from showed the rock lobster population within the reserve was thriving and at carrying capacity (Green & Gardner, 2009; Kordjazi, et al., 2015). Therefore, the levels of statocyst impairment reported in the Day, et al. (2016a; 2016b) study does not appear to be impacting the survival of the lobster population, any population-level survivability effects from statocyst impairment are not significant, and wider ecological implications are likely to have no lasting effect.

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More recently Day, et al. (2019) concluded that airgun exposure did cause damage to the righting reflex and statocysts in rock lobsters (*Jasus edwardsii*). After exposure equivalent to a full-scale commercial array (3,100 cui) passing within 100 to 500 m, lobsters showed impaired righting and significant damage to the sensory hairs of the statocyst. Reflex impairment and statocyst damage persisted up to 365 days after exposure and did not improve after moulting. For this study, maximum measured received noise levels were 209 to 213 dB re 1 µPa (PK-PK).

Day, et al. (2021) examined the potential impacts of seismic surveys on the larval stages of southern rock lobster (*Jasus edwardsii*) to determine whether early development and recruitment may be affected. Lobster puerulus (post-larval stage) and juveniles were held in baskets and exposed to multiple passes of a seismic source element in 10 to 12 m water depths. Maximum received sound exposures were 203 to 219 dB re 1 µPa PK-PK, 181 to 190 dB re 1 µPa².s per-pulse SEL, and SEL_{cum} of 201 to 205 dB re 1 µPa².s, comparable to Day, et al. (2016a; 2016b; 2021). Lobster puerulus were randomly assigned to control (not exposed to airgun signals) or E0 (exposed to airgun signals at a nominal range of 0 m from the sail line), and juveniles were assigned to control, E0 and E500 (exposed to airgun signals at a nominal range of 500 m from the vessel sail line). The findings of the study are as follows:

- Exposure did not result in any elevated mortality for puerulus or juveniles.
- Righting was significantly impaired for all exposure treatments immediately after exposure, indicating the range of impact extended to at least 500 m from the source (maximum range tested in the study).
- Puerelus and juvenile E0 treatment lobsters did not show the capacity for recovery, while juvenile E500 lobsters recovered from impairment after the first moult, providing evidence of a range threshold for recovery.
- Intermoult period was significantly increased in E0 juvenile lobsters, and appeared to be increased in puerulus, while juvenile E500 treatment lobsters show a moderate, non-significant increase in moult duration.
- Increased intermoult duration suggested impacted development and potentially slowed growth, and physiological stress.

Kosheleva (1992) identified no detectable effects to marine bivalves and gastropods (mussels and periwinkles) after exposure to a single seismic source element of 233 dB re 1 µPa at a distance of 0.5 m or further from the source. Conversely, Matishov (1992) reported a single scallop shell splitting in a sample of three scallops, but this was located 2 m beneath a seismic source element and exposed to maximum sources levels (which is not representative of a typical commercial seismic survey).

Australian studies (Day, et al., 2016b; 2017; Przeslawski, et al., 2016; 2018) have focused on commercial scallops (*Pecten fumatus*). Przeslawski, et al. (2016; 2018) examined the short-term impacts on scallops and other marine invertebrates from a 2,530 in³ seismic array and found no evidence of mortality or change in condition after exposure to a seismic survey. Analysis of images and samples revealed some site-specific differences in scallop abundance, size, condition and assemblages, but these were not related to seismic operations. Day, et al. (2016b; 2017) exposed scallops to maximum received sound exposures of up to 213 dB re 1 µPa PK-PK, 181 to 188 dB re 1 µPa²s per-pulse SEL, and SEL_{cum} of 188 to 198 dB re 1 µPa².s. The study also predicted ground acceleration of up to 37.57 m/s². Day, et al. (2016b; 2017) concluded that exposures did not result in any immediate mass mortalities. However, repeated exposures resulted in a chronic increase in mortality over timeframes of about four months after exposure, though not beyond naturally occurring rates of mortality. Separate experiments undertaken in 2013 and 2014 yielded mortalities of 3.6 to 3.8% in control scallops (no seismic exposure), 9.4 to 11.3% mortality in scallops exposed to a single pass of the seismic source, 11.3 to 16.1% mortality in scallops exposed to two passes of the seismic source, and 14.8% to 17.5% mortality in scallops exposed to four passes of the seismic source. The mortality rates were at the low end of the range of naturally occurring mortality rates documented in the wild, which range from 11 to 51% with a six year mean of 38% (Day, et al., 2017). A third experiment in 2015 resulted in 100% mortality to both control scallops and exposed scallops, and was attributed to other causes and not to seismic exposure (Day, et al., 2016b; 2017).

Sublethal effects to exposed scallops were also observed by Day, et al. (2016b; 2017), indicating a compromised capacity for homeostasis and potential immunodeficiency over acute (hours to days) and chronic (months) timescales after exposure. Exposures did not elicit energetically expensive behaviours (i.e. extensive swimming or long periods of valve closure), but scallops showed significant changes in some behavioural patterns during exposure (e.g. 'flinch' response) and an increase in recessing into sediment after exposure (Day, et al., 2017).

Parsons, et al. (2023) exposed silverlip pearl oysters (*Pinctada maxima)* to a four-day seismic survey. After exposure, survival rates were monitored throughout a full two-year production cycle, and the number and quality of pearls produced at harvest were assessed. The authors found no consistent evidence of an impact from the seismic survey on oyster mortality or pearl production.

Published sound exposure criteria do not currently exist for acoustic impacts to invertebrates, but the literature above provides an indication of the sound levels and distances within which some impacts may occur. A range of sound levels, from 202 dB re 1 µPa PK-PK to 212 dB re 1 µPa PK-PK, based on the findings of Payne, et al. (2008) and Day, et al. (2016a; 2016b), were applied in the acoustic modelling study. The Payne, et al. (2008) 202 dB re 1 µPa PK-PK is considered to be associated with no impacts to benthic crustaceans and bivalves (such as prawns, scampi and lobsters), whereas the 209 to 212 dB re 1 µPa PK-PK thresholds could be associated with some level of sublethal effects in these animals. A 213 dB re 1 µPa PK-PK level is considered representative of levels that may result in sublethal effects and chronic mortality in molluscs and some other invertebrates, based on Day, et al. (2016b; 2017). A PK sound level of 226 dB re 1 µPa PK was applied in the acoustic modelling study (Connell, et al., 2025)

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(Appendix E) for sponges and corals, based on a study where corals and sponges received maximum sound pressure levels of 226 to 232 dB re 1 µPa PK-PK, but no mortality, damage to soft tissue or skeletal integrity, visible signs of stress, change in abundance or community structure was detected immediately after, and up to four months after exposure (Heyward, et al., 2018).

Impact assessment

The Pluto M3 4D MSS will acquire seismic data in water depths between 73 and 1,185 m. The benthic habitats and communities in the Operational Area are expected to be representative of those over the wider NWMR and include echinoderms (e.g. sea cucumbers and sea stars), with benthic filter feeders and other epifauna likely present, although diversity and abundance is expected to be low.

The seismic source will not be operated in areas of shallow water (<50 m) where benthic communities are likely to be more diverse than in deeper waters.

The following results were determined from the acoustic modelling study (Connell, et al., 2025) (Appendix E):

- Crustaceans and bivalves: Sound levels exceeding 202 dB re 1 µPa PK-PK, at which effects may occur (Day, et al., 2016a; 2017; 2019; Payne, et al., 2008), were considered at the seafloor. The sound level was exceeded up to 358 m from the modelled sites.
- Sponges and coral: The PK sound level at the seafloor directly underneath the seismic source was estimated at three representative water depths and compared to the sound level of 226 dB re 1 µPa PK, at which sponges and corals are not visibly affected (Heyward, et al., 2018). The threshold was not reached from any of the modelled sites.

Impacts to benthic invertebrate communities on the seafloor are expected to be highly localised and low-level. Any impacts are likely to occur in parallel with the natural cycle of death, recovery and recruitment of invertebrates; therefore, it is questionable whether any impacts from seismic exposure would be detectable from natural fluctuations in relative abundance, benthic community composition and structure (Payne, et al., 2008; 2007; Day, et al., 2017).

Benthic invertebrates – impact assessment conclusion

Impacts to benthic invertebrates from noise emissions from the seismic source during the Petroleum Activity include potential sublethal effects and chronic mortality to some organisms within a few tens of metres below the source. However, given the water depths (>50 m) and natural cycle of death, recovery and recruitment, impacts are expected to be localised and low-level, and the seismic acquisition is not likely to result in any ecologically significant impacts at a population level for any benthic invertebrates that may be on the seafloor within or adjacent to the ASA.

Fish, sharks and rays

Species sensitivity and sound exposure thresholds

Every species of fish studied to date can hear. Fish produce sounds in a range of contexts, such as feeding, mating or fighting, so anything that inhibits the detection of these sounds can have a negative effect on their fitness and survival (Popper & Hawkins, 2019). Most fish species detect sounds from <50 Hz up to 500 to 1,500 Hz (Popper & Hawkins, 2019). A smaller number of species can detect sounds over 3 kHz, while very few species can detect ultrasound over 100 kHz (Ladich & Fay, 2013). The critical issue for understanding whether an anthropogenic sound will affect the hearing of a fish is whether it is within the hearing frequency range of the fish, and loud enough to be detectable above background ambient noise.

The hearing sensitivity of fishes varies depending on the auditory structures in the inner ear (otoliths surrounded by an epithelium of hair cells) and, if present, the swim bladder (Finneran & Hastings, 2000; Nedwell, et al., 2004). Otoliths are sensitive only to particle motion, while the swim bladder may provide an indirect route for sound pressure to reach the inner ear. The other main mechano-reception system in fishes is the lateral line system, which runs along the side of the body and is more pronounced in some groups of fish than others. The lateral line system responds to particle motion produced in the near-field of a sound source, as well as to tiny water currents set up by the motions of the fish (Nedwell, et al., 2004). Therefore, all fish are sensitive to the particle motion component of sound at close range from a sound source. Particle motion is the most relevant metric for perceiving underwater sound for most species, but except for a few species (Popper, et al., 2014; Popper & Fay, 2011), there is an almost complete lack of relevant data on particle motion sensitivity in fishes (Popper & Hawkins, 2018). Some more specialised fish with a swim bladder that they use for hearing are sensitive to sound pressure and are able to detect less intense noise and a wider range of frequencies, compared to less specialised groups of fish (Carroll, et al., 2017; Popper, et al., 2014; Hawkins & Popper, 2017).

The susceptibility of fishes to injury from noise exposure varies depending on the species and the presence and possible role of a swim bladder in hearing. In marine fishes, the connection with the swim bladder and ability to detect sound pressure is understood to be present to some varying degree in the families Clupeidae (e.g. herrings, sardines, pilchards and shads), Gadidae (e.g. true cods such as Atlantic cod and whiting), and some nearshore/reef species relevant to tropical Australia, including some species in the families Pomacentridae (e.g. damsel fishes and clown fishes), Holocentridae (soldierfishes and squirrelfishes) and Haemulidae (e.g. grunters and sweetlips) (Popper & Hawkins, 2018; 2019; Popper, et al., 2014; Nedwell, et al., 2004; Braun & Grande, 2008). However, most marine fish species do not have this specialisation.

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A great many fish species possess a swim bladder or other gas-filled cavity but do not have a connection with their hearing. For example, various demersal snapper, emperor and cod. Fish species that lack a gas-filled cavity altogether include elasmobranchs (e.g. sharks and rays), some flat fishes, some tunas, and mackerels (Popper, et al., 2014; Casper, et al., 2012).

The sound exposure thresholds applied for fish and elasmobranchs (sharks and rays) in the acoustic modelling study and in this impact assessment are summarised in Table 6-3 and explained in the acoustic modelling study (Connell, et al., 2025) (Appendix E). The modelling study assessed the ranges for quantitative threshold criteria adapted from the Popper, et al. (2014) guidelines for three types of immediate effects to fish:

- mortality, including injury leading to death
- recoverable injury, including injuries unlikely to result in mortality, such as hair cell damage and minor haematoma
- TTS.

The modelling study considered single pulse (PK) and multiple pulse (SEL_{24h}) metrics for both the entire water column and seafloor in the following categories, which reflect the different hearing mechanisms and sensitivity to sound:

- I – fish without a swim bladder (also appropriate for sharks in the absence of other information)
- II – fish with a swim bladder that do not use it for hearing
- III – fish that use their swim bladders for hearing.

For this impact assessment, it is assumed all fish can detect signals below 500 Hz and so can 'hear' the seismic source.

Table 6-3: Thresholds for seismic sound exposure for fish, adapted from Popper, et al. (2014)

Type	Mortality and potential mortality injury	Impairment			Behaviour
		Recoverable injury	TTS	Masking	
I Fish: No swim bladder (particle motion detection)	>219 dB SEL_{24h} or >213 dB PK	>216 dB SEL_{24h} or >213 dB PK	>>186 dB SEL_{24h}	(N) Low (I) Low (F) Low	(N) High (I) Moderate (F) Low
II Fish: Swim bladder not involved in hearing (particle motion detection)	>210 dB SEL_{24h} or >207 dB PK	203 dB SEL_{24h} or >207 dB PK	>>186 dB SEL_{24h}	(N) Low (I) Low (F) Low	(N) High (I) Moderate (F) Low
III Fish: Swim bladder involved in hearing (primarily pressure detection)	207 dB SEL_{24h} or >207 dB PK	203 dB SEL_{24h} or >207 dB PK	186 dB SEL_{24h}	(N) Low (I) Low (F) Moderate	(N) High (I) High (F) Moderate

Notes: Peak sound level (PK) dB re 1 µPa; SEL_{24h} dB re 1 µPa².s. All criteria are presented as sound pressure, even for fish without swim bladders, since no data for particle motion exist. Relative risk (high, moderate, or 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).

Mortality/injury

While thresholds for fish mortality have been included for consideration in this assessment based on the Popper, et al. (2014) guidelines, no studies to date have demonstrated direct mortality of free-swimming adult fishes in response to airgun emissions, even when fired nearby (within 1 to 7 m) (Carroll, et al., 2017; Department of Fisheries and Oceans, 2004; Boeger, et al., 2006). Although some fish deaths have been reported during cage experiments, these were more likely caused by experimental artefacts of handling fish or confinement stress (Hassel, et al., 2004). For free-swimming fishes that are able to move away from seismic sources as they approach, the potential for lethal physical damage from airgun emissions is even further nullified. However, reef or bottom-dwelling fish that show greater site attachment may be less inclined to flee from a seismic sound source and experience greater effects as a consequence.

Despite mortality being a possibility for fishes exposed to airgun sounds, Popper, et al. (2014) did not reference an actual occurrence of this effect. At the time of developing the guidelines, no quantified data on injury and mortality from seismic sources on fish had been reviewed by the Working Group. Therefore, the Popper, et al. (2014) exposure guidelines for mortality/PMI and recoverable injury for fish exposed to seismic source emissions are based solely on data from pile-driving conducted on predominantly temperate, freshwater fish species. Although seismic surveys and

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pile driving both produce impulsive sound, their sound characteristics are markedly different; pile-driving impulses result in a more rapid rise time in sound pressure than seismic pulses, and it is this rapid rise time that has the greatest potential for trauma (Caltrans, 2001; 2004; Hastings & Popper, 2005; Popper, et al., 2006).

ERM undertook a detailed literature review of potential fish mortality and physical injury as a result of exposure to seismic sources (Environmental Resources Management, 2017). Of the 28 studies reviewed, only three observed direct mortality and in each case, mortalities occurred to caged fishes very close to the seismic source (<2 m), which is not representative of real-life exposures from seismic surveys because fish are free-swimming and are not typically exposed at such close range. The received sound levels that resulted in mortality ranged from 220 to 241 dB re 1 µPa PK; however, other studies reported no mortality or injury at levels as high as 246 dB re 1 µPa PK. Therefore, the sound exposure criteria proposed by Popper, et al. (2014) for mortality and injury are considered to be highly conservative and provide a precautionary approach in assessing potential injury and mortality effects to fishes from exposure to underwater noise from marine seismic surveys.

Temporary threshold shift

Temporary hearing impairment, known as TTS, can occur due to fatigue and temporary changes to the epithelium (hair cells) of the inner ear or damage to auditory nerves innervating the ear, which has the potential to occur in some fishes exposed to intense sound pressures for prolonged periods of time (Popper, et al., 2014; Smith, et al., 2006) (Liberman, 2015). While experiencing TTS, fishes may have a decrease in fitness in terms of communicating, detecting predators or prey, and assessing their environment. The period over which normal hearing ability returns after the termination of a sound that causes TTS is variable, and depends on many factors including the intensity and duration of sound exposure (Scholik & Yan, 2001; Amoser & Ladich, 2003; Smith, et al., 2006; 2011; Popper, et al., 2005).

The impact threshold of 186 dB re 1 µPa².s proposed by Popper, et al. (2014) in Table 6-3, and used in the acoustic modelling study, is based on exposure of a freshwater fish species with a connection between the swim bladder and inner ear (more specialised hearing than the demersal and pelagic fish species likely to occur in the Operational Area). Fish that showed TTS recovered to normal hearing levels within 18 to 24 hours. Given reliable auditory frequency weightings have not been defined for the three categories of fishes in the way they have for cetaceans, the 186 dB re 1 µPa².s SEL_{24h} criteria in Table 6-3 includes a level of conservatism as:

- many types of fish that occur in the Operational Area do not possess a direct connection between the swim bladder and the inner ear; they are therefore sensitive primarily to particle motion rather than sound pressure and may be less sensitive than the types of fish upon which the 186 dB re 1 µPa²s threshold is derived
- modelled SELs are based on broadband sounds and may account for more sound energy associated with frequencies that are not within the auditory ranges of the fish species likely to occur in the Operational Area
- the main contribution of sound energy to the onset of TTS will occur over just a few hours when the source is at the closest point of approach; the 24-hour modelled accumulation period accounts for additional sound energy accumulated while the seismic source is at greater distances and potentially not audible to fishes.

It is also noted that many of the available studies on TTS are based on captive fish, whereas free-swimming fishes are likely to make some effort to avoid the intense sound pressures that contribute the most to the onset of TTS.

Behavioural effects

Behavioural effects of noise on fish will vary depending on the circumstances of the fish, hearing sensitivity, the activities in which it is engaged, its motivation, and the context in which it is exposed to sounds (Hawkins & Popper, 2017). Responses may include avoidance behaviours, startle reactions, increased swimming speed, change in orientation, change in position in the water column, changes to schooling behaviour (e.g. tightening of school structure), and temporary avoidance of an area (Carroll, et al., 2017; Popper, et al., 2014; Simmonds & MacLennan, 2005; McCauley, et al., 2000a; Fewtrell & McCauley, 2012). Changes in movement patterns may also temporarily divert efforts away from feeding, egg production and spawning success (Hawkins & Popper, 2017). The potential extent and duration of behavioural effects based on studies of seismic exposure are summarised below.

A degree of caution should be given when interpreting behavioural studies as many are conducted on captive fishes, which may not accurately represent responses in free-swimming fishes (Carroll, et al., 2017; Popper, et al., 2014; Salgado Kent, et al., 2016). Behavioural studies are also highly subjective. Observed effects on fish should also be extrapolated with caution (Carroll, et al., 2017). This is particularly the case given that many exposure experiments report received SPL or SEL, even though the most relevant metric for most fish species is particle motion (Popper & Hawkins, 2018; 2019). Many exposure experiments are undertaken using a single airgun and it is not clear how transferrable the behaviours and received SPL/SEL levels are to a full commercial-sized seismic array, particularly if observed behaviours are in response to particle motion close to the sound source rather than to sound pressure.

Pearson, et al. (1992) exposed captive demersal rockfish to multiple 10-minute periods of seismic sound from a source towed at distances of less than 215 m, which is not representative of real-life exposures to a seismic survey. Schools of rockfish were observed to exhibit a ‘startle’ response (shudders, flexions of the body followed by rapid swimming) at sound levels above 200 to 205 dB re 1 µPa SPL. An ‘alarm’ response (change in vertical position in the water column to be closer to the seabed, short-term post-exposure behavioural changes) was found to occur above about 180 dB re 1 µPa SPL, although it was suggested some individuals may begin to exhibit subtle changes in behaviour and position in the water column at sound levels above 161 dB re 1 µPa SPL. Changes in behaviour were

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found to return to normal before the end of the sound exposure or within just minutes of the sound ceasing, indicating only very short-term, transient effects and potential habituation to the disturbance.

The Australian Institute of Marine Science, as part of the North West Shoals to Shore Research Program, studied the potential behavioural effects of seismic sound exposure on demersal fish. The results showed there were no short-term (days) or long-term (months) effects of exposure on the composition, abundance, size, structure, behaviour or movement of demersal fish species in the survey area (Meekan, et al., 2021).

Nguyen, et al. (2025) investigated changes in the abundance and behaviour of groundfish species at a relatively deepwater site along the eastern continental slope of Canada, when exposed to a commercial seismic survey. Baited cameras were deployed at control and impact sites, before and after seismic exposure. Consistent with Meekan, et al. (2021), no short-term or long-term effects of seismic survey noise on the size, structure of ground fish species were detected, suggesting displacement effects from the survey did not measurably occur for the groundfish species, Atlantic cod delayed their approach to bait and fed less efficiently during and after exposure to seismic noise, which was most evident when daily sound levels exceeded 120 dB. However, fish did eventually arrive at the baited stations and consume the available bait, even in the presence of or shortly after (days) seismic surveying.

Santulli, et al. (1999) exposed caged European sea bass (a demersal species) to a 2,500 in³ seismic source. Limited response was observed at 2.5 km, a startle response was observed when the array was at a distance of about 800 m, but after passing within 180 m, fish behaviour appeared to return to normal within one hour.

The Scott Reef Study associated with the Woodside Maxima 3D survey reported in McCauley, et al. (2008), Miller & Cripps (2013), and summarised in Salgado Kent, et al. (2016), included a component that examined how the behaviour of caged fishes exposed to seismic signals changed. The study examined the effects to fish species in the *Holocentridae* family, which have adaptations linking the swim bladder to the otolith system of the inner ear, as well as to bluestripe snapper, a demersal species without such a hearing adaptation. Fish were exposed to either one or two passes of the active source at three distance categories (45 to 74 m, 105 to 131 m, 475 to 807 m). Alarm responses (including the startle response and behavioural avoidance) occurred within less than 200 m either side of the pass-by, but responses were too infrequent to include in analyses. Less significant agitation levels (defined by changing swim direction) in *Holocentridae* increased with increasing received sound level above 155 to 165 dB re 1 uPa².s SEL, but agitation levels did not seem to increase with increasing received sound levels for the less sensitive bluestripe snapper (McCauley, et al., 2008). Fish began to feed and behave normally again within 20 minutes after the seismic source passed (McCauley, et al., 2008; Miller & Cripps, 2013).

McCauley, et al. (2000b; 2003) reported that trials involving captive fishes (of various species, including snappers, emperors, groupers, trevally, bream, herring and others) exposed to seismic sound showed a common ‘startle’ response (C-turns), 'alarm' responses (e.g. swimming faster, darting movements and sudden changes in school structure), or subtler responses such as moving closer to the seabed or huddling closer together. The subtler responses were suggested to begin when sound levels exceeded about 147 to 151 dB re 1 µPa².s SEL. Similar behaviours in pink snapper and trevally were noted by Fewtrell & McCauley (2012) in response to comparable sound levels. These are minimal reactions that are likely to indicate awareness and perception of the sound rather than a response that could result in significant ecological impacts. More obvious startle and alarm responses were apparent in trials when received sound levels were in the order of 159 to 172 dB re 1 µPa².s SEL. In situations where a behavioural response was observed, fish were considered to have resumed normal behaviour within four to 31 minutes after the seismic activity ceased (McCauley, et al., 2000b; 2003). Startle and alarm responses reduced with time, indicating some habituation to the sound. No statistically clear trends in physiological stress response were observed after exposure (McCauley, et al., 2000b; 2003).

Behavioural observations of two tropical snapper species and another coral reef fish species, spadefish, in field enclosures before, during and after exposure to seismic sound showed that repeated exposure resulted in increasingly less obvious startle responses (Boeger, et al., 2006). This is consistent with the potential habituation suggested by McCauley, et al. (2000b) and Fewtrell & McCauley (2012).

McCauley & Salgado Kent (2007) observed the behaviour of goldband snapper in fish traps in the Timor Sea using cameras placed inside the traps. A seismic vessel towed two 3,090 in³ seismic sources. Maximum signals reached at the closest trap to each seismic pass-by were 200, 202 and 212 dB re 1 µPa PK-PK (equivalent to about 194, 196 and 206 dB re 1 µPa PK). No dramatic behavioural responses of fishes to the passing seismic source were observed. Fishes generally displayed increased activity immediately after entering a trap, presumably as they searched for a way out, with this activity reducing with time. Fishes that had been in a trap for some time showed increased activity levels as the seismic source approached but were ‘quiet’ when the array passed at the point of closest approach.

Bruce, et al. (2018) tagged tiger flathead and two shark species, which were monitored during a seismic survey in Australian waters. Sharks moved freely in and out of the study area and exposed sharks did not show any indication of differences in behaviour or distribution compared with control areas. Minor behavioural effects were observed in exposed tiger flathead, which increased their swimming speed during the seismic survey and changed daily movement patterns after the survey, but showed no significant displacement. Overall, there was little evidence for consistent behavioural responses (Bruce, et al., 2018).

Paxton, et al. (2017) observed temperate reef fish, including snapper and grouper species, in 33 m water depths located 7.9 km from a seismic survey line using video recordings. The authors observed fish abundance and habitat use during the evening hours for three days before seismic survey, then during the evening of the day when seismic

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activity occurred. The authors attempted to measure sound at two other reefs closer to the survey, but the hydrophones malfunctioned. No video recordings were made at the other reefs where hydrophone measurements were attempted. While no hydrophone measurements were made at the reef where video recordings took place, maximum sound levels were estimated to exceed 170 dB re 1 µPa SPL. Despite no clear visual evidence of behavioural responses in fishes during the seismic survey, the authors noted a 78% decline in abundance in the evening after the survey. No further recordings were made to assess when fish abundance returned to pre-exposure levels or how far they may have moved. Therefore, with limited data, it is not clear from this study if reduced abundance is attributed to the seismic sound or other natural factors such as tidal influence or food availability. However, the study may indicate an avoidance response and change in local abundance and distribution.

Meekan, et al. (2021) studied the effects of seismic surveys on tropical demersal fishes targeted by commercial fisheries on the NWS of WA. The authors found no short-term (days) or long-term (months) effects of seismic exposure on the composition, abundance, size, structure, behaviour of movement of these species, suggesting seismic surveys have little impact on demersal fishes in this environment (Meekan, et al., 2021).

Many pelagic Scombroidei species, including some tuna species, do not possess a swim bladder or it is poorly developed (Popper, et al., 2014; Bray & Shultz, 2019a; 2019b), indicating they are sensitive only to the particle motion component of sound at close range to a source. Some other types of tuna, including southern bluefin tuna, yellowfin tuna, bigeye tuna and billfish, have swim bladders but no apparent specialist connection with the inner ear (Bertrand & Josse, 2000; Song, et al., 2006). The lateral line system appears to feature in *Scombroidei* fishes, again indicating fishes are mainly sensitive to particle motion, but some pressure detection is possible. Song, et al. (2006) note that unless bluefin tuna are exposed to very high intensity sounds from which they cannot swim away, short- and long-term effects may be minimal or non-existent. And, considering bluefin tuna are powerful swimmers and divers, it is possible that if they encounter a sound that is very loud to them, they will move away from the sound rapidly enough to result in minimal exposure.

Some other studies looking at the behavioural response of sound pressure-sensitive *Gadidae* and *Clupeidae* species, such as whiting, Atlantic cod and herring, have reported changes in vertical position in the water column, potential avoidance responses and short-term changes in distribution. Chapman & Hawkins (1969) observed that the depth distribution of free-ranging whiting changed in response to an intermittently discharging stationary seismic source, which resulted in fish being exposed to an estimated SPL of 178 dB re 1 µPa. The fish school responded to the sound by shifting downward, forming a more compact layer at greater depth, although temporary habituation was observed after one hour of continual sound exposure (Chapman & Hawkins, 1969).

Hawkins, et al. (2014) exposed free-swimming sprat (a sound pressure-sensitive *Clupeidae* species with a swim bladder connected to the inner ear) and Atlantic mackerel (a particle motion detecting species without a swim bladder) to playback of impulsive sound. Sprat schools were more likely to disperse laterally in response to received sound levels of about 135 dB re 1 µPa².s SEL. Mackerel schools were more likely to alter their depth in the water column in response to about 142 dB re 1 µPa².s SEL. Hawkins, et al. (2014) note how the two different species seemed to respond to the sound playback at similar sound levels, despite the differences in sound sensitivity of the two species, but suggested mackerel were simply more 'flighty' than sprat and therefore more likely to react. The tests were also undertaken using low sound level playback very close to the schools of fish, and it is not clear how relevant the sound pressure and sound exposure levels are in relation to mackerel, given their response was likely driven by particle motion. The study location, a very small, enclosed, quiet, coastal sea lough, where fishes were not accustomed to heavy disturbance from shipping and other intense sound sources, is also very different from an open ocean location.

Slotte, et al. (2004) monitored the effects of a 3,090 in³ seismic array on migrating herring (*Clupeidae*) and whiting (*Gadidae*), mapping their distribution and abundance in relation to the seismic survey lines. There was no significant evidence of immediate, near-field scaring reactions on the horizontal scale in response to acquiring survey lines, but there was some evidence that fish changed position in the water column, moving closer to the seabed. Some short-term changes in distribution were observed but were not statistically significant; fish consistently remained within the immediate vicinity of the survey area, but in a limited number of measurements there was an indication that fish abundance was lower near the survey area and increased with distance out to a maximum range of 37 km. However, results were inconsistent and clear trends were not observed in all cases. Slotte, et al. (2004) concluded it was not possible to determine how much abundance and distribution were attributed to the seismic survey or to the natural migration patterns and food availability of the fish, or other natural factors. Herring and whiting were found to be abundant in the survey area again after a pause in seismic acquisition and monitoring of fishes for three to four days, indicating that if any displacement did occur as a result of seismic sound exposure, the displacement was temporary (i.e. less than three to four days) (Slotte, et al., 2004).

In similar studies, Engås, et al. (1996) and Engås & Løkkeborg (2002) reported the effects of seismic surveys on Atlantic cod and haddock (*Gadidae*) and found the abundance of fishes were lower in the survey area compared with areas outside of the survey area, which the authors hypothesise may be the result of an avoidance response. Some differences in abundance were still detectable within the survey area five days after the survey was completed (Engås, et al., 1996; Engås & Løkkeborg, 2002).

Conversely, Peña, et al. (2013) described the real-time behaviour of herring schools exposed to a full-scale 3D seismic survey, observed using sonar. No changes were observed in swimming speed, swimming direction, or school size that could be attributed to a transmitting seismic vessel as it approached from a distance of 27 km to 2 km, over a six-hour period. The unexpected lack of a response to the seismic survey was interpreted as a combination of a strong

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motivation for feeding by the fishes, a lack of suddenness of the onset of sound, and an increased level of tolerance to seismic pulses.

Davidsen, et al. (2019) investigated the effects of seismic sound exposure on the physiology and behaviour of captive Atlantic cod (*Gadus morhua*) and saithe (*Pollachius virens*) using a combination of biologgers, acoustic tags and video monitoring. Experimental sound exposures were 18 to 60 dB above ambient. Fish were held in a large sea cage and exposed over three days. The cod exhibited reduced heart rate in response to the particle motion component of the sound from the airgun, indicating an initial flight response. No behavioural startle response to the airgun was observed; both cod and saithe changed swimming depth and horizontal position more frequently during sound exposure. The saithe became more dispersed in response to the elevated sound levels. The fish seemed to habituate both physiologically and behaviourally with repeated exposure. The authors concluded that sound exposures induced over the timeframes used in this study appear unlikely to be associated with long-term alterations in physiology or behaviour.

Hubert, et al. (2020) exposed captive Atlantic cod to one hour of playback of seismic airgun sound pulses with a 10 second shot point interval. Cod were placed in a net pen positioned 7.8 m from the speaker. The mean peak sound pressure and particle acceleration levels at 9.7 m from the speaker were 164 dB re 1 µPa and 101 dB re 1 nm/s² respectively. At 16.4 m from the speaker, the mean peak sound pressure and particle acceleration levels were 158 dB re 1 µPa and 99 dB re 1 nm/s² respectively. These levels compare with a mean SPL of the ambient conditions in the pen of 113 dB re 1 µPa and a mean sound particle acceleration of 61 dB re 1 nm/s². Results indicated no strong overall pattern of change in swimming patterns or immediate, short-term behaviours during the exposure, compared to baseline periods without playback. However, several individuals changed their time spent in several behavioural states during the one-hour sound exposure. Several individuals spent more time transiting and less time being locally active or inactive. This may indicate changes in energy expenditure, which may be relevant if sound exposure occurs over the long term. However, due to experimental design limitations, it was not possible to test the significance of these behavioural state trends (Hubert, et al., 2020).

Van der Knaap, et al. (2021) investigated the effect of a 3.5-day, full-scale seismic survey exposure on the movement behaviour of free-swimming Atlantic cod, using acoustic telemetry. The closest point of approach to the tagging location was 2.25 km. During the experimental survey, cod did not leave the detection area more than expected from baseline data. However, cod left more quickly than expected, from two days to two weeks after the seismic survey. Furthermore, behavioural analyses indicated cod decreased their activity during the exposure, with time spent being locally active (moving over small distances, showing high body acceleration) becoming shorter, and time spent being inactive (moving over small distances, having low body acceleration) becoming longer. Additionally, diurnal activity cycles were disrupted with lower locally active peaks at dusk and dawn, periods when cod is known to actively feed.

These conclusions are made regarding behavioural effects to fish from seismic airguns, based on the literature above:

- Different fishes may exhibit different behavioural responses when exposed to seismic survey noise, depending on their activities, motivation and the context in which they receive sound.
- Fish may initially change position in the water column (i.e. move closer to the seabed) in response to becoming aware of approaching seismic sound, but this varies depending on hearing sensitivity and context (Fewtrell & McCauley, 2012; Pearson, et al., 1992; Miller & Cripps, 2013; McCauley, et al., 2000b; 2003; Slotte, et al., 2004; Davidsen, et al., 2019).
- Exposure to higher sound levels at close range to a seismic source may begin to result in more noticeable startle or alarm responses, such as changes in school structure, increased swimming speed and avoidance of the sound source (typically observed within hundreds of metres of the seismic source) depending on hearing sensitivity and context) (Carroll, et al., 2017; Popper, et al., 2014; Simmonds & MacLennan, 2005; Fewtrell & McCauley, 2012; McCauley, et al., 2000b; 2003).
- Many exposure experiments are undertaken using a single airgun and it is not clear how transferrable the behaviours and received SPL/SEL levels are to a full commercial-sized seismic array, particularly if observed behaviours are in response to particle motion near the sound source rather than to sound pressure.
- There is some evidence fish may tolerate gradual increases in sound levels and habituate to repeated sound exposures (Boeger, et al., 2006; Fewtrell & McCauley, 2012; McCauley, et al., 2000b; Chapman & Hawkins, 1969; Peña, et al., 2013; Davidsen, et al., 2019).
- Many studies indicate fishes resume normal behaviour shortly after the acoustic disturbance stops (within minutes/less than an hour), with no evidence of long-term changes (Fewtrell & McCauley, 2012; Pearson, et al., 1992; Santulli, et al., 1999; Miller & Cripps, 2013; McCauley, et al., 2000b; 2003).
- There is some evidence that changes in distribution may persist for longer than the initial change in behaviour – i.e. position in the water column, schooling behaviours and swim speeds may return to normal relatively quickly (within minutes or hours) – but their distribution may not return to normal for hours or days. Potential changes in fish distribution have been observed in some studies for about five days after sound exposure, although such changes are limited to studies that focused primarily on migrating sound-pressure-sensitive types of fish with a swim bladder-ear connection (e.g. *Clupeidae, Gadidae*). These studies also acknowledge it is difficult to attribute these changes in distribution directly to the seismic survey or to natural migration patterns, food availability or other natural factors (Slotte, et al., 2004; Engås, et al., 1996; Engås & Løkkeborg, 2002). However, it is possible

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that changes to the behaviour and distribution of some sound-sensitive prey species (e.g. herring, sardines) may have some indirect influence on the distribution of larger predatory fishes during the days after exposure and disturbance.

- Changes in behaviour or disruption to diurnal activities may indicate activities such as feeding and energy expenditure can be affected if exposed long term (Hubert, et al., 2020; Van der Knaap, et al., 2021).

Given the limited convergence in results from the available studies, the subjective nature of many assessments and the context under which fish received sound, the Popper, et al. (2014) ANSI-Accredited Standards Committee Sound Exposure Guidelines for Fishes and Turtles determined that it is not possible to define exact sound level thresholds for changes in fish behaviours. Instead, Popper, et al. (2014) applies relative risk criteria (Table 6-3). The criteria reflect the potential for substantial changes in behaviour for a large proportion of the animals exposed to a sound, which may alter distribution, and movement from preferred sites for feeding and reproduction. The criteria do not include effects on single animals or small changes in behaviour such as a startle response or minor movements. As such, Popper, et al. (2014) indicate fish without a swim bladder or with no connection between the swim bladder and the inner ear may experience substantial changes in behaviour within tens or hundreds of metres of a seismic source. These peer-reviewed and accredited sound exposure criteria are reflected in Woodside's risk assessment. Though some fishes with swim bladders may show varying levels of awareness of sound pressure at greater distances from the seismic source, it is important to recognise changes in behaviour that may be of ecological significance from those that are not.

Impact assessment

Table 6-4 presents the results of the acoustic modelling study (Connell, et al., 2025) (Appendix E) for maximum predicted distances to mortality/PMI, recoverable injury and TTS onset in fish. Data is presented for both the entire water column and at the seafloor. Noise above threshold criteria for fish (Group I, II or III) is not predicted at Tryal Rocks (10 km south of the Operational Area); therefore, impact to fish at this location is not anticipated.

Table 6-4: Summary of maximum distances to mortality/potential mortal injury, recoverable injury and temporary threshold shift onset in fish for single pulse and sound exposure level over 24 hours (SEL_{24h}) modelled scenarios

Relevant hearing group	Threshold	Metric	Sound exposure threshold[1]	Distance (km)
				R_{max}
I Fish: No swim bladder	Mortality/PMI	SEL_{24h}	219 dB re 1 µPa².s	-
	Recoverable injury	SEL_{24h}	216 dB re 1 µPa².s	-
		PK	213 dB re 1 µPa	0.07
	TTS	SEL_{24h}	186 dB re 1 µPa².s	1.8
II Fish: Swim bladder not involved in hearing	Mortality/PMI	SEL_{24h}	210 dB re 1 µPa².s	-
	Recoverable injury	SEL_{24h}	203 dB re 1 µPa².s	-
		PK	207 dB re 1 µPa	0.17
	TTS	SEL_{24h}	186 dB re 1 µPa².s	1.8
III Fish: Swim bladder involved in hearing	Mortality/PMI	SEL_{24h}	210 dB re 1 µPa².s	-
	Recoverable injury	SEL_{24h}	203 dB re 1 µPa².s	-
		PK	207 dB re 1 µPa	0.17
	TTS	SEL_{24h}	186 dB re 1 µPa².s	1.8

1. Popper, et al. (2014).

A dash (–) indicates the acoustic threshold was not reached within the 20 m modelling resolution.

In addition, given two KEFs overlap the Operational Area: Continental Slope Demersal Fish Communities and Ancient Coastline at 125 m depth contour (Section 4.7), additional assessments were undertaken for the fish types that are associated with these KEFs, which are:

- pelagic fish species
- shark species.
- demersal fish species.

Demersal fish species

As shown in Table 6-4, for all fish with a swim bladder both involved and not involved in hearing (Group II and III fish, which would represent most demersal fish), mortality/PMI and recoverable injury thresholds within the entire water

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column were reached within 110 m based on applying the PK threshold. These ranges are reported in Connell, et al. (2025) (Appendix E) as maximum-over-depth distances and the ranges at the seafloor may be less. Therefore, injury effects could occur to demersal fish in proximity to the seismic source within or adjacent to the ASA. However, as discussed above, the thresholds for mortality and injury are considered highly conservative. While injury or mortality to fish in the immediate proximity of the seismic source is theoretically possible, free-swimming fish such as the demersal species are expected to be able to avoid the seismic source as it approaches their position or ramps up during soft starts.

Based on the maximum predicted R_{max} distance to TTS (SEL_{24h}) of 1.8 km within the entire water column (SEL_{24h} threshold – refer to Table 6-4), individuals in demersal fish communities within 1.8 km of the source could experience TTS effects. The radii that correspond to SEL_{24h} typically represent an unlikely worst-case scenario for SEL-based exposure since, more realistically, fish would not stay in the same location or at the same range for 24 hours. Therefore, this method is highly conservative and a reported radius of SEL_{24h} criteria does not necessarily mean animals travelling within this radius of the source will suffer hearing impairment. It is possible some demersal fishes may not avoid the approaching seismic source completely and some level of TTS is possible, but the effects are temporary and recoverable, and the potential for such effects to have significant implications on fish fitness and survival is low.

Most studies relevant to behavioural responses in demersal fish species (McCauley, et al., 2000a; Fewtrell & McCauley, 2012; Pearson, et al., 1992; Santulli, et al., 1999; Miller & Cripps, 2013; McCauley, et al., 2003; McCauley & Salgado Kent, 2007; Bruce, et al., 2018; Meekan, et al., 2021; Woodside, 2011) indicate that exposure to a mobile seismic source and significant changes in behaviour are likely to be limited to durations of minutes or hours, and occur within hundreds of metres of the seismic source as it passes.

Popper, et al. (2014) suggest the potential for significant behavioural impacts in the Group II category of fishes is high in the near-field (tens of metres), moderate at intermediate distances (hundreds of metres) and low in the far-field (thousands of metres). Therefore, the awareness of fishes to the seismic sound and any resultant behavioural responses may be limited to a few hours as the seismic source approaches from several kilometres away and passes, while significant startle or avoidance responses are more likely to be limited to a shorter period (less than an hour) when the seismic source passes close by. Consistent with the studies reviewed earlier in this section, behaviours may return to normal within less than an hour of the survey vessel passing.

Further, the implications for demersal fishes at a population level are expected to be limited. McCauley (1994) suggests behavioural changes in fishes may only be localised and low-level, without significant repercussions at a population level. Hawkins & Popper (2017) highlight that some responses to human-made sound may have minimal or no consequences for fish populations. For example, short-term startle responses to sounds that rapidly diminish with repeated presentation, or that do not change the overall behaviour of fishes, are unlikely to affect key life functions. In addition, anthropogenic sound events that are transient in nature, such as a seismic survey, and result in short-term impacts do not necessarily translate into long-term consequences to populations (Hawkins & Popper, 2017). Meekan, et al. (2021) noted that if behavioural changes to demersal fish species did take place, they had no measurable short- (days) to long-term (weeks) impacts on behaviour or abundance.

Demersal fish communities within the Operational Area may exhibit some temporary behavioural responses to noise emissions from the seismic source; however, this is not likely to have any impact at the ecosystem level.

Pelagic fish species

Pelagic fish species likely to be in the Operational Area include tuna, billfish and small pelagic species such as lanternfishes. Many species of tuna and billfish do not possess a swim bladder.

As shown in Table 6-4, the maximum predicted R_{max} distances to mortality/PMI and recoverable injury for fish with no swim bladder (Group I fish – e.g. tuna) within the entire water column was within 60 m (PK threshold). For all fish with a swim bladder (Group II and III fish) the maximum predicted R_{max} distance to mortality/PMI within the entire water column was within 110 m. The maximum distance to the TTS threshold in the water column for all fish hearing groups (Group I, II, III) was within 1.8 km.

All pelagic fish species, particularly large, fast-swimming fish species such as tuna and billfish, are highly unlikely to experience TTS effects as they are not restricted by seabed habitat and can swim away from a seismic source. Individuals would have to remain within ranges of about 1.8 km of the seismic source for several hours to be exposed to sound levels that could cause TTS. Pelagic fishes are most likely to exhibit behavioural responses (avoidance) by moving away from the seismic source that approaches within a few tens of metres of them. Behaviour may return to normal within minutes. However, it is acknowledged the behaviours and distributions of the pelagic species could be affected for hours or days after exposure as a result of potential disturbance to more sound-sensitive prey species, such as herrings, sardines, sprat and shads.

Sharks

Eight threatened and migratory shark species were identified in the EPBC PMST search as potentially occurring within the Operational Area (refer to Section 4.6.1). A BIA for foraging whale sharks overlaps the Operational Area (Figure 4-4). This BIA is centred on the 200 m isobath. Whale sharks are most likely to be present in the months of July to November (outside of the activity timing – refer to Section 3.7). Their presence in the Operational Area is expected to be limited to individuals, and would be transitory and of a short duration (refer to Section 4.6.1.1).

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No sound exposure thresholds currently exist for acoustic impacts from seismic sources that are specific to sharks, which are sensitive only to particle motion. As a conservative and precautionary approach, the Popper, et al. (2014) exposure guidelines for fish with no swim bladder for injury – 213 dB re 1 µPa (PK) and 219 dB re 1 µPa².s (SEL_{24h}); and TTS (186 dB re 1 µPa².s (SEL_{24h}) – have therefore been used for this assessment.

As shown in Table 6-4, the maximum predicted R_{max} distances to mortality/PMI for fish with no swim bladder (incl. sharks) within the entire water column was not met. R_{max} distance to recoverable injury was reached within 0.17 km. TTS thresholds across the water column for fish without a swim bladder could be reached within 1.8 km. It is important to note individual sharks would have to remain within a range of 1.8 km of the seismic source (which is also moving) for several hours to be exposed to sound levels that could cause TTS, which is unlikely.

While a BIA for foraging whale sharks overlaps the Operational Area (Figure 4-4), the species is most likely to be present in the months of July to November (outside of the activity timing – refer to Section 3.7). Any impacts to whale sharks, should they be present during the MSS, would be limited to recoverable injury and TSS within proximity to the seismic source (distances shown in Table 6-4). Impacts to whale sharks are likely to be restricted to temporary behavioural changes (avoidance) in individual species.

It is expected the potential effects to sharks associated with acoustic noise will be the same as for other pelagic fish species, resulting in minor and temporary behavioural change such as avoidance. This aligns with the Popper, et al. (2014) guidelines, which detail the potential for high risk of behavioural impacts in fish species near the seismic source (tens of metres), moderate risk within hundreds of metres, and low risk at thousands of metres from the seismic source.

Fish, sharks and rays – impact assessment conclusion

The potential impacts of noise emissions from the seismic source on fish, sharks and rays during the seismic acquisition are considered to be localised and low-level, and restricted to temporary behavioural changes (avoidance) in any isolated individuals that may transit the area near the seismic source. Based on the duration (up to 40 days) of seismic acquisition, and the proposed control measures, predicted noise levels from seismic acquisition are not considered likely to cause mortality/PMI, recoverable injury or significant TTS effects to fish communities, nor result in any ecologically significant impacts at a population level.

Marine mammals

Species sensitivity and sound exposure thresholds

Marine mammals, especially cetaceans, rely on sound for important life functions, including to recognise individuals, socialise, detect predators and prey, navigate and reproduce (Weilgart, 2007; Erbe, et al., 2015; Erbe, et al., 2018). Underwater noise can affect marine mammals in various ways, including interfering with communication (masking), behavioural changes, a shift in the hearing threshold, physical damage and stress (Rolland, et al., 2012; Erbe, 2012).

When exposed to intense or moderately intense noise levels (e.g. seismic airguns), marine mammals can experience physiological impacts such as damage to the auditory apparatus – for example, loss of hair cells or permanently fatigued hair cell receptors – which could cause permanent or temporary loss of hearing sensitivity. While the loss of hearing sensitivity is usually strongest in the frequency range of the emitted noise, it is not limited to the frequency bands where the noise occurs but can affect a broader hearing range. This is because animals perceive sound structured by a set of auditory bandwidth filters that proportionately increase in width with frequency.

Exposure to sufficiently intense sound may lead to an increased hearing threshold in any living animal capable of perceiving acoustic stimuli. If this shift is reversed and the hearing threshold returns to normal, the effect is called a TTS. The onset of TTS is often defined as threshold shift of 6 dB above the normal hearing threshold (Southall, et al., 2007). If the threshold shift does not return to normal, the residual shift is called a PTS. PTS is hearing loss from which marine fauna do not recover (permanent hair cell or receptor damage).

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, et al., 2017). Injury to the hearing apparatus of a marine animal may result from a fatiguing stimulus measured in terms of SEL, which considers the sound level and duration of the exposure signal. Intense sounds may also damage the hearing apparatus independent of duration, so an additional metric of peak pressure level is needed to assess acoustic exposure injury risk.

In marine mammals, the onset level and growth of TTS is frequency-specific, and depends on the temporal pattern, duty cycle and the hearing test frequency of the fatiguing stimuli. Sounds generated by seismic airguns have been proven to cause noise-induced threshold shifts in marine mammals at high received levels. However, there is considerable individual difference in all TTS-related parameters between subjects and species tested so far. Furthermore, TTS requires relatively high noise levels and thus occurs at shorter distances compared with behavioural effects, which are likely to occur at much lower levels (Dunlop, et al., 2017).

The criteria applied by the acoustic modelling study (Connell, et al., 2025) (Appendix E) to assess possible effects of impulsive noise sources on marine mammals are summarised Table 6-5; LF, HF and very-high-frequency (VHF) cetaceans were identified as the hearing groups requiring assessment. As discussed within Accomando, et al. (2025) and NMFS (2024), intense noise exposures can cause auditory injury (without PTS occurring). Therefore terms ‘PTS’ and ‘auditory injury’ are used interchangeably in this impact assessment and the acoustic modelling study. It is acknowledged auditory injury may occur without PTS.

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Details on thresholds related to auditory threshold shifts or hearing loss and behavioural response are provided in Appendix A.3 of the acoustic modelling study (Connell, et al., 2025) (Appendix E), with frequency weighting explained in Appendix A.4. The NMFS (2024) thresholds were retained consistent with NMFS (2025). While Accomando, et al (2025) subdivided cetaceans into four groups, the thresholds applied remained consistent with the NMFS (2024) values. The behavioural response criterion from the US National Oceanic and Atmospheric Administration (NOAA, 2019) has been applied.

Table 6-5: Acoustic effects of impulsive noise on marine mammals: unweighted sound pressure level, SEL_{24h}, and peak thresholds

Hearing group	NOAA (2019)	NMFS (2024)			
	Behaviour	TTS onset thresholds* (received level)		PTS onset thresholds* (received level)	
	SPL (L_p; dB re 1 µPa)	*Weighted* SEL_{24h} (L_E,24h; dB re 1 µPa²·s)	*PK* (L_{pk}; dB re 1 µPa)	*Weighted* SEL_{24h} (L_E,24h; dB re 1 µPa²·s)	*PK* (L_{pk}; dB re 1 µPa)
LF cetaceans	160	168	216	183	222
HF cetaceans		178	224	193	230
VHF cetaceans		144	196	159	202

** Dual metric (SEL_{24h} and PK) acoustic thresholds for impulsive sounds: use whichever results in the largest isopleth for calculating TTS and PTS onset.*

L_p denotes sound pressure level and has a reference value of 1 µPa.

L_{pk} denotes peak sound pressure is flat weighted or unweighted and has a reference value of 1 µPa.

L_E,24h denotes cumulative sound exposure over a 24 hour period and has a reference value of 1 µPa²s.

Impact assessment

The type and scale of the effect of seismic sound on cetaceans will depend on multiple factors, including the level of exposure, physical environment, location of the animal in relation to the sound source, how long the animal is exposed to the sound, the exposure history, how often the sound is repeated (repetition period) and the ambient sound level. The context of the exposure plays a critical and complex role in the way an animal might respond (Gomez, et al., 2016; NMFS, 2016). Without appropriate control measures in place, noise emissions from the seismic source have the potential to impact cetaceans by causing injury or changes to hearing (PTS and TTS) as a result of high sound levels at close range to the seismic source, or behavioural disturbance impacts (refer to the sound exposure thresholds for PTS, TTS and behavioural disturbance described above).

The Operational Area spatially overlaps the migration BIA and the distribution range for pygmy blue whales (Figure 4-7). A migration BIA for humpback whales is also 2 km south-east of the Operational Area (Figure 4-8). However, the activity timing (refer to Section 3.7) is outside northbound and southbound migration of humpback whales (June to November, refer to Table 4-14) and northbound migration of pygmy blue whales (April to July, refer to Table 4-14).

As per the Petroleum Activity timing (refer to Section 3.7), the seismic acquisition sound source will not be discharged during December to avoid the pygmy blue whales' peak southern migration, which occurs in November and December (refer to Table 4-14). C 3.8 restricts seismic source discharge to a period outside the peak migration of humpback whales (June to November) and pygmy blue whales (April to July and November to December).

It is possible other whale species may be in the Operational Area during survey acquisition (Table 4-9). However, the presence of these species is likely to be limited to infrequent occurrences of individuals or small groups.

Table 6-6 summarises the distances to threshold criteria for marine mammals:

- The maximum distance at which the NOAA (2019) marine mammal behavioural response criterion of 160 dB re 1 µPa (SPL) for impulsive noise was reached was 8.43 km.
- The results for marine mammal impairment considered the criteria from NMFS (2024). These criteria contain two metrics (PK and SEL_{24h}), both required for assessing marine mammal TTS and PTS. The maximum modelled distance associated with either metric for any site is presented in Table 6-6.

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Table 6-6: Summary of marine mammal results. Only the maximum modelled distance (R_{max}) to the noise effect criteria (for either SEL_{24hr} or PK) from any site is presented.

Hearing group	Maximum modelled distance to noise effect criteria (R_{max})		
	Behavioural response [a] (km)	TTS [b] (km)	PTS/Auditory Injury [b] (km)
LF cetaceans	8.43	48.0 (SEL_{24h})	0.80 (SEL_{24h})
HF cetaceans		-	-
VHF cetaceans		0.44 (SEL_{24h})	0.20 (PK)

Noise exposure criteria: a NOAA (2019) and b NMFS (2024).

A dash indicates the threshold was not reached within the limits of the modelling resolution (20 m).

Although VHF cetaceans have relatively lower TTS and PTS thresholds compared to LF and HF cetaceans (Table 6-5), the NMFS (2024) applies auditory weighting functions by hearing group, and use weighted exposure metrics for assessing the onset of TTS and PTS. As a result, TTS and PTS are only exceeded at a relatively short range from the source (Table 6-6).

Received maximum-over-depth SPL at the humpback whale migration BIA, from the closest modelled site, Site 12, was predicted to be 117.5 L_p; dB re 1 µPa (Connell, et al., 2025) (Appendix E). Given the distance of the BIA to the Pluto 3M 4D MSS, the BIA will be within the distance for TTS (SEL_{24h}) (48 km). However, the activity timing (refer to Section 3.7) is outside the northbound and southbound migration of humpback whales (June to November, refer to Table 4-14).

It should be noted the 24-hour SEL is a cumulative metric that reflects the dosimetric (measured dose) impact of noise levels within 24 hours, based on the conservative assumption that an animal is consistently exposed to such noise levels at a fixed position. This represents a conservative worst-case scenario. More realistically, whales would not stay in the same location and may not remain within range of the survey line for 24 hours. A reported radius for SEL_{24h} criterion does not mean a whale travelling within this radius of the source will experience PTS or TTS, but rather that an animal could be exposed to the sound levels associated with these effects if it remained in that range for 24 hours.

While the Operational Area overlaps spatially with the pygmy blue whale migration BIA, it is highly unlikely pygmy blue whales would remain within a range of 800 m (predicted distance for PTS for LF cetaceans, based on the SEL_{24h} metric – see Table 6-6) from the seismic source (which is moving) for a full 24-hour period, or even for a few hours. Should an individual remain within the range for potential impact, some recoverable TTS could occur. However, the likelihood of TTS occurring is reduced to some degree by implementing control measures, including a shutdown zone and a low-power zone under Part A of the EPBC Policy Statement 2.1, which reduces the potential for close range sound exposures where the greatest sound contribution is received. The activity timing (refer to Section 3.7) restricts the seismic source discharge to a period outside of peak migration.

The conservation management plan for the blue whale (Action Area 2) states that anthropogenic noise in BIAs should be managed such that any blue whale continues to use the area without injury (Commonwealth of Australia, 2015a). Therefore, an assessment of the potential for impacts (PTS and TTS) to pygmy blue whales and management of this risk is included below to be confident there is no inconsistency with the conservation management plan.

It is possible pygmy blue whales may be within the Operational Area during their southern migration and there is evidence of their presence within the southern part of the north-west Australian coast between November and December (Thums, et al., 2022). As shown in Figure 4-7, the track of one individual partially overlapped the northwest extent of the Operational Area. Tracking data have shown evidence of faster southern travel speeds (100 km per day) compared to northern travel speed, with no evidence to indicate foraging by southbound pygmy blue whales within the Operational Area (refer to Section 4.6.3.1). Most whales migrate further offshore along the northwest part of the coast, out to the abyssal plain (Thums, et al., 2022). The Operational Area is also outside of important foraging areas for the pygmy blue whale, which include: (1) the Perth Canyon and vicinity; (2) the shelf edge off Geraldton; (3) the shelf edge from Ningaloo Reef to the Rowley Shoals (not continuous) and including a couple of small areas near the shelf edge off about 25ºS; and (4) the Banda Sea (Thums, et al., 2022).

The modelled range to TTS effects in LF cetaceans, such as the pygmy blue whale, of 48 km may be overly conservative for the following reasons:

- The 48 km range to TTS is based on the modelled maximum-over-depth range and may correspond with water depths that are greater than the depths at which pygmy blue whales typically swim and dive to.
- As explained above, the SEL_{24h} criterion is a cumulative metric that reflects the dosimetric impact of sound energy accumulated over a 24-hour period and assumes an animal is consistently exposed to such noise levels at a fixed location. The radii that correspond to SEL_{24h} typically represent an unlikely worst-case scenario for SEL-based exposure since, more realistically, marine fauna would not stay in the same location or at the same range for 24 hours. It is noted the accumulation of sound energy is not linear and rapid growth in accumulated exposures

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may occur over a matter of hours as the seismic source approaches an animal's location, but the criterion and modelling are still limited by the assumption that animals remain in a fixed location for this period.

Animat modelling

To account for the movement of pygmy blue whales within the water column, Woodside commissioned JASCO to model animal movement (animat). The JASCO 'animal movement and exposure modelling' was used to predict the exposure of animats (pygmy blue whales) to sound arising from the seismic activity. The estimated sound fields produced by source and propagation models for the proposed Pluto M3 4D MSS were incorporated into an animat sound exposure model for southbound migrating pygmy blue whales. The model used biologically meaningful animal movement rules to estimate the radial distances within which 95% of exceedances above noise effect criteria occurred ($ER_{95\%}$), along with the probability that an animat with the closest point of approach within that distance would be exposed above the relevant threshold (P_{exp}).

Survey lines from the nominal modelled 24-hour acquisition scenario overlapped with the migrating BIA for pygmy blue whales. For the exposure analysis, the 24-hour acquisition scenario was run with two animat seeding approaches; restricted to the migrating BIA, or unrestricted (within the model extent).

Considering both the restricted and unrestricted seeding, the results of the animal movement modelling predicted the maximum $ER_{95\%}$ to SEL_{24h} thresholds was 4.79 km for TTS and 0.06 km for PTS. Unrestricted seeding resulted in greater probability of animats within the $ER_{95\%}$ ranges being exposed above the TTS thresholds compared to restricted seeding with probabilities of 47.6% and 40.5% respectively. In contrast, restricted seeding (which limits anmiat movement to within the BIA) predicted 70.6% of animats would be exposed above the PTS threshold compared to 64.7% of unrestricted animats. The range to the TTS threshold is longer for the restricted seeding scenario as any animats are restricted to the deeper water of the BIA where sound propagation is much more favourable. Exposures above accumulated sound criteria are most sensitive to the dwell time of animats within the ensonified area and limiting movement (restricted) resulted in animats spending longer within the longer $ER_{95\%}$ ranges.

The maximum $ER_{95\%}$ to the behavioural response SPL threshold of 160 dB re 1 µPa was 4.60 km in the unrestricted scenario and 4.99 km in the restricted scenario, again, influenced by sound propagation in the deeper water of the BIA. Single-exposure metrics, such as SPL, are not sensitive to changes in dwell time, but rather the distribution of noise within the water column and the use of the water column by the simulated animals.

Exposure range results are summarised in Table 6-7, with full results presented in Connell, et al. (2025); refer to Appendix E.

Table 6-7: Summary of animat simulation results for migrating pygmy blue whales; the 95th percentile exposures ranges ($ER_{95\%}$) in km and probability of animats being exposed above threshold within the $ER_{95\%}$ (P_{exp} (%)) are provided

Threshold		Animat – Scenario 1	
Description	**Threshold level (dB)**	**$ER_{95\%}$ (km)**	**P_{exp} (%)**
Unrestricted seeding			
PTS (SEL_{24h})	183[a]	0.06	64.7%
TTS (SEL_{24h})	168[a]	4.00	47.6%
Behavioural response (SPL)	160[b]	4.60	64.5%
Restricted seeding			
PTS (SEL_{24h})	183[a]	0.05	70.6%
TTS (SEL_{24h})	168[a]	4.79	40.5%
Behavioural response (SPL)	160[b]	4.99	78.4%

[a] LF-weighted SEL_{24h} (L_E,24h; dB re 1 µPa².s), NMFS (2024).

[b] SPL (L_p; dB re 1 µPa), NOAA (2019).

Note: Exposure ranges for PK thresholds were not included in the exposure analysis since acoustic modelling predicted PK exceedance ranges of less than 40 m for LF cetaceans. Based on the acoustic modelling (Table 6-6), maximum horizonal distances to exceedances of the PK criteria are small and close enough to the source that only minor differences are expected between acoustic and animat exposure predictions.

Based on animat modelling results, the conservative range for potential TTS effects in pygmy blue whales is about 4.79 km from the seismic source, compared with the 48 km range from the acoustic model when animal movement was not factored into the model (Table 6-6). While threshold criteria for TSS contour overlaps the pygmy blue whale

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migration BIA for the species, the Active Source Area represents a small portion of the overall BIA. The species is also not constrained spatially and is able to move outside the area of TSS. It is anticipated pygmy blue whales will continue to use the migration BIA without injury or significant behavioural disturbance, which is not inconsistent with the conservation management plan for the blue whale (Section 6.9).

The potential for masking impacts to migrating pygmy blue whales within the migration BIA is limited, as the intermittent nature and relatively short duration of the seismic pulses is unlikely to result in any significant masking of whale calls. During seismic operations the longest line acquired within the ASA would take about 6.5 hours to acquire. The source will be powered down during line turns, which will take about three and a half to four hours, before the source is activated again for seismic acquisition on the next line in the 'race track' pattern. Hence, there would be at least two full silent periods totalling about seven hours within each 24-hour period, and migrating whales would be exposed to the seismic pulses for less than a day. A tagging study of blue whales showed migrating individuals can travel 50 to 100 km per day (Double, et al., 2014). This equates to an average swimming speed of 2 to 4 km/hr over a 24-hour period. In comparison, the seismic vessel will be travelling at around 4 to 5 knots (7 to 9 km/hr). Individual pygmy blue whales are expected to pass through the ensonified area in less than 24 hours. Consequently, masking impacts from sound exposure are unlikely to cause any long-term masking (<24 hours) for migrating individuals.

To account for the potential presence of blue pygmy whale during the southbound migration, additional management procedures will be implemented to manage potential impacts to pygmy blue whales (e.g. passive acoustic monitoring (PAM) operative, marine fauna observers (MFOs) and adaptive management measures - refer to the Demonstration of ALARP below) and to ensure the activity is not inconsistent with the conservation management plan for the blue whale (see Section 6.9).

Marine mammals – impact assessment conclusion

Based on the assessment above, the potential impacts of noise emissions from the seismic source on marine mammals during the survey are considered to be localised and low-level. Impacts to marine mammals are likely to be restricted to temporary behavioural changes (avoidance) in species, with predicted noise levels from the seismic acquisition not considered likely to cause injury effects (based on adopted controls). The activity will be managed to ensure it is not inconsistent with the conservation management plan for the blue whale (see Section 6.9).

Marine reptiles

Species sensitivity and sound exposure thresholds

There is a paucity of data regarding responses of turtles to acoustic exposure, and no studies of hearing loss due to exposure to loud sounds. Popper, et al. (2014) suggested thresholds for onset of mortal injury (including PTS) and mortality for sea turtles and, in the absence of taxon-specific information, adopted the levels for fish that do not hear well (suggesting this likely would be conservative for sea turtles).

Finneran, et al. (2017) presented revised thresholds for sea turtle injury and hearing impairment (TTS and PTS). Their rationale is that sea turtles have best sensitivity at low frequencies and are known to have poor auditory sensitivity (Bartol & Ketten, 2006; Dow Piniak, et al., 2012). Accordingly, TTS and PTS thresholds for turtles are likely more similar to those of fishes than to marine mammals (Popper, et al., 2014). These thresholds have subsequently been superseded by those presented by Accomando, et al. (2025) (Table 6-8).

McCauley, et al. (2000a) observed the behavioural response of caged sea turtles – green (*Chelonia mydas*) and loggerhead (*Caretta caretta*) – to an approaching seismic airgun. For received levels above 166 dB re 1 µPa (SPL), the sea turtles increased their swimming activity, and above 175 dB re 1 µPa they began to behave erratically, which was interpreted as an agitated state. The Recovery Plan for Marine Turtles in Australia 2017–2027 (Commonwealth of Australia, 2017) acknowledges the 166 dB re 1 µPa SPL reported (McCauley, et al., 2000a) as the level that may result in a behavioural response to marine turtles. The 175 dB re 1 µPa level from McCauley, et al. (2000a) is recommended as a criterion for behavioural disturbance; these thresholds are shown in Table 6-8.

Table 6-8: Acoustic effects of impulsive noise on sea turtles: unweighted sound pressure level, SEL_{24h} and peak pressure thresholds

Effect type	Reference	SPL (L_p; dB re 1 µPa)	Weighted SEL_{24h} (L_E,24h; dB re 1 µPa²·s)	PK (L_{pk}; dB re 1 µPa)
Behavioural response	McCauley, et al. (2000a)	166	N/A	
Behavioural disturbance		175		
PTS onset thresholds (received level)[1]	Accomando, et al. (2025)	N/A	184	230

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TTS onset thresholds (received level)[1]			169	224

1. *Dual metric (SEL_{24h} and PK) acoustic thresholds for impulsive sounds: use whichever results in the largest isopleth for calculating PTS and TTS onset.*

Chapuis, et al. (2019) provided the first experimental evidence of underwater hearing in sea snakes, measuring auditory evoked potentials in *Hydrophis stokesii*. The study demonstrated sensitivity to low-frequency sound (40–600 Hz), with peak sensitivity around 60 Hz. However, overall auditory sensitivity was found to be relatively lower than that reported for bony fishes and marine turtles. Therefore, the extent of potential impacts is conservatively considered below.

Impact assessment

The ensonified area is unlikely to represent important habitat for marine turtles, given the absence of potential nesting or foraging habitat (i.e. no emergent islands, reef habitat or shallow shoals) and the water depth (greater than 50 m) (refer to Section 4.6.2.1).

Marine turtle BIAs in proximity to the ASA are identified in Table 4-7 and include:

- flatback turtle, associated with a reproduction (internesting buffer) BIA that overlaps the ASA (Figure 4-5)
- hawksbill, green and loggerhead reproduction (internesting buffer) BIAs that are 11 km, 6 km and 18 km to the south-east of the ASA, respectively (Figure 4-5).

It is recognised that the ensonified area extends outside the ASA and this impact assessment evaluates impacts extending to the thresholds presented in Table 6-8.

The ensonified area is unlikely to represent important habitat for marine turtles, given the absence of potential nesting or foraging habitat (i.e. no emergent islands, reef habitat or shallow shoals) and the water depth (greater than 50 m). The Recovery Plan for Marine Turtles (Commonwealth of Australia, 2017) specifies a 60 km internesting buffer for flatback turtles, and 20 km internesting buffer for green, hawksbill and loggerhead turtles. As described in Section 4.6.2.1, Whittock, et al. (2016) defined suitable internesting habitat as water 0 to 16 m deep and within 5 to 10 km of the coastline, while unsuitable internesting flatback habitat was defined as waters >25 m deep and >27 km from the coastline. There is no evidence to date to indicate flatback turtles swim out to deep offshore waters during the internesting period (Whittock, et al., 2016).

The reproduction (internesting buffer) BIA for flatback turtles and flatback habitat critical area overlaps the Operational Area (refer to Section 4.6.2); however, the nearest potential turtle nesting habitats are on the Montebello Islands (about 28 km southeast). As inferred in the paragraph above and described further in Section 4.6.2.1, presence of flatback turtles within the Operational Area is likely to be restricted to individual turtles infrequently transiting the area. Further detail on the potential for flatback turtle presence within the Operational Area is provided in Section 4.6.2.1.

It is important to note flatback turtle hatchlings do not undertake oceanic migrations offshore to deep, pelagic waters. Instead, juveniles grow to maturity in shallow coastal waters close to their natal beaches (Musick & Limpus, 1996).

Table 6-9 presents the results of the acoustic modelling study for the maximum R_{max} distances to PTS (injury), TTS, behavioural response and behavioural disturbance thresholds in marine turtles, for all modelled source scenarios. The results for the thresholds applied for PTS and TTS consider both metrics (single-pulse PK and multiple-pulse SEL_{24h}).

Table 6-9: Maximum predicted horizontal distances (R_{max}) to permanent and temporary threshold shift, behavioural response and behavioural disturbance thresholds in turtles, for all modelled sites

Hearing group	Threshold	Metric	Sound exposure threshold	R_{max} distance (km)
Marine turtles	PTS[1]	dB re 1 µPa².s (SEL_{24h})	184	0.63
		dB re 1 µPa (PK)	-	-
	TTS[1]	dB re 1 µPa².s (SEL_{24h})	169	46.1
		dB re 1 µPa (PK)	-	-
	Behavioural response[2]	dB re 1 µPa (SPL)	166	3.30
	Behavioural disturbance[2]	dB re 1 µPa (SPL)	175	1.12

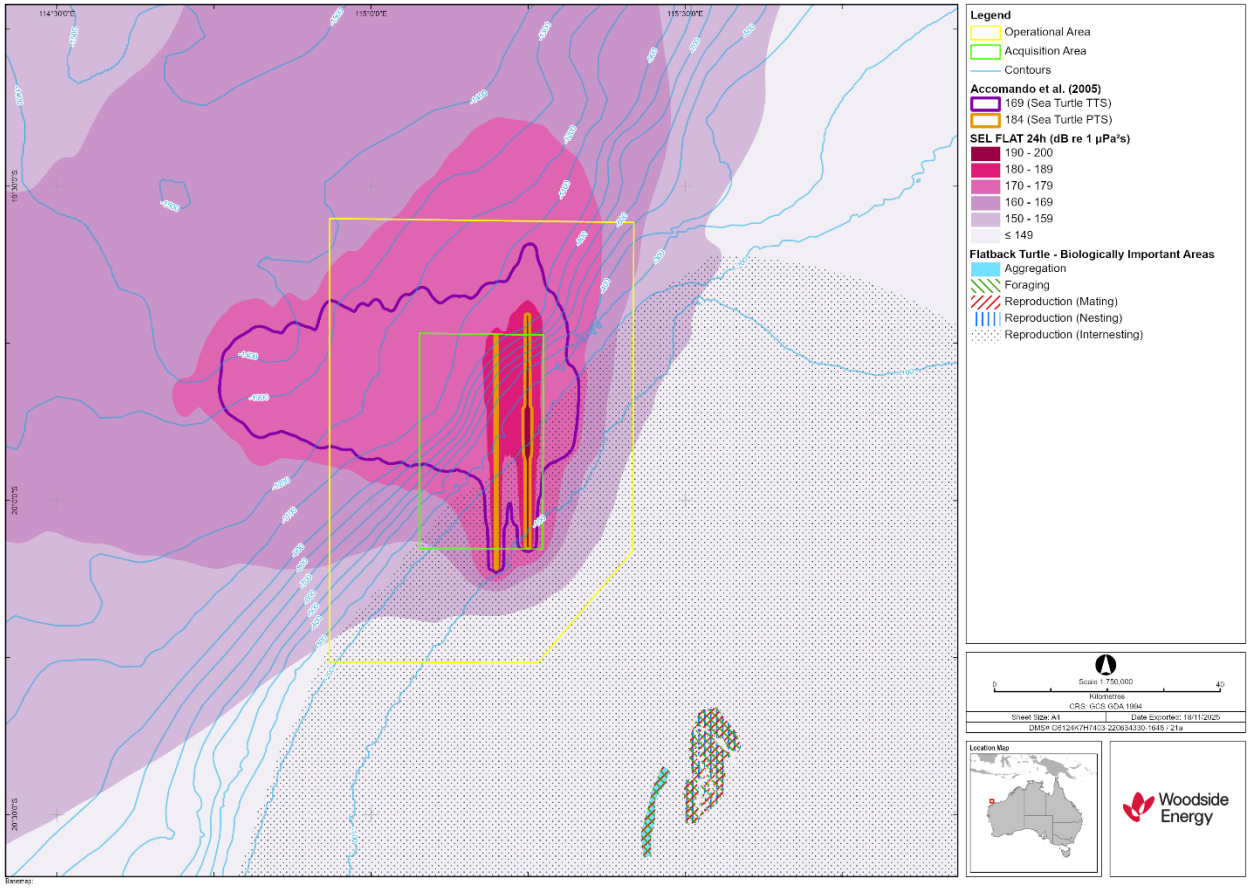
Noise exposure threshold criteria: 1 Accomando, et al. (2025); 2 McCauley, et al. (2000a).

N.B. A dash (–) indicates the acoustic threshold was not reached within the 20 m modelling resolution.

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As shown in Table 6-9 based on applying the SEL_{24h} thresholds, marine turtles could experience PTS within 63 m of the active source, and experience TTS within 46.1 km of the active source. Figure 6-3 shows the sounds contours for various threshold criteria. As shown on Figure 6-3, the area for TSS effects on marine turtles extends offshore, away from the nesting and internesting BIAs for marine turtles extending from the Montebello Islands. As such, TSS (SEL_{24h}) impacts are not predicted within marine turtle reproduction (nesting and mating), foraging and aggregation BIAs, which extend from the Montebello Islands.

As is the case with marine mammals, a reported radius for SEL_{24h} criteria does not mean sea turtles travelling within this radius of the source will be impaired, but rather that an animal could be exposed to the sound levels associated with TTS or PTS if it remained within the respective ensonified areas for 24 hours. More realistically, marine turtles would not stay in the same location for 24 hours, but rather a shorter period, depending upon their behaviour and the proximity and movements of the source.



Thresholds omitted here were not reached or not large enough to display graphically (Connell, et al., 2025).

Figure 6-3: Scenario 1, SEL_{24h}: Sound level contour map of unweighted maximum-over-depth SEL_{24h} results, along with isopleths for turtles

Single-pulse PK thresholds were not reached within the limits of the modelling resolution for PTS or TTS.

Based on the 166 dB re 1 µPa SPL behavioural threshold criterion a behavioural response could occur within 3.3 km, and based on the 175 dB re 1 µPa SPL behavioural threshold criterion a behavioural disturbance could occur within 1.12 km.

The reproduction (internesting buffer) BIA for flatback turtles and flatback habitat critical area overlaps the Operational Area (refer to Section 4.6.2).These areas will receive sound exposure above SEL_{24h} thresholds for PTS. SEL_{24h} thresholds for PTS will not be reached in the hawksbill, green and loggerhead reproduction (internesting buffer) BIAs, given their distance from the ASA. As described above, a habitat suitability study defined unsuitable flatback turtle internesting habitat as waters >25 m deep and >27 km from the coast (Whittock, et al., 2016), thus the ensonified area is not likely to represent an important habitat for flatback marine turtles. Furthermore, based on the modelling results (Figure 6-3) marine turtles are not predicted to be exposed to PTS thresholds for 24 hours. Given the propagation of sound from the array into offshore waters (Figure 6-3) and the reported swimming speeds of marine turtles, it is conceivable that a marine turtle could be exposed to levels above the TTS threshold for over 24 hours, but only if it either remained at the same location for 24 hours, which is very unlikely given the water depth and lack of habitat, or it continued to swim towards the sound source for 24 hours, which is unlikely.

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Based on the 166 dB re 1 µPa SPL behavioural threshold criterion a behavioural response could occur within 3.3 km, and based on the 175 dB re 1 µPa SPL behavioural threshold criterion a behavioural disturbance could occur within 1.12 km. Turtles within this disturbance area are likely to be moving in and out of the area; similarly, the sound levels within this potential impact area will change as the seismic vessel moves throughout the survey for up to 40 days.

As shown on Figure 6-3, the area for potential acoustic effects on sea snakes extends offshore, away from the reef flats where short-nosed sea snakes are likely to be present as described in Section 4.6.2.2. Given that the Pluto M3 4D MSS will acquire seismic data in water depths between 73 and 1,185 m, which is deeper than the typical habitat of sea snake species and distant from reef flats, the short-nosed sea snake is unlikely to be present within the Operational Area, and any potential impacts would therefore be limited to individuals transiting through the area.

Marine reptiles – impact assessment conclusion

Based on the assessment above, the potential impacts of noise emissions from the seismic source on marine turtles during the survey are considered to be localised and low-level. Impacts are likely to be restricted to temporary behavioural changes (avoidance) to transient turtles that may pass within 3.3 km of the seismic source. Turtles would be exposed to noise levels above behavioural threshold levels for a short period as the vessel moves through the survey area (up to 40 days).

As shown on Figure 6-2, when the sound sources at those sites closest to the interesting BIAs were modelled, the area for TTS effects on marine turtles extends offshore into deeper water, away from the reproduction (nesting and mating), foraging and aggregation BIAs for marine turtles extending from the Montebello Islands. As such, the sound source will progressively move further away and TTS (SEL_{24h}) impacts are not predicted within marine turtle nesting, mating, foraging and aggregation BIAs, nor the habitat critical to the survival of marine turtles. Impacts to sea snakes are likely to be restricted to individuals transiting through the area.

Seabirds

Impact assessment

Very little is known about the effects of intense underwater sound (e.g. seismic surveys) on seabirds. However, impacts to seabirds have not been observed previously during seismic surveys (Turnpenny & Nedwell, 1994), and it is generally thought that noise produced from activities associated with seismic surveys may impact only those species of birds that spend large quantities of time underwater, either swimming or plunge-diving while foraging for food (Continental Shelf Associates, Inc, 2004). Pichegru, et al. (2017) found penguins showed a strong avoidance of their preferred foraging areas during seismic activities, foraging significantly further from the survey vessel when in operation and increasing overall foraging effort.

A total of 35 EPBC Act listed threatened seabirds and migratory shorebird species have been identified to potentially occur within the EMBA, of which 17 occur in the Operational Area (refer to Table 4-12). The Operational Area overlaps the reproduction BIA for wedge-tailed shearwaters (refer to Figure 4-9). However, given the timing of the Petroleum Activity (refer to Section 3.7) there is no overlap with the wedgetail shearwater fledgling emergence period (early April, refer to Table 4-14).

Birds foraging within the Operational Area have the potential to be exposed to increased sound levels generated by the seismic source, while diving for small pelagic fishes near the sea surface. Such behaviours may result in a startle response during diving. Birds resting on the surface of the water near the seismic vessel have limited potential to be affected by sound emissions underwater, due to the limited transmission of sound energy between the water/air interface, but may be startled by seismic pulses near the seismic source. However, given the likely avoidance response from fish and other prey species in waters immediately surrounding the seismic source, birds are unlikely to forage near the seismic source. In the unlikely event birds dive and forage near the seismic source, this is likely to only affect individual birds, resulting in a startle response, with the affected birds expected to move away from the area as a result.

Seabirds– impact assessment conclusion

It is unlikely seabirds would be impacted by the seismic survey. The behaviour and distribution of some fish may be affected for short periods during and after exposure to the seismic source, which may result in low-level and localised changes in the distribution of target prey species for some bird species. However, it is expected the behaviours and distribution of prey at any one time will remain largely unaffected within the Operational Area. Given the timing of the Petroleum Activity (refer to Section 3.7), there is no overlap with the wedge-tailed shearwater fledgling emergence period (early April, refer to Table 4-14); therefore, wedge-tailed shearwaters are not expected to be displaced from the BIA. Impacts to seabird populations are not anticipated to occur.

Marine protected areas

Impact assessment

The Operational Area and ASA overlap a small portion of the Montebello AMP – Multiple Use Zone (refer to Figure 4-11), thus will receive sound from the seismic source above exposure thresholds (as described in the impact assessments above for marine fauna). Maximum received sound at the Montebello Islands State Marine Park is predicted to be 103 dB re 1 µPa (SPL) (Connell, et al., 2025) (Appendix E). Figure 6-3 shows the sounds contours for various threshold criteria. As shown, the area for TTS effects on marine turtles extends offshore and away from the areas of reproduction (nesting and mating), foraging and aggregation for marine turtles extending from the Montebello Islands (Figure 6-3). As such, TTS (SEL_{24h}) impacts are not predicted to these values. While the reproduction

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(internesting buffer) BIA for flatback turtles and flatback habitat critical area overlaps the Operational Area and will receive sound exposure above SEL_{24h} thresholds for PTS, as described above in Section 4.6.2.1, the ensonified area is not likely to represent an important habitat for flatback marine turtles.

The Montebello AMP includes examples of ecosystems representative of the Northwest Shelf Province, a dynamic environment influenced by strong tides, cyclonic storms, long-period swells and internal tides. The bioregion includes diverse benthic and pelagic fish communities. A KEF of this marine park is the Ancient Coastline at 125 m depth contour.

The potential impacts from the Petroleum Activity to the relevant natural, cultural, heritage, social and economic values of the Montebello AMP are summarised in Table 6-10, demonstrating consistency.

Table 6-10: Petroleum Activity consistency with relevant natural, cultural, heritage social and economic values of the Montebello Marine Park

Value of the AMP	Sensitivity	Assessment of consistency with value
Natural	Diverse benthic and pelagic fish communities	**Not inconsistent** As shown in Table 6-4, the maximum predicted R_{max} distances to mortality/PMI and recoverable injury for fish with no swim bladder (Group I fish; e.g. tuna) within the entire water column was within 60 m (PK threshold). For all fish with a swim bladder (Group II and III fish), the maximum predicted R_{max} distance to mortality/PMI within the entire water column was within 110 m. The maximum distance to TTS in the water column for all fish hearing groups was within 1.8 km. Pelagic fishes are most likely to exhibit behavioural responses (avoidance) by moving away from the seismic source that approaches within a few tens of metres of them. As discussed in the impact assessment above, any impacts to the value of the AMP are anticipated to be localised and low-level. As discussed, impacts to benthic invertebrates from the seismic source include potential sublethal effects and chronic mortality to some organisms within a few tens of metres below the source. However, given the water depths (>50 m) and natural cycle of death, recovery and recruitment, impacts are expected to be localised and low-level, and the seismic acquisition is not likely to result in any ecologically significant impacts at a population level for any benthic invertebrates that may be on the seafloor.
	Breeding habitat for seabirds	**Not inconsistent** It is not likely seabirds would be impacted by the seismic survey. The behaviour and distribution of some fish may be affected for short periods during and after exposure to the seismic source, which may result in short-term and localised changes in the distribution of target prey species for some bird species.
	Internesting, foraging, mating and nesting habitat for marine turtles	**Not inconsistent** The potential impacts of noise emissions from the seismic source on marine turtles during the survey are considered to be localised and low-level. Impacts are likely to be restricted to temporary behavioural changes (avoidance) to transient turtles that may pass within 3.3 km of the seismic source (Table 6-9). TTS (SEL_{24h}) impacts are not anticipated within the reproduction (nesting and mating), foraging and aggregation BIAs extending from the Montebello Islands (Figure 6-3). The reproduction (internesting buffer) BIA for flatback turtles and flatback habitat critical area overlaps the Operational Area and will receive sound exposure above SEL_{24h} thresholds for PTS, as described above. However, as detailed in Section 4.6.2.1, the ensonified area is not likely to represent an important habitat for flatback marine turtles.

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	Migratory pathway for humpback whales	**Not inconsistent** Received maximum-over-depth SPL at the humpback whale migration BIA, from the closest modelled site, was predicted to be 117.5 L_p; dB re 1 µPa (Connell, et al., 2025) (Appendix E). Given the distance of the BIA to the Pluto M3 4D MSS, the BIA will be within the distance for TTS (SEL_{24h}) (48 km). However, the activity timing (refer Section 3.7) is outside northbound and southbound migration of humpback whales (June to November, refer to Table 4-14). No significant behavioural response is expected. Impacts are anticipated to be localised and low-level.
	Foraging habitat for whale sharks	**Not inconsistent** A BIA for foraging whale sharks overlaps the Operational Area (Figure 4-4). This BIA is centred on the 200 m isobath. Whale sharks are most likely to be present in the months of July to November (outside of the activity timing – refer to Section 3.7). Given the activity timing, the presence of whale sharks is unlikely; however, if present, the potential effects are expected to be the same as for other pelagic fish species, resulting in minor and temporary behavioural change such as avoidance. This aligns with the Popper, et al. (2014) guidelines, which detail that there is the potential for high risk of behavioural impacts in fish species near the seismic source (tens of metres), moderate risk within hundreds of metres, and low risk at thousands of metres from the seismic source. Any impacts are anticipated to be localised and low-level.
Social and economic values	Tourism, commercial fishing, mining and recreation	**Not inconsistent** Impacts to commercial fisheries are anticipated to be limited to slight and short-term disturbance to the target species. The catch rates of commercial fisheries are not considered to be impacted, given the quick recovery of the species impacted and small area of the MSS (and extent to threshold criteria for fish and crustacean) compared to the overall fishery areas. A range of controls have been adopted to manage interactions with other marine users to ensure any displacement impacts are reduced to ALARP and acceptable levels. These controls are presented in Section 6.7.1. The potential impacts to tourism, commercial fishing, mining and recreation are expected to be limited to a slight, short-term displacement of vessels as they make slight course alterations to avoid the project vessels (and associated towed equipment in the SNA).
Cultural	Sea Country	**Not inconsistent** Woodside understands marine fauna that may be affected by acoustic emissions are culturally important to Traditional Custodians. Traditional Custodians value marine species both tangibly and intangibly, as they can be considered a resource or linked to songlines and Dreaming stories. The impacts and risks to these species are not considered to be ecologically significant at a population level, nor expected to result in a decrease of the quality of the habitat such that the extent of these species is likely to decline. Hence, impacts to the value of marine fauna, including the transmission of cultural knowledge, are not expected. As such, cultural values and intangible cultural heritage associated with these species are expected to be maintained.

The objectives of the North-west Marine Parks Network Management Plan are to provide for:

- the protection and conservation of biodiversity and other natural, cultural and heritage values of marine parks in the North-west Network
- ecologically sustainable use and enjoyment of the natural resources within marine parks in the North-west Network, where this is consistent with the first objective.

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The Petroleum Activity will be undertaken in a manner that is consistent with the management objectives and values of the AMP and the North-west Marine Park Network. No long-term impacts are predicted and the values will be conserved and protected (as described in the impact assessments above for marine fauna).

Marine protected areas – impact assessment conclusion

Based on the proposed timing and duration (up to 40 days) of the seismic acquisition and the control measures proposed, predicted noise levels are not considered likely to cause any ecologically significant impacts to the natural values of marine protected areas.

Key ecological features

Two KEFs overlap the Operational Area: Continental Slope Demersal Fish Communities and Ancient Coastline at 125 m depth contour (Section 4.7). As shown in Table 6-11, only a small portion of the ASA is within these KEFs.

Table 6-11: Active Source Area overlap with the Continental Slope Demersal Fish Communities and Ancient Coastline at 125 m depth contour KEFs

Key ecological feature	KEF within the ASA
Continental Slope Demersal Fish Communities KEF	0.96%
Ancient Coastline at 125 m Depth Contour KEF	0.50%

As described in Section 4.7, both these KEFs are associated with demersal or pelagic fish species.

Indirect interaction resulting from acoustic emissions is not expected to impact the seabed features of the KEFs and any mortality/PMI, recoverable injury or TTS effects to Group I, II and III fishes, and larval mortality/ PMI to fish eggs and larvae, within the KEFs are not likely to be ecologically significant at a population level within the KEF for the following reasons:

- There is limited spatial and temporal overlap with the KEFs (refer to Table 6-11) and the seismic acquisition period is 40 days (refer to Section 3.7).
- The areas of maximum predicted R_{max} distances to the sound exposure criteria (mortality/PMI, recoverable injury or TTS effects to Group I, II and III fishes) are small; refer Table 6-4.
- The area of exposure above sound exposure criteria is a low proportion of the area the fish species likely to inhabit. Thus, population effects are not likely as a significant proportion of the population remains unaffected.
- The potential area of impact for fish TTS is temporary and recovery takes place in a relatively short timeframe after the source array has moved away from the exposed fish, and the sound levels are reduced. Popper, et al. (2005) reports that fish who showed TTS recovered to normal hearing levels within 18 to 24 hours.

While fish communities within the KEF exposed above sound exposure criteria may exhibit some localised and low-level behavioural responses to noise emissions from the seismic source, the physical structure, ecosystem functioning and integrity of the KEFs are not predicted to be altered.

Other seabed ecological receptors relevant to the Continental Slope Demersal Fish Communities KEF and the Ancient Coastline at 125 m Depth Contour KEF, including benthic invertebrates and fish, shark and rays have been assessed above.

Commercial fisheries

The Commonwealth-managed North West Slope Trawl Fishery, and five State-managed fisheries (Mackerel Managed Fishery, Marine Aquarium Managed Fishery, Pilbara Trap Managed Fishery, Pilbara Line Fishery (Condition), West Coast Deep Sea Crustacean Managed Fishery), are considered to have potential to interact with the Petroleum Activity, based on their catch effort drawn from ABARES (Commonwealth) and FishCube (WA State) data (Table 4-24, Section 4.9.2). However, the Operational Area represents less than 1% of the ground available to the Commonwealth and State managed fisheries (with the potential for interaction).

As presented in Table 4-24, the North West Slope Trawl Fishery generally targets deepwater crustaceans, such as scampi and prawns. Activity takes place in waters deeper than 200 m. State fisheries target demersal and pelagic finfish species, crustaceans, and a range of other benthic species.

Impacts to commercial crustacean species have been described in the impact assessments above (benthic invertebrates). Impacts to benthic invertebrate communities (which include commercial species such as scampi and crustaceans) on the seafloor are expected to be highly localised and temporary. Any impacts are likely to occur in parallel with the continuous natural cycle of death, recovery and recruitment of invertebrates. Therefore, it is questionable whether any impacts from seismic exposure would be detectable from natural fluctuations in relative abundance, benthic community composition and structure (Payne, et al., 2008; 2007; Day, et al., 2017).

Impacts to commercial catch fish species have been described in the impact assessments above (fish, sharks and rays). Table 6-4 presents acoustic modelling results for all hearing groups. For all fish with a swim bladder both involved and not involved in hearing (Group II and III fish, which would represent most demersal fish), mortality/PMI and recoverable injury thresholds within the entire water column were reached within 110 m based on applying the PK threshold. The maximum predicted R_{max} distances to mortality/PMI and recoverable injury for fish with no swim bladder (Group I fish) within the entire water column was within 60 m (PK threshold). For all fish with a swim bladder

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(Group II and III fish), the maximum predicted R_{max} distance to mortality/PMI within the entire water column was within 110 m. The maximum distance to the TTS threshold in the water column for all fish hearing groups was within 1.8 km.

The most recent study in Australia into the potential impacts of seismic surveys on fish (Meekan, et al., 2021) found no short-term (days) or long-term (months) effects of seismic exposure on the composition, abundance, size, structure, behaviour of movement of these species and concluded that seismic surveys have little impact on demersal fish in that environment; the NWS of Western Australia. Similarly and consistent with Meekan, et al. (2021), Nguyen, et al. (2025) found no short- or long-term effects of seismic survey noise on the size, structure of ground fish species, suggesting displacement effects from the survey did not measurably occur for the groundfish species in the study.

The operations of the Pearl Oyster Managed Fishery include hand collection of pearl shell by drift diving (see Table 4-25) which may occur in 30 m water depth. Divers associated with this fishery are not anticipated to be impacted, given the significant distance of the ensonified area to shallow areas of water known to be associated with this fishery (e.g. off the coast of Eighty Mile Beach, and Lacepede Islands). Impacts to commercial fisheries are therefore anticipated to be limited to localised and temporary disturbance to the target species. The catch rates of commercial fisheries are not considered to be impacted, given the quick recovery of the species impacted and small area of the MSS (and extent to threshold criteria for fish and crustacean) compared to the overall fishery areas.

Fish spawning

Section 4.9.2 outlines the key indicator species (Table 4-25) relevant to commercial fisheries (Table 4-24) that have the potential to spawn within the Operational Area, which include:

- Spanish mackerel *(Scomberomorus commerson)*
- goldband snapper (*Pristimoides multidens*)
- red emperor (*Lutjanus sebae)*
- ruby snapper (*Etelis boweni*)
- southern bluefin tuna (*Thunnus maccoyii*)
- skipjack tuna (*Katsuwonus pelamis*)
- albacore tuna (*Thunnus alalunga*)
- bigeye tuna *(Thunnus obesus)*
- yellowfin tuna *(Thunnus albacares)*
- broadbill swordfish (*Xiphias gladius*)
- striped marlin *(Kajikia audax*).

Several other key indicator species were identified to potentially occur within the Operational Area, including scampi (*Metanehorps spp*), bluespotted emperor (*Lethrinus punctulatus*), Rankin cod (*Epinephalus rankini*) and crystal crab (*Chaceon albus)*. However, these species were identified as not likely to spawn within the Operational Area or were identified to spawn within the Operational Area but outside the proposed source discharge window (Table 4-25).

The potential impacts of noise emissions from the seismic source on fish, sharks and rays during the seismic acquisition (as presented above) are considered to be localised and low-level, and restricted to temporary behavioural changes (avoidance) in any isolated individuals that may transit the area near the seismic source. Predicted noise levels from seismic acquisition are not considered likely to cause mortality/PMI, recoverable injury or significant TTS effects to fish communities, nor result in any ecologically significant impacts at a population level.

Behavioural responses and masking of fish vocalisations resulting from the seismic source may temporarily divert efforts away from spawning aggregations, egg production and recruitment (Hawkins & Popper, 2017). Fish species relying on vocalisations during reproduction with highly specific spawning grounds and short spawning periods are predicted to be the most sensitive to noise-induced stress and masking (de Jong, et al., 2020). Meekan, et al. (2021) found no short-term (days) or long-term (months) effects of seismic exposure on the composition, abundance, size, structure, behaviour or movement of demersal fish species targeted by commercial fisheries, and noted that if behavioural changes to demersal fish species did take place, they had no measurable impacts on behaviour or abundance.

There are limited studies quantifying impacts of seismic surveys on spawning success. A study conducted by McQueen, et al. (2023) exposed free-swimming, spawning Atlantic cod to a seismic source (received sound exposure levels varying between 115 and 145 dB re 1 μPa^2s) over a five-day period during spawning seasons from 2020–21. The species targeted in the study demonstrated high site fidelity and reliance on vocalisations during reproduction and, therefore, are considered to be sensitive to impacts associated with noise (McQueen, et al., 2023). Findings indicated no significant changes to fish behaviour (swimming acceleration, displacement, or area use) occurred, except temporary increases in depth (McQueen, et al., 2023). Results indicated spawning Atlantic cod did not abandon spawning sites when exposed to a seismic source (McQueen, et al., 2023). It should be noted SEL from the acoustic array in the study was representative of the predicted SEL at distances of five to >40 km from a full-scale seismic array, and closer proximity may elicit greater response (McQueen, et al., 2023).

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In considering the potential impacts of the activity on spawning fish stocks, the spatial and temporal overlap with fish spawning locations and periods and the reproductive biology and natural variability of fish spawning stocks have been regarded.

As per Table 4-25, it is understood goldband snapper, red emperor and ruby snapper fish species undergo spawning throughout their general range of distribution rather than aggregating at specific locations, whereas Spanish mackerel have been known to form spawning aggregations in shallow coastal waters and around reefs (Mackie, et al., 2004; Mackie, et al., 2010). Spawning locations of skipjack tuna are poorly understood; however, given they are known to spawn in tropical waters of the Indian Ocean, it is assumed they spawn within their general range of distribution (AFMA, 2023b). Southern bluefin tuna spawn exclusively in the north-east Indian Ocean, south of Java and around Christmas Island and the Cocos Islands (Patterson, et al., 2025b). Known spawning locations of striped marlin are also poorly understood, but are thought to potentially occur between 10°S and 20°S in the northeastern Indian Ocean (Nakamura, 1985).

For goldband snapper, the highest abundance of spawning biomass occurs between the 80 and 120 m depth contour (Payet, et al., 2024). Given this, and the preference for hard substrate habitat, any spawning aggregations of goldband snapper within the Operational Area are likely to be concentrated along the Ancient Coastline at 125 m depth contour KEF (Section 4.7.1), partially overlapping the southern portion of the Operational Area (Figure 4-10). This area only occupies a very small proportion of the species' general distribution and thus available spawning area. With goldband snapper spawning occurring between September and May (Smith, et al., 2025), there is temporal overlap with the survey acquisition window. However, the short duration of the acoustic source discharge will overlap up to 40 days out of the species' extended eight-month spawning period within a very small proportion of available spawning area.

As for red emperor, spawning occurs throughout their general range of distribution, with the species opportunistically spawning in small groups or pairs between September and May (Smith, et al., 2025; DPIRD, 2023). While there will be temporal overlap with the survey acquisition (up to 40 days) and the eight-month extended spawning period, the survey does not overlap the peak spawning periods which occur biannually in October and March. Furthermore, given the Operational Area only occupies a very small proportion of the species' general distribution and thus available spawning area, little spatial overlap is expected.

Ruby snapper are also reported to spawn throughout their general range of distribution, in deep water habitat (200 to 400 m) on substrate near pinnacles, crevasses, ledges and slopes (Andrews, et al., 2021; Wakefield, et al., 2020). Given this, spawning aggregations of ruby snapper within the Operational Area are likely to be concentrated along the upper slope of the Continental Slope demersal fish communities KEF (Section 4.7.2), partially overlapping the Operational Area in a south-west to north-east direction (Figure 4-10). Ruby snapper spawning occurs between December and April, with peak spawning in January (Wakefield, et al., 2020), overlapping the survey acquisition window. However, as the Operational Area only occupies a small proportion of the species' general distribution and thus available spawning area, little spatial overlap is expected.

Considering Spanish mackerel, there is no reef habitat within the Operational Area and Tryal Rocks is the closest suitable spawning aggregation habitat (10 km south of the Operational Area, refer to Section 4.5). Given this, and the lack of studies surrounding the location of spawning aggregation, a conservative approach has been taken, and it is assumed Spanish mackerel may spawn throughout their general range of distribution, although it is more likely that spawning aggregations occur in the southern end of the Operational Area.

Spanish mackerel may spawn between October and January in the Pilbara region, which overlaps the proposed source discharge window (Section 3.7) (Mackie, et al., 2004; Mackie, et al., 2010). However, while the short duration of the seismic source discharge will overlap up to 40 days out of the species extended four-month spawning period the survey avoids the peak spawning period which occurs between September and December.

Southern bluefin tuna spawn in the north-east Indian Ocean, south of Java, extending southwards to the Exclusive Economic Zone off north-western Australia and partially overlapping the Operational Area (Patterson, et al., 2025b). Considering that spawning is not synchronised for the whole stock, there is a high turnover of individuals arriving and departing the spawning grounds throughout the season. This therefore reduces the proportion of the spawning population that may be exposed to the seismic source discharge. Spawning occurs between September and April annually (Farley, et al., 2007); Therefore, the seismic source discharge may overlap up to 40 days out of the species' seven month spawning period.

Skipjack tuna are thought to spawn within their general range of distribution and have been reported to spawn off the NWS throughout the year (AFMA, 2023b). However, the highest proportion of spawning biomass has been reported in the western Indian Ocean during the north-east and south-west monsoon seasons (November to March, and June to July, respectively) (Grande, et al., 2014). The spatial overlap of spawning with the proposed seismic source is expected to have no lasting effect, given the large spawning range (tropical waters of the Indian Ocean) and concentration of spawning biomass primarily occurring in the western Indian Ocean. Given the species may spawn year-round, the proposed source discharge (up to 40 days) only overlaps a small proportion of the spawning biomass.

Albacore tuna are understood to undertake spawning migrations towards more tropical waters during the austral spring and summer (October to March) (AFMA, 2025d). Although the precise locations of spawning grounds are not well defined, albacore tuna are recognised as broadcast spawners. Spawning generally occurs in small aggregations during spring and summer; however, available evidence indicates that spawning may occur throughout the year (Buenafe, et al., 2025). Peak spawning activity in the southern hemisphere is reported to occur during spring and

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summer (AFMA, 2025d; Buenafe, et al., 2025). The spatial overlap of spawning with the proposed seismic source is expected to have no lasting effect, given the large spawning range (tropical waters of the Indian Ocean) and concentration of spawning biomass primarily occurring in the western Indian Ocean. Given the species may spawn year-round, the proposed source discharge (up to 40 days) only overlaps a small proportion of the spawning biomass.

Bigeye tuna are understood to spawn year-round in tropical waters; however, the majority of spawning activity is concentrated in the eastern Pacific Ocean (AFMA, 2025f; Buenafe, et al., 2025). Given the spatial separation between the primary spawning biomass and the proposed seismic source area, any spatial overlap is expected to be minimal and to have no lasting effect. While spawning may occur throughout the year, the proposed source discharge period (up to 40 days) would overlap only a small proportion of the overall spawning biomass.

Yellowfin tuna spawn in tropical waters and seasonally in subtropical waters (AFMA, 2025e; Buenafe, et al., 2025).Given the species may spawn year-round, the proposed source discharge (up to 40 days) only overlaps a small proportion of the spawning biomass.

Striped marlin may spawn within the northeastern Indian Ocean between 10°S and 20°S (AFMA, 2025a). Given that the Operational Area (approximately between 20°30'S and 19°30'S) is at the southern-most end of the species' spawning grounds, there is limited spatial overlap. The proposed seismic source discharge may overlap up to 40 days of the species' four month spawning period (October to February). However, the NWS is not considered likely to be a significant spawning ground for this species, given larval detection indicating spawning occurs around Oman, in the Banda Sea and in the Timor Sea (between 6°S and 6°N) (Nakamura, 1985).

Broadbill swordfish spawning occurs year-round in tropical waters, with spawning activity at higher latitudes generally restricted to spring and summer (AFMA, 2025c). Spawning typically takes place in nearshore waters where sea surface temperatures are at least 24 °C (Nakamura, 1985). Females are serial spawners, releasing batches of eggs at intervals of approximately 2.5 days, with up to 90 spawning events during a spawning season. Accordingly, while spawning may occur throughout the year, the proposed seismic source discharge period (up to 40 days) would overlap only a small proportion of the overall spawning biomass.

All species are considered to be highly fecund, broadcast spawners releasing multiple batches of pelagic eggs during multiple spawning events throughout extended periods over large spatial extents (Table 4-25). As a result, considering that individuals may not be evenly distributed throughout their available range, the reproductive biology of the key indicator species overlapping the Operational Area is likely to result in a very broad distribution of eggs and larvae, resulting in genetic connectivity across a wide geographic area.

Impacts to fish eggs and larvae have been described in the impact assessments above (zooplankton). The activity is not likely to result in any ecologically significant impacts at a population level for any fish eggs or larvae that may be in the water column within or adjacent to the Operational Area.

Consequently, in addition to the findings of no short-term (days) or long-term (months) effects of seismic exposure on the composition, abundance, size, structure, behaviour or movement of commercially important species (Meekan, et al., 2021; Nguyen, et al., 2025), it is unlikely the MSS could impact fish eggs, larvae or recruitment, or have any population level impacts. Any localised or low-level effects are predicted to be indistinguishable from natural variation in spawning and recruitment observed over the long term.

Considering localised or low-level effects are predicted to be indistinguishable from natural variation in spawning and recruitment observed over the long term, and the last seismic surveys of the area were undertaken in 2015 (Table 4-28), cumulative impacts are not expected.

Diving and recreational fishing

As referred to in Section 4.9.4, tour operators have been recorded in the Operational Area. However, based on the location and prevailing weather conditions, their presence during the survey period is expected to be minimal. Recreational fishing and boat charter tours occur at Tryal Rocks (10 km south of the Operational Area). Modelling presented in this section shows that noise above threshold criteria is not predicted at Tryal Rocks (10 km south of the Operational Area); therefore, no impact to site-attached fish and associated recreational fishers at this location is anticipated.

Divers are not anticipated to use the Operational Area, given the water depths (50 to 1,185 m). However, as described in Table 4-24, the specimen shell and marine aquarium fisheries are active in the south of the Operational Area. These fisheries are largely diver-based, targeting water depths mostly <30 m.

Recent incident data indicate divers may experience significant adverse effects at distances of up to 27 km from an operating seismic source (DMAS, 2020). The effect experienced by a diver is primarily influenced by the energy output of the seismic airgun array and the separation distance between the diver and the source, as well as water depth, the presence and depth of thermoclines, the relative depth of the diver, seabed composition, salinity, and prevailing sea state conditions.

The Operational Area is about 27 km from the Montebello Islands. No conflicts were identified during consultation. However, if diving activities and seismic acquisition are proposed to occur within 30 km of one another, a plan should be in place, before operations begin, to identify and appropriately manage potential interaction risks.

Any impact to tourism and recreation activities is anticipated to be slight and short-term.

Cultural values and heritage

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

Related intangible cultural heritage may include transmitting cultural knowledge about behaviour of marine fauna, including birthing areas, whale communication and migratory patterns. Such cultural knowledge may be associated with various cultural functions and activities that support the social and economic life of a community (Fijn, 2021). Species symbology expressed through stories, music and dance can reflect a group's connections with the sea, as well as marine fauna, which then comprise a group's cultural values (Ardler, 2021; Bursill, et al., 2007; Cressey, 1998). This value also speaks to a broader connection that exists between First Nations people and their surrounding environment. Beyond mythology and symbolism, marine fauna can be connected with various economic and social functions associated with everyday life. Cultural knowledge of marine species behaviour and the related marine environment may all be important in ensuring the continuation of these socioeconomic functions and other related activities that remain valuable to First Nations people (Fijn, 2021). No impacts to communities' ability to perform or transmit stories, music or dance are anticipated from the Petroleum Activity. Where timing or performance is linked to sighting or engaging with these species, impacts may occur where numbers or migration behaviours are impacted at a population level.

As described, potential impacts to marine fauna are predicted to be at an individual level, but are not considered to be ecologically significant at a population level. Impacts are not expected to occur to ecologically significant proportions of the populations of the species, nor expected to result in a decrease in the quality of the habitat such that the extent of these species is likely to decline. As such, cultural values and intangible cultural heritage associated with these species are expected to be maintained.

Cumulative assessment

Cumulative impacts from successive seismic surveys in the same area can occur when timing between the surveys is less than the recovery rate of any potential receptors, which can be in the order of minutes to hours for some receptors (e.g. zooplankton and fish), or weeks to months for others (e.g. benthic invertebrates), as described above. While the Pluto M3 4D MSS will follow as accurately as possible the same survey sail lines acquired by previous monitor surveys (Pluto 4D Baseline and Monitor 1 in 2016 and Pluto 4D Monitor 2 in 2020), the time between the Pluto Monitor 2 MSS and this M3 MSS is more than five years (Table 4-28).

Over the scheduled duration of the Pluto M3 4D MSS, one seismic survey is proposed in the broader NWMR: the Sauropod 3D MSS. This proposed MSS is located about 400 km east of the Pluto M3 4D MSS and is proposed to be undertaken early January to the end of May in either 2026 or 2027 (refer to https://docs.nopsema.gov.au/A1269640). While the Sauropod 3D MSS survey dates may coincide with the Pluto M3 4D MSS, the two MSS are more than 400 km from each other. At this distance no sound overlap is credible. Modelling of the seismic source for the Pluto M3 4D MSS shows sound levels will be below 150 dB re 1 µPa within 34 km from the source.

Before starting the Petroleum Activity, Woodside has consulted the titleholders/proponents within and adjacent to the Operational Area to establish whether there is any likelihood of concurrent operations. Concurrent MSS within proximity to each other (i.e. within tens of kilometres) are routinely managed via CONOPS plans and time-sharing arrangements. No other known MSS are currently planned to occur in the surrounding petroleum titles.

Based on the above, no cumulative impacts are anticipated (refer to sub-sections below):

Marine fauna

The maximum recovery rate for marine fauna receptors is in the order of weeks to months, particularly for sharks, marine turtles and cetaceans. Given there have been no seismic surveys completed over the same area of seabed in the past five years, ecological receptors are expected to have recovered. Therefore, cumulative impacts to marine fauna are not expected to occur.

Commercial fisheries

Cumulative impacts to commercial fisheries may occur if multiple seismic surveys occur concurrently or in quick succession within a fishery, resulting in displacement of commercial fishing vessels or changes in catch rates due to behavioural changes in target fish or crustacean species. The expected range and duration of impacts to fish abundance, distribution and catch rates is relatively small compared to wider areas within which the fisheries operate (refer to impact assessment above). As referenced in the impact assessment above, study findings have found no short-term (days) or long-term (months) effects of seismic exposure on the composition, abundance, size, structure, behaviour or movement of commercially important species (Meekan, et al., 2021; Nguyen, et al., 2025). it is therefore unlikely the MSS could impact fish eggs, larvae or recruitment, or have any population level impacts, particularly given no seismic surveys are planned over the ASA either immediately before or after the Pluto 4D MSS.

Crustaceans were found to recover from impacts from seismic noise exposure within weeks to months after exposure (refer to impact assessment above). Given there have been no seismic surveys completed over the same area of seabed in the past five years, it is expected that any impacts to commercially targeted fish or crustacean species will

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have recovered by the time of the Pluto M3 4D MSS. No cumulative impacts to commercial fisheries are expected to occur, given no seismic surveys are planned over the ASA either immediately before or after the Pluto 4D MSS.

As referred to in the impact assessment above, while the Operational Area overlaps spawning grounds for commercial fish species, any localised or low-level effects from the MSS are predicted be indistinguishable from natural variation in spawning and recruitment observed over the long term. Given that no seismic surveys are planned over the ASA either immediately before or after the Pluto 4D MSS, cumulative impacts are not anticipated.

Concurrent activities

Other activities have been identified as potentially coinciding with the Pluto 3D MSS (Sections 6.3.2 and 6.3.3). However, potential for cumulative impacts was not deemed greater than the Julimar Brunello P&A described herein. The P&A campaign (Julimar Brunello P&A) of Woodside wells, including Julimar East-1, Brunello-1 ST1, Balnaves Deep-1 and Brulimar-1, is the only activity identified as having a potential temporal and spatial overlap with the Pluto 4D MSS. This P&A activity is currently planned for Q4 2026, with activities located within the Operational Area.

Woodside commissioned JASCO to assess the potential for cumulative noise effects on pygmy blue whales and sea turtles from the Pluto 4D MSS and the P&A campaign occurring concurrently, using previously completed modelling studies for the P&A campaign (Liu, et al., 2025) and Pluto 4D M3 MSS (Connell, et al., 2025). It should be noted the P&A campaign modelled continuous noise (e.g. MODU and vessel use) whereas the Pluto 4D MSS modelled impulsive noise (the seismic source), and JASCO notes that comparing continuous and impulsive noise and the potential for these noise sources to interact is challenging. Different noise types affect fauna differently, hence the use of different thresholds for noise effects such as TTS and PTS from impulsive and continuous noise (NMFS, 2024). This in part is because impulsive noise has the potential to cause greater levels of mechanical damage to tissues, while continuous noise still has fatiguing effects.

The JASCO cumulative assessment (Connell & Joliffe, 2025) relied on a comparison of the noise effect footprints and an assessment of the likelihood for cumulative impacts based on the range and extent of these footprints. The noise effect footprints were spatially overlaid, allowing a relative increase in the ensonified area above relevant thresholds to be calculated when considering both activities in combination as opposed to either of the activities alone.

When considering the potential overlap of predicted noise effect footprints, it is important to remember the noise source for the Pluto 4D MSS and associated noise effect footprints will be mobile, while the predicted effect footprints for Julimar P&A will remain relatively limited to a smaller spatial area. When the seismic survey vessel is at the northern end of the Pluto ASA, there will be little overlap in noise effect footprints. However, there will still be another area within the blue whale migratory BIA of potential behavioural disturbance. Figure 6-4 shows the respective behavioural response footprints from both Julimar and Pluto.

Noting there is no quantitative noise effect threshold for behavioural response to sea turtles, only the predicted behavioural response footprint for the Pluto MSS is presented. Based on this footprint, there will be limited overlap of the behavioural response footprints from the Pluto MSS with the sea turtle internesting buffer.

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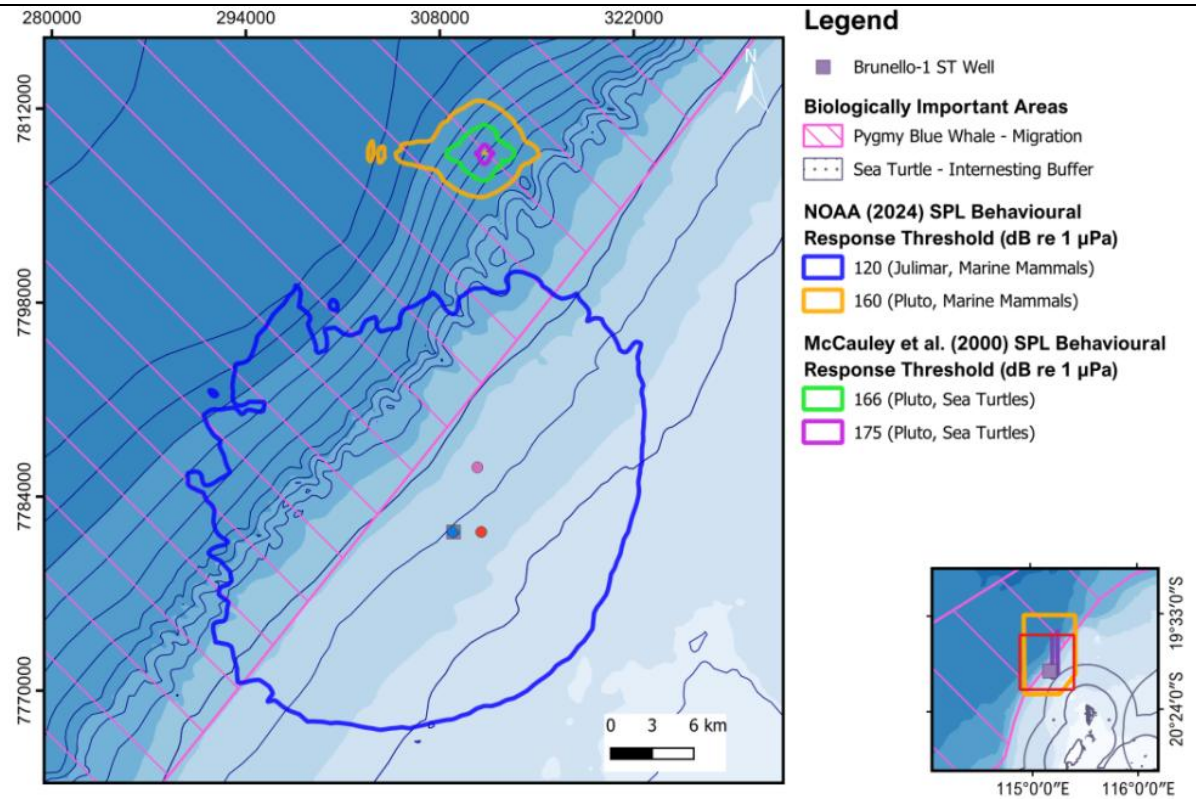


Figure 6-4: Julimar Scenario 1 and Pluto Site 8, sound pressure level – sound level contour map of unweighted maximum-over-depth isopleths for behavioural response thresholds for marine mammals and sea turtles

When considering the footprints for predicted PTS and TTS from 24 hours of seismic operations within the Pluto ASA and concurrent Julimar P&A, it is evident there is some overlap in predicted PTS and TTS footprints for LF cetaceans but not for sea turtles (Figure 6-5).

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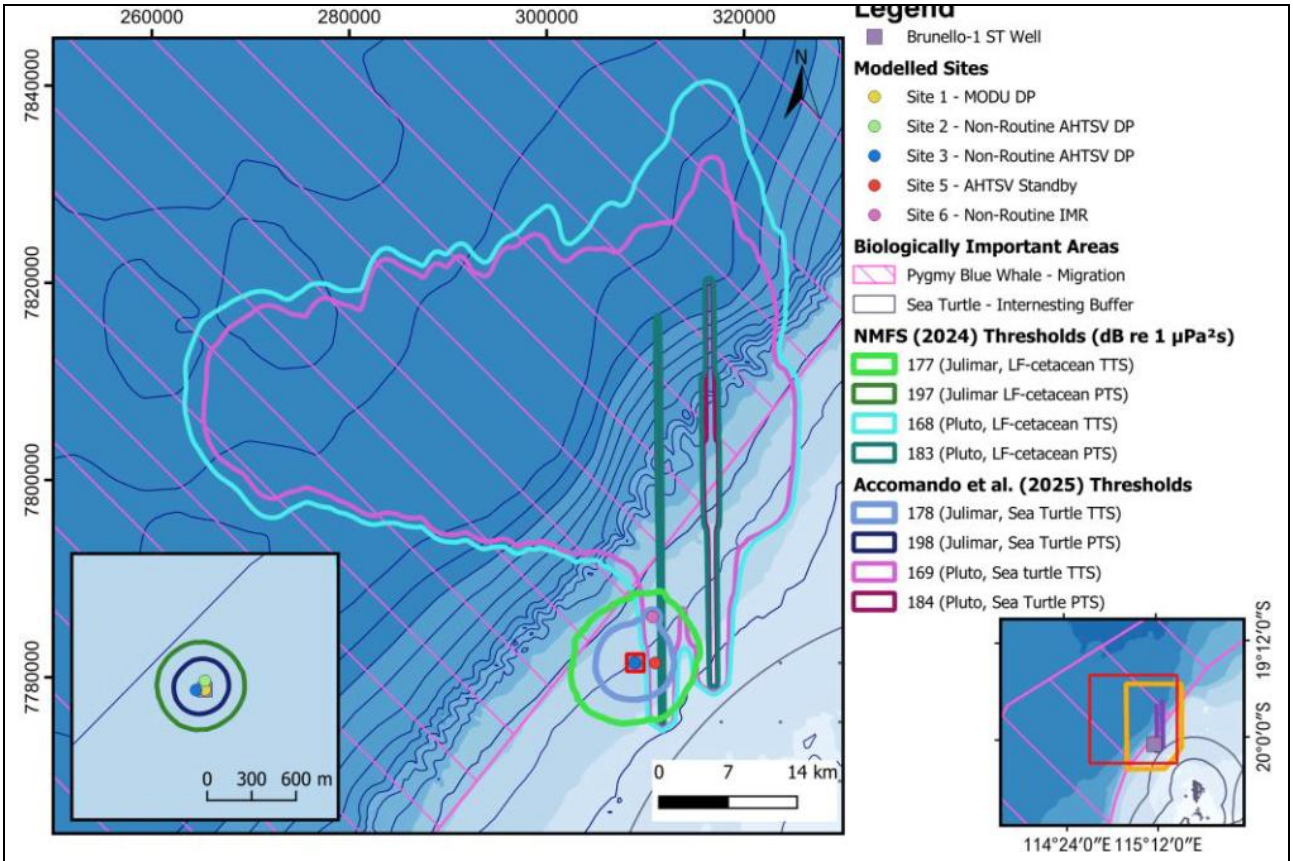


Figure 6-5: Julimar Scenario 1 and Pluto Scenario 1, SEL_{24h} – Sound level contour map of unweighted maximum-over-depth isopleths for marine mammals and sea turtles

When comparing the ranges to effect thresholds, the behavioural response range is larger for Julimar P&A than for Pluto 4D MSS. This is driven by the lower threshold for behavioural response for continuous noise sources (120 dB SPL) as opposed to impulsive noise sources (160 dB SPL). On the contrary, the predicted effect ranges and respective areas of effect for TTS and PTS are significantly larger for Pluto 4D MSS than for Julimar P&A. This can be attributed to the scale and mobility of the sound source, which has a higher source level and is moving along a track, increasing the area of exposure. The survey lines are also closer to the shelf break, with the slope environment reducing propagation losses and resulting in longer range propagation towards deeper water.

Based on the footprints (Figure 6-4 and Figure 6-5), even with both Julimar P&A and Pluto 4D MSS activities combined, underwater noise is not expected to create a barrier to blue whale migratory behaviour. It is possible some animals may experience repeated behavioural disturbance; however, migratory behaviour is expected to be able to continue. When considering the potential risk of cumulative TTS and PTS to LF cetaceans, the greatest risk comes from Pluto 4D MSS and not Julimar P&A, and given it is likely Pluto 4D MSS will require some form of mitigation to manage the risk of TTS/PTS, concurrent P&A operations at Julimar are considered to not significantly increase this risk beyond what is predicted for Pluto 4D MSS alone. This is particularly the case noting that Julimar P&A is located entirely outside of the pygmy blue whale migratory BIA.

Demonstration of ALARP				
Control considered	***Control feasibility (F) and cost/ sacrifice (CS)[27]***	***Benefit in impact reduction***	***Proportionality***	***Control adopted***
Legislation, codes and standards				
Apply EPBC Act Policy Statement 2.1 Part A standard management procedures to	F: Yes.	Reduces the likelihood of individual whales being within proximity of the	Benefits outweigh cost/sacrifice.	Yes C 3.1

[27] *Qualitative measure.*

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Demonstration of ALARP				
Control considered	***Control feasibility (F) and cost/ sacrifice (CS)[27]***	***Benefit in impact reduction***	***Proportionality***	***Control adopted***
whales and Part B.4, as outlined below: • observation zone: – 3 km+ to the limits of visibility for large unidentified whales – 2 km to 3 km for all other whales • shutdown zone: 500 m • observation and compliance reporting: – use of trained vessel crew in marine fauna observations and monitoring compliance to Policy Statement 2.1 – records kept of marine fauna observations during all surveys • pre-start-up visual observation (30 minutes) • soft start procedure (30 minutes) • start-up delay procedure (if sighting occurs) • operations procedure • stop work (shutdown) procedure • night-time and low visibility procedure.	CS: Extending the shutdown zones may result in additional shutdowns, potentially resulting in extending the survey and additional costs.	acoustic source where TTS could occur and eliminates the potential for PTS. Single-pulse PTS and TTS impacts to LF cetaceans (such as pygmy blue whales) are predicted to be constrained to within 20 m and 30 m of the seismic source, respectively (Connell, et al., 2025) (Appendix E). Therefore, application of a shutdown zone of a minimum of 500 m is an effective control in ensuring no PTS and TTS impacts will occur to pygmy blue whales from short-term exposure to seismic noise at close range to the source. The shutdown zone of a minimum of 500 m is also conservative, given the results of the animal movement modelling predicted the maximum $ER_{95\%}$ to SEL_{24h} PTS threshold was 60 m.	Extending the shutdown zone further for pygmy blue whales was considered, including: • shutdown zones past the limits of visibility • extending shutdown zones to the limits of visibility for large unidentified whales. However as impacts to pygmy blue whales are already reduced to ALARP and acceptable levels, considering impacts will be limited to localised and temporary (refer to impact assessment on marine mammals). The 500 m shutdown is considered conservative, given the single-pulse PTS and TTS impacts to LF cetaceans (such as pygmy blue whales) are not predicted to extend beyond 20 m and 30 m of the seismic source, respectively.	
Apply EPBC Act Policy Statement 2.1 Part B.1 – MFOs: • Employ two dedicated MFOs to undertake observations to comply with EPBC Act Policy Statement 2.1.	F: Yes. CS: Minimal cost. Standard practice.	Having two dedicated MFOs improves marine fauna identification, distance estimation and implementation of EPBC Act Policy Statement 2.1. Two MFOs aboard the seismic survey vessel allows at least one MFO to undertake	Benefits outweigh cost/sacrifice.	Yes C 3.2

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Demonstration of ALARP				
Control considered	***Control feasibility (F) and cost/ sacrifice (CS)[27]***	***Benefit in impact reduction***	***Proportionality***	***Control adopted***
		observations with the potential to increase effort as needed. Two MFOs aboard the seismic survey vessel also provides contingency in the event one is unavailable and to manage work shift fatigue.		
Apply EPBC Act Policy Statement 2.1 Part B.5 –PAM: • Install a PAM system aboard the seismic survey vessel to detect odontocete whales (specifically sperm and beaked whales). • Employ two dedicated PAM operators wherever possible.	F: Yes. CS: Minimal cost.	Having two dedicated PAM operators improves marine fauna identification and implementation of EPBC Act Policy Statement 2.1. Two PAM operators on board provides contingency in the event one is unavailable and to manage work shift fatigue.	Benefits outweigh cost/sacrifice.	Yes C 3.3
Apply EPBC Act Policy Statement 2.1 Part B.6 – adaptive management measures to minimise the potential impacts to pygmy blue whales from seismic noise. The following adaptive measures will be implemented: • If there are three or more shutdowns for pygmy blue whales within a 24-hour period, do not undertake the seismic operations at night-time or during low-visibility conditions. • Do not resume seismic operations at night-time or during low-visibility conditions, until there has been a cumulative 24-hour period of seismic operations (daylight hours with good visibility) during which there has been less than three shutdowns for pygmy blue whales.	F: Yes. CS: Increased costs of the MSS during no seismic operations, prolonging the survey duration. Any delays to the Petroleum Activity could result in significant cost and operational implications. It would also extend the duration of the MSS, potentially increasing impacts to other receptors. However, observation zone has been selected to protect pygmy blue whales.	PTS or TTS effects to pygmy blue whales are not predicted to occur from exposure to a single impulse. However, adaptive management measures are considered conservative and appropriate to protect pygmy blue whales that may be exposed to multiple acoustic pulses at close range.	Benefits outweigh cost/sacrifice.	Yes C 3.4
Do not discharge the seismic source outside of the ASA.	F: Yes. CS: Minimal cost. Standard practice.	Limits the effects of underwater sound to the extent assessed in this EP.	Benefits outweigh cost/sacrifice.	Yes C 3.5

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Demonstration of ALARP				
Control considered	***Control feasibility (F) and cost/ sacrifice (CS)[27]***	***Benefit in impact reduction***	***Proportionality***	***Control adopted***
EPBC Act Policy Statement 2.1 Part B.3 – Use spotter aircraft to detect the presence of cetaceans.	F: Yes. Increases the potential likelihood of environmental impacts and health and safety impacts to personnel due to aircraft in the field. Unacceptable risk to personnel from operating aircraft so far offshore. CS: Significant cost of aircraft and personnel. The aircraft range limits observation time at the Operational Area, requiring multiple aircraft/crew to cover daylight periods.	Controls are in place to restrict seismic data acquisition during peak migration periods for humpback whales and pygmy blue whales (refer to C 3.8). Given the implementation of adaptive management measures and temporal restriction on seismic acquisition, the potential impacts of noise emissions from the seismic source on pygmy blue whales are likely to be restricted to temporary behavioural changes (avoidance) in individuals moving through the Operational Area, with predicted noise levels from the seismic acquisition not considered likely to cause injury effects. While there is temporal overlap with the southbound migration of pygmy blue whales, based on evidence presented in Thums, et al. (2022), the likelihood of encountering migrating or foraging pygmy blue whales is considered low (refer to Section 4.6.3.1).	Disproportionate. The cost/sacrifice outweighs the benefit gained. Implementing EPBC Policy Statement 2.1 Part A, and selected Part B measures, and restricting seismic data acquisition during peak migration periods for humpback and pygmy blue whales will reduce risk to an acceptable level.	No

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Demonstration of ALARP				
Control considered	***Control feasibility (F) and cost/ sacrifice (CS)[27]***	***Benefit in impact reduction***	***Proportionality***	***Control adopted***
Good practice				
Employ two additional dedicated MFOs situated on a support vessel or chase vessel in front of the seismic survey vessel during survey operations to undertake observations, where practicable.	F: Yes. CS: Increased cost of personnel.	Increases the likelihood of individual whales within proximity of the acoustic source being detected where TTS could occur. Based on animat modelling results, the conservative range for potential TTS effects in pygmy blue whales is about 4.79 km from the seismic source. By placing MFOs on the support or chase vessel in front of the seismic survey vessel, the chance of detecting fauna within 5 km and implementing necessary management measures is increased. Noting there may be scenarios where the support or chase vessels undertake operations and MFOs are unable to transfer.	Benefits outweigh cost/sacrifice.	Yes C 3.6
Develop a plan to manage interactions with divers within 30 km of the seismic survey.	F: Yes. CS: Minimal cost. Standard practice.	Enables management of risk and effective controls to be implemented.	Benefits outweigh cost/sacrifice.	Yes C 3.7
Reduce the size of the ASA to minimise potential for behavioural responses in pygmy blue whales.	F: Yes. CS: Significant cost and schedule impacts. The ASA is aligned with previous surveys to replicate Pluto monitor survey activity as closely as practicable and minimise variables. Reducing the size of the ASA would mean the MSS reservoir monitoring objectives would not be completed, and further MSS may be required to complete the reservoir monitoring in full.	Controls are in place to restrict seismic data acquisition during peak migration periods for pygmy blue whales (refer to C 3.8). Given the implementation of adaptive management measures and the temporal restriction, the potential impacts of noise emissions from the seismic source on pygmy blue whales are likely to be restricted to temporary behavioural changes (avoidance) in individuals moving through the Operational Area, with predicted noise levels from the seismic acquisition not considered likely to cause injury effects.	Disproportionate. The cost/sacrifice outweighs the benefit gained. Implementing EPBC Policy Statement 2.1 Part A, and selected Part B measures and restricting seismic data acquisition during peak migration periods for pygmy blue whales will reduce risk to an acceptable level.	No

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Demonstration of ALARP				
Control considered	***Control feasibility (F) and cost/ sacrifice (CS)[27]***	***Benefit in impact reduction***	***Proportionality***	***Control adopted***
Apply a 'living heritage' management approach. Woodside engages with Traditional Custodians and seeks to incorporate cultural knowledge, where appropriate across activities. Cultural safety considerations are factored for our workforce and the First Nations community.	F: Yes. CS: Minimal cost.	A 'living heritage' approach acknowledges and respects First Nations communities. It supports the transfer of cultural knowledge and is an effective strategy to manage intangible cultural values.	Benefits outweigh cost/sacrifice.	Yes C 2.1
Use of cultural heritage monitors on vessels to oversee implementation of controls protecting cultural values.	F: No. CS: Not feasible.	Project vessels are persons-on-board constrained with no ability to facilitate additional personnel.	Not considered – control not feasible.	No
Project inductions to relevant personnel, before the individual starts the activity, will include information on cultural values and heritage, including tangible and intangible cultural heritage.	F: Yes. CS: Minimal cost.	Workforce is suitably aware of cultural values and heritage in the area they are operating.	Benefits outweigh cost/sacrifice.	Yes C 2.2
Professional judgement – eliminate				
Restrict the seismic source discharge period to outside the peak migration of humpback whales (June to November) and pygmy blue whales (April to July and November to December) (refer to Table 4-14).	F: Yes. The seismic source discharge will not begin until January (refer to Section 3.7) to avoid peak migration periods for humpback and pygmy blue whales. Project vessel activities, including deploying the towed gear, may occur during December. CS: Survey timing planned to avoid disproportionate cost.	The seismic source discharge will be outside the peak migration period for humpback whales and pygmy blue whales (refer to Table 4-14).	Seismic source discharge is planned to avoid disproportionate cost. The seismic source discharge is timed for January and February (refer to Section 3.7). Additionally, the MSS period is aligned with previous Pluto monitor survey activity as closely as practicable to minimise variables such as seasonal prevailing sea states/currents.	Yes C 3.8
Undertake Petroleum Activity to avoid turtle internesting seasons.	F: Yes. CS: The MSS period is aligned with previous surveys to replicate Pluto monitor survey activity as closely as practicable and minimise variables (refer to Section 3.7).	Peak turtle internesting periods at the Montebello, Barrow, Lowendal and Muiron islands, North West Cape and Ningaloo Coast extend from spring through to autumn. To plan the surveys to avoid turtle internesting would mean potentially completing the activities	Disproportionate. The cost/sacrifice outweighs the benefit gained.	No

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Demonstration of ALARP				
Control considered	***Control feasibility (F) and cost/ sacrifice (CS)[27]***	***Benefit in impact reduction***	***Proportionality***	***Control adopted***
		during the humpback whale migration season. Additionally, the MSS timing is aligned with previous Pluto monitor survey activity as closely as practicable to minimise variables.		
Use alternative technologies to acquire data.	F: No. Marine seismic vibrator technology is still in research and development and is yet to be offered commercially. The seismic source specifications were selected to replicate previous Pluto monitor survey activity as closely as practicable and minimise variables, providing a time lapse. This allows comparison of data against previous monitor surveys. CS: Not considered – control not feasible.	Not considered – control not feasible.	Not considered – control not feasible.	No
Professional judgement – substitute				
None identified.				
Professional judgement – engineered solution				
Reduce seismic source capacity (volume) to minimise potential for behavioural responses in pygmy blue whales.	F: Yes. CS: Significant cost and impacts to the reservoir monitoring. The source specifications have considered the range of water depths within the ASA and depth of the targets within the subsurface geology to ensure adequate seismic imaging. An approximate 3,150 cu in array volume and design must be used to adequately image the subsurface reservoirs and as used per the previous monitors to provide the same seismic	Controls are in place to restrict seismic data acquisition during peak migration periods for pygmy blue whales (refer to C 3.8). Given the implementation of adaptive management measures and temporal restriction on seismic acquisition, the potential impacts of noise emissions from the seismic source on pygmy blue whales are likely to be restricted to temporary behavioural changes (avoidance) in individuals moving through the Operational Area, with predicted noise levels from the seismic acquisition not	Disproportionate. The cost/sacrifice outweighs the benefit gained. Implementing EPBC Policy Statement 2.1 Part A, and selected Part B measures and restricting seismic data acquisition during peak migration periods for pygmy blue whales will reduce risk to an acceptable level.	No

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Demonstration of ALARP				
Control considered	***Control feasibility (F) and cost/ sacrifice (CS)[27]***	***Benefit in impact reduction***	***Proportionality***	***Control adopted***
	signal for 4D purposes. The seismic source specifications were also selected to replicate previous Pluto monitor survey activity as closely as practicable and minimise variables. This allows for data to be compared against previous monitor surveys. Reducing the source capacity would result in inadequate data, potentially requiring all or parts of the survey to be reacquired.	considered likely to cause injury effects. While there is temporal overlap with the southbound migration of pygmy blue whales, based on evidence presented in Thums, et al. (2022), the likelihood of encountering migrating or foraging pygmy blue whales is considered low (refer to Section 4.6.3.1).		
Use of spotter aircraft to detect presence of cetaceans	F: Yes. Increases potential likelihood of environmental impacts, health and safety impacts to personnel due to aircraft in the field. CS: Significant cost of aircraft and personnel. Aircraft range limits observation time at the Operational Area requiring multiple aircraft/crew to cover daylight periods.	Controls are in place to restrict seismic data acquisition during peak migration periods for humpback whales and pygmy blue whales (refer to C 3.8). Given the implementation of adaptive management measures and temporal restriction on seismic acquisition, the potential impacts of noise emissions from the seismic source on pygmy blue whales are likely to be restricted to temporary behavioural changes (avoidance) in individuals moving through the Operational Area, with predicted noise levels from the seismic acquisition not considered likely to cause injury effects	Disproportionate. The cost/sacrifice outweighs the benefit gained. Implementing EPBC Policy Statement 2.1 Part A, and selected Part B measures and restricting seismic data acquisition during peak migration periods for humpback and pygmy blue whales will reduce risk to an acceptable level.	No
Use uncrewed aerial vehicles (UAV) to detect the presence of cetaceans.	F: Yes. Unproven technology in monitoring cetaceans in offshore marine environments. Relies on suitable weather conditions (low wind speeds and good visibility).	Controls are in place to restrict seismic data acquisition during peak migration periods for humpback whales and pygmy blue whales (refer to C 3.8). Given the implementation of adaptive management measures and temporal	Disproportionate. The cost/sacrifice outweighs the benefit gained. Implementing EPBC Policy Statement 2.1 Part A, and selected Part B measures and	No

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Demonstration of ALARP				
Control considered	***Control feasibility (F) and cost/ sacrifice (CS)[27]***	***Benefit in impact reduction***	***Proportionality***	***Control adopted***
	CS: Additional cost of UAV and pilots.	restriction on seismic acquisition, the potential impacts of noise emissions from the seismic source on pygmy blue whales are likely to be restricted to temporary behavioural changes (avoidance) in individuals moving through the Operational Area, with predicted noise levels from the seismic acquisition not considered likely to cause injury effects. While there is temporal overlap with the southbound migration of pygmy blue whales, based on evidence presented in Thums, et al. (2022), the likelihood of encountering migrating or foraging pygmy blue whales is considered low (refer to Section 4.6.3.1).	restricting seismic data acquisition during peak migration periods for humpback and pygmy blue whales will reduce risk to an acceptable level.	
Use sonobuoys to detect the presence of cetaceans.	F: Yes. Signal reception relies on very high radio frequencies, and therefore line-of-sight between the transmitter (sonobuoy) and the antenna on the vessel. Therefore, does not extend the cetacean detection range beyond that achievable via visual observations (MFOs) or PAM. CS: Additional cost of sonobuoys, handling and operators. Deployment of sonobuoys may present a navigational hazard.	Controls are in place to restrict seismic data acquisition during peak migration periods for humpback whales and pygmy blue whales (refer to C 3.8). Given the implementation of adaptive management measures and temporal restriction on seismic acquisition, the potential impacts of noise emissions from the seismic source on pygmy blue whales are likely to be restricted to temporary behavioural changes (avoidance) in individuals moving through the Operational Area, with predicted noise levels from the seismic acquisition not considered likely to cause injury effects. While there is temporal overlap with the southbound migration of pygmy blue whales, based on evidence	Disproportionate. The cost/sacrifice outweighs the benefit gained. Implementing EPBC Policy Statement 2.1 Part A, and selected Part B measures and restricting seismic data acquisition during peak migration periods for humpback whales and pygmy blue whales will reduce risk to an acceptable level.	No

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Demonstration of ALARP				
Control considered	***Control feasibility (F) and cost/ sacrifice (CS)[27]***	***Benefit in impact reduction***	***Proportionality***	***Control adopted***
		presented in Thums, et al. (2022), the likelihood of encountering migrating or foraging pygmy blue whales is considered low (refer to Section 4.6.3.1).		
ALARP statement: Based on the environmental impact assessment outcomes and use of the relevant tools appropriate to the decision type (i.e. Decision Type B; Section 2.2.5.2) and Woodside's criteria for demonstrating ALARP (Section 2.3.1), Woodside considers the adopted controls appropriate to manage the impacts and risks of noise emissions generated from the seismic survey array. As no reasonable additional/alternative controls were identified that would further reduce the impacts and risks without grossly disproportionate sacrifice, the impacts and risks are considered ALARP.				

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Demonstration of acceptability		
Receptor	***Acceptability criteria and assessment***	***Acceptability statement***
Migratory and threatened cetaceans	***Principles of ESD*** The impact assessment has considered the relevant principles of ESD: • The conservation of biological diversity and ecological integrity should be a fundamental consideration in decision-making. • Decision-making processes should effectively integrate both long-term and short-term economic, environmental, social and equitable considerations. Impacts are considered consistent with these principles, given the controls adopted and impacts will be inherently localised and temporary, and of no lasting effect (Section 2.2.7). Other principles of ESD were considered not relevant, given underwater noise emissions from the seismic source do not represent a threat of "serious or irreversible environmental damage", they will not result in impacts that affect the maintenance or enhancement of the "health, diversity and productivity of the environment" over generational timeframes, and they have no relevance to "improved valuation, pricing and incentive mechanisms". ***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 EPOs, including: • Woodside Environment and Biodiversity Policy (Appendix A) • Woodside Risk Management Policy (Appendix A). ***External context*** Potential impacts to cetaceans were raised during consultation and this feedback was considered in the finalisation of the EP. Woodside recognises First Nations have cultural interests in whales and this has been raised in consultation and considered in Section 4.9. ***Other requirements*** Seismic source discharge is restricted to outside the peak migration of humpback whales (June to November) and pygmy blue whales (April to July and November to December) (C 3.8) (refer to Table 4-14). The proposed control measures align with relevant parts of EPBC Act Policy Statement 2.1. The proposed activity and control measures are not inconsistent with the requirements of recovery plans or wildlife conservation plans/advice, as demonstrated in Section 6.9. The impact assessment has determined seismic acquisition may be undertaken in a manner that is not inconsistent with the requirements of the Conservation Management Plan for the Blue Whale: A Recovery Plan under the EPBC Act 2015–2025 (Commonwealth of Australia, 2015a),	The predicted level of impact for migratory and threatened cetaceans is considered acceptable, given the: • Petroleum Activity is consistent with the relevant principles of ESD • proposed controls have considered the environmental consequence and are consistent with Woodside's policies, procedures and standards • feedback from stakeholders has been considered, as appropriate • legislative requirements/industry standards have been adopted, where relevant • Petroleum Activity will be managed in a manner to limit physical injury or displacement of pygmy blue whales from the migration BIA • Petroleum Activity will be managed in a manner to limit physical injury to pygmy blue whales and other cetacean species • Petroleum Activity will be managed in a manner to minimise potential biologically significant behavioural disturbances to pygmy blue whales and other cetacean species • Petroleum Activity will be managed in a manner that is not inconsistent with management objectives for relevant World Heritage areas, AMPs, recovery plans and conservation plans/advices • predicted level of impact has been reduced to ALARP • seismic source discharge is restricted to the months of January and February, which avoids peak migration of humpback whales (June to November) and pygmy blue whales (April to July and November to December) (refer to Table 4-14).

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Demonstration of acceptability		
	specifically that "anthropogenic noise in biologically important areas will be managed such that any blue whale continues to use the area without injury, and is not displaced from a foraging area". While threshold criteria for the TSS contour overlaps the pygmy blue whale migration BIA, the Active Source Area represents a small portion of the overall BIA. The species is also not constrained spatially and is able to move outside the area of TSS. It is anticipated pygmy blue whales will continue to use the migration BIA without injury or significant behavioural disturbance, which is not inconsistent with the conservation management plan for the blue whale. The impact assessment and proposed control measures are consistent with NOPSEMA's Acoustic Impact Evaluation and Management Guideline (N-04750-IP1765 Rev2 Dec 2018). No significant or long-term impacts are expected to occur to key habitats of EPBC Act listed species included as values of the Montebello AMP.	***Environmental performance consideration*** To manage impacts to migratory and threatened cetaceans to an acceptable level, the following EPOs have been applied: • EPO 3a: Undertake seismic acquisition in a manner that limits injury and minimises behavioural disturbance to marine fauna to those described as part of the Petroleum Activity. • EPO 3b: No displacement of pygmy blue whales, humpback whales or marine turtles from critical habitat during peak periods so biologically important behaviour can continue in BIAs.
Migratory and threatened marine turtles	***Principles of ESD*** The Petroleum Activity is consistent with the relevant principles of ESD: • The conservation of biological diversity and ecological integrity should be a fundamental consideration in decision-making. • Decision-making processes should effectively integrate both long-term and short-term economic, environmental, social and equitable considerations. Impacts are considered consistent with these principles, given the controls adopted and the impacts will be inherently localised and temporary, and of no lasting effect (Section 2.2.7). Other principles of ESD were considered not relevant, given underwater noise emissions from the seismic source do not represent a threat of "serious or irreversible environmental damage", they will not result in impacts that affect the maintenance or enhancement of the "health, diversity and productivity of the environment" over generational timeframes, and they have no relevance to "improved valuation, pricing and incentive mechanisms". ***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 EPOs, including: • Woodside Environment and Biodiversity Policy (Appendix A) • Woodside Risk Management Policy (Appendix A). ***External context*** Turtles were raised during consultation and Woodside recognises First Nations have cultural interests in turtles. This feedback was considered in the finalisation of the EP (see Section 4.9).	The predicted level of impact for migratory and threatened marine turtles is considered acceptable, given the: • Petroleum Activity is consistent with the relevant principles of ESD • proposed controls have considered the environmental consequence and are consistent with Woodside's policies, procedures and standards • feedback from stakeholders has been considered, as appropriate • legislative requirements/industry standards have been adopted, where relevant • Petroleum Activity will be undertaken in a manner to minimise displacement of marine turtles from habitat critical/important internesting habitats during nesting/internesting periods • Petroleum Activity will be managed in a manner that is not inconsistent with management objectives for relevant World Heritage areas, AMPs, recovery plans and conservation plans/advices • predicted level of impact has been reduced to ALARP. ***Environmental performance considerations*** The Petroleum Activity will be undertaken in a manner to minimise the disturbance and displacement of any individuals

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Demonstration of acceptability		
	Other requirements The proposed control measures are not inconsistent with the applicable objectives and actions of the Recovery Plan for Marine Turtles (Commonwealth of Australia, 2017). Specifically, controls measures will "manage anthropogenic activities to ensure marine turtles are not displaced from identified habitat critical to the survival" of marine turtles and "given that the impacts of noise are unknown, a precautionary approach [will] be applied to seismic work, such that surveys planned to occur inside important internesting habitat should be scheduled outside the nesting season". Received noise levels from seismic acquisition are not likely to cause injury impacts, displace any individuals from habitat critical or internesting BIAs, or result in any ecologically significant impacts at a population level for any species of marine turtle that may be present within or adjacent to the Operational Area during the Petroleum Activity. The impact assessment and proposed control measures are consistent with NOPSEMA's Acoustic Impact Evaluation and Management Guideline (N-04750-IP1765 Rev2 Dec 2018). Nesting and internesting marine turtle habitats are identified as a natural value of the Montebello AMP. No significant impacts to internesting marine turtles are predicted and the Petroleum Activity will be undertaken consistent with marine park objectives.	from habitat critical or internesting BIAs, or result in any ecologically significant impacts at a population level for any species of marine turtle. The following EPOs have been applied: • EPO 3a: Undertake seismic acquisition in a manner that limits injury and minimises behavioural disturbance to marine fauna to those described as part of the Petroleum Activity. • EPO 3b: No displacement of pygmy blue whales, humpback whales or marine turtles from critical habitat during peak periods so biologically important behaviour can continue in BIAs.
Migratory and threatened fishes and elasmobranchs (including whale sharks)	***Principles of ESD*** The Petroleum Activity is consistent with the relevant principles of ESD: • The conservation of biological diversity and ecological integrity should be a fundamental consideration in decision-making. • Decision-making processes should effectively integrate both long-term and short-term economic, environmental, social and equitable considerations. Impacts are considered consistent with these principles, given the controls adopted and the impacts will be inherently localised and temporary, and of no lasting effect (Section 2.2.7). Other principles of ESD were considered not relevant, given underwater noise emissions from the seismic source do not represent a threat of "serious or irreversible environmental damage", they will not result in impacts that affect the maintenance or enhancement of the "health, diversity and productivity of the environment" over generational timeframes, and they have no relevance to "improved valuation, pricing and incentive mechanisms". ***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 EPOs, including: • Woodside Environment and Biodiversity Policy (Appendix A) • Woodside Risk Management Policy (Appendix A).	The predicted level of impact for migratory and threatened fishes and elasmobranchs (including whale sharks) is considered acceptable, given the: • Petroleum Activity is consistent with the relevant principles of ESD • proposed controls have considered the environmental consequence and are consistent with Woodside's policies, procedures and standards • feedback from stakeholders has been considered, as appropriate • impacts and risks to cultural values have been considered • legislative requirements/industry standards have been adopted, where relevant • Petroleum Activity will be managed in a manner that limits injury to migratory and threatened fishes and elasmobranchs (including whale sharks) • Petroleum Activity will be managed in a manner that is not inconsistent with management objectives for relevant

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Demonstration of acceptability		
	External context Potential impacts to whale sharks were raised during consultation and the feedback was assessed as part of the EP. Activities do not have a significant impact on MNES, including Indigenous peoples with a connection or traditional use in nearshore areas, as defined in Section 4.9.1. ***Other requirements*** There are no legislative requirements applicable to managing the effects of seismic surveys in relation to sharks. Seismic noise has not been identified as a threat to whale sharks (or other shark species identified as possibly present in the region) in recovery plans or wildlife conservation plans/advice. Noise pollution is not identified as a pressure to whale sharks in the Marine Bioregional Plan for the NWMR (DSEWPaC, 2012a). The impact assessment and proposed control measures are consistent with NOPSEMA's Acoustic Impact Evaluation and Management Guideline (N-04750-IP1765 Rev2 Dec 2018).	World Heritage areas, AMPs, recovery plans and conservation plans/advices • predicted level of impact has been reduced to ALARP. ***Environmental performance considerations*** The Petroleum Activity will be managed in a manner that limits injury to migratory and threatened fishes and elasmobranchs (including whale sharks). The following EPOs have been applied: • EPO 3a: Undertake seismic acquisition in a manner that limits injury and minimises behavioural disturbance to marine fauna to those described as part of the Petroleum Activity. • EPO 3b: No displacement of pygmy blue whales, humpback whales or marine turtles from critical habitat during peak periods so biologically important behaviour can continue in BIAs.
Fish spawning and commercial fisheries	***Principles of ESD*** The Petroleum Activity is consistent with the relevant principles of ESD: • The conservation of biological diversity and ecological integrity should be a fundamental consideration in decision-making. • Decision-making processes should effectively integrate both long-term and short-term economic, environmental, social and equitable considerations. Impacts are considered consistent with these principles, given the controls adopted and the impacts will be inherently localised and temporary, and of no lasting effect (Section 2.2.7). Other principles of ESD were considered not relevant, given underwater noise emissions from the seismic source do not represent a threat of "serious or irreversible environmental damage", they will not result in impacts that affect the maintenance or enhancement of the "health, diversity and productivity of the environment" over generational timeframes, and they have no relevance to "improved valuation, pricing and incentive mechanisms". ***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 EPOs, including: • Woodside Environment and Biodiversity Policy (Appendix A)	The predicted level of impact for fish spawning and commercial fisheries is considered acceptable, given the: • Petroleum Activity is consistent with the relevant principles of ESD • proposed controls have considered the environmental consequence and are consistent with Woodside's policies, procedures and standards • feedback from stakeholders has been considered, as appropriate • impacts and risks to cultural values have been considered • legislative requirements/industry standards have been adopted, where relevant • Petroleum Activity is not expected to result in changes to the spawning biomass or changes in recruitment of commercially important species that may be discernible from normal natural variation • Petroleum Activity will be undertaken in a manner that limits potential impacts to commercial fishery catch rates

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Demonstration of acceptability		
	• Woodside Risk Management Policy (Appendix A). ***External context*** Fish spawning and commercial fisheries were raised during consultation and feedback has been considered in the EP (see Section 4.9.2). Potential impacts to fish spawning have been considered in this EP by reviewing the overlap of behavioural response zones for fish and potential spawning areas, and demonstrating the impacts and risks will be managed to levels that are ALARP. The potential impacts of noise emissions from the seismic source on spawning of key indicator commercial fish species are considered to be localised and temporary, and the Petroleum Activity is not likely to result in any ecologically significant impacts at a population level for any key indicator commercial fish species that may be spawning within or adjacent to the Operational Area during acquisition activities. Similarly, potential impacts on commercial catch rates are not anticipated, as the activity is not likely to result in any ecologically significant impacts at a population level for any key indicator species. Activities do not have a significant impact on MNES, including Indigenous peoples with a connection, or traditional use in nearshore areas as defined in Section 4.9.1. ***Other requirements*** There are no legislative requirements applicable to managing the effects of seismic surveys in relation to fish spawning and commercial fisheries. The proposed control measures are consistent with key mitigation strategies for seismic surveys published in the Guidance statement on undertaking seismic surveys in Western Australian waters (Department of Fisheries, 2013); e.g. use soft starts, minimise the sound intensity and exposure time of surveys. Woodside has also considered DPIRD's ecological risk assessment of seismic impacts to marine finfish and invertebrates (Webster, et al., 2018) when assessing impacts and risks to fish spawning and commercial fisheries, noting DPIRD's risk assessment considers worst-case potential impacts to individual finfish and invertebrates, assuming they do not move to avoid an approaching seismic source. This does not represent real-life sound exposures nor impacts at a population level. Woodside has, therefore, considered additional information to assess impacts to fish spawning and fish stock populations. The impact assessment and proposed control measures are consistent with NOPSEMA's Acoustic Impact Evaluation and Management Guideline (N-04750-IP1765 Rev2 Dec 2018).	• predicted level of impact has been reduced to ALARP. ***Environmental performance considerations*** The Petroleum Activity is not expected to result in changes to the spawning biomass or recruitment of commercially important species that may be discernible from normal natural variation. The Petroleum Activity is not expected to impact commercial fishery catch rates. The following EPOs have been applied: • EPO 3a: Undertake seismic acquisition in a manner that limits injury and minimises behavioural disturbance to marine fauna to those described as part of the Petroleum Activity. • EPO 3b: No displacement of pygmy blue whales, humpback whales or marine turtles from critical habitat during peak periods so biologically important behaviour can continue in BIAs.

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Demonstration of acceptability		
AMPs	***Principles of ESD*** The Petroleum Activity is consistent with the relevant principles of ESD: • The conservation of biological diversity and ecological integrity should be a fundamental consideration in decision-making. • Decision-making processes should effectively integrate both long-term and short-term economic, environmental, social and equitable considerations. Impacts are considered consistent with these principles, given the controls adopted and the impacts will be inherently localised and temporary, and of no lasting effect (Section 2.2.7). Other principles of ESD were considered not relevant, given underwater noise emissions from the seismic source do not represent a threat of "serious or irreversible environmental damage", they will not result in impacts that affect the maintenance or enhancement of the "health, diversity and productivity of the environment" over generational timeframes, and they have no relevance to "improved valuation, pricing and incentive mechanisms". ***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 EPOs, including: • Woodside Environment and Biodiversity Policy (Appendix A) • Woodside Risk Management Policy (Appendix A). ***External context*** Not applicable. ***Other requirements*** The proposed controls and consequence/residual risk level are consistent with: • Australian IUCN Reserve Management Principles and objectives of the IUCN Category VI Zone, as outlined in the North-west Marine Parks Network Management Plan (DNP, 2018) • the zone management categories outlined in the North-west Marine Parks Network Management Plan and values of the Montebello AMP.	The predicted level of impact for AMPs is considered acceptable, given the: • Petroleum Activity is consistent with the relevant principles of ESD • proposed controls have considered the environmental consequence and are consistent with Woodside's policies, procedures and standards • feedback from stakeholders has been considered, as appropriate • legislative requirements/industry standards have been adopted, where relevant • Petroleum Activity will not be inconsistent with the principles or management objectives of the North-west Marine Parks Network Management Plan (DNP, 2018) • Petroleum Activity will be undertaken in a manner that is not inconsistent with the zone management categories outlined in the North-west Marine Parks Network Management Plan and values of the Montebello AMP • predicted level of impact has been reduced to ALARP. ***Environmental performance considerations*** The Petroleum Activity will be undertaken in a manner that is not inconsistent with the values or management objectives of AMPs or the North-west Marine Park Network. The following EPOs have been applied: • EPO 3a: Undertake seismic acquisition in a manner that limits injury and minimises behavioural disturbance to marine fauna to those described as part of the Petroleum Activity. • EPO 3b: No displacement of pygmy blue whales, humpback whales or marine turtles from critical habitat during peak periods so biologically important behaviour can continue in BIAs.

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Demonstration of acceptability		
Other environmental values (ecosystems/ habitats, species and socioeconomic)	***Principles of ESD*** • The conservation of biological diversity and ecological integrity should be a fundamental consideration in decision-making. • Decision-making processes should effectively integrate both long-term and short-term economic, environmental, social and equitable considerations. Impacts are considered consistent with these principles, given the controls adopted and the impacts will be inherently localised and temporary, and of no lasting effect (Section 2.2.7). Other principles of ESD were considered not relevant, given underwater noise emissions from the seismic source do not represent a threat of "serious or irreversible environmental damage", they will not result in impacts that affect the maintenance or enhancement of the "health, diversity and productivity of the environment" over generational timeframes, and they have no relevance to "improved valuation, pricing and incentive mechanisms". ***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 EPOs, including: • Woodside Environment and Biodiversity Policy (Appendix A) • Woodside Risk Management Policy (Appendix A). ***External context*** Potential impacts to plankton were raised during consultation, including as an environmental value of cultural interest to First Nations, and this feedback was considered when finalising the EP (see Section 4.9). ***Other requirements*** No additional legislative requirements applicable to managing the effects of seismic surveys in relation to other identified environment values have been identified	The predicted level of impact is considered acceptable, given the: • Petroleum Activity is consistent with the relevant principles of ESD • proposed controls have considered the environmental consequence and are consistent with Woodside's policies, procedures and standards • feedback from stakeholders has been considered, as appropriate • legislative requirements/industry standards have been adopted, where relevant • Petroleum Activity will be managed in a manner that limits any long term impacts to ecosystems/habitats, species and socioeconomic values • Petroleum Activity will be managed in a manner that is not inconsistent with management objectives for relevant World Heritage properties, AMPs, recovery plans and conservation plans/advices • predicted level of impact has been reduced to ALARP. ***Environmental performance considerations*** The following EPOs have been applied: • EPO 3a: Undertake seismic acquisition in a manner that limits injury and minimises behavioural disturbance to marine fauna to those described as part of the Petroleum Activity. • EPO 3b: No displacement of pygmy blue whales, humpback whales or marine turtles from critical habitat during peak periods so biologically important behaviour can continue in BIAs.

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EPOs, EPSs and MC			
EPO	***Controls***	***Performance standards***	***MC***
EPO 3a Undertake seismic acquisition in a manner that limits injury and minimises behavioural disturbance to marine fauna to those described as part of the Petroleum Activity. EPO 3b No displacement of pygmy blue whales, humpback whales or marine turtles from critical habitat during peak periods so biologically important behaviour can continue in BIAs.	C 3.1 Apply EPBC Act Policy Statement 2.1 Part A standard management procedures to whales and Part B.4, as outlined below: • observation zone: – 3 km+ to the limits of visibility for large unidentified whales – 2 km to 3 km for all other whales • shutdown zone: 500 m • observation and compliance reporting: – use of trained vessel crew in marine fauna observations and monitoring compliance to Policy Statement 2.1 – records kept of marine fauna observations during all surveys • pre-start-up visual observation (30 minutes) • soft start procedure (30 minutes) • start-up delay procedure (if sighting occurs) • operations procedure • stop work (shutdown) procedure • night-time and low visibility procedure	PS 3.1.1 EPBC Act Policy Statement 2.1 – Part A standard management procedures and Part B.4 applied as outlined.	MC 3.1.1 Records demonstrate compliance with Policy Statement 2.1 Part A standard management procedures and Part B.4.
	C 3.2 Apply EPBC Act Policy Statement 2.1 Part B.1 – MFOs: • Employ two dedicated MFOs to undertake	PS 3.2.1 Two dedicated MFOs will be employed on the seismic survey vessel to undertake observations in accordance with EPBC Act Policy Statement 2.1.	MC 3.2.1 Records demonstrate two dedicated MFOs are aboard the seismic survey vessel and undertake observations in accordance with EPBC Act Policy Statement 2.1.

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EPOs, EPSs and MC			
EPO	***Controls***	***Performance standards***	***MC***
	observations to comply with EPBC Act Policy Statement 2.1.	PS 3.2.2 MFOs engaged for the Petroleum Activity will have previous experience and complete relevant training detailing marine fauna identification and EPBC Act Policy Statement 2.1 requirements.	MC 3.2.2 Records demonstrate that all MFOs engaged for the Petroleum Activity have previous experience, received training in marine fauna identification and EPBC Act Policy Statement 2.1 requirements.
		PS 3.2.3 At least one dedicated MFO undertaking observations during daylight hours on the seismic survey vessel. If required, an additional MFO will be used during times of increased whale sightings.	MC 3.2.3 Log book demonstrates at least one MFO was on duty during daylight hours on the seismic survey vessel and additional observation effort initiated as required.
	C 3.3 Apply EPBC Act Policy Statement 2.1 Part B.5 – PAM: • Install a PAM system aboard the seismic survey vessel to detect odontocete whales (specifically sperm and beaked whales). • Employ two dedicated PAM operators wherever possible.	PS 3.3.1 EPBC Act Policy Statement 2.1 Part B.5 – PAM: • PAM observations are undertaken on a 24-hour basis by two competent and experienced PAM operators trained in the PAM system software used. • During daylight hours, PAM detections will be validated against MFO observations and ranges to determine the error (if any) in PAM detection distances. • At night and during periods of low visibility, PAM will be used to trigger shutdown for any sperm and beaked whales detected in the shutdown zone.	MC 3.3.1 Records demonstrate an operational PAM system is aboard the seismic survey vessel. Calibration records of PAM detections and visual observations during daylight hours. PAM Master Observation Sheet provides acoustic detection record for the surveys. Records (curricula vitae) verify the PAM operators are competent to a standard equivalent to those in the International Association of Geophysical Contractors Guidance on the Use of Towed Passive Acoustic Monitoring during Geophysical Operations.
		PS 3.3.2 If the PAM system has malfunctioned or become damaged during daylight/periods of good visibility, operations may continue for 30 minutes without PAM while the PAM operator diagnoses the issue. If the diagnosis indicates the PAM equipment must be repaired to solve the problem, operations may continue for another four hours without PAM monitoring if	MC 3.3.2 Records demonstrate operations with an active source, but without an active PAM system, do not exceed a cumulative total of six hours in any 24-hour period.

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EPOs, EPSs and MC			
EPO	***Controls***	***Performance standards***	***MC***
		all the following conditions are met: • The PAM operator believes it can be repaired within this period. • It is a period of good visibility. • No marine mammals were detected solely by PAM in the relevant mitigation zones in the previous two hours. • Two MFOs maintain watch during operations when PAM is not operational. • The time and location of all operations without an active PAM system are documented. Operations with an active source, but without an active PAM system, do not exceed a cumulative total of six hours in any 24-hour period. If the PAM system becomes non-operational at night or during periods of low visibility, the seismic source will be shut down and acquisition will cease until the system can be restored.	
	C 3.4 Apply EPBC Act Policy Statement 2.1 Part B.6 – adaptive management measures to minimise the potential impacts to pygmy blue whales from seismic noise. The following adaptive measures will be implemented: • If there are three or more shutdowns for pygmy blue whales within a 24-hour period, do not undertake the seismic operations at night-time or during low-visibility conditions. • Do not resume seismic operations at night-time or during low-visibility conditions, until there has been a cumulative 24-hour period of seismic operations (daylight hours with good visibility) during which there has been less than three	PS 3.4.1 Application of EPBC Act Policy Statement 2.1 Part B.6 – adaptive management measures to minimise the minimum potential impacts to pygmy blue whales from seismic noise. The following adaptive management measures procedures will be implemented: • If there are three or more shutdowns for pygmy blue whales within a 24-hour period, the seismic operations must not be undertaken thereafter at night-time or during low-visibility conditions. • Seismic operations cannot resume at night-time or during low-visibility conditions, until there has been a cumulative 24-hour period of seismic operations (daylight hours with good visibility) during which there has been less than three	MC 3.4.1 Records demonstrate compliance with pygmy blue whale adaptive management measures as described.

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EPOs, EPSs and MC			
EPO	***Controls***	***Performance standards***	***MC***
	shutdowns for pygmy blue whales.	shutdowns for pygmy blue whales.	
	C 3.5 Do not discharge the seismic source outside of the ASA.	PS 3.5.1 No discharge of the seismic source outside of the ASA.	MC 3.5.1 Records demonstrate the seismic source discharge was exclusively within the ASA.
	C 3.6 Employ two additional dedicated MFOs situated on a support vessel or chase vessel in front of the seismic survey vessel during survey operations to undertake observations, where practicable.	PS 3.6.1 Two dedicated MFOs will be employed and situated on the support or chase vessel to undertake observations, where practicable.	MC 3.6.1 Records demonstrate two dedicated MFOs are aboard the support or chase vessel and undertake observations, where practicable. Periods where observations are not able to be undertaken will be logged and the reason detailed.
	C 3.7 Develop a plan to manage interactions with divers within 30 km of the seismic survey.	PS 3.7.1 Where diving operations are identified within 30 km of seismic survey, a plan will be developed in consultation with the operator that identifies: • communications protocols • risk mitigations.	MC 3.7.1 Records demonstrate plan is in place where diving operations are planned within 30 km.
	C 3.8 Restrict the seismic source discharge period to outside the peak migration of humpback whales (June to November) and pygmy blue whales (April to July and November to December) (refer to Table 4-14).	PS 3.8.1 The seismic source discharge occurs outside the peak migration of humpback whales (June to November) and pygmy blue whales (April to July and November to December).	MC 3.8.1 Daily reports show timing of the seismic source discharge outside the peak migration of humpback whales (June to November) and pygmy blue whales (April to July and November to December).
EPO 2 Woodside supports ongoing engagement and consultation with Traditional Custodians for the purpose of assessing and avoiding impacts to cultural heritage values.	C 2.1 Apply a 'living heritage' management approach. Woodside engages with Traditional Custodians and seeks to incorporate cultural knowledge, where appropriate across activities. Cultural safety considerations are factored for our workforce and the First Nations community.	PS 2.1.1 Refer to Section 6.7.1.	MC 2.1.1 Refer to Section 6.7.1.
		PS 2.1.2 Refer to Section 6.7.1.	MC 2.1.2 Refer to Section 6.7.1.
	C 2.2 Project inductions to relevant personnel, before the individual starts the activity, will include information on cultural values and heritage,	PS 2.2.1 Refer to Section 6.7.1.	MC 2.2.1 Refer to Section 6.7.1.

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EPOs, EPSs and MC			
EPO	***Controls***	***Performance standards***	***MC***
	including tangible and intangible cultural heritage.		

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6.7.3 Routine acoustic emissions: project vessels and helicopter operations

Context		
Project vessels – Section 3.9 Helicopters – Section 3.10	Protected species – Section 4.6	Stakeholder consultation – Section 5

Impact evaluation summary

Source of impact	***Environmental value potentially impacted***						***Evaluation***						
	Marine sediment	Water quality	Air quality (incl odour)	Ecosystems/habitat	Species	Socioeconomic	Decision type	Consequence/impact	Likelihood	Risk rating	ALARP tools	Acceptability	Outcome
Generation of noise from project vessels, helicopters and mechanical equipment during normal operations (excluding seismic survey equipment)					X		A	F	-	-	LCS GP	Broadly acceptable	EPO 4

Description of source of impact

Project vessels (seismic, support and chase) and helicopter operations will generate noise both in the air and underwater, due to normal operation of thrusters, machinery and propeller movement.

The potential impacts associated with noise emissions from the seismic survey array are presented in Section 6.7.2.

Project vessels

Project vessels will generate noise, due to the operation of thruster engines, propeller cavitation, onboard machinery, etc. These noises will contribute to and have the potential to exceed ambient noise levels, which range from around 90 dB re 1 µPa (root square mean SPL) under very calm, low wind conditions, to 120 dB re 1 µPa (SPL) under windy conditions (McCauley, 2005).

The sound level and frequency characteristics ('signature') of discernible ships depend on their size, number of propellers, number and type of propeller blades, blade biofouling condition and machinery/transmission maintenance condition. Thruster noise (from cavitation caused by propellers) is typically the most significant noise source for vessels holding station, with other noise sources typically relatively minor (McCauley, 1998). During the Petroleum Activity the vessels moving through the Operational Area are not expected to spend time holding station, other than during short periods for bunkering operations, which requires the use of thrusters to maintain position.

The typical sound levels generated by vessels are broadband and usually increase with increasing vessel size, with:

- smaller vessels (less than 50 m, such as the chase vessel) having source levels 160 to 175 dB (re 1 µPa) (OSPAR, 2009; Richardson, et al., 1995)
- medium sized vessels (50 to 100 m, such as the support vessel) having source levels 165 to 180 dB (re 1 µPa) (OSPAR, 2009; Richardson, et al., 1995)
- large vessels (more than 100 m, such as the seismic survey vessel) having source levels 180 to 190 dB (re 1 µPa) (OSPAR, 2009; Richardson, et al., 1995).

McCauley (1998) measured noise from an offshore support vessel (about 70 m long) travelling at 11 knots (faster than the vessel speeds during the Petroleum Activity). Vessel noise was audible out to about 10 km, with the 120 dB re 1 µPa contour at 0.5 to 1 km from the source.

Helicopters

Helicopter operations may occur in the Operational Area, including take-off and landing on the seismic survey vessel helideck (refer to Section 3.9.1). Helicopter flights are at their lowest (i.e. closest point to the sea surface) during these periods of take-off and landing from helidecks, which constitutes a short phase of routine flight operations. Helicopter engine noise generates the highest underwater sound pressure when it is directly above the surface of the water, and the sound pressure diminishes as the helicopter gains altitude.

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.

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Richardson, et al. (1995) reported helicopter sound was audible in air for four minutes before it passed over underwater hydrophones, but detectable underwater for only 38 seconds at 3 m depth and 11 seconds at 18 m depth. Noise levels reported for a Bell 212 helicopter during fly-over was reported at 162 dB re 1 µPa (SPL) and for Sikorsky-61 at 108 dB re 1 µPa (SPL) at 305 m (Simmonds, et al., 2004). Water has a very high acoustic impedance contrast compared to air, and the sea surface is a strong reflector of noise energy. As in, very little noise energy is generated above the sea surface, which crosses into and propagates below the sea surface (and vice versa) – most noise energy is reflected. The angle at which the sound path meets the surface influences the transmission of noise energy from the atmosphere through the sea surface, angles >13° from vertical being almost entirely reflected (Richardson, et al., 1995). Given this, and the typical characteristics of helicopter flights within the Operational Area (duration, frequency, altitude and air speed), the opportunity for underwater noise levels to exceed the behavioural thresholds is not anticipated.

Impact assessment

Environmental value(s) potentially impacted

Receptors

The fauna associated with the Operational Area is predominantly pelagic species of fish, with migratory species such as turtles, whale sharks and cetaceans potentially in the area seasonally (refer to Section 4.6). Noise interference is a key threat to multiple migratory and threatened cetaceans and marine turtles identified as occurring within the Operational Area (Section 6.9).

Marine mammals

The Operational Area spatially overlaps the migration BIA for pygmy blue whales, as well as their distribution range (Figure 4-7). A migration BIA for humpback whales is also 2 km to the south-east of the Operational Area (Figure 4-8). However the activity timing (refer to Section 3.7) is outside the northbound and southbound migration of humpback whales (June to November, refer to Table 4-14) and northbound migration of pygmy blue whales (April to July, refer to Table 4-14). It is possible pygmy blue whales may be within the Operational Area during their southern migration and there is evidence of their presence within the southern part of the northwest Australian coast between November and December (Thums, et al., 2022). As shown in Figure 4-7, the track of one individual partially overlaps the north-west extent of the Operational Area. Tracking data have shown evidence of faster southern travel speeds (100 km per day) compared to northern travel speeds, with no evidence to indicate foraging by southbound pygmy blue whales within the Operational Area (refer to Section 4.6.3.1). Most whales migrate further offshore along the north-west part of the coast, out to the abyssal plain (Thums, et al., 2022). The Operational Area is also outside of important foraging areas for the pygmy blue whale, which include the Perth Canyon and vicinity, the shelf edge off Geraldton, the shelf edge from Ningaloo Reef to the Rowley Shoals (not continuous) and including a couple of small areas near the shelf edge off about 25ºS, and the Banda Sea (Thums, et al., 2022).

Marine reptiles

Marine turtle BIAs in proximity to the Operational Area are identified in Table 4-7 and include:

- flatback turtle, associated with a reproduction (internesting buffer) BIA that overlaps the Operational Area (Figure 4-5)
- hawksbill, green and loggerhead reproduction (internesting buffer) BIAs, which are 7 km, 2 km and 14 km to the south-east of the Operational Area, respectively (Figure 4-5).

The Operational Area is unlikely to represent important habitat for marine turtles, given the absence of potential nesting or foraging habitat (i.e. no emergent islands, reef habitat or shallow shoals) and the water depth (deeper than 50 m). The Recovery Plan for Marine Turtles (Commonwealth of Australia, 2017) specifies a 60 km internesting buffer for flatback turtles, and 20 km internesting buffer for green, hawksbill and loggerhead turtles. The 60 km internesting buffer for flatback turtles (Commonwealth of Australia, 2017) is based primarily on longshore movements in nearshore coastal waters or travel between island rookeries and the adjacent mainland (Whittock, et al., 2016). Whittock, et al. (2016) defined suitable internesting habitat as water 0 to 16 m deep and within 5 to 10 km of the coastline, while unsuitable internesting flatback habitat was defined as waters >25 m deep and >27 km from the coastline. There is no evidence to date to indicate flatback turtles swim out into deep offshore waters during the internesting period (Whittock, et al., 2016).

The reproduction (internesting buffer) BIA for flatback turtles and flatback habitat critical area overlaps the Operational Area (refer to Section 4.6.2). However, the nearest potential turtle nesting habitats are on the Montebello Islands (about 28 km southeast). As inferred in the paragraph above and described further in Section 4.6.2.1, the presence of flatback turtles within the Operational Area is likely to be restricted to individual turtles infrequently transiting the area.

Fish, sharks and rays

Whale sharks may traverse offshore NWS waters, including the Operational Area, during their migrations to and from Ningaloo Reef, and a BIA for foraging whale sharks overlaps the Operational Area (Figure 4-4). This BIA is centred on the 200 m isobath and Whale sharks are most likely to be present in the months of July to November (outside of the activity timing – refer to Section 3.7). Whale shark presence within the Operational Area is expected to be limited to individuals, and their presence would be transitory and of a short duration (refer to Section 4.6.1.1).

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There are no known fish aggregation areas in the Operational Area. Site-attached fish may be at Tryal Rocks, about 9 km to the south of the Operational Area. Vessel noise may be audible at this distance, but levels are not predicted to impact any species.

Potential impact of noise

As described in Section 6.7.2, elevated underwater noise can affect marine fauna, including cetaceans, turtles, fish, sharks and rays, in three main ways (Richardson, et al., 1995; Simmonds, et al., 2004):

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

The potential for adverse impacts from vessel noise is considered low. The potential impacts to marine fauna from increased underwater noise associated with normal vessel operations are reasonably well understood and expected to be limited to temporary localised behavioural disturbance, rather than direct physiological injury. Vessel operations in the region are widely acceptable to the community, due to the existing usage for other marine activities (e.g. shipping and fishing). The greatest source of noise during the activity will be from operating the seismic equipment. Therefore, the impact assessment for the effects of increased noise from vessel operations on marine fauna is put into the context in terms of the limited periods during which this could be the dominant noise source; i.e. when the seismic source is not operational.

While the Operational Area overlaps a reproduction (internesting buffer) BIA for flatback turtle, and the hawksbill, green and loggerhead turtle reproduction (internesting buffer) BIAs are 7 km, 2 km and 14 km to the south-east of the Operational Area, respectively, given the nature and scale, vessel noise impacts to marine turtles are not anticipated to be greater than localised behavioural impacts to individual species in proximity to project vessels, with no lasting effect.

Noise generated by the project vessels is expected to range from 160 to 190 dB (re 1 µPa) at source. The potential for received levels to exceed weighted thresholds defined for PTS or TTS for marine mammals is not anticipated, due to propagation and reduction of sound from the source. As observed by McCauley (1998), the 120 dB re 1 µPa contour was recorded at 0.5 to 1 km from a vessel travelling at 11 knots. Behavioural response thresholds for marine mammals are therefore not expected to within a kilometre from the project vessels. Impacts to marine reptiles, fish, sharks and rays are expected to be limited to localised behavioural disturbance within a few hundred metres of the project vessels and of no lasting effect.

Potential impacts from vessel noise are likely to be restricted to temporary avoidance behaviour of individuals transiting through the Operational Area, with no lasting effect. Individuals may deviate slightly from their activities but are expected resume normal behaviours as they move away from the activities.

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Demonstration of ALARP				
Control considered	***Control feasibility (F) and cost/ sacrifice (CS)[28]***	***Benefit in impact reduction***	***Proportionality***	***Control adopted***
Legislation, codes and standards				
Implement EPBC Regulations 2025 Part 8 Division 8.1 Interacting with Cetaceans, which includes the following: • Vessels will not travel greater than 6 knots within 300 m of a cetacean (caution zone). • Vessels will not approach closer than 50 m for a dolphin or 100 m for a whale (except animals bow-riding). • Vessel will not approach within 300 m of a calf. If a calf appears, vessel will immediately withdraw at a constant speed of less than 6 knots. • If the cetacean shows signs of being disturbed, support vessels will immediately withdraw from the caution zone at a constant speed of less than 6 knots.	F: Yes. CS: Minimal cost. Standard practice.	EPBC Regulations 2025 Part 8 Division 8.1 Interacting with Cetaceans includes requirements relating to the speeds vessels can travel within particular distances of cetaceans. Reducing the travel speed of vessels can also reduce the sound levels that are produced, reducing the potential impact on cetaceans from project vessels.	Control based on legislative requirement – must be adopted.	Yes C 4.1
Vessels will comply with *Biodiversity Conservation Regulations (WA) 2018* for whale shark speed control and separation distances: • Vessels will not travel greater than 6 knots within 250 m of a whale shark and not allow the vessel to approach closer than 30 m of a whale shark.	F: Yes. CS: Minimal cost. Standard practice.	Implementing controls to reduce vessel speed around whale sharks potentially reduces the underwater noise footprint of a vessel.	Benefit outweighs cost/sacrifice.	Yes C 4.2

[28] *Qualitative measure.*

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Demonstration of ALARP				
Control considered	***Control feasibility (F) and cost/ sacrifice (CS)[28]***	***Benefit in impact reduction***	***Proportionality***	***Control adopted***
Good practice				
Vessels will not travel greater than 6 knots within 300 m of a turtle (caution zone). If the turtle shows signs of being disturbed, vessels will immediately withdraw from the caution zone at a constant speed of less than 6 knots[29].	F: Yes. CS: Minimal cost. Standard practice.	Implementation of these controls will reduce the likelihood of a collision between a turtle occurring. The consequence of a collision is unchanged.	Benefits outweigh cost/sacrifice. Control is also standard practice.	Yes C 4.3
Professional judgement – eliminate				
Eliminate generation of noise from vessels.	F: No. Noise from project vessels cannot be eliminated due to operating requirements. CS: Not considered – control not feasible.	Not considered – control not feasible.	Not considered – control not feasible.	No
Conduct the Petroleum Activity away from sensitive receptors.	F: No. The location of the Petroleum Activity is determined by the predicted location of hydrocarbons and must follow as accurately as possible the sail lines acquired by previous monitor surveys (Pluto 4D Baseline and Monitor 1 in 2016 and Pluto Monitor 2 in 2020) (refer to Section 3.2). CS: Not considered – control not feasible.	Not considered – control not feasible.	Not considered – control not feasible.	No
Professional judgement – substitute				
None identified.				
Professional judgement – engineered solution				
None identified.				
ALARP statement: On the basis of the assessment outcomes, use of the relevant tools appropriate to the decision type (i.e. Decision Type A; Section 2.2.5.2) and Woodside's criteria for demonstrating ALARP (Section 2.3.1), Woodside considers the adopted controls appropriate to manage potential impacts/risks associated with project vessels and helicopter operations noise emissions. As no reasonably practicable additional/alternative controls were identified that would further reduce the impacts without disproportionate sacrifice, the impacts/risks are considered ALARP.				

[29] *For safety reasons, the distance requirements are not applied for a vessel holding station or with limited manoeuvrability, including a seismic vessel towing equipment and acquiring data, and in the event of an emergency; e.g. loading, back-loading, bunkering, close standby cover for overside working and emergency situations.*

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Demonstration of acceptability
Acceptability statement: The impact assessment has determined that, given the adopted controls, project vessels and helicopter operations noise disturbance may result in localised disruption to a small proportion of the population, with no lasting effects, and no impact on critical habitat or activity. Further opportunities investigated to reduce the impacts and risks have been described above. The adopted controls are considered good oil-field practice/industry best practice and meet the requirements of Part 8 (Division 8.1) of the EPBC Regulations 2025. Relevant recovery plans and conservation advice have been considered during the impact assessment, particularly the Conservation Management Plan for the Blue Whale: A Recovery Plan under the EPBC Act 1999 2015–2025 (Commonwealth of Australia, 2015a). The residual risk of project vessel acoustic emissions with marine fauna is not inconsistent with the relevant objectives and actions of any applicable recovery plans or threat abatement plans (refer to Section 6.9). Therefore, Woodside considers the adopted controls appropriate to manage the impacts and risks of project vessel noise emissions to a level that is broadly acceptable.

EPOs, EPSs and MC			
EPO	***Controls***	***Performance standards***	***MC***
EPO 4 No injury or mortality to EPBC Act listed marine fauna as a result of vessel noise generated by the Petroleum Activity.	C 4.1 Implement EPBC Regulations 2025 Part 8 Division 8.1 Interacting with Cetaceans, which includes the following: • Vessels will not travel greater than 6 knots within 300 m of a cetacean (caution zone). • Vessels will not approach closer than 50 m for a dolphin or 100 m for a whale (except animals bow riding). • Vessel will not approach within 300 m of a calf. If a calf appears, vessel will immediately withdraw at a constant speed of less than 6 knots. • If the cetacean shows signs of being disturbed, support vessels will immediately withdraw from the caution zone at a constant speed of less than 6 knots.	PS 4.1.1 Compliance with EPBC Regulations 2025 Part 8 Division 8.1 Interacting with Cetaceans (Regulations 8.05 and 8.06), to minimise impacts from underwater noise emissions.	MC 4.1.1 Records demonstrate no breaches of the EPBC Regulations 2025 Part 8 Division 8.1 Interacting with Cetaceans.
	C 4.2 Vessels will comply with *Biodiversity Conservation Regulations (WA) 2018* for whale shark speed control and separation distances: • Vessels will not travel greater than 6 knots within 250 m of a whale shark and not allow the vessel to approach closer than 30 m of a whale shark.	PS 4.2.1 When within 250 m of a whale shark, vessels do not travel faster than 6 knots nor approach within 30 m.	MC 4.2.1 Records demonstrate no breaches of speed requirements when within 250 m of a whale shark.

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EPOs, EPSs and MC			
EPO	***Controls***	***Performance standards***	***MC***
	C 4.3 Vessels will not travel greater than 6 knots within 300 m of a turtle (caution zone). If the turtle shows signs of being disturbed, vessels will immediately withdraw from the caution zone at a constant speed of less than 6 knots[30].	PS 4.3.1 When within 300 m of a whale shark, vessels do not travel faster than 6 knots and if the turtle shows signs of being disturbed, vessels will immediately withdraw from the caution zone at a constant speed of less than 6 knots.	MC 4.3.1 Records demonstrate no breaches of speed requirements when within 300 m of a turtle.

[30] *For safety reasons, the distance requirements are not applied for a vessel holding station or with limited manoeuvrability, including a seismic vessel towing equipment and acquiring data, and in the event of an emergency; e.g. loading, back-loading, bunkering, close standby cover for overside working and emergency situations.*

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6.7.4 Routine atmospheric and greenhouse gas emissions: fuel combustion

Context		
Project vessels – Section 3.9	Physical environment – Section 4.4	Stakeholder consultation – Section 5

Impact evaluation summary

Source of impact	***Environmental value potentially impacted***						***Evaluation***						
	Marine sediment	Water quality	Air quality (incl odour)	Ecosystems/habitat	Species	Socioeconomic	Decision type	Consequence/impact	Likelihood	Risk rating	ALARP tools	Acceptability	Outcome
Exhaust emissions associated with internal combustion engines and incinerators on project vessels and helicopters within the Operational Area			X				A	F	-	-	LCS GP	Broadly acceptable	EPO 5

Description of source of impact

Atmospheric and GHG emissions associated with internal combustion engines (including all equipment and generators) and incineration activities (including onboard incinerators) will be generated by the project vessels during the Petroleum Activity. These have been classified into two categories:

- Atmospheric emissions (non-GHG emissions) are gases or particles produced associated with project vessels within the Operational Area, which are discharged to the atmosphere and pose a recognised level of adverse effect on flora, fauna or human health.
- GHG emissions refer to gases that trap heat within the atmosphere by adsorption of longwave radiation reflected from the earth's surface.

Considering the duration of the Petroleum Activity (about 40 days, refer to Section 3.7) and the project vessels used (survey, chase and support), about 1,087 tonnes of GHG emissions are anticipated.

Impact assessment

Environmental value(s) potentially impacted

Air quality

Fuel combustion has the potential to result in localised, temporary reduction in air quality. Potential impacts include a localised reduction in air quality and contribution to greenhouse gas emissions. Given the short duration and the offshore location of the Petroleum Activity (150 km north-west of Dampier), which will lead to the rapid dispersion of the low volumes of atmospheric emissions, the potential impacts are expected to be localised and of no lasting effect.

Greenhouse gas emissions

GHG emissions associated with the Petroleum Activity can contribute to global concentrations. It is important to acknowledge climate change impacts cannot be directly attributed to any one activity, as they are instead the result of global GHG, minus global GHG sinks, that have accumulated in the atmosphere since the industrial revolution.

Atmospheric emissions can cause direct impacts to fauna, if they are in the presence of significant releases. Birds, for example, have been shown to suffer respiratory distress and illness when subjected to extended duration exposure to air pollutants (Sanderfoot & Holloway, 2017). While a BIA for wedge-tailed shearwater breeding overlaps the Operational Area, (refer to Section 3.7) species' breeding occurs from August to April (Table 4-14). Given there are no significant releases of atmospheric emissions associated with the Petroleum Activity and the vessels will be moving, facilitating dispersion in an open offshore environment, extended emissions exposure is not expected to occur to any marine fauna species. Injury or mortality to fauna as a result of atmospheric releases are not expected.

GHG emissions associated with the Petroleum Activity are estimated based on fuel use assumptions for the project vessels. Calculated GHG emission estimates represent <0.001% of Australia's total emissions estimated from 2024 (446.4 megatons of carbon dioxide equivalents (DCCEEW, 2024b)).

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Demonstration of ALARP				
Control considered	***Control feasibility (F) and cost/ sacrifice (CS)[31]***	***Benefit in impact reduction[32]***	***Proportionality***	***Control adopted***
Legislation, codes and standards				
Project vessels comply with Marine Order 97 (Marine pollution prevention – air pollution), which details requirements for: • International Air Pollution Prevention Certificate, required by vessel class • use of low-sulphur fuel when available • Ship Energy Efficiency Management Plan, where required by vessel class • onboard incinerator.	F: Yes. CS: Minimal cost. Standard practice.	Marine Order 97 is required under Australian regulations; implementation is standard practice for commercial vessels as applicable to vessel size, type and class. Marine Order 97 reduces air pollution from vessels.	Control based on legislative requirements – must be adopted.	Yes C 5.1
Provide emissions data where relevant to vessel contractor to enable legislative reporting requirements under the *National Greenhouse and Energy Reporting Act 2007* to be met.	F: Yes. CS: Standard practice. Required by legislation and Woodside standards.	Tracking and reporting of emissions, where relevant give visibility to performance and enable improvement opportunities to be identified. Reporting increases transparency and accountability, which can also drive performance improvements.	Control based on legislative requirements – must be adopted.	Yes C 5.2
Good practice				
Manage vessel speed to reduce fuel consumption.	F: No. Vessel speed is set so the survey objective is completed. As per Section 3.8, the survey vessel will traverse pre-determined sail lines within the ASA at a speed of about 4 to 5 knots (7 to 9 km/hr). CS: Not considered – control not feasible.	Not considered – control not feasible.	Not considered – control not feasible.	No

[31] *Qualitative measure.*
[32] *Measured in terms of reduction of consequence.*

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Demonstration of ALARP				
Control considered	***Control feasibility (F) and cost/ sacrifice (CS)[31]***	***Benefit in impact reduction[32]***	***Proportionality***	***Control adopted***
Professional judgement – eliminate				
Do not combust fuel.	F: No. All vessels use internal combustion engines. CS: Not considered – control not feasible.	Not considered – control not feasible.	Not considered – control not feasible.	No
Professional judgement – substitute				
None identified.				
Professional judgement – engineered solution				
None identified.				
ALARP statement: Based on the environmental impact assessment outcomes and use of the relevant tools appropriate to the decision type (i.e. Decision Type A; Section 2.2.5.2), Woodside considers the adopted controls appropriate to manage the impacts and risks from fuel combustion. As no reasonable additional/alternative controls were identified that would further reduce the impacts and risks without grossly disproportionate sacrifice, the impacts and risks are considered ALARP.				

Demonstration of acceptability
Acceptability statement: The impact assessment has determined that, given the adopted controls, atmospheric emissions during the Petroleum Activity may result in a localised decrease in local air quality with temporary localised impact to the environment or human health and no lasting effects. Further opportunities investigated to reduce the impacts and risks have been described above. The adopted controls are considered good oil-field practice/industry best practice. Therefore, Woodside considers the adopted controls appropriate to manage the impacts of the described emissions within the Operational Area to a level that is broadly acceptable.

EPOs, EPSs and MC			
EPO	***Controls***	***Performance standards***	***MC***
EPO 5 Fuel combustion emissions and incineration during the Petroleum Activity will comply with Marine Order requirements and restrict emissions to those necessary to perform the activity.	C 5.1 Project vessels comply with Marine Order 97 (Marine pollution prevention – air pollution), which details requirements for: • International Air Pollution Prevention Certificate, required by vessel class • use of low-sulphur fuel when available • Ship Energy Efficiency Management Plan, where required by vessel class • onboard incinerator.	PS 5.1.1 Project vessels compliant with Marine Order 97 (Marine pollution prevention – air pollution). Vessel marine assurance process implemented, to ensure suitability and compliance with vessel combustion certification/ Marine Order requirements.	MC 5.1.1 Marine assurance inspection records demonstrate compliance with Marine Order 97.

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EPOs, EPSs and MC			
EPO	***Controls***	***Performance standards***	***MC***
	C 5.2 Provide emissions data where relevant to vessel contractor to enable legislative reporting requirements under the *National Greenhouse and Energy Reporting Act 2007* to be met.	PS 5.2.1 Emissions data reporting is undertaken, as required.	MC 5.2.2 Records demonstrate emissions data reporting was completed as required.

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6.7.5 Routine light emissions: external lighting from project vessels

Context		
Project vessels – Section 3.9	Protected species – Section 4.6 Protected places – Section 4.7.1	Stakeholder consultation – Section 5

Impact evaluation summary

Source of impact	***Environmental value potentially impacted***						***Evaluation***						
	Marine sediment	Water quality	Air quality (incl odour)	Ecosystems/habitat	Species	Socioeconomic	Decision type	Consequence/impact	Likelihood	Risk rating	ALARP tools	Acceptability	Outcome
Routine light emissions from project vessels					X		A	E	-	-	LCS	Broadly acceptable	EPO 6a EPO 6b

Description of source of impact

Routine light emissions include sources that alter ambient light conditions in an environment. Project vessels will routinely use external lighting to navigate and conduct safe operations at night throughout the Petroleum Activity. External light emissions from project vessels are typically managed to maintain good night vision for crew members. Vessel lighting will also be used to communicate the vessel's presence to other marine users (i.e. navigation/warning lights). Lighting is required for safely operating project vessels and cannot reasonably be eliminated.

External lighting is located on the support and chase vessel decks, with most external lighting directed towards working areas such as the main decks. The seismic survey vessel will use spot lighting when retrieving and deploying the streamers. Spot lighting illuminates a working area during this short duration activity, which includes light on the sea surface.

Lighting from vessels may appear as a direct source from an unshielded lamp with direct line of sight to the observer or through skyglow. Direct lighting falling upon a surface is referred to as light spill. Skyglow is the diffuse glow caused by light that is screened from view, but through reflection and refraction creates a glow in the atmosphere. The distance at which direct light and skyglow may be visible from the source depends on the vessel lighting and environmental conditions.

Light can typically be seen from a horizontal distance = 3.57 × √ height above sea level. The seismic survey vessel operational deck may be as high as about 16 m. Thus, light may be visible at sea level from about 14 km. There will be smaller and insignificant light emissions from the support/chase vessels.

Impact assessment

Environmental value(s) potentially impacted

Lighting from the project vessels may appear from direct unshielded light sources or through skyglow. Where direct light falls upon the ocean, this area of light is referred to as light spill. Skyglow is the diffused glow reflected and refracted in the atmosphere, caused by light that is screened from view.

Receptors that have important habitat within a 20 km buffer of the Operational Area were considered as having potential for interaction, based on recommendations of the National Light Pollution Guidelines for Wildlife Including Marine Turtles, Seabirds and Migratory Shorebirds (DCCEEW, 2023). The 20 km buffer provides a precautionary limit based on observed effects of skyglow on marine turtle hatchlings (15 to 18 km) and fledgling seabirds grounded in response to artificial light 15 km away (DCCEEW, 2023).

Light emissions can affect fauna in two main ways:

- Behaviour: many organisms are adapted to natural levels of lighting, the natural changes associated with the day and night cycle, and the night-time phase of the moon. Artificial lighting has the potential to create a constant level of light at night that can override these natural levels and cycles.

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- Orientation: organisms such as marine turtles and birds may also use lighting from natural sources to orient themselves in a certain direction at night. In instances where an artificial light source is brighter than a natural source, the artificial light may act to override natural cues, leading to disorientation.

Marine fauna expected within the Operational Area are predominantly pelagic fish and zooplankton. The Operational Area also overlaps or is within 20 km of BIAs and habitat critical to the survival of marine turtles, which are sensitive to light emissions. Specifically:

- a flatback turtle reproduction (internesting buffer) BIA overlaps the Operational Area (Figure 4-5)
- hawksbill, green and loggerhead reproduction (internesting buffer) BIAs are 7 km, 2 km and 14 km south-east of the Operational Area, respectively (Figure 4-5)
- a wedge-tailed shearwater breeding and foraging BIA overlaps the Operational Area (Figure 4-9)
- a fairy tern reproduction BIA is 19 km south-east of the Operational Area
- a flatback turtle nesting buffer for habitat critical to the survival of marine turtles overlaps the Operational Area (Figure 4-14)
- a hawksbill and green turtle nesting buffer for habitat critical to the survival of marine turtles is 8 km south-east of the Operational Area (Figure 4-14).

Marine turtles

Light emissions interacting with turtle nesting behaviour is widely considered detrimental because of its ability to alter important nocturnal activities, including choice of nesting sites and hatchlings' orientation/navigation to the sea (Witherington & Martin, 2003).

The most significant risk to marine turtles from artificial lighting is the potential disorientation of hatchlings after they emerge from nests, although the behaviour of breeding adult turtles can also be affected (DCCEEW, 2023). The Recovery Plan for Marine Turtles in Australia 2017–2027 (Commonwealth of Australia, 2017) considers light pollution a threat to hatchling orientation, survivability/predation and sea-finding behaviours, and can disrupt nesting behaviours of mature females.

Hatchlings

Turtle hatchlings emerge from the nest and orient towards the sea. After entering the water, hatchlings use a combination of cues (wave direction and currents) to orient and travel into offshore waters. Impacts to the sea-finding behaviour of hatchlings are more common for light sources behind a beach, as lighting offshore will orient emerging hatchlings towards the sea. Sea-finding behaviour of hatchlings is also impacted by light type and intensity, with broader spectrum or 'whiter' light sources (e.g. light-emitting diodes and metal halide lamps) having more of an impact on hatchling sea-finding orientation compared to a narrow spectrum of light, such as low-pressure sodium lighting (Gomez Isaza, et al., 2025).

Artificial light at close distances can impact hatchling dispersal once they are in the water. Light spill may 'entrap' hatchling swimming behaviour. During the early part of their offshore dispersal, hatchlings exhibit slower swimming speeds, reducing the success of their seaward dispersion and causing them to spend more time in the predator-rich nearshore waters (Thums, et al., 2016; Truscott, et al., 2017; Wilson, et al., 2018).

Flatback turtle hatchlings do not undertake oceanic migrations offshore to deep, pelagic waters. Instead, juveniles grow to maturity in shallow coastal waters close to their natal beaches (Musick & Limpus, 1996). Project vessels will be continually moving during data acquisition and will not be in a fixed position; the closest the project vessels may come in relation to the nearest nesting sites (on Montebello Islands) is 28 km. At this distance, skyglow and light spill from project vessels will not reach any nesting beach and impacts to hatchlings are not anticipated.

Adults

Artificial lighting may affect where turtles choose to emerge to the beach, the success of nest construction, whether nesting is abandoned, and the seaward return of adults (Salmon, et al., 1995; Witherington, 1992; Pendoley Environmental, 2020a). However, such lighting impacts typically arise from residential and industrial development overlapping the coastline, rather than from offshore activities.

The internesting period is the duration between each successive clutch during that season. The females remain close to rookeries or beaches; therefore, designated and defined buffer zones have been gazetted immediately seaward from nesting beaches. While there are reproduction (internesting buffer) BIAs and habitat critical buffer areas either overlapping or within 20 km of the Operational Area, marine turtles do not use light cues to guide internesting behaviours (Pendoley, 2000). To date, there is no evidence to suggest internesting turtles are attracted to light from offshore vessels (Pendoley Environmental, 2020b). As such, light emissions from the facility and vessels are unlikely to result in displacement of, or behavioural changes to, individuals in these life stages. Given the water depth of the Operational Area and lack of preferred foraging habitat, marine turtles are expected to be present in very low numbers only over the area where light could be visible from the Petroleum Activity. Further detail on the potential for flatback turtle presence within the Operational Area is provided in Section 4.6.2.1.

Light emissions from project vessels are unlikely to result in more than localised behavioural disturbance to isolated transient individuals, with low-level effect to the species.

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Seabirds

Artificial lighting can attract and disorient seabird species, resulting in behavioural changes such as circling light sources or disrupting foraging, or injury and mortality near the light source as a result of collision (Gaston, et al., 2014).

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 (DCCEEW, 2023). A breeding BIA for the wedge-tailed shearwater overlaps the Operational Area. The nearest potential seabird roosting habitat is located on the Montebello Islands, 28 km south-east of the Operational Area.

Fledgling shearwaters 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). However, given the timing of the Petroleum Activity (refer to Section 3.7), there is no overlap with the wedge-tailed shearwater fledgling emergence period (early April, refer to Table 4-14).

Adult shearwaters are vulnerable to artificial lighting during the breeding cycle, when returning to and leaving the nesting colony to maintain nesting sites or to forage (refer to Section 4.6.4.1). Foraging wedge-tailed shearwaters may be attracted to sources of light emissions to feed on fish drawn to the light; however, the species feeds predominantly during the day, in association with pelagic predators (Catry, et al., 2009). Most foraging trips are short, with single day foraging trips significantly more common than any other length, with birds returning to nesting/roosting sites between trips. The number of wedge-tailed shearwaters in the Operational Area at night is expected to be low, given the primarily diurnal foraging behaviour. There is also no emergent land that could be used for roosting or nesting habitat within the Operational Area. Given the foraging behaviours of roosting shearwaters, artificial light from the Operational Area is not predicted to disrupt critical breeding behaviours within important nesting habitat nor displace seabirds from nesting habitat.

The risk associated with collision from seabirds attracted to the light is considered to be low, given the slow moving speed of project vessels within the Operational Area. Impacts are expected to be localised and low-level behavioural disturbance to isolated individuals, with displacement from important habitat not expected.

Other marine fauna

Zooplankton, including krill, may be impacted by vessel lighting via disruption to diel vertical migration, the daily movement of individuals in the water column in response to natural changes ambient light levels (Berge, et al., 2020). Increased light levels can cause zooplankton to migrate to deeper waters where light levels are lower, with cascading trophic impacts. Such impacts would be highly localised within the vicinity of the vessel (e.g. up to 200 m depth, Berge, et al. (2020)) and low-level given the vessel is continually moving, albeit at a slow speed (unlike in Berge, et al. (2020)). Given the transient nature of the light sources, impacts to zooplankton populations is expected to be localised and low-level and is not expected to result in ecosystem level impacts.

Lighting from project vessel activities in the Operational Area may result in the localised aggregation of pelagic fish around the vessel. These aggregations of fish due to light spill are considered localised and temporary; such aggregations would only occur during hours of darkness with any aggregating fish dispersing during the day. Given the short duration of the activity, and that the vessel is continually moving, long-term changes to fish species composition, distribution or abundance are not considered credible. Any localised or low-level impacts to fish are not expected to impact on any commercial fisheries in the area.

Marine parks

The Operational Area overlaps a small portion of the Montebello AMP – Multiple Use Zone (refer to Figure 4-11). Light emissions from the project vessels will therefore be visible within the AMP; species within the AMP have been assessed in the sections above. Given the small scale of impacts and activity overlap with the AMP, vessel lighting is not expected to impact the values of the AMP (values are described in the Master Existing Environment; refer to Section 2.2.3).

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Demonstration of ALARP				
Control considered	***Control feasibility (F) and cost/ sacrifice (CS)[33]***	***Benefit in impact reduction[34]***	***Proportionality***	***Control adopted***
Legislation, codes and standards				
None identified.				
Good practice				
Implement Woodside's Offshore Seabird Management Plan (SBMP) (Section 7.2.3), that includes: • 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 impacts to nocturnal seabirds be detected.	F: Yes. CS: Minimal. Standard Woodside process.	The SBMP is Woodside's process to manage the impacts of artificial light emissions during petroleum activities. It is designed to minimise the likelihood of impacts to seabirds from light emissions. If impacts to seabirds are identified, implementing the SBMP provides controls that can manage the Petroleum Activity such that ongoing impacts are mitigated.	Benefit outweighs cost/sacrifice.	Yes C 6.1
Limit lighting to the minimum required for navigational and safe working requirements, except in emergency events.	F: Yes. CS: Minimal.	Reduces impact to as low as it can reasonably be.	Benefit outweighs cost/sacrifice.	Yes C 6.2

[33] *Qualitative measure.*
[34] *Measured in terms of reduction of consequence.*

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Demonstration of ALARP				
Control considered	***Control feasibility (F) and cost/ sacrifice (CS)[33]***	***Benefit in impact reduction[34]***	***Proportionality***	***Control adopted***
Professional judgement – eliminate				
Vary the timing of the Petroleum Activity to avoid peak wedge-tailed shearwater breeding period (August to April, refer to Table 4-14).	F: Yes. Variation of timing to avoid shearwater breeding periods is technically feasible, although it is not considered practicable. The Operational Area overlaps with the shearwater BIA and may be occasionally visited by migratory and oceanic birds. However, the Operational Area does not contain any emergent land that could be used as roosting or nesting habitat and contains no known critical habitats for any species, meaning the risk of potential impacts to seabirds is low. CS: The survey period is aligned with previous surveys to replicate Pluto monitor survey activity as closely as practicable and minimise variables (refer to Section 3.7).	Given the potential impacts to seabirds during this activity are highly localised, implementing this control would not reduce the consequence. Timing is outside of shearwater fledging period.	Grossly disproportionate. Implementing the control requires considerable cost sacrifice for minimal environmental benefit. The cost/sacrifice outweighs the benefit gained.	No
Restrict the Petroleum Activity to daylight hours, eliminating the need for external work lights.	F: Yes. Restricting the Petroleum Activity to daylight hours is technically feasible, although not considered to be reasonably practicable. CS: Significant cost sacrifice. Limiting the survey to daylight hours would significantly increase the duration of the survey, and therefore result in further potential for interference with other marine users (particularly commercial fisheries).	Negligible reduction in consequence given the duration and nature of the activity.	Grossly disproportionate. Implementation of the control requires considerable cost sacrifice for minimal environmental benefit.	No

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Demonstration of ALARP				
Control considered	***Control feasibility (F) and cost/ sacrifice (CS)[33]***	***Benefit in impact reduction[34]***	***Proportionality***	***Control adopted***
Vary the timing of the Petroleum Activity to avoid peak turtle nesting periods (October to March).	F: Yes. CS: The survey period is aligned with previous surveys to replicate Pluto monitor survey activity as closely as practicable and minimise variables (refer to Section 3.7). A restriction on the timing of the Petroleum Activity is already proposed to on the discharge of the seismic source to a period outside the peak migration of the humpback whale and pygmy blue whale migration (refer to C 3.8).	Peak turtle nesting periods at the Montebello, Barrow, Lowendal and Muiron Islands, North West Cape and Ningaloo Coast extend from spring through to autumn, and to plan the surveys to avoid turtle nesting would mean potentially completing the activities during the humpback whale migration seasons. Given the distance of activities from nesting habitat and potential for impact, implementing this control would not reduce the consequence.	Disproportionate. The cost/sacrifice outweighs the benefit gained.	No
Professional judgement – substitute				
Substitute external lighting with light sources designed to minimise impacts to seabirds, shorebirds and marine turtles: • Use intermittent lights instead of fixed. • Use motion sensors to turn lights on only when needed. • Use luminaires with spectral content appropriate for the species present. • Avoid high-intensity light of any colour.	F: Yes. Replacing external lighting with the alternative lighting is technically feasible, although is not considered to be practicable. CS: Significant cost sacrifice. Retrofitting all external lighting on the project vessels would result in considerable cost and time expenditure.	Given the distance from sensitivities (e.g. turtle nesting beaches) and the potential impacts to marine turtles, nesting seabirds and fledglings during this activity, implementation of alternative vessel lighting would not reduce the consequence. Potential for minor reduction in impacts to individual foraging seabirds that may transit the Operational Area, as outlined in the National Light Pollution Guidelines (DCCEEW, 2023).	Grossly disproportionate. Implementation requires considerable cost sacrifice for minimal environmental benefit. The cost/sacrifice outweighs the benefit gained.	No
Professional judgement – engineered solution				
None identified.				
ALARP statement: Based on the environmental impact assessment outcomes and use of the relevant tools appropriate to the decision type (i.e. Decision Type A; Section 2.2.5.2), Woodside considers the potential impacts from routine light emissions from project vessels within the Operational Area to be ALARP. This includes consideration of the nature of light emissions for the duration of the Petroleum Activity, and the requirements for external lighting for safe operations. As no reasonable additional/alternative controls were identified that would further reduce the impacts and risks without grossly disproportionate sacrifice, the impacts are considered ALARP.				

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Demonstration of acceptability
Acceptability statement: The impact assessment has determined that routine light emissions from project vessels may result in impacts limited to localised and low-level behavioural disturbance to marine fauna (but not affecting ecosystem function), physical or biological attributes. Further opportunities investigated to reduce the impacts and risks have been described above. A breeding BIA for the wedge-tailed shearwater overlaps the Operational Area. However, the Petroleum Activity is outside the fledgling emergence period. Conservation advice and the National Light Pollution Guidelines (DCCEEW, 2023) were considered during the impact evaluation and the Petroleum Activity is determined to be consistent with the advice and guidelines. Therefore, Woodside considers standard operations appropriate to manage the impacts and risks of routine light emissions to a level that is broadly acceptable.

EPOs, EPSs and MC			
EPO	***Controls***	***Performance standards***	***MC***
EPO 6a No impacts to marine fauna from light emissions greater than that caused by the minimum required for safe work and navigation. EPO 6b No displacement of marine turtles from habitat critical during nesting and internesting periods so marine turtles' biologically important behaviour can continue in BIAs.	C 6.1 Implement the Woodside SBMP (Section 7.2.3), that includes: • 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 impacts to nocturnal seabirds be detected.	PS 6.1.1 Implement Woodside's SBMP.	MC 6.1.1 Relevant crew inductions to include requirements under the SBMP.
			MC 6.1.2 Seabird sightings and interactions (where occurrent) recorded in offshore marine fauna log.
			MC 6.1.3 Copy of regulatory reports completed as required in accordance with the SBMP.
			MC 6.1.4 Records demonstrate adaptive management process is implemented should impacts to nocturnal seabirds be detected.
	C 6.2 Limit lighting to the minimum required for navigational and safe working requirements, except in emergency events.	PS 6.2.1 Lighting is limited to that required for safe working and navigation.	MC 6.2.1 Inspection records demonstrate lighting was limited to the minimum required for safe working and navigation.

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6.7.6 Routine and non-routine discharges: project vessels

Context		
Project vessels – Section 3.9	Biological environment – Section 4.5 Physical environment – Section 4.4	Stakeholder consultation – Section 5

Impact evaluation summary

Source of impact	*Environmental value potentially impacted*						*Evaluation*						
	Marine sediment	Water quality	Air quality (incl odour)	Ecosystems/habitat	Species	Socioeconomic	Decision type	Consequence/impact	Likelihood	Risk rating	ALARP tools	Acceptability	Outcome
Routine discharge of sewage, grey water and putrescible wastes to marine environment from project vessels		X		X			A	F	-	-	LCS GP PJ	Broadly acceptable	EPO 7
Routine discharge of deck and bilge water to marine environment from project vessels		X		X									
Routine discharge of brine or cooling water to the marine environment from project vessels		X		X									
Non-routine discharge of firefighting media		X		X									

Description of source of impact

Project vessels routinely generate or discharge:

- small volumes (up to 15 m³ per vessel per day) of treated sewage and putrescible wastes to the marine environment, using an average volume of 75 L/person/day and a maximum of 200 persons on board; however, these vessels will have considerably less persons on board
- relatively small volumes of bilge water from tanks that receive fluids from many parts of the vessel and can contain water, oil, detergents, solvents, chemicals, particles and other liquids, solids or chemicals
- variable amounts of water from vessel decks, discharged directly overboard or via deck drainage systems; sources could include rainfall events and activities such as cleaning and washdown of equipment and decks
- cooling water from machinery engines and brine produced during the desalination process of reverse osmosis to produce potable water onboard project vessels.

Non-routine project vessel discharges may include firefighting media. Project vessels may be equipped with firefighting foam systems, which typically supply 3% AFFF concentrates. These concentrates may be mixed with seawater and discharged where project vessel helideck testing requirements (typically annual) fall within the on-hire period, and in an emergency.

Environmental risks relating to the incorrect disposal/discharge of waste would be unplanned (non-routine/accidental) and are addressed in Section 6.8.5.

Impact assessment

Environmental value(s) potentially impacted

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 in these discharges may include ammonia, E. coli, faecal coliform, volatile and semi-volatile organic compounds, phenol, hydrogen sulphide, metals, surfactants and phthalates.

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Bilge tanks receive fluids from many parts of the vessel. Bilge water can contain water, oil, detergents, solvents, chemicals, particles and other liquids, solids or chemicals. Bilge water will be treated using an oily water separator or transported onshore for treatment and disposal. If not treated before discharge, there would be potential for a localised and low level increase in nutrient concentrations due to the high level of dilution and the natural daily nutrient flux that occurs within the region. The potential impact from routine discharge of treated or untreated sewage, grey water, bilge water and putrescible wastes is expected to be localised with no lasting effect.

The discharges outlined, which may include other non-organic contaminants (e.g. bilge water, deck drainage and cooling water), will be rapidly diluted when discharged. Variable water could also be discharged from the decks of project vessels directly overboard or via deck drainage systems. Water sources could include rainfall events and deck activities such as cleaning and washdown of equipment and decks. They are expected to be in very small quantities and concentrations that do not pose any significant risk to any relevant receptors. As such, no significant impacts from the planned (routine and non-routine) discharges listed above are anticipated, because of the minor quantities involved and the expected localised mixing zone and high level of dilution into the open water marine environment of the Operational Area.

Woodside monitored sewage discharges during its Torosa-4 appraisal drilling campaign, which demonstrated a 10 m^3 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, 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 the influence of nutrients in open marine areas is much less significant than that experienced in enclosed areas (McIntyre & 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 zooplankton composition and distribution are not affected in areas associated with sewage dumping grounds (McIntyre & Johnston, 1975). Plankton communities are expected to rapidly recover from any such localised impact with no lasting effect, as they are known to have naturally high levels of mortality and a rapid replacement rate.

Additional discharges outlined, which may include other non-organic contaminants, will be rapidly diluted through the same mechanisms as above. They are expected to be intermittent and in very small quantities and concentrations as to not pose significant risk to any relevant receptors.

AFFFs are typically comprised of a mix of organic and fluorinated surfactants. However, novel and emerging AFFF products may also be comprised of fluorine-free formulations. When discharged in bodies of water, both fluorine-containing and fluorine-free AFFF formulations may deplete dissolvable oxygen content. However, when diluted in low concentrations such as in the event of helideck system testing, or use in an emergency to suppress fire, these foams are considered to have relatively low toxicity (Department of Environment and Heritage Protection, 2016). Further, concerns regarding toxicity of AFFF discharges are typically associated with land and waterways near sites with frequent or prolonged applications. This includes military sites such as defence areas and civilian sites such as airports and industrial areas (Moody & Field, 2000; Hu, et al., 2016). The non-routine discharge of AFFF in the open water environment of the Operational Area during helideck system testing or in the emergency event of a fire are not consistent with these conditions.

Given the toxicological effects of AFFFs are associated with sites of frequent or prolonged applications, and the notion that non-routine AFFF discharges during the activity would be expected to rapidly disperse in the open water environment of the Operational Area, any impacts are expected to be localised and temporary in nature. Additionally, potential impacts of AFFF discharge through helideck system testing or in an emergency are outweighed by the environmental and health and safety benefits that are achieved by preventing more severe adverse impacts that could result from an uncontrolled emergency.

The Operational Area overlaps a small portion of the Montebello AMP – Multiple Use Zone (refer to Figure 4-11). Routine vessel discharges within the AMP will impact water quality, as described above. However, given the small scale of impacts, routine vessel discharges are not expected to impact the values of the AMP (refer to the Master Existing Environment, Section 2.2.3).

Two KEFs overlap the Operational Area: Continental Slope Demersal Fish Communities and Ancient Coastline at 125 m depth contour (Section 4.7). While these KEFs may support increased marine fauna biodiversity, impacts to the values of these KEFs are not expected. As such, no significant impacts from the planned vessel discharges described above are anticipated because of the minor quantities involved, the expected localised mixing zone and high level of dilution into the open water marine environment of the Operational Area.

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Demonstration of ALARP				
Control considered	***Control feasibility (F) and cost/ sacrifice (CS)[35]***	***Benefit in impact reduction***	***Proportionality***	***Control adopted***
Legislation, codes and standards				
Apply Marine Order 95 (Marine pollution prevention – garbage) as appropriate to vessel class, which includes the following requirements: • Maintenance of a Garbage Log Book. • Discharge of putrescible waste not permitted within Operational Area (i.e. <3 NM from land). • Discharges of greywater permitted.	F: Yes. CS: Minimal cost. Standard practice.	No reduction in likelihood or consequence would result.	Controls based on legislative requirements – must be adopted.	Yes C 7.1
Comply with Marine Order 96 (Marine pollution prevention – sewage) as appropriate to vessel class, specifically: • a valid International Spill Pollution Prevention Certificate, as required by vessel class • an AMSA-approved sewage treatment plant • a sewage commuting and disinfecting system • a sewage holding tank sized appropriately to contain all generated waste (black and grey water) • discharge of sewage that is not comminuted or disinfected only occurring at more than 12 NM from the nearest land • discharge of sewage that is comminuted or disinfected using a certified approved sewage treatment plant only occurring at more than 3 NM from the nearest land • sewage discharged at a moderate rate while the	F: Yes. CS: Minimal cost. Standard practice.	No reduction in likelihood or consequence would result.	Controls based on legislative requirements – must be adopted.	Yes C 7.2

[35] *Qualitative measure.*

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Demonstration of ALARP				
Control considered	***Control feasibility (F) and cost/ sacrifice (CS)[35]***	***Benefit in impact reduction***	***Proportionality***	***Control adopted***
vessel is proceeding (> four knots).				
Comply with Marine Order 91 (Marine Pollution prevention – oil) as relevant to vessel class, which includes mandatory measures for processing oily water before discharge: • Machinery space bilge/oily water shall have International Maritime Organization (IMO)-approved oil filtering equipment (oil/water separator) with an online monitoring device to measure oil-in-water content to be less than 15 ppm before discharge. • IMO-approved oil filtering equipment shall have an alarm and an automatic stopping device, or be able to recirculate if oil-in-water concentration exceeds 15 ppm. • A deck drainage system shall be able to control 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. • If machinery space bilge and deck drainage 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 onshore. • A valid International Spill Pollution Prevention Certificate shall be provided, as required by vessel class.	F: Yes. CS: Minimal cost. Standard practice.	No reduction in likelihood or consequence would result.	Controls based on legislative requirements – must be adopted.	Yes C 7.3

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Demonstration of ALARP				
Control considered	***Control feasibility (F) and cost/ sacrifice (CS)[35]***	***Benefit in impact reduction***	***Proportionality***	***Control adopted***
Good practice				
Chemicals will be selected with the lowest practicable environmental impacts and risks, subject to technical constraints.	F: Yes. CS: Minimal cost. Standard practice.	Assessment of all chemicals intended or likely to be discharged to the marine environment provides Woodside the opportunity to understand potential environmental impacts of a potential chemical release before discharge.	The Woodside Environment Chemical Selection and Assessment Guideline, or equivalent, is routinely implemented at Woodside and the Offshore Chemical Notification Scheme (OCNS), which it is based on, is widely used and accepted throughout industry. The cost of implementation is outweighed by the potential environmental benefits.	Yes C 7.4
Vessel firefighting system (portable or in-built) to be consistent with IMO SOLAS Chapter 11-2, Part C, Regulation 10 amendments (IMO, 2023) related to the use and storage of firefighting foams containing perfluoroctane sulfonic acid (PFOS)[36], as outlined in MSC.532(107), including: • For vessels constructed on or after 1 January 2026, no use or storage of extinguishing media containing PFOS. • For vessels constructed before 1 January 2026, no use or storage of extinguishing media containing PFOS, beyond the date of first survey on or after 1 January 2026.	F: Yes. CS: Minimal cost. Standard practice.	Consistency with IMO SOLAS Chapter 11-2, Part C, Regulation 10 amendments, as outlined in MSC.532(107), may reduce the presence of PFOS-containing firefighting foams on vessels. While not yet incorporated into relevant Australian domestic legislation, implementing contemporary IMO requirements for the use and storage of fire-extinguishing media is consistent with international best practice.	Benefit outweighs cost/ sacrifice.	Yes C 7.5

[36] As per IMO resolution MSC.523(107), the phrase "containing perfluorooctane sulfonic acid (PFOS)" should mean present in concentrations of PFOS above 10 mg/kg (0.001% by weight).

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Demonstration of ALARP				
Control considered	***Control feasibility (F) and cost/ sacrifice (CS)[35]***	***Benefit in impact reduction***	***Proportionality***	***Control adopted***
Professional judgement – eliminate				
Store, transport and treat/dispose sewage, greywater, putrescible and bilge wastes onshore.	F: No. Would present additional safety and hygiene hazards resulting from storing, loading and transporting the waste material. CS: Not considered – control not feasible.	Not considered – control not feasible.	Not considered – control not feasible.	No
Professional judgement – substitute				
None identified.				
Professional judgement – engineered solution				
None identified.				
ALARP statement: Based on the environmental impact assessment outcomes and use of the relevant tools appropriate to the decision type (i.e. Decision Type A; Section 2.2.5.2), Woodside considers the adopted controls appropriate to manage the impacts and risks of planned routine discharges from the project vessels. As no reasonable additional/alternative controls were identified that would further reduce the impacts and risks without grossly disproportionate sacrifice, the impacts and risks are considered ALARP.				

Demonstration of acceptability
Acceptability statement: The impact assessment has determined that, given the adopted controls, planned (routine and non-routine) discharges from project vessels may result in temporary localised impacts to habitat (but not affecting ecosystem function), physical or biological attributes, with no lasting effect. Further opportunities investigated to reduce the impacts and risks have been described above. The adopted controls are considered good oil-field practice/industry best practice and meet legislative requirements under Marine Orders 91, 95 and 96. Therefore, Woodside considers the adopted controls appropriate to manage the impacts and risks of these discharges to a level that is broadly acceptable.

EPOs, EPSs and MC			
EPO	***Controls***	***Performance standards***	***MC***
EPO 7 Vessel discharges shall meet requirements defined by Marine Orders and the Woodside chemical assessment and approval process.	C 7.1 Apply Marine Order 95 (Marine pollution prevention – garbage) as appropriate to vessel class, which includes the following requirements: • Maintenance of a Garbage Log Book. • Discharge of putrescible waste not permitted within Operational Area (i.e. <3 NM from land). • Discharges of greywater permitted.	PS 7.1.1 Project vessels comply with Marine Order 95 (Marine pollution prevention – garbage) as appropriate to vessel class.	MC 7.1.1 Marine assurance records demonstrate project vessels comply with Marine Order 95 (Marine pollution prevention – garbage) as appropriate to vessel class.

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EPOs, EPSs and MC			
EPO	***Controls***	***Performance standards***	***MC***
	C 7.2 Comply with Marine Order 96 (Marine pollution prevention – sewage) as appropriate to vessel class, specifically: • a valid International Spill Pollution Prevention Certificate, as required by vessel class • an AMSA-approved sewage treatment plant • a sewage commuting and disinfecting system • a sewage holding tank sized appropriately to contain all generated waste (black and grey water) • discharge of sewage that is not comminuted or disinfected only occurring at more than 12 NM from the nearest land • discharge of sewage that is comminuted or disinfected using a certified approved sewage treatment plant only occurring at more than 3 NM from the nearest land • sewage discharged at a moderate rate while the vessel is proceeding (> four knots).	PS 7.2.1 Project vessels compliant with Marine Order 96 (Marine pollution prevention – sewage) as appropriate to vessel class.	MC 7.2.1 Marine assurance records demonstrate project vessels comply with Marine Order 96 (Marine pollution prevention – sewage) as appropriate to vessel class.
	C 7.3 Comply with Marine Order 91 (Marine pollution prevention – oil) as relevant to vessel class, which includes mandatory measures for processing oily water before discharge: • Machinery space bilge/oily water shall have IMO-approved oil filtering equipment (oil/water separator) with an online	PS 7.3.1 Project vessels' deck drainage and bilge water discharges will comply with Marine Order 91 (Marine pollution prevention – oil), which details expectations on first response and emergency management when a hydrocarbon spill has occurred.	MC 7.3.1 Marine assurance records demonstrate project vessels comply with Marine Order 91 (Marine pollution prevention – oil) and has in place a current Shipboard Oil Pollution Emergency Plan (SOPEP) (as appropriate to vessel class).

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EPOs, EPSs and MC			
EPO	***Controls***	***Performance standards***	***MC***
	monitoring device to measure oil-in-water content to be less than 15 ppm before discharge. • IMO-approved oil filtering equipment shall have an alarm and an automatic stopping device, or be able to recirculate if oil-in-water concentration exceeds 15 ppm. • A deck drainage system shall be able to control 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. • If machinery space bilge and deck drainage 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 onshore. • A valid International Spill Pollution Prevention Certificate shall be provided, as required by vessel class.	PS 7.3.2 Machinery space bilge/oily water will be discharged to meet the oil content standard of <15 ppm without dilution.	MC 7.3.1 Environmental inspection records demonstrate maintained and up to date oil discharge records for vessels.
	C 7.4 Chemicals will be selected with the lowest practicable environmental impacts and risks, subject to technical constraints.	PS 7.4.1 All chemicals intended or likely to be discharged to the marine environment are assessed and approved before use in accordance with the Woodside Environment Chemical Selection and Assessment Guideline, or equivalent, (see Section 7.2.1) to ensure the impacts associated with use are ALARP and acceptable.	MC 7.4.1 Records demonstrate the chemical selection, assessment and approval process for operational chemicals is followed.
	C 7.5 Vessel firefighting system (portable or in-built) to be consistent with IMO SOLAS Chapter 11-2, Part C, Regulation 10 amendments (IMO, 2023) related to the use and storage of firefighting foams containing PFOS, as outlined in MSC.532(107): • For vessels constructed on or after 1 January 2026, no use or storage of extinguishing media containing PFOS.	PS 7.5.1 Project vessel firefighting systems consistent with IMO SOLAS Chapter 11-2, Part C, Regulation 10 amendments related to the use and storage of firefighting foams containing PFOS, as outlined in MSC.532(107).	MC 7.5.1 Marine assurance records demonstrate project vessels firefighting systems are consistent with IMO SOLAS Chapter 11-2, Part C, Regulation 1 – amendments related to the use and storage of firefighting foams containing PFOS, as

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EPOs, EPSs and MC			
EPO	***Controls***	***Performance standards***	***MC***
	• For vessels constructed before 1 January 2026, no use or storage of extinguishing media containing PFOS, beyond the date of first survey on or after 1 January 2026.		outlined in MSC.532(107).

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6.8 Unplanned activities (accidents, incidents, emergency situations)

6.8.1 Quantitative spill risk assessment methodology

RPS undertook quantitative hydrocarbon spill modelling (RPS, 2022), on behalf of Woodside, using a 3D hydrocarbon spill trajectory and weathering model, Spill Impact Mapping and Analysis Program (SIMAP), which is designed to simulate the transport, spreading and weathering of specific hydrocarbon types under the influence of changing meteorological and oceanographic forces. A 500 m³ instantaneous release of marine diesel oil based on a vessel collision at Lady Nora 2 well was used as a surrogate release scenario. This surrogate release scenario is about 20 km to the east of the Operational Area and is 40% larger volume then the worst-case credible scenario for this Petroleum Activity. Therefore, this scenario is considered suitable for informing the impacts from the worst-case hydrocarbon release of marine diesel from a vessel collision (Section 6.8.2), given its conservative volume and its proximity to sensitive receptors and shorelines in the region.

A stochastic modelling scheme was followed in this study, whereby SIMAP was applied to repeatedly simulate the defined credible spill scenarios using different samples of current and wind data. These data samples were selected randomly from an historic time-series of wind and current data representative of the study area. Results of the replicate simulations were then statistically analysed and mapped to define contours of percentage probability of contact at identified thresholds around the hydrocarbon release point.

The model simulates surface releases and uses the unique physical and chemical properties of a hydrocarbon type to calculate rates of evaporation and viscosity change, including the tendency to form oil-in-water emulsions. Moreover, the unique transport and dispersion of surface slicks and in-water components (entrained and dissolved) are modelled separately. Thus, the model can be used to understand the wider potential consequences of a spill, including direct contact of hydrocarbons due to surface slicks (floating hydrocarbon) and exposure of organisms to entrained and dissolved aromatic hydrocarbons in the water column.

During each simulation, the SIMAP model records the location (by latitude, longitude and depth) of each particle (representing a given mass of hydrocarbons) on or in the water column, at regular time steps. For any particles that contact a shoreline, the model records the accumulation of hydrocarbon mass that arrives on each section of shoreline over time, less any mass that is lost to evaporation and subsequent removal by current and wind forces.

The collective records from all simulations are then analysed by dividing the study region into a 3D grid. For surface hydrocarbons (floating oil), the sum of the mass in all hydrocarbon particles located within a grid cell, divided by the area of the cell, provides the hydrocarbon concentration estimates in that grid cell at each model output time interval. For entrained and dissolved aromatic hydrocarbon particles, concentrations are calculated at each time step by summing the mass of particles within a grid cell and dividing by the volume of the grid cell. The process is also subject to the application of spreading filters that represent the expected mass distribution of each distinct particle. The concentrations of hydrocarbons calculated for each grid cell, at each time step, are then analysed to determine whether concentration estimates exceed defined threshold concentrations.

Hydrocarbon spill modelling assessments undertaken by RPS undergo initial sensitivity modelling to determine appropriate time to add to the simulation after cessation of the spill. The amount of time after the spill is based on the time required for the modelled concentrations to practically drop below threshold concentrations anywhere in the model domain in the test cases. This assessment is done by post-processing the sensitivity test results and analysing time-series of median and maximum concentrations in the water and on the surface.

6.8.1.1 Hydrocarbon characteristics

Table 6-12 summarises the characteristics of the marine diesel used as the basis for the modelling study and subsequently used to inform the assessment of credible hydrocarbon spills. Additional detail on the characteristics of marine diesel is also provided in the sections below.

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Table 6-12: Characteristics of marine diesel used for modelling and ecotoxicological studies

Hydrocarbon type	Density (g/m³) at 15°C	Viscosity (cP) at 20°C	Component	Volatile (%)	Semi-volatile (%)	Low volatility (%)	Residual (%)	Aromatics (%)
			Boiling point (°C)	<180	180 to 265	265 to 380	>380	Of whole oil <380
Diesel	0.829	4.0	-	6	34.6	54.4	5	-

6.8.1.1.1 Marine diesel

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 (boiling point <180°C); a further 35% should evaporate within the first 24 hours (boiling point 180°C to <265°C); and a further 54% should evaporate over several days (boiling point 265°C to <380°C). About 5% of the oil is shown to be persistent. The aromatic content of the oil is around 3% (RPS, 2022).

If released in the marine environment and in contact with the atmosphere (i.e. surface spill), about 41% by mass of this oil is predicted to evaporate over the first few days, depending upon the prevailing conditions, with further evaporation slowing over time. The heavier (low volatility) components of the oil tend to entrain into the upper water column due to wind-generated waves but can resurface if wind-generated 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 dissolving the soluble aromatic fraction.

The mass balance forecast for the constant-wind case for diesel shows around 41% of the oil is predicted to evaporate within 36 hours. Under these calm conditions, most of the remaining oil on the water surface would weather at a slower rate due to being comprised of the longer-chain compounds with higher boiling points. Evaporation of the residual compounds will slow significantly. They will then be subject to more gradual decay through biological and photochemical processes.

Under the variable-wind case (Figure 6-6), where the winds are stronger, entrainment of diesel into the water column is indicated to be significant. About 24 hours after the spill, around 72% of the oil mass is forecast to have entrained and a further 24% is forecast to have evaporated, leaving only a small proportion of the oil floating on the water surface (<1%). The residual compounds will tend to remain entrained beneath the surface under conditions that generate wind waves (about >6 m/s).

The increased level of entrainment in the variable-wind case results in a higher percentage of biological and photochemical degradation. Given the large proportion of entrained oil and the tendency for it to remain mixed in the water column, the remaining hydrocarbons decay and evaporate over time scales of several weeks to a few months. This long weathering duration extends the area of potential effect.

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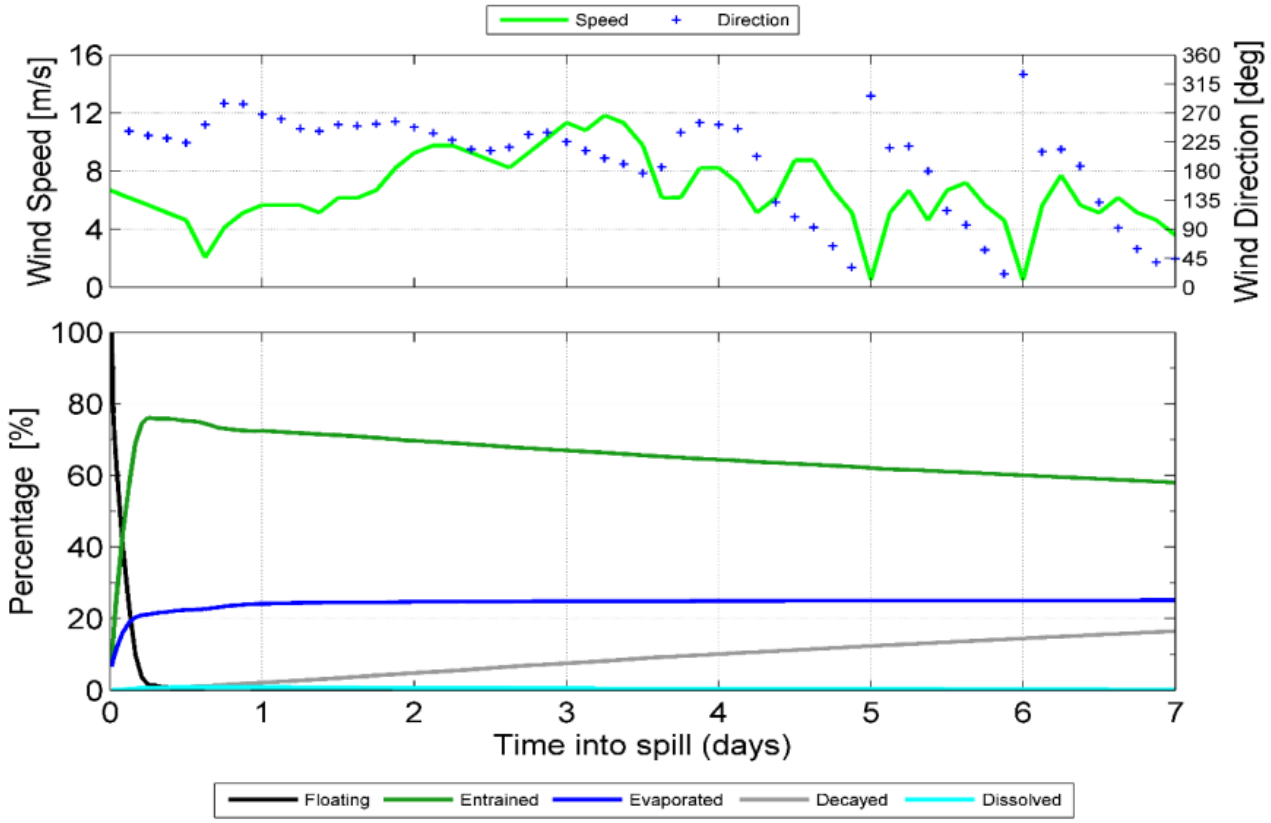


Figure 6-6: Proportional mass balance plot representing the weathering of marine diesel spilled onto the water surface as a one-off release (50 m³) and subject to variable wind at 27°C water temperature and 25°C air temperature

6.8.1.1.2 Environment that may be affected and hydrocarbon contact thresholds

The outputs of the quantitative hydrocarbon spill modelling are used to assess the environmental consequence by delineating which areas of the marine environment could be exposed to hydrocarbon levels that exceed selected threshold concentrations if a credible hydrocarbon spill scenario occurs. The summary of the locations where hydrocarbon thresholds could be exceeded by any of the modelled simulations is defined as the 'EMBA'.

The EMBA covers a larger area than the area likely to be affected during any single spill event, as the model was run for various weather and metocean conditions. The EMBA represents the total extent of all 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 mechanism of transportation, a different EMBA is presented for each hydrocarbon fate. Together, these EMBA have defined the spatial extent for the existing environment described in Section 4.

Hydrocarbon contact below the defined thresholds may occur outside the EMBA; however, the effects of these low exposure values will be limited to temporary exceedance of water quality triggers. The area within which this may occur in the event of a worst-case credible spill is presented Appendix G, Figure 5-1.

The spill modelling outputs are presented as areas that meet threshold concentrations for surface, entrained and dissolved hydrocarbons for the modelled scenarios. Surface spill concentrations are expressed as grams per square metre (g/m²), with entrained and dissolved aromatic hydrocarbon concentrations expressed as parts per billion (ppb). A conservative approach to selecting thresholds was taken by adopting the guideline impact thresholds (NOPSEMA, 2019) for surface, entrained, dissolved and accumulated hydrocarbons to define the EMBA for a marine diesel spill. An additional threshold has been included to define the boundary within which sociocultural impacts may occur, based on visible surface oil (1 g/m²) impacting on the visual amenity of the marine environment. Each hydrocarbon threshold is presented in Table 6-13 and described in Table 4-1, Section 4.1.

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Table 6-13: Thresholds applied to the quantitative hydrocarbon spill risk modelling results

Ecological hydrocarbon thresholds				Sociocultural hydrocarbon thresholds
Surface hydrocarbon (g/m²)	***Dissolved hydrocarbon (ppb)***	***Entrained hydrocarbon (ppb)***	***Accumulated hydrocarbon (g/m²)***	***Surface hydrocarbon (g/m²)***
10	50	100	100	1

Surface hydrocarbon threshold concentrations

The spill modelling outputs defined the EMBA for surface hydrocarbons resulting from a spill (contact on surface waters) using a threshold of ≥10 g/m². This threshold is used to define an area within which ecological impacts to the marine environment may occur from surface hydrocarbons. It represents the minimum oil thickness (0.01 mm) at which ecological impacts (e.g. to birds and marine mammals) are expected to occur. A surface threshold of 10 g/m² represents a 'dull metallic colour' (Bonn Agreement, 2015) (Table 6-14).

Thresholds for registering biological impacts resulting from contact of surface slicks have been estimated by different researchers at about 10 to 25 g/m² (French, et al., 1999; Koops, et al., 2004; NOAA, 1996). Potential impacts of surface slick concentrations in this range for floating hydrocarbons may include harm to seabirds through ingestion from preening of contaminated feathers, or the loss of the thermal protection of their feathers. The 10 g/m² threshold is the reported level of oiling to instigate impacts to seabirds and is applied to other wildlife, though it is recognised that 'unfurred' animals, where hydrocarbon adherence is less, may be less vulnerable. 'Oiling' at this threshold is taken to be of a magnitude that can cause a response from the most vulnerable wildlife, such as seabirds. Due to weathering processes, surface hydrocarbons will have a lower toxicity due to change in their composition over time. Potential impacts to shoreline sensitive receptors may be markedly reduced in instances where there is extended duration until shoreline contact.

Woodside recognises hydrocarbons may be present beyond the ecological impact EMBA at low concentrations that may be visible but are not expected to cause ecological impacts. The threshold for visible surface oil (1 g/m²) has therefore been used to define an additional boundary within which sociocultural impacts to the visual amenity of the marine environment may occur. This area is referred to as the sociocultural hydrocarbon threshold. Any ecological impacts from dissolved and entrained hydrocarbons above prescribed thresholds, as in Table 6-13, may also result in sociocultural impacts. Potential impacts to sociocultural values assessed within these EMBAs include:

- protected areas
- national and Commonwealth Heritage listed places
- tourism and recreation
- fisheries.

Table 6-14: The Bonn Agreement oil appearance code

Appearance (following Bonn visibility descriptors)	Mass per area (g/m²)	Thickness (µm)	Volume per area (L/km²)
Discontinuous true oil colours	50 to 200	50 to 200	50,000 to 200,000
Dull metallic colours	5 to 50	5 to 50	5000 to 50,000
Rainbow sheen	0.30 to 5.00	0.30 to 5.00	300 to 5000
Silver sheen	0.04 to 0.30	0.04 to 0.30	40 to 300

Dissolved hydrocarbon threshold concentration

Dissolved hydrocarbons present a narcotic effect resulting from uptake into the tissues of marine organisms. This effect is additive, increasing with exposure concentration or with time of exposure (French-McCay, 2002; National Research Council, 2005). The dissolved aromatic threshold of 50 ppb has been selected as a medium

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level threshold to approximate the potential toxic effects, particularly sublethal effects to sensitive species, as consistent with the NOPSEMA Oil Spill Modelling Guidance Bulletin (NOPSEMA, 2019).

Entrained hydrocarbon threshold concentrations

This threshold is used to define an area within which ecological impacts to the marine environment may occur from entrained hydrocarbons. Therefore, it may also be associated with sociocultural impacts.

Entrained hydrocarbons present possible mechanisms for toxic exposure to marine organisms. The entrained hydrocarbon droplets may contain soluble compounds, and hence have the potential for generating elevated concentrations of dissolved aromatic hydrocarbons (e.g. if mixed by breaking waves against a shoreline). Physical and chemical effects of the entrained hydrocarbon droplets have also been demonstrated through direct contact with organisms; for example, through physical coating of gills and body surfaces, and accidental ingestion (National Research Council, 2005).

The entrained threshold has been selected to be consistent with the NOPSEMA Oil Spill Modelling Guidance Bulletin (NOPSEMA, 2019). An entrained threshold of 100 ppb is considered to be appropriate, given the oil characteristics for informing potential impacts to receptors.

Accumulated hydrocarbon threshold concentrations

Owens, et al. (1994) define accumulated hydrocarbon <100 g/m² to have an appearance of a stain on shorelines. French-McCay (2009) defines accumulated hydrocarbons ≥100 g/m² to be the threshold that could impact the survival and reproductive capacity of benthic epifaunal invertebrates living in intertidal habitat. A threshold of ≥100 g/m² has been adopted as the threshold for shoreline accumulation and has been included in the EMBA. Further, any ecological impacts at the shoreline accumulation threshold may also result in sociocultural impacts.

6.8.1.1.3 Operational and scientific monitoring

A planning area for scientific monitoring is also described in Annex C of the Oil Spill Preparedness And Response Mitigation Assessment (Appendix G). This planning area has been set with reference to the low exposure entrained value of 10 ppb detailed in the NOPSEMA (2019) bulletin. This low exposure threshold is based on the potential for exceeding water quality triggers.

Operational and scientific monitoring programs may be activated after a release event that has the potential to contact sensitive environmental receptors. This would consider receptors at risk (ecological and socioeconomic), particularly any identified pre-emptive baseline areas, for the worst-case credible spill scenario or other identified unplanned hydrocarbon releases associated with the Petroleum Activity.

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6.8.2 Unplanned hydrocarbon release: vessel collision

Context		
Project vessels – Section 3.9	Physical environment – Section 4.4 Biological environment – Section 4.5 Protected species – Section 4.6 Protected places – Section 4.7.1 Socioeconomic environment – Section 4.8.1	Stakeholder consultation – Section 5

Risk evaluation summary

Source of risk	***Environmental value potentially impacted***						***Evaluation***						
	Marine sediment	Water quality	Air quality (incl odour)	Ecosystems/habitat	Species	Socioeconomic	Decision type	Consequence/impact	Likelihood	Risk rating	ALARP tools	Acceptability	Outcome
Hydrocarbon release to the marine environment due to a vessel collision (between project vessels or a third party)		X		X	X	X	B	C	1	M	LCS GP	Acceptable if ALARP	EPO 8 EPO 2

Description of source of risk

Background

The temporary presence of the project vessels in the Operational Area could result in a navigational hazard for commercial shipping within the immediate area. This navigational hazard could result in a vessel collision and a spill of hydrocarbons if it causes a fuel tank rupture.

Project vessels have multiple isolated marine diesel tanks distributed throughout their hulls. The total storage capacity of support and chase vessels can be 500 to 1,000 m³, with isolated tanks ranging from 10 to 105 m³. A seismic survey vessel can have a total marine diesel storage capacity more than 2,000 m³, with isolated tanks ranging in size from 50 to 350 m³.

In the unlikely event of a collision involving a project vessel during the Operational Area, the project vessel will have the capability to pump marine diesel from a ruptured tank to a tank with spare volume, to reduce the potential volume of fuel released to the environment.

Industry experience

Registered or foreign flag vessels in Australian waters are required to report events to the Australian Transport Safety Bureau, AMSA or Australian Search and Rescue.

From a review of Australian Transport Safety Bureau's marine safety and investigation reports, one vessel collision occurred in 2011–2012 that spilled 25 to 30 L of oil into the marine environment as a result of a collision between a tug and an activity support vessel off Barrow Island. Two other vessel collisions occurred in 2010, one in the port of Dampier, where an activity 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 that connected 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, Australian Transport Safety Bureau's annual publication (2011) defines the individual safety action factors identified in marine accidents and incidents: 42% related to navigation action. Of those, 15% related to poor communication and 42% related to poor monitoring, checking and documentation. Most of these related to grounding, which is deemed not credible for this activity.

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Credible spill scenario

For a vessel collision to result in the worst-case scenario of a hydrocarbon spill potentially impacting an environmental receptor, several factors must align:

- 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 at a volume that is higher than the point of penetration.

The probability of these factors aligning to result in a breach of fuel tanks, resulting in a spill that could potentially affect the marine environment, is considered highly unlikely. Given the offshore location of the Operational Area, vessel grounding is not considered a credible risk (refer to Section 6.3.1).

The environmental risk analysis identified and assessed two 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 (refer to Table 6-15). The scenarios considered damage to single and multiple fuel storage tanks in a project vessel due to combinations of vessel-to-vessel collision scenarios.

The scenarios considered comprised a collision of the project vessels with each other or with a third-party vessel (i.e. commercial shipping, other petroleum-related vessels and commercial fishing vessels). The likelihood of a collision was assessed as being highly unlikely, given standard vessel operations and equipment in place to prevent collision at sea, the roles of the support and chase vessels, the SNA around the seismic survey vessel, and the construction and placement of storage tanks. The largest tank of the support or chase vessel is unlikely to exceed 105 m³. For the purposes of this assessment, a worst-case instantaneous loss of 350 m³ from a tank on the seismic survey vessel has been considered. Potential spill volumes for the scenarios are summarised in Table 6-15.

Table 6-15: Summary of credible hydrocarbon spill scenario as a result of vessel collision

Scenario	Hydrocarbon volumes	Preventative and mitigation controls	Credibility	Max. possible volume loss (m³)
Hydrocarbon release caused by vessel collision (seismic survey vessel)	Marine diesel tanks typically holding up to 350 m³	Typically double-wall tanks that are located mid-ship (not bow or stern). Vessels are not anchored and steam at low speeds when relocating within the Operational Area or providing standby cover. Normal maritime procedures would apply during such vessel movements.	**Credible** A vessel collision could result in a release from a seismic survey vessel fuel tank.	350 m³ instantaneous
Hydrocarbon release caused by vessel collision (support or chase vessel)	Marine diesel tanks typically holding up to 105 m³		**Credible** A vessel collision could result in a release from a support or chase vessel fuel tank.	105 m³ instantaneous

Quantitative hydrocarbon risk assessment

To inform the impact assessment, quantitative hydrocarbon spill modelling is referenced for the worst-case hydrocarbon release scenario.

Modelled credible scenario

Existing modelling for a spill of marine diesel was selected as an analogue for the worst-case spill scenario for this location (RPS, 2022). The modelling is about 20 km east of the Operational Area and is considered suitable for informing the impacts from the worst-case hydrocarbon release of marine diesel from a vessel collision, given its proximity to sensitive receptors (directly to the south of Rankin Bank) and shorelines in the region. The loss of containment volume applied in the spill modelling study (500 m³) is greater than the worst-case credible loss of containment scenario for this activity (350 m³); the results are considered conservative. The coordinates of the spill release location for analogue modelling are provided in Table 6-16. The release location for analogue modelling is show in Figure 6-7.

Table 6-16: Analogue modelling details

Scenario	Hydrocarbon	Modelled location	Spill duration	Volume
Instantaneous release at the sea surface after a vessel collision	Marine diesel	19° 49′ 59.820″ S 115° 37′ 14.440″ E	Instantaneous	500 m³

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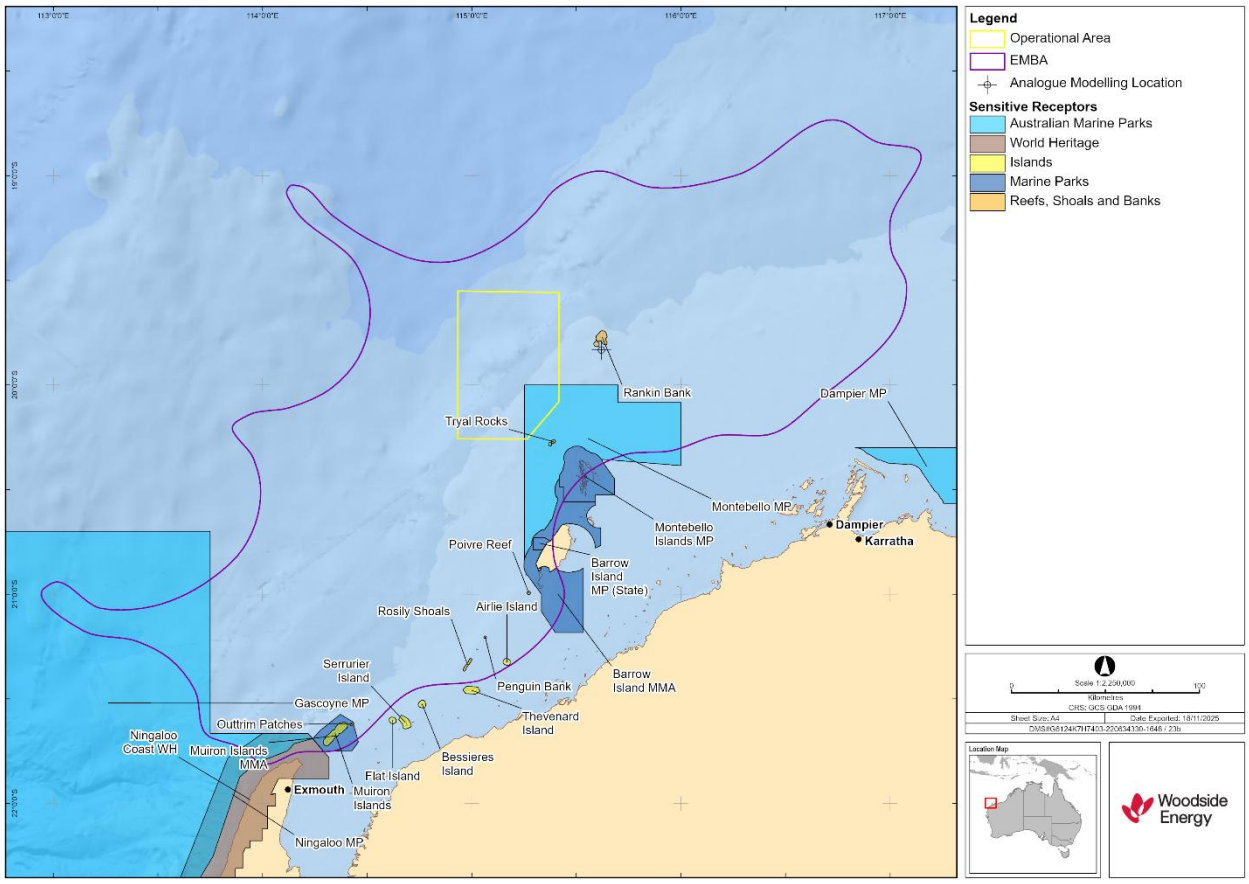


Figure 6-7: Analogue modelling location

Marine diesel characteristics and weathering are presented in Section 6.8.1.1.1.

Consequence assessment

Environmental value(s) potentially impacted

Environment that may be affected

The overall EMBA for the Petroleum Activity is based on stochastic modelling, which compiles data from 200 hypothetical worst-case spills under various weather and metocean conditions (as described in Section 3.7). Spill modelling was undertaken based on an instantaneous surface release of 500 m³ of marine diesel.

As the weathering of different fates of hydrocarbons (surface, entrained and dissolved) differs due to the influence of the metocean transport mechanism, a different EMBA is discussed for each fate.

Surface hydrocarbons

Quantitative hydrocarbon spill modelling results for surface hydrocarbons are shown in Table 6-17. The modelling indicates the spill would be localised and confined to open water, extending to about 47 km (at or above the 10 g/m² impact threshold) from the release location.

Sociocultural hydrocarbon thresholds for surface hydrocarbons, which include the threshold for visible surface hydrocarbons of 1 g/m², may extend to about 63 km from the release site.

Entrained hydrocarbons

Quantitative hydrocarbon spill modelling results for entrained hydrocarbons are shown in Table 6-17. If a vessel collision scenario occurred, the plume of entrained hydrocarbons would form down-current of the release location, with the trajectory dependent on the prevailing current conditions at the time. The modelling indicates locations exposed to entrained hydrocarbons at or above the threshold concentration of 100 ppb are restricted to offshore areas up to about 303 km from the release site. The maximum entrained oil concentration forecast for any receptor is predicted to be 5,228 ppb at the Montebello Marine Park. Concentrations above 100 ppb are not expected to exceed depths of about 15 m below mean sea level.

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Dissolved hydrocarbons

Quantitative hydrocarbon spill modelling results for dissolved hydrocarbons are shown in Table 6-17. The modelling indicates locations exposed to dissolved hydrocarbons at or above the threshold concentration of 50 ppb are restricted to offshore areas up to about 208 km from the release site.

Accumulated hydrocarbons

Accumulated hydrocarbons above threshold concentrations (100 g/m²) were not predicted by the modelling. Floating oil at concentrations equal to or greater than 1 g/m² are not predicted to contact any shoreline receptors.

Consequence assessment summary

Table 6-17 presents the full extent of the EMBA. As in, the sensitive receptors and their locations that may be exposed to hydrocarbons (surface, entrained and dissolved) at or above the set threshold concentrations in the unlikely event of a marine diesel spill from a vessel collision during the Petroleum Activity. Details of these receptors are outlined in Section 4. The potential biological and ecological impacts of an accidental hydrocarbon release as a result of a vessel collision during the Petroleum Activity are presented in the next sections.

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Table 6-17: Key receptor locations and sensitivities potentially contacted above impact thresholds by the vessel collision scenario with summary hydrocarbon spill contact (table cell values correspond to probability of contact [%])

Environment setting	Location/name	Environmental, social, cultural, heritage and economic aspects presented as per the environmental risk definitions in Woodside's Risk Management Procedure																											Probability of hydrocarbon contact and fate[1] (marine diesel oil)					
		Physical		Biological																				Socioeconomic and cultural											
		Water quality	*Sediment quality*	*Marine primary producers*			*Other communities/habitats*								*Protected species*									*Other species*								*Socio-cultural thresholds*		*Ecological thresholds*			
		Open water (pristine)	Marine sediment (pristine)	Coral reef	Seagrass beds/macroalgae	Mangroves	Spawning/nursery areas	Open water – productivity/upwelling	Non-biogenic coral reefs	Offshore filter feeders and/or deepwater benthic communities	Nearshore filter feeders	Sandy shores	Estuaries/tributaries/creeks/lagoons (including mudflats)	Rocky shores	Cetaceans – migratory whales	Cetaceans – dolphins and porpoises	Dugongs	Pinnipeds (sea lions and fur seals)	Marine turtles (including foraging and internesting areas and significant nesting beaches)	Sea snakes	Whale sharks	Sharks and rays	Sea birds and/or migratory shorebirds	Pelagic fish populations	Resident/demersal fish	Fisheries – commercial	Fisheries – traditional	Tourism and recreation	Protected areas/heritage – European and Indigenous/shipwrecks	Offshore oil & gas infrastructure (topside and subsea)	Surface hydrocarbon (1 to 10 g/m²)	Accumulated hydrocarbons (10 to 100 g/m²)	Surface hydrocarbon (≥10 g/m²)	Entrained hydrocarbon (≥100 ppb)	Dissolved aromatic hydrocarbon (≥50 ppb)	Accumulated hydrocarbons (>100 g/m²)
Australian marine parks	Gascoyne	✓	✓					✓								✓			✓			✓	✓	✓	✓		✓				✓		-	-	-	1	-	-
	Montebello	✓	✓	✓			✓	✓								✓			✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		1	-	-	37.5	7.5	-
	Ningaloo	✓	✓	✓	✓	✓	✓	✓		✓						✓			✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		-	-	-	1.5	-	-
Islands	Barrow Island (including State Marine Park and Marine Management Area)[2]	✓	✓	✓	✓		✓	✓				✓		✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	-	-	-	3	-	-
	Pilbara Islands – Southern Island Group (Flat Island, Airlie Island, Serrurier Island, Thevenard Island and Bessieres Island – State Nature Reserves)	✓	✓		✓		✓		✓			✓		✓		✓	✓		✓	✓		✓	✓	✓	✓	✓	✓	✓	✓			-	-	-	2	-	-
	Muiron Islands (including Marine Management Area)[2]	✓	✓	✓	✓		✓	✓		✓		✓		✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓			✓	✓			-	-	-	3.5	-	-
Marine parks	Ningaloo (including marine park and World Heritage area)[2]	✓	✓	✓	✓	✓	✓	✓		✓		✓	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		-	-	-	1.5	-	-
Reefs, shoals and banks	Rankin Bank	✓	✓	✓			✓	✓		✓					✓	✓	✓			✓		✓		✓	✓	✓	✓	✓			18.5	-	14	3	3.5	-
	Rosily Shoals	✓	✓	✓			✓	✓		✓					✓	✓	✓			✓		✓		✓	✓	✓	✓	✓			-	-		1	-	-
	Tryal Rocks	✓	✓	✓			✓	✓		✓					✓	✓	✓			✓		✓		✓	✓	✓	✓	✓			-	-		5	-	-
	Outtrim Patches	✓	✓	✓			✓	✓		✓					✓	✓	✓			✓		✓		✓	✓	✓	✓	✓			-	-		1	-	-
	Penguin Bank	✓	✓	✓			✓	✓		✓					✓	✓	✓			✓		✓		✓	✓	✓	✓	✓			-	-		2	-	-
	Poivre Reef	✓	✓	✓			✓	✓		✓					✓	✓	✓			✓		✓		✓	✓	✓	✓	✓			-	-		1	-	-

✓= Sensitivity potentially contacted above impact thresholds.

Note 1: Probabilities greater than 1.

Note 2: Where multiple locations have been reported, the highest probability value among these locations has been included in the table.

N.B. The probability is based on stochastic modelling of 200 hypothetical worst-case spills under a variety of weather and metocean conditions. Hydrocarbons cannot accumulate on open ocean, submerged receptors, or receptors not fully emergent.

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Consequence assessment
Summary of potential impacts to the physical environment
Water quality
Large volume releases of marine diesel have the potential to result in increased concentration of dissolved hydrocarbons. The decrease in water quality of the worst-case marine diesel spill is presented in Table 6-17. The concentrations of hydrocarbons in the water column will decrease over time once the release has stopped, due to processes such as dispersion, dilution, physical and biological degradation, and evaporation.
Marine sediment quality
Sediment quality is not expected to be significantly affected by a surface marine diesel release. Marine sediment quality will not be directly impacted by a marine diesel spill as hydrocarbons (surface, entrained and dissolved) are confined to the upper layers of the water column.
Summary of protected species potentially impacted
Marine mammals
Marine mammals exposed to marine diesel after a vessel collision may experience a range of psychological and behavioural impacts, depending on the exposure pathway. Direct contact with surface slicks, entrained oil or dissolved aromatic hydrocarbons can lead to surface fouling, ingestion via contaminated prey or water, aspiration of oily droplets, and inhalation of volatile compounds. These exposures have been associated with irritation of mucous membrane (eyes, mouth, respiratory and digestive tracks), immune suppression, neurological effects, reproductive issues and in severe cases, mortality (Deepwater Horizon Natural Resource Damage Assessment Trustees, 2016; Helm, et al., 2015). Geraci (1988) found limited evidence of cetacean mortality in earlier spill events. Subsequent assessments of the Deepwater Horizon incident indicated increased mortality rates among Gulf of Mexico cetaceans (Deepwater Horizon Natural Resource Damage Assessment Trustees, 2016). Behavioural avoidance of oil slicks has been observed in some species, suggesting an ability to detect and evade contaminated areas. However, field observations during the Deepwater Horizon spill documented both large whales (mysticetes and odontocetes) and smaller delphinids swimming through and feeding within surface slicks (Aichinger Dias, et al., 2017). The severity of impact is influenced by the nature of hydrocarbon exposure. Volatile, non-persistent hydrocarbons in surface slicks and entrained oil are unlikely to cause significant direct toxicity, though irritation to sensitive tissues may occur. Indirect effects, such as ingestion of hydrocarbons accumulated in prey, pose a greater risk, particularly for baleen whales feeding within hydrocarbon plumes near the release site. Fourteen threatened and migratory marine mammals were identified by a search of the EPBC Act Protected Species Database (Section 4.6.2.1). The Operational Area spatially overlaps the pygmy blue whale migration BIA, as well as the distribution range for pygmy blue whales (Figure 4-7). A migration BIA for humpback whales is also 2 km south-east of the Operational Area (Figure 4-8). However, species presence is unlikely, given the timing for the Petroleum Activity (refer to Section 3.7) is restricted to a period outside the northern migration for pygmy blue whales and humpback whales (Table 4-14). The presence of all cetacean species, including the pygmy blue whale, is likely to be limited to infrequent occurrences of individuals or small groups during their southern migration (refer to Section 4.6.3.1). Dugongs are known to inhabit coastal waters and areas surrounding offshore islands, including the Montebello Islands, within the EMBA. Although empirical data on the effects of hydrocarbon exposure specific to dugongs is limited, their physiological responses are expected to be similar to those of cetaceans. While dugongs may be near the Montebello Islands, the Operational Area is about 175 km from the nearest dugong BIA for foraging and reproduction. This spatial separation suggests any hydrocarbons reaching biologically important dugong habitat would be significantly weathered, reducing the likelihood of acute toxic effects. A loss of marine diesel from a vessel collision could result in a disruption to individual marine mammals transiting the EMBA. Such disruption could include behavioural impacts (e.g. avoidance of impacted areas), sublethal biological effects (e.g. skin irritation, irritation from ingestion or inhalation) and, in rare circumstances, death. However, such disruptions or impacts are not predicted to impact on the overall population viability of the species within the EMBA.

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Marine reptiles

Marine turtles

Adult sea turtles do not exhibit avoidance behaviour when encountering hydrocarbon slicks, increasing their risk of direct exposure (NOAA, 2010). Contact with surface slicks or entrained hydrocarbons can lead to oil adhering to external body surfaces, particularly on flexible areas such as the neck and flippers, resulting in skin irritation and injury (Gagnon & Rawson, 2010; Lutcavage, et al., 1995). Mucous membranes in the eyes, nose and throat may also be irritated, potentially leading to inflammation and secondary infections (NOAA, 2010). Physiological stress responses have been observed, including elevated white blood cell counts and potential disruption to salt gland function, even after brief exposure (Lutcavage, et al., 1995).

Inhalation of volatile hydrocarbon vapours during surfacing poses an additional risk. Due to their breathing pattern, rapidly inhaling large tidal volumes before diving, turtles are particularly vulnerable to inhaling toxic vapours, which are among the most harmful components of a spill (Milton & Lutz, 2003). This can result in respiratory complications such as lung congestion, interstitial emphysema, inhalant pneumonia, and neurological effects (NOAA, 2010).

Marine turtle BIAs for reproduction (internesting) and foraging overlap or occur near the Operational Area, particularly around the Montebello Islands (Section 4.6.1.1). Flatback, green, hawksbill and loggerhead turtles all have reproduction and foraging BIAs within 2 to 27 km of the Operational Area. Critical habitat for flatback turtles overlaps the Operational Area, while critical nesting habitat for hawksbill and green turtles occurs about 8 km to the south (Table 4-8). These areas are recognised as habitat critical for the survival of marine turtles under the Recovery Plan for Marine Turtles in Australia (Commonwealth of Australia, 2017) and support significant breeding and nesting activity throughout the region. The Operational Area is unlikely to represent important habitat for marine turtles, given the absence of potential nesting or foraging habitat (i.e. no emergent islands, reef habitat or shallow shoals) and the water depth (deeper than 50 m). Further detail on the potential for flatback turtle presence within the Operational Area is provided in Section 4.6.2.1.

Stochastic spill modelling indicates that while shoreline accumulation of hydrocarbons is not predicted, some marine turtle habitats may be exposed to entrained hydrocarbons (≥100 ppb) and dissolved aromatic hydrocarbons (≥50 ppb). These thresholds suggest potential sublethal exposure risks in the water column, particularly in nearshore foraging and internesting areas.

In the event of a vessel collision, a marine diesel spill may impact individual marine turtles that have direct contact with hydrocarbons within the spill-affected area, but the consequences to marine turtle populations are likely to be minor.

Sea snakes

Impacts to sea snakes from direct contact with hydrocarbons are likely to result in similar physical effects to those recorded for marine turtles and may include potential damage to the dermis and irritation to mucus membranes of the eyes, nose and throat (International Tanker Owners Pollution Federation, 2011). They may also be impacted when they return to the surface to breathe and inhale the toxic vapours associated with the hydrocarbons, resulting in damage to their respiratory system. The short-nosed sea snake (*Aipysurus apraefrontalis),* listed as crucially endangered under the EPBC Act, has been identified as having the potential to occur in the EMBA.

Stochastic spill modelling indicates that while shoreline accumulation of hydrocarbons is not predicted, some sea snake habitats may be exposed to surface hydrocarbons (≥10 g/m²) entrained hydrocarbons (≥100 ppb) and dissolved aromatic hydrocarbons (≥50 ppb).Therefore, a marine diesel spill may have a minor disruption to a portion of the population but there is no threat to overall population viability.

Fish, rays and sharks

Potential impacts to sharks and rays from a marine diesel spill may occur through direct contact with hydrocarbons or via trophic transfer through contaminated prey. Whale sharks (*Rhincodon typus*), listed as vulnerable and migratory under the EPBC Act, are known to forage within the Operational Area, with their foraging BIA overlapping the area and a high-density foraging BIA located about 195 km south-west in the Ningaloo Marine Park (within the EMBA, refer to Section 4.6.1).

Whale sharks are filter feeders and may be exposed to entrained and dissolved hydrocarbons via gill contact or ingestion during feeding, particularly during their seasonal migration from Ningaloo (primarily between September and November). However, the proposed Petroleum Activity is restricted to a period between late December to February (refer to Section 3.7) and does not overlap with the peak seasonal migration for whale shark. While it is possible whale sharks may traverse the vicinity of the Operational Area, their presence would be of a relatively short duration and not in significant numbers, given the main aggregations are recorded in coastal waters, particularly the Ningaloo Reef edge (Department of Parks and Wildlife, 2013; Marine Parks and Reserves Authority, 2005). In addition, tagging studies indicate broad dispersal across the Timor Sea (Meekan & Radford, 2010), suggesting only a portion of the population would be within the area above the adverse exposure threshold at any one time, and any impacts are expected to be minor and limited to individual animals.

Other migratory and resident shark species, including oceanic whitetip (*Carcharhinus longimanus*), shortfin and longfin mako (*Isurus oxyrinchus, I. paucus*) and grey nurse sharks (*Carcharias taurus*), may occur within the EMBA. These species may be exposed to hydrocarbons through dermal contact, gill absorption, or ingestion of contaminated prey. The west coast population of grey nurse shark is listed as vulnerable and migratory, and while congregation or

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aggregation is known to occur within the EMBA, the likelihood of significant population-level impacts is low due to the transient nature of exposure and the ability of pelagic species to avoid surface slicks.

Rays, including reef manta (*Mobula alfredi*) and giant manta (*M. birostris*), are also listed as migratory and are known to occur within the EMBA. These species may be exposed to hydrocarbons through dermal contact or ingestion during filter feeding. Sawfish species, including green (*Pristis zijsron*), dwarf (*P. clavata*) and freshwater sawfish *(P. pristis*), are listed as vulnerable and migratory, and are known to occur within the Operational Area and EMBA. While these benthic species may be considered sensitive to sediment contamination, sediment quality is not expected to be significantly affected by a surface marine diesel release. Given the deep-water depths of the Operational Area (50 m to 1,185 m), surface, entrained and dissolved hydrocarbons are confined to the upper layers of the water column and are not predicted to reach or accumulate in benthic sediments. Therefore, impacts to sawfish are expected to be limited to potential water column exposure and are predicted to be minor and temporary.

Seabirds and migratory shorebirds

As outlined in Section 4.6.4, 35 EPBC Act listed threatened or migratory shorebirds/seabirds were identified as potentially occurring within the EMBA, of which 18 were identified as potentially occurring within the Operational Area.

The wedge-tailed shearwater BIA for reproduction and foraging overlaps the Operational Area, while BIAs for roseate and fairy terns are located about 24 km and 19 km south-east, respectively. Lesser crested tern BIAs are located both 21 km south-east and 195 km south-west of the Operational Area (refer to Section 4.6.4). These BIAs represent important breeding and foraging habitats, particularly around the Montebello Islands, Lowendal Islands, Barrow Island and Thevenard Island. Given the proximity of these areas to the predicted extent of surface hydrocarbons (up to 47 km from the release site at or above the 10 g/m³ threshold), there is potential for interaction with foraging individuals, particularly during the breeding season when adults are actively provisioning chicks (Table 4-14). The timing restrictions on the Petroleum Activity (refer to Section 3.7) limit the survey activities to a period outside the fledgling emergence period for wedge-tailed shearwaters.

Seabirds generally do not exhibit avoidance behaviour to floating hydrocarbons; exposure may occur through immersion, ingestion or inhalation. Contact with hydrocarbons can result in plumage fouling, hypothermia, reduced buoyancy, impaired flight and feeding ability, and irritation of mucous membranes, with potential for mortality (AMSA, 2013; International Petroleum Industry Conservation Association, 2004). Longer-term impacts may include developmental abnormalities in chicks and reduced reproductive success. While the EMBA indicates surface hydrocarbons are confined to open water and do not contact shoreline receptors, the proximity of foraging BIAs suggests individual birds may be exposed during offshore feeding. However, given the localised nature of the spill and the limited spatial extent of surface hydrocarbons, impacts are highly unlikely to result in a potential consequence greater than moderate and unlikely to affect population viability at the regional scale.

Summary of potential impacts to other habitats and communities

Benthic fauna communities

Benthic habitats within the Operational Area are primarily composed of unconsolidated soft sediments, including well-sorted medium to coarse sands with low total organic carbon content. These sediments are typical of the outer NWMR and support sparse assemblages of filter-feeding and deposit-feeding organisms. Benthic habitat characteristics are described in Section 4.5. While these communities may be sensitive to hydrocarbon exposure, spill modelling indicates surface, entrained and dissolved hydrocarbons are confined to the upper layers of the water column and are not predicted to reach the seabed, particularly given the deep water depths (50 to 1,185 m) of the Operational Area.

Plankton and fish communities

There is potential for plankton communities to be impacted by a marine diesel spill where entrained hydrocarbons thresholds are exceeded. However, communities are expected to recover quickly (weeks/months) due to high population turnover (International Tanker Owners Pollution Federation, 2011). Considering the fast population turnover of open water plankton populations, it is considered any potential impacts will be low and temporary.

Fish populations in the open water offshore environment of the Operational Area and EMBA are highly mobile and can move away from a marine diesel spill. The spill-affected area will likely be confined to the upper surface layers. It is therefore unlikely fish populations would be exposed to hydrocarbon contamination. Fish populations are likely to be distributed over a wide geographical area so impacts on populations or species level are considered to have no lasting effect. Given the above factors and the rapid dispersion of marine diesel, it is considered any potential impacts to fish are highly unlikely to result in a potential consequence greater than moderate.

Offshore reefs and islands

Offshore reefs and islands within the EMBA, including Barrow Island and several other Pilbara islands, may be exposed to hydrocarbons above ecological impact thresholds in the event of a worst-case spill scenario (Table 6-17). These locations support sensitive benthic and intertidal communities, including coral reef systems, macroalgae and associated invertebrate fauna. Floating hydrocarbons are not predicted to impact these locations or accumulate on submerged reef structures or shorelines.

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Potential impacts to reef-associated biota include physical coating of coral and algal surfaces, which may inhibit photosynthesis and gas exchange, leading to reduced growth or mortality. Sessile organisms such as sponges and soft corals may be affected by dissolved and entrained hydrocarbons through dermal absorption or clogging of feeding structures. Protected species inhabiting these reef systems may also be at risk, particularly if hydrocarbons interfere with feeding or reproductive processes. However, given the limited spatial extent and short duration of hydrocarbon exposure predicted by modelling, and the resilience of many reef communities, it is highly unlikely to result in a potential consequence greater than moderate and unlikely to result in population-level effects. No shoreline contact is predicted, and receptors not fully emergent are not expected to accumulate hydrocarbons.

Shoals and banks

Shoals and banks within the EMBA, including Rankin Bank, Rosily Shoals, Tryal Rocks, Outtrim Patches, Penguin Bank and Poivre Reef, may be exposed to hydrocarbons above ecological impact thresholds as a result of a marine diesel spill (Table 6-17). These features typically support diverse benthic communities, including macroalgae, demersal fish species, and hard and soft corals, and may serve as important habitat and feeding grounds. While hydrocarbons are not predicted to accumulate on submerged receptors, transient exposure to surface slicks may result in short-term ecological stress, particularly for emergent or shallow reef structures.

Exposure to entrained hydrocarbons has the potential to result in lethal or sublethal toxic effects to corals and other sensitive sessile benthos within the upper water column, including subtidal corals. Mortality in some coral species is possible and would result in reduction of coral cover and change in the composition of coral communities. Sublethal effects to corals may include polyp retraction, changes in feeding, bleaching (loss of zooxanthellae) and increased mucous production, resulting in reduced growth rates and impaired reproduction (Negri & Heyward, 2000). In the unlikely event of a marine diesel spill occurring at the time of coral spawning at potentially affected coral locations, or in the general peak period of biological productivity, there is potential for a reduction in successful fertilisation and coral larval survival due to the sensitivity of coral in early life stages to hydrocarbons (Negri & Heyward, 2000). Such impacts are likely to result in failure of recruitment and in settlement of new population cohorts. Some non-coral species may also be affected via direct contact with entrained hydrocarbons, resulting in sublethal impacts and in some cases mortality. This is particularly for the 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 and have small home ranges; as reef residents, they are at higher risk from hydrocarbon exposure than non-resident, more wide-ranging fish species. The exact impact on resident coral communities will entirely depend on actual hydrocarbon concentration, duration of exposure and water depth of the affected communities.

Key ecological features

KEFs potentially impacted by a marine diesel spill from a vessel collision event within the EMBA include:

- Ancient Coastline at 125 m Depth Contour
- Continental Slope Demersal Fish Communities
- Exmouth Plateau
- Canyons linking the Cuvier Abyssal Plain and the Cape Range Peninsula
- Commonwealth Waters Adjacent to Ningaloo Reef
- Glomar Shoal.

These KEFs are defined by geomorphological features or their ecological significance, including enhanced biological productivity, habitat complexity, and support for demersal fish and benthic communities. The Operational Area directly overlaps the Ancient Coastline and Continental Slope Demersal Fish Communities KEFs, while others are located between 55 km and 173 km from the Operational Area. Although no interactions with the seabed are planned, the consequences of a marine diesel spill may include short-term impacts to demersal fish populations and biodiversity associated with the KEFs, particularly within surface water layers.

Given the broad spatial extent of most KEFs and the limited duration and footprint of hydrocarbon exposure, it is highly unlikely impacts would result in a potential consequence greater than moderate. The greatest potential for ecological effects is predicted to occur closest to the release location, with no long-term or population-level impacts anticipated.

Summary of potential impacts to protected areas (including AMPs)

Spill modelling predicts the Montebello, Gascoyne and Ningaloo AMPs may be contacted by entrained hydrocarbons above the 100 ppb ecological impact threshold (Table 6-17). These parks are recognised for their ecological, cultural and conservation significance, supporting diverse marine habitats and protected species.

Impacts on the values of the above AMPs are discussed in the relevant sections above for ecological and physical values and below for socioeconomic and cultural values.

Additionally, such hydrocarbon contact may alter stakeholder understanding or perception of the protected marine environment, given these represent areas largely unaffected by anthropogenic influences and contain biological diverse environments.

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Summary of potential impacts to socioeconomic and cultural values
Fisheries – commercial
Fish exposure to hydrocarbons can result in 'tainting' of their tissues. Even very low levels of hydrocarbons can impart a taint or 'off' flavour or smell in seafood. Tainting is reversible through the process of depuration, which removes hydrocarbons from tissues by metabolic processes, although it depends upon the magnitude of the hydrocarbon contamination. Fish have a high capacity to metabolise these hydrocarbons while crustaceans (such as prawns) have a reduced ability (Yender, et al., 2002). Seafood safety is a major concern associated with spill incidents. Therefore, actual or potential contamination of seafood can affect commercial and recreational fishing and can impact seafood markets long after any actual risk to seafood from a spill has subsided (Yender, et al., 2002). A spill would result in the establishment of an exclusion zone around the spill affected area. There would be a temporary prohibition on fishing activities for a period and subsequent potential for economic impacts to affected commercial fishing operators. A loss of marine diesel result from a vessel collision is unlikely to cause significant direct impacts on the target species of Commonwealth and WA commercial fisheries within the defined EMBA. Further details are provided below. ***Commonwealth fisheries*** The predicted EMBA resulting from a marine diesel spill may impact on the area fished by the Western Deepwater Trawl Fishery and North West Slope Trawl Fishery (Table 4-24). The North West Slope Trawl Fishery generally targets deepwater crustaceans, such as scampi and prawns. Activity takes place in waters deeper than 200 m. The temporary nature of the predicted marine diesel spill would infer it is unlikely the hydrocarbon concentrations in the upper surface layers would lead to potential exposure of bottom-dwelling target species to contamination. ***State fisheries*** The predicted EMBA resulting from a marine diesel spill may impact the area fished by State fisheries (refer to Table 4-24). These fisheries generally use a range of gear types and operate in shallow inshore waters to depths up to 1,200 m, targeting demersal and pelagic finfish species, crustaceans and a range of other benthic species. In the unlikely event of a marine diesel spill, there is potential for the targeted fish species to be exposed to entrained hydrocarbons in the water column. However, the potential for direct impact would be reduced as target species such as snapper and mackerel are likely to avoid the surface water layer underneath oil slicks. The temporary nature of the predicted marine diesel spill would infer it is unlikely the hydrocarbon concentrations in the upper surface layers would lead to potential exposure of pelagic fish to contamination. Demersal species (such as finfish) have limited mobility and, therefore, will not be able to easily move away from a spill. As such, mortality/sublethal effects may impact demersal fish located near the release location. Impacts to benthic species are unlikely as hydrocarbons are confined to the upper surface water layers.
Fisheries – traditional
No designated traditional fisheries have been identified to occur within the EMBA. Therefore, no impacts to traditional fisheries are predicted to occur.
Tourism and recreational activities
The Operational Area is considered too far offshore for significant recreational fishing or tourism activities. However, some tourism activities may occur at the remote offshore islands and reefs within the EMBA. These activities are expected to be exclusively nature-based tourism; impacts to the environmental values associated with these islands and reefs may impact upon tourism activities. Refer to 'Offshore reefs and islands' for discussion on the potential impacts to these receptors. Impacts to tourism activities are expected to be minor based on the likelihood and nature of contact to environmental values that support tourism activities. Impacts to these values may result in displacement of tourism activity, and potentially minor loss of revenue for tourist operators (e.g. charter fishing cancellations due to fishery closures).
Offshore oil and gas
The Operational Area is within a region of established oil and gas operations, with additional infrastructure in the broader NWS region. Figure 4-17 shows the facilities, assets and infrastructure overlapping the Operational Area and wider region. Avoidance of surface hydrocarbons is a possible response by other vessels. However, such occurrences will likely be limited to proximity to the release site, and other oil and gas activities are unlikely to be impacted.
Commercial shipping
A shipping fairway intersects the north-west corner of the Operational Area (Figure 4-16). A loss of marine diesel from a vessel collision may lead to exclusion of commercial shipping near the release location, resulting in operational inconvenience as vessels may be required to deviate course from intended routes.
Cultural Heritage
No listed World Heritage places, Indigenous Sites of Significance, Commonwealth Heritage places or National Heritage places were identified in the Operational Area. A search of the Australasian Underwater Cultural Heritage

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Database, which records all known Maritime Cultural Heritage (shipwrecks, aircraft, relics and other underwater cultural heritage) in Australian waters, indicated there is one site within 10 km of the Operational Area and numerous sites within the EMBA (Section 4.9.1.7). These heritage sites are on the seabed and will not be directly impacted by a marine diesel spill as hydrocarbons (surface, entrained and dissolved) are confined to the upper layers of the water column.

In addition, as described in Section 5, no ethnographic values are known to occur within the Operational Area or EMBA. This work did identify ethnographic sites onshore, but these are beyond the EMBA and scope of this EP. It is noted the marine ecosystem holds both cultural and environmental value (see Section 4.9.1), with these types of values (cultural and environmental) intrinsically linked. Woodside has conducted extensive consultation with Traditional Custodian groups as described in Section 5 to identify environmental values of cultural interest, as specified in Section 4.9.1. Any cultural values linked to environment receptors have been assessed above.

Demonstration of ALARP				
Control considered	***Control feasibility (F) and cost/ sacrifice (CS)[37]***	***Benefit in risk reduction***	***Proportionality***	***Control adopted***
Legislation, codes and standards				
Comply with Marine Order 30 (Prevention of collisions), including: • adherence to steering and sailing rules, including maintaining lookouts (e.g. visual, hearing, radar), proceeding at safe speeds, assessing risk of collision and taking action to avoid collision (monitoring radar) • adherence to navigation light display requirements, including visibility, light position/shape appropriate to activity • adherence to navigation noise signals as required.	F: Yes. CS: Minimal cost. Standard practice.	Legislative requirement to reduce the likelihood that interference with other marine users results in a collision.	Controls based on legislative requirements – must be adopted.	Yes C 8.1
Comply with Marine Order 27 (Safety of navigation and radio equipment), including: • navigational systems and equipment mentioned in Regulations 19 and 20 of Chapter V of Safety of Life at Sea (SOLAS) for the vessel are type approved and	F: Yes. CS: Minimal cost. Standard practice.	Legislative requirement to reduce the likelihood that interference with other marine users results in a collision.	Controls based on legislative requirements – must be adopted.	Yes C 8.2

[37] *Qualitative measure.*

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Demonstration of ALARP				
Control considered	***Control feasibility (F) and cost/ sacrifice (CS)[37]***	***Benefit in risk reduction***	***Proportionality***	***Control adopted***
installed aboard vessels • navigational systems and equipment mentioned in Regulations 7 to 11 of Chapter IV of SOLAS are installed aboard vessels • navigational systems and equipment are maintained in working order • navigational activities and incidents of importance to safety of navigation on the vessel are recorded.				
Comply with Marine Order 21 (Safety and emergency arrangements), including: • adherence to minimum safe crewing levels • maintenance of navigation equipment in efficient working order (compass/radar) • navigational systems and equipment required are those specified in Regulation 19 of Chapter V of SOLAS • AIS that provides other users with information about the vessel's identity, type, position, course, speed, navigational status and other safety-related data.	F: Yes. CS: Minimal cost. Standard practice.	Legislative requirement to reduce the likelihood that interference with other marine users results in a collision.	Controls based on legislative requirements – must be adopted.	Yes C 8.3

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Demonstration of ALARP				
Control considered	***Control feasibility (F) and cost/ sacrifice (CS)[37]***	***Benefit in risk reduction***	***Proportionality***	***Control adopted***
In the event of a spill, implement emergency response activities in accordance with the Oil Pollution First Strike Plan (Appendix H).	F: Yes. CS: Costs associated with implementing response strategies vary dependant on nature and scale of spill event. Standard practice.	This control would not reduce the likelihood, but response activities may reduce the consequence.	Benefits outweigh cost/sacrifice.	Yes C 8.4
Test the arrangements supporting the activities in the Oil Pollution First Strike Plan to ensure it can be implemented as planned.	F: Yes. CS: Minimal cost. Standard practice.	Legislative requirement based on vessel class. Unlikely to significantly reduce the consequence.	Controls based on legislative requirements – must be adopted.	Yes C 8.5
Vessels comply with Marine Orders for safe vessel operations, specifically: • Marine Order 21 (Safety and emergency arrangements) • Marine Order 27 (Safety of navigation and radio equipment) • Marine Order 30 (Prevention of collisions).	F: Yes. CS: Minimal cost. Standard practice.	Compliance with Marine Orders 21, 27 and 30 is required under Australian regulations and implementation is standard practice for commercial vessels as applicable to vessel size, type and class. Compliance reduces the likelihood of adverse interactions between other marine users and the Petroleum Activity.	Control based on legislative requirement – must be adopted.	Yes C 1.1
Establish a 3 NM radius SNA around the seismic survey vessel and towed array.	F: Yes. CS: Minimal cost. Standard practice.	Presence of the SNA will reduce the likelihood of interactions with other marine users.	Benefits outweigh cost/sacrifice. Control is also standard practice.	Yes C 1.2
Good practice				
Notify AHO of activities and movements no less than four working weeks before the scheduled activity start date.	F: Yes. CS: Minimal cost. Standard practice.	Notifying AHO will enable them to generate navigation warnings (Maritime Safety Information Notifications and Notices to Mariners (including AUSCOAST warnings where relevant)).	Benefits outweigh cost/sacrifice. Control is also standard practice.	Yes C 1.4
Notify AMSA Response Centre of activities and movements 24 to 48 hours before operations begin.	F: Yes. CS: Minimal cost. Standard practice.	Communicating the Petroleum Activity to other marine users so they are informed and aware, thereby reducing the likelihood of interfering with other marine users.	Benefits outweigh cost/sacrifice. Control is also standard practice.	Yes C 1.5

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Demonstration of ALARP				
Control considered	***Control feasibility (F) and cost/ sacrifice (CS)[37]***	***Benefit in risk reduction***	***Proportionality***	***Control adopted***
Notify relevant government departments, fishing industry representative bodies, fishery licence holders, and other oil and gas operators (as requested during consultation) of activities before starting and upon completing activities.	F: Yes CS: Minimal cost. Standard practice	Communicating the Petroleum Activity to other marine users so they are informed and aware, thereby reducing the likelihood of interfering with other marine users.	Benefits outweigh cost/sacrifice. Control is also standard practice.	Yes C 1.6
Develop a CONOPS/ SIMOPS Plan to manage interactions with other facilities/vessels, where applicable. The CONOPS/ SIMOPS Plan will contain information on: • minimum separation distances • communications • vessels/activities involved in CONOPS/ SIMOPS • exclusion zone entry and exit processes • helicopter operations • key roles, responsibilities and emergency contacts.	F: Yes. CS: Minimal cost. Standard practice.	A CONOPS/ SIMOPS Plan informs nearby facilities/vessels of the Petroleum Activity and allows vessel movements to be managed to reduce the likelihood of interactions.	Benefits outweigh cost/sacrifice. Control is also standard practice.	Yes C 1.7
Have a dedicated chase/support vessel available to manage the SNA.	F: Yes. CS: Minimal cost. Standard practice.	Support and chase vessels can discourage third party vessels from entering the SNA. This will provide a small reduction in likelihood of an interaction with a third-party vessel.	Benefits outweigh cost/sacrifice. Control is also standard practice.	Yes C 1.8
Project vessels to operate AIS, and streamer tail buoys to be fitted with lights, GNSS and virtual AIS.	F: Yes. CS: Minimal cost. Standard practice.	Use of AIS on project vessels, and lights, virtual AIS and GNSS on streamer tail buoys will reduce the likelihood of an interaction with a third-party vessel.	Benefits outweigh cost/sacrifice. Control is also standard practice.	Yes C 1.9

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Demonstration of ALARP				
Control considered	***Control feasibility (F) and cost/ sacrifice (CS)[37]***	***Benefit in risk reduction***	***Proportionality***	***Control adopted***
Publish a publicly available interactive map showing the location of the seismic survey vessel.	F: Yes. CS: Minimal cost.	A publicly available interactive map will allow transparency of the activity for other marine users. The interactive map provides an additional/ alternate method for marine users to obtain information on the timing of activities, thereby reducing the likelihood of interaction with other marine users.	Benefits outweigh cost/sacrifice.	Yes C 1.10
Notify the DNP upon EP approval, and 10 days before entering the Montebello AMP – Multiple Use Zone, and after activities are complete.	F: Yes. CS: Minimal cost. Standard practice.	Communicating the Petroleum Activity to other marine users to allow management, thereby reducing the likelihood of interfering with other marine users.	Benefits outweigh cost/sacrifice.	Yes C 1.11
Notify Department of Defence of activities and movements no less than five weeks before the scheduled activity start date.	F: Yes. CS: Minimal cost. Standard practice.	Communicating the Petroleum Activity to other marine users allows management, thereby reducing the likelihood of interfering with other marine users.	Benefits outweigh cost/sacrifice.	Yes C 1.12
Provide daily lookahead reports to fisheries stakeholders and other key on-the-water stakeholders, where requested, notifying of planned acquisition and vessel location in upcoming 24-hour and 72-hour periods.	F: Yes. CS: Minimal cost. Standard practice.	Communicating the Petroleum Activity to other marine users so they are informed and aware, thereby reducing the likelihood of interfering with other marine users.	Benefits outweigh cost/sacrifice.	Yes C 1.14
Apply a 'living heritage' management approach. Woodside engages with Traditional Custodians and seeks to incorporate cultural knowledge, where appropriate across activities. Cultural safety considerations are factored for our workforce and the First Nations community.	F: Yes. CS: Minimal cost.	A 'living heritage' approach acknowledges and respects First Nations communities. It supports the transfer of cultural knowledge and is an effective strategy to manage intangible cultural values.	Benefits outweigh cost/sacrifice.	Yes C 2.1

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Demonstration of ALARP				
Control considered	***Control feasibility (F) and cost/ sacrifice (CS)[37]***	***Benefit in risk reduction***	***Proportionality***	***Control adopted***
Project inductions to relevant personnel, before the individual starts the activity, will include information on cultural values and heritage, including tangible and intangible cultural heritage.	F: Yes. CS: Minimal cost.	Workforce is suitably aware of cultural values and heritage in the area they are operating.	Benefits outweigh cost/sacrifice.	Yes C 2.2
Mitigation: Oil spill response.	Refer to Appendix G.			
Professional judgement – eliminate				
Eliminate use of vessels.	F: No. Vessels are required to conduct the Petroleum Activity. CS: Not considered – control not feasible.	Not considered – control not feasible.	Not considered – control not feasible.	No
Avoid shipping lanes.	F: No. The Operational Area is required to replicate historical surveys and provide a timelapse. CS: Not considered – control not feasible.	Not considered – control not feasible.	Not considered – control not feasible.	No
Professional judgement – substitute				
None identified.				
Professional judgement – engineered solution				
None identified.				
ALARP statement: Based on the environmental risk assessment outcomes and use of the relevant tools appropriate to the decision type (i.e. Decision Type B; Section 2.2.5.2), Woodside considers the adopted controls appropriate to manage the impacts and risks of an unplanned loss of hydrocarbon resulting from vessel collision. As no reasonable additional/alternative controls were identified that would further reduce the impacts and risks without grossly disproportionate sacrifice, the impacts and risks are considered ALARP.				

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Demonstration of Acceptability	
Acceptability criteria and assessment	***Acceptability statement***
Principles of ESD The impact assessment has considered the relevant principles of ESD: • The conservation of biological diversity and ecological integrity should be a fundamental consideration in decision-making. • The principle of inter-generational equity – the present generation should ensure the health, diversity and productivity of the environment is maintained or enhanced for the benefit of future generations. • Decision-making processes should effectively integrate both long-term and short-term economic, environmental, social and equitable 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 adopted EPO, including: • Woodside Environment and Biodiversity Policy (Appendix A) • Woodside Risk Management Policy (Appendix A). **External context** Woodside has considered feedback from relevant persons during the impact assessment (Section 5). As requested during consultation, controls have been adopted to inform other users of the presence of the project vessels during the Petroleum Activity and reduce the potential for vessel collision, including notifications to AHO and AMSA. **Other requirements** The EMBA overlaps BIAs for threatened and migratory species, as well as State and Commonwealth marine protected areas. Regard has been given to relevant conservation advice and wildlife conservation plans during the assessment of potential impacts. As demonstrated in Section 6.9, the Petroleum Activity is not considered to be inconsistent with the overall recovery objectives and actions of these recovery plans and conservation advice.	The predicted level of risk to ecosystems, species, habitat or physical or biological attributes from a loss of marine diesel from a vessel collision is considered to be of an acceptable level (consequence level M – Moderate), given that: • Petroleum Activity is consistent with the relevant principles of ESD • proposed controls have considered the environmental consequence and are consistent with Woodside's policies, procedures and standards • feedback from stakeholders has been considered, as appropriate • legislative requirements/industry standards have been adopted, as applicable • Petroleum Activity will be managed in a manner that is not inconsistent with management objectives for relevant World Heritage areas, AMPs, recovery plans and conservation plans/advice • predicted level of impact has been reduced to ALARP. **Environmental performance consideration** To manage an accidental marine diesel release as a result of vessel collision to ecosystems, species, habitat or physical or biological attributes to an acceptable level, the following EPO has been applied: • EPO 8: No release of hydrocarbons to the marine environment due to a vessel collision associated with the activity. The adopted controls are considered appropriate to manage the risks of the Petroleum Activity and compliance with those controls is considered to demonstrate that the EPO has been met.

EPOs, EPSs and MC			
EPO	***Controls***	***Performance standards***	***MC***
EPO 8 No release of hydrocarbons to the marine environment due to a vessel collision associated with the activity.	C 8.1 Comply with Marine Order 30 (Prevention of collisions), including: • adherence to steering and sailing rules including maintaining lookouts (e.g. visual, hearing, radar), proceeding at safe speeds, assessing risk of collision and taking action to avoid collision (monitoring radar)	PS 8.1.1 Project vessels compliant with Marine Order 30 (Prevention of collisions), which requires vessels to always be visible.	MC 8.1.1 Marine assurance inspection records demonstrate compliance with standard maritime safety procedures (Marine Orders 21, 27 and 30).

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EPOs, EPSs and MC			
EPO	***Controls***	***Performance standards***	***MC***
	• adherence to navigation light display requirements, including visibility, light position/shape appropriate to activity • adherence to navigation noise signals as required.		
	C 8.2 Comply with Marine Order 27 (Safety of navigation and radio equipment), including: • navigational systems and equipment mentioned in Regulations 19 and 20 of Chapter V of SOLAS for the vessel are type approved and installed aboard vessels • navigational systems and equipment mentioned in Regulations 7 to 11 of Chapter IV of SOLAS are installed aboard vessels • navigational systems and equipment are maintained in working order • navigational activities and incidents of importance to safety of navigation on the vessel are recorded.	PS 8.2.1 Project vessels compliant with Marine Order 27 (Safety of navigation and radio equipment).	
	C 8.3 Comply with Marine Order 21 (Safety and emergency arrangements), including: • adherence to minimum safe crewing levels • maintenance of navigation equipment in efficient working order (compass/radar) • navigational systems and equipment required are those specified in Regulation 19 of Chapter V of SOLAS • AIS that provides other users with information about the vessel's identity, type, position, course, speed, navigational status and other safety-related data.	PS 8.3.1 Project vessels compliant with Marine Order 21 (Safety and emergency procedures).	
	C 8.4 In the event of a spill, implement emergency response activities in accordance with the Oil Pollution First Strike Plan (Appendix H).	PS 8.4.1 In the event of a spill, the Oil Pollution First Strike Plan requirements are implemented.	MC 8.4.1 Records of completed incident documentation.

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EPOs, EPSs and MC			
EPO	***Controls***	***Performance standards***	***MC***
	C 8.5 Test the arrangements supporting the activities in the Oil Pollution First Strike Plan to ensure it can be implemented as planned.	PS 8.5.1 Exercises/tests will be conducted in alignment with the frequency identified in Table 7-10.	MC 8.5.1 Testing of arrangement records confirm emergency response capability has been maintained.
		PS 8.5.2 Woodside's procedure demonstrates a minimum level of trained personnel, for core roles in the Oil Pollution First Strike Plan, are maintained.	MC 8.5.2 Emergency management dashboard confirms minimum level of personnel trained for core Oil Pollution First Strike Plan roles are available.
	C.1.1 Vessels comply with Marine Orders for safe vessel operations, specifically: • Marine Order 21 (Safety and emergency arrangements) • Marine Order 27 (Safety of navigation and radio equipment) • Marine Order 30 (Prevention of collisions).	PS 1.1.1 See Section 6.7.1.	MC 1.1.1 See Section 6.7.1.
	C 1.2 Establish a 3 NM radius SNA around the seismic survey vessel and towed array.	PS 1.2.1 See Section 6.7.1.	MC 1.2.1 See Section 6.7.1.
	C 1.4 Notify AHO of activities and movements no less than four weeks before the scheduled activity start date.	PS 1.4.1 See Section 6.7.1.	MC 1.4.1 See Section 6.7.1.
	C 1.5 Notify AMSA Response Centre of activities and movements 24 to 48 hours before operations begin.	PS 1.5.1 See Section 6.7.1.	MC 1.5.1 See Section 6.7.1.
	C 1.6 Notify relevant government departments, fishing industry representative bodies, fishery licence holders, and other oil and gas operators (as requested during consultation) of activities before starting and upon completing activities.	PS 1.6.1 See Section 6.7.1.	MC 1.6.1 See Section 6.7.1.

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EPOs, EPSs and MC			
EPO	***Controls***	***Performance standards***	***MC***
	C 1.7 Develop a CONOPS/ SIMOPS Plan to manage interactions with other facilities/vessels, where applicable. The CONOPS/ SIMOPS Plan will contain information on: • minimum separation distances • communications • vessels/activities involved in CONOPS/ SIMOPS • exclusion zone entry and exit processes • helicopter operations • key roles, responsibilities and emergency contacts.	PS 1.7.1 See Section 6.7.1.	MC 1.7.1 See Section 6.7.1.
	C 1.8 Have a dedicated chase/support vessel available to manage the SNA.	PS 1.8.1 See Section 6.7.1.	MC 1.8.1 See Section 6.7.1.
	C 1.9 Project vessels to operate AIS, and streamer tail buoys to be fitted with lights, GNSS and virtual AIS.	PS 1.9.1 See Section 6.7.1.	MC 1.9.1 See Section 6.7.1.
	C 1.10 Publish a publicly available interactive map showing the location of the seismic survey vessel.	PS 1.10.1 See Section 6.7.1.	MC 1.10.1 See Section 6.7.1.
	C 1.11 Notify the DNP upon EP approval, and 10 days before entering the Montebello AMP – Multiple Use Zone, and after activities are complete.	PS 1.11.1 See Section 6.7.1.	MC 1.11.1 See Section 6.7.1.
	C 1.12 Notify Department of Defence of activities and movements no less than five weeks before the scheduled activity start date.	PS 1.12.1 See Section 6.7.1.	MC 1.12.1 See Section 6.7.1.
	C 1.14 Provide daily lookahead reports to fisheries stakeholders and other key on-the-water stakeholders, where requested, notifying of planned acquisition and vessel location in upcoming 24-hour and 72-hour periods.	PS 1.14.1 See Section 6.7.1.	MC 1.14.1 See Section 6.7.1.

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EPOs, EPSs and MC			
EPO	***Controls***	***Performance standards***	***MC***
EPO 2 Woodside supports ongoing engagement and consultation with Traditional Custodians for the purpose of assessing and avoiding impacts to cultural heritage values	C 2.1 Apply a 'living heritage' management approach. Woodside engages with Traditional Custodians and seeks to incorporate cultural knowledge, where appropriate across activities. Cultural safety considerations are factored for our workforce and the First Nations community.	PS 2.1.1 Refer to Section 6.7.1.	MC 2.1.1 Refer to Section 6.7.1.
		PS 2.1.2 Refer to Section 6.7.1.	MC 2.1.2 Refer to Section 6.7.1.
	C 2.2 Project inductions to relevant personnel, before the individual starts the activity, will include information on cultural values and heritage, including tangible and intangible cultural heritage.	PS 2.2.1 Refer to Section 6.7.1.	MC 2.2.1 Refer to Section 6.7.1.

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6.8.3 Unplanned hydrocarbon release: bunkering

Context		
Project vessels – Section 3.9	Physical environment – Section 4.4 Biological environment – Section 4.5 Protected species – Section 4.6 Protected places – Section 4.7.1 Socioeconomic environment – Section 4.8.1	Stakeholder consultation – Section 5

Risk evaluation summary

Source of risk	***Environmental value potentially impacted***						***Evaluation***						
	Marine sediment	Water quality	Air quality (incl odour)	Ecosystems/habitat	Species	Socioeconomic	Decision type	Consequence/impact	Likelihood	Risk rating	ALARP tools	Acceptability	Outcome
Loss of hydrocarbons (marine diesel) to marine environment from bunkering/refuelling of the seismic survey vessel		X		X	X	X	A	E	2	M	LCS GP PJ	Broadly acceptable	EPO 9

Description of source of risk

Bunkering of low-sulphur marine diesel from the support vessel to the seismic survey vessel will occur within the Operational Area. As described in Section 3.9.1, bunkering is planned to only begin during daylight hours[38] and will occur outside shipping fairways and the Montebello AMP – Multiple Use Zone.

Two credible scenarios for the loss of containment during bunkering operations were 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 less than 200 L, based on the likely volume of a bulk transfer hose (assuming a failure of the dry break coupling 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 shut off fuel pumps, for a period of up to five minutes, could result in about an 8 m³ marine diesel loss to the deck and into the marine environment.

Quantitative spill risk assessment

Woodside commissioned RPS to model several small marine diesel spills, including surface spill volumes of 8 m³ in the offshore waters of north-west WA. The results have indicated exposure to surface hydrocarbons above the 10 g/m² threshold is limited to the immediate vicinity of the release site, with little potential to extend beyond 1 km. Therefore, it is considered exposure to threshold concentrations from an 8 m³ surface spill from bunkering activities would be well within the EMBA for the vessel collision scenario detailed in Section 6.8.2.

Given this, the offshore location of the Operational Area, and the fact the same hydrocarbon type is involved for both scenarios, specific modelling for an 8 m³ marine diesel release was not performed for this Petroleum Activity.

Hydrocarbon characteristics

Refer to Section 6.8.1.1 for a description of the characteristics of marine diesel, including detail on the predicted fate and weathering of a spill to the marine environment.

[38] *If the transfer is to continue into darkness, the JSA must consider lighting and the ability to determine if a spill has occurred.*

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Consequence assessment
Environmental value(s) potentially impacted
A spill at the surface as a result of bunkering activities is likely to be localised with limited potential contact with sensitive receptor locations, based on the modelling presented in Section 6.8.2 for a larger spill (500 m³), which predicted the spill to be restricted to open offshore waters. The potential biological and ecological impacts associated with much larger hydrocarbon spills are presented in Section 6.8.2; further detail on impacts specific to a spill of marine diesel from a bunkering loss are provided below. The biological consequences of such a small volume spill on identified open water sensitive receptors relate to the potential for minor impacts to megafauna, plankton and fish populations (surface and water column biota) that are within the spill-affected area. No impacts to commercial fisheries or benthic habitats are expected. The extent of the EMBA associated with a marine diesel spill from loss during bunkering will be much reduced in terms of spatial and temporal scales; hence, potential impacts from bunkering are considered localised and low-level. The Operational Area overlaps a small portion of the Montebello AMP – Multiple Use Zone (refer to Figure 4-11). However, bunkering activities have been restricted within 3 km of the Montebello AMP – Multiple Use Zone (refer to C 9.4). A bunkering spill could extend to the AMP and impact water quality and present adverse impacts to species, as presented within Section 6.8.2. However, given the small scale of impacts, a bunkering spill will not impact the values of the AMP (values are described in the Master Existing Environment; refer to Section 2.2.3).

Demonstration of ALARP				
Control considered	***Control feasibility (F) and cost/ sacrifice (CS)***	***Benefit in risk reduction***	***Proportionality***	***Control adopted***
Legislation, codes and standards				
Comply with Marine Order 91 (Marine pollution prevention – oil), which a requires SOPEP/ Shipboard Marine Pollution Emergency Plan (as appropriate to vessel class).	F: Yes. CS: Minimal cost. Standard practice.	Legislative requirements to be followed reduce the likelihood of an unplanned release. The consequence is unchanged.	Controls based on legislative requirements – must be adopted.	Yes C 9.1
Good practice				
Implement bunkering equipment controls: • All hoses that have a potential environmental risk following damage or failure shall be linked to the vessel's preventative maintenance system. • 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.	F: Yes. CS: Minimal cost. Standard practice	Reduces the likelihood of a spill occurring. Although no significant reduction in consequence could result, the overall risk is reduced.	Benefits outweigh cost/sacrifice.	Yes C 9.2

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Demonstration of ALARP				
Control considered	***Control feasibility (F) and cost/ sacrifice (CS)***	***Benefit in risk reduction***	***Proportionality***	***Control adopted***
Contractor procedures include requirements to be implemented during bunkering/ refuelling operations, including: • a completed Permit to Work (PTW) and Job Safety Assessment (JSA) shall be implemented for the hydrocarbon bunkering/ refuelling operation • gauges, hoses, fittings and the sea surface shall be visually monitored during the operation • hoses shall be visually inspected as per vessel procedures before starting • hydrocarbons shall not be transferred in marginal weather conditions • bunkering/refuelling will begin in daylight hours. If the transfer is to continue into darkness, the JSA must consider lighting and the ability to determine if a spill has occurred.	F: Yes. CS: Minimal cost. Standard practice.	Reduces the likelihood of a spill occurring. Although no significant reduction in consequence could result, the overall risk is reduced.	Benefits outweigh cost/sacrifice.	Yes C 9.3
Mitigation: Oil spill response	Refer to Appendix G.			
Professional judgement – eliminate				
No bunkering activities within 3 km of the Montebello AMP – Multiple Use Zone).	F: Yes. CS: Minimal operational cost. Given the small size of the overlap with the Montebello AMP – Multiple Use Zone (refer to Figure 4-11) in relation to the Operational Area, it is possible to manage bunkering activities 3 km outside of the Montebello AMP – Multiple Use Zone.	While not eliminating the risk of a bunkering incident, it eliminates the risk of the incident occurring within the Montebello AMP – Multiple Use Zone and potential impacts to the values of the AMP as a result.	Benefits outweigh the minor operational costs of not bunkering within the AMP.	Yes C 9.4

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Demonstration of ALARP				
Control considered	***Control feasibility (F) and cost/ sacrifice (CS)***	***Benefit in risk reduction***	***Proportionality***	***Control adopted***
Seismic survey vessel brought into port to refuel.	F: No. Does not eliminate the fuel transfer risk. It is not operationally practical to transit the seismic survey vessel back to port for refuelling, based on the frequency of the refuelling requirements and distance from the nearest port. CS: Significant due to schedule delay and vessel transit costs and day rates.	Eliminates the risk in the Operational Area but moves the risk to another location. Therefore, no overall benefit.	Disproportionate. The cost/sacrifice outweighs the benefit gained.	No
Professional judgement – substitute				
None identified.				
Professional judgement – engineered solution				
None identified.				
ALARP statement: Based on the environmental risk assessment outcomes and use of the relevant tools appropriate to the decision type (i.e. Decision Type A; Section 2.2.5.2) and Woodside's criteria for demonstrating ALARP (Section 2.3.1), Woodside considers the adopted controls appropriate to manage the risks and consequences of a bunkering spill. As no reasonable additional/alternative controls were identified that would further reduce the risks and consequences without grossly disproportionate sacrifice, the risks and consequences are considered ALARP.				

Demonstration of acceptability
Acceptability statement: Loss of hydrocarbons to marine environment during bunkering has been evaluated as unlikely to result in potential consequence greater than localised and low-level exceedance over national/international water quality standards, a localised and low-level disruption to a small proportion of the population, and no impact on critical habitat or activity of protected species. Further opportunities investigated to reduce the impacts and risks have been described above. The adopted controls are considered good oil-field practice/industry best practice, and no bunkering activities are planned to occur within 3 km of the Montebello AMP – Multiple Use Zone. As demonstrated in Section 6.9, the residual risk of unplanned hydrocarbon release from bunkering is not inconsistent with the relevant objectives and actions of any applicable recovery plans or threat abatement plans, based on the adopted controls. Regard has been given to relevant conservation advice and wildlife conservation plans during the assessment of potential risks. Based on the environmental impact assessment outcomes and Woodside's criteria for acceptability outlined in Section 2.3.2, this is considered an acceptable level of risk.

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EPOs, EPSs and MC			
EPO	***Controls***	***Performance standards***	***MC***
EPO 9 No unplanned loss of hydrocarbons to the marine environment from bunkering during the Petroleum Activity.	C 9.1 Comply with Marine Order 91 (Marine pollution prevention – oil), which requires a SOPEP/Shipboard Marine Pollution Emergency Plan (as appropriate to vessel class).	PS 9.1.1 Appropriate initial responses prearranged and drilled in case of a hydrocarbon spill, as appropriate to vessel class.	MC 9.1.1 Marine assurance inspection records demonstrate compliance with Marine Order 91.
	C 9.2 Implement bunkering equipment controls: • All hoses that have a potential environmental risk after damage or failure shall be linked to the vessel's preventative maintenance system. • 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 9.2.1 Compliance with contractor procedures for managing bunkering/helicopter operations.	MC 9.2.1 Environmental inspection records demonstrate bunkering/ refuelling performed in accordance with contractor bunkering procedures.
	C 9.3 Contractor procedures include requirements to be implemented during bunkering/refuelling operations, including: • a completed PTW and JSA shall be implemented for the hydrocarbon bunkering/ refuelling operation • gauges, hoses, fittings and the sea surface shall be visually monitored during the operation • hoses shall be visually inspected as per vessel procedures before starting • hydrocarbons shall not be transferred in marginal weather conditions • bunkering/refuelling will begin in daylight hours. If the transfer is to continue into darkness, the JSA must consider lighting and the ability to determine if a spill has occurred.	PS 9.3.1 Damaged equipment is replaced before failure.	MC 9.3.1 Records confirm the vessel bunkering equipment is subject to systematic integrity checks as per vessel's preventative maintenance schedule.
		PS 9.3.2 Minimised inventory loss in the event of a failure.	MC 9.3.2 Environmental inspection records confirm presence of dry break of couplings and flotation on fuel hoses.
		PS 9.3.3 Adequate resources are available to allow implementation of the SOPEP.	MC 9.3.3 Environmental inspection records confirm presence of spill kits.
	C 9.4 No bunkering activities within 3 km of the Montebello AMP – Multiple Use Zone).	PS 9.4.1 No bunkering activities occur within 3 km of the Montebello AMP – Multiple Use Zone, unless in an emergency.	MC 9.4.1 Bunkering records confirm bunkering occurs >3 km outside the Montebello AMP – Multiple Use Zone.

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6.8.4 Unplanned discharge: deck spills

Context		
Project vessels – Section 3.9	Physical environment – Section 4.4 Biological environment – Section 4.5 Protected species – Section 4.6	Stakeholder consultation – Section 5

Risk evaluation summary

Source of risk	***Environmental value potentially impacted***						***Evaluation***						
	Marine sediment	Water quality	Air quality (incl odour)	Ecosystems/habitat	Species	Socioeconomic	Decision type	Consequence/impact	Likelihood	Risk rating	ALARP tools	Acceptability	Outcome
Accidental discharge of other hydrocarbons/chemicals from project vessel deck activities and equipment (e.g. cranes and winches)		X			X		A	F	3	M	LCS GP	Broadly acceptable	EPO 10

Description of source of risk

Hydrocarbons/chemicals may occur during equipment transfer, incorrect storage or incorrect use. Typically these occur on the vessel deck, but have the ability to enter the marine environment if not contained.

Project vessels typically store hydrocarbons/chemicals in small volumes, and 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).

Woodside's operational experience demonstrates spills are most likely to originate from hydraulic hoses and have been less than 100 L, with an average volume less than 10 L.

Consequence assessment

Environmental value(s) potentially impacted

No significant impacts from the accidental discharges described are anticipated in the deepwater offshore/open water locations of the Operational Area, because of the minor quantities involved (typically <10 L), the limited duration of vessel activities during the Petroleum Activity (about 40 days, refer to Section 3.7), and high level of dilution into the open water marine environment of the Operational Area. The potential impact to water quality will be localised and of no lasting effect. The biological consequences of such a small volume spill on identified open water sensitive receptors relate to a minor potential for toxicity impacts to plankton and fish populations (surface and water column biota).

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Demonstration of ALARP				
Control considered	***Control feasibility (F) and cost/ sacrifice (CS)[39]***	***Benefit in risk reduction[40]***	***Proportionality***	***Control adopted***
Legislation, codes and standards				
Comply with Marine Order 91 (Marine pollution prevention – oil), which requires a SOPEP/Shipboard Marine Pollution Emergency Plan (as appropriate to vessel class).	F: Yes. CS: Minimal cost. Standard practice.	Legislative requirements to be followed reduce the likelihood of an unplanned release. The consequence is unchanged.	Controls based on legislative requirements – must be adopted.	Yes C 9.1
Good practice				
Liquid chemical and fuel storage areas are bunded or secondarily contained when they are not being handled/ moved temporarily.	F: Yes. CS: Minimal cost. Standard practice.	Reduces the likelihood of contaminated deck drainage water being discharged to the marine environment. The consequence is unchanged.	Benefits outweigh cost/sacrifice. Control is also standard practice.	Yes C 10.1
Maintain and locate spill kits near hydrocarbon storage areas and deck areas for use to contain and recover deck spills.	F: Yes. CS: Minimal cost. Standard practice.	Reduces the likelihood of a deck spill from entering the marine environment. The consequence is unchanged.	Benefits outweigh cost/sacrifice.	Yes C 10.2
Professional judgement – eliminate				
None identified.				
Professional judgement – substitute				
None identified.				
Professional judgement – engineered solution				
Store all hydrocarbons and chemicals below deck.	F: Not feasible. During operations there is a need to keep small volumes near activities and within equipment requiring use of hydrocarbons and chemicals, and can result in increased risk of leaks from transfers via hose or smaller containers. CS: Not considered – control not feasible.	Not considered – control not feasible.	Not considered – control not feasible.	No
Reduce the volumes of chemicals and hydrocarbons stored onboard the vessel.	F: Yes. Increases the risks associated with transportation and lifting operations. CS: Project delays if required chemicals are not on board. Increases the risks	No reduction in likelihood or consequence since chemicals will still be required to enable activities to occur.	Disproportionate. The cost/sacrifice outweighs the benefit gained.	No

[39] *Qualitative measure.*
[40] *Measured in terms of reduction of likelihood, consequence and current risk rating.*

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Demonstration of ALARP				
Control considered	***Control feasibility (F) and cost/ sacrifice (CS)[39]***	***Benefit in risk reduction[40]***	***Proportionality***	***Control adopted***
	associated with transportation and lifting operations.			
ALARP statement: Based on the environmental risk assessment outcomes and use of the relevant tools appropriate to the decision type (i.e. Decision Type A; Section 2.2.5.2) and Woodside's criteria for demonstrating ALARP (Section 2.3.1), Woodside considers the adopted controls appropriate to manage the impacts and risks of the potential unplanned deck spills described above. As no reasonable additional/alternative controls were identified that would further reduce the impacts and risks without grossly disproportionate sacrifice, the impacts and risks are considered ALARP.				

Demonstration of acceptability
Acceptability statement: The risk assessment has determined that it is possible for an unplanned minor discharge of hydrocarbons/chemicals from minor deck spills to result in a temporary exceedance over national/international water quality standards and a potential consequence of that is localised with no lasting effect to the marine environment. Further opportunities investigated to reduce the impacts and risks have been described above. The adopted controls are considered good oil-field practice/industry best practice and meet legislative requirements (Marine Order 91). Based on the environmental impact assessment outcomes and Woodside's criteria for acceptability outlined in Section 2.3.2, this is considered an acceptable level of risk.

EPOs, EPSs and MC			
EPO	***Controls***	***Performance standards***	***MC***
EPO 10 No unplanned spills to the marine environment from deck activities greater than a consequence level of F[41] during the Petroleum Activity.	C 9.1 Comply with Marine Order 91 (Marine pollution prevention – oil), which requires a SOPEP/Shipboard Marine Pollution Emergency Plan (as appropriate to vessel class).	PS 9.1.1 See Section 6.8.3.	MC 9.1.1 See Section 6.8.3.
	C 10.1 Liquid chemical and fuel storage areas are bunded or secondarily contained when they are not being handled/moved temporarily.	PS 10.1.1 Failure of primary containment in storage areas does not result in loss to the marine environment.	MC 10.1.1 Records confirm all liquid chemicals and fuel are stored in bunded/secondarily contained areas when not being handled/moved temporarily.
	C 10.2 Maintain and locate spill kits near hydrocarbon storage areas and deck areas for use to contain and recover deck spills.	PS 10.2.1 Spill kits to be available for use to clean up deck spills.	MC 10.2.1 Records confirm spill kits are present, maintained, and suitably stocked.

[41] Defined as 'No lasting effect; localised impact not significant to environmental receptors.'

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6.8.5 Physical presence: disturbance to seabed from dropped objects and equipment loss

Context		
Project vessels – Section 3.9	Physical environment – Section 4.4 Biological environment – Section 4.5 Protected species – Section 4.6	Stakeholder consultation – Section 5

Risk evaluation summary

Source of risk	***Environmental value potentially impacted***						***Evaluation***						
	Marine sediment	Water quality	Air quality (incl odour)	Ecosystems/habitat	Species	Socioeconomic	Decision type	Consequence/impact	Likelihood	Risk rating	ALARP tools	Acceptability	Outcome
Dropped objects resulting in seabed disturbance		X		X	X		A	F	3	M	LCS GP	Broadly acceptable	EPO 11

Description of source of risk

The project vessels will generate solid wastes, including packaging and domestic wastes such as aluminium cans, bottles, paper and cardboard. Hence, there is the potential for solid wastes to be lost overboard to the marine environment. Wastes on board are managed in accordance with the onboard waste management plan. Some wastes may be incinerated. Based on industry experience, waste items lost overboard are typically wind-blown rubbish such as container lids and cardboard. Such losses typically have occurred during back-loading activities, periods of adverse weather and incorrect waste storage.

In addition, the plastic streamer fins (60 to 80 cm long) used minimise the effect of entanglement with marine debris via failsafe points for excessive strain. When under excessive strain, the fins have the potential to be released to the marine environment. This is a non-routine planned release which cannot be recovered and is required to mitigate loss of the entire streamer (refer to Section 6.8.7). If a full streamer is lost, SRDs may be activated (refer to Section 6.8.7). SRDs (if activated) have plastic end caps (about 12 cm diameter) that will be deployed to the marine environment and cannot be recovered. Based on low risk from these streamer fins' releases, which are required operationally to avoid full streamer loss (refer to Section 6.8.7), they are considered to be an acceptable risk.

Consequence assessment

Environmental value(s) potentially impacted

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 individuals. Several migratory and threatened species were identified as occurring within the Operational Area, including cetaceans, marine turtles and sharks (refer to Section 4.6). However, these species are expected to be transient as there are no known key aggregation areas within the Operational Area. The temporary or permanent loss of waste materials into the marine environment is highly unlikely to have a significant environmental impact, based on the types, size and frequency of wastes that could occur during the limited time the project vessels will be in the Operational Area, and the transient nature of the species present. Given this, impacts will be localised with no lasting effect on any habitat, species or water quality.

Hazardous solid wastes such as paint cans and oily rags 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

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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. 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 particularly may be at risk from plastics, which may cause entanglement or be mistaken for food (Commonwealth of Australia, 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 effect to an individual. Marine debris has been identified as threat in the Recovery Plan for Marine Turtles in Australia (2017–2027) (Commonwealth of Australia, 2017) (refer to Section 6.9).

Impacts to species including fish, birds, marine mammals and marine reptiles from the unplanned discharge of solid waste is unlikely, given the low occurrence of unplanned discharges and the location of the activities at significant distance from sensitive habitats. It is possible that disturbance to seabed from dropped objects and equipment loss results in a potential consequence that is localised with no lasting effects 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.

Demonstration of ALARP				
Control considered	***Control feasibility (F) and cost/ sacrifice (CS)[42]***	***Benefit in risk reduction[43]***	***Proportionality***	***Control adopted***
Legislation, codes and standards				
Apply Marine Order 95 – Marine pollution prevention – garbage (as appropriate to vessel class).	F: Yes. CS: Minimal cost. Standard practice.	Legislative requirements to be followed reduce the likelihood of an unplanned release. The consequence is unchanged.	Controls based on legislative requirements – must be adopted.	Yes C 11.1
Good practice				
Implement project vessel waste management plan, which requires: • 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.	F: Yes. CS: Minimal cost. Standard practice.	Reduces the likelihood of an unplanned release. The consequence is unchanged.	Benefits outweigh cost/sacrifice.	Yes C 11.2

[42] *Qualitative measure.*
[43] *Measured in terms of reduction of likelihood, consequence and current risk rating.*

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Demonstration of ALARP				
Control considered	***Control feasibility (F) and cost/ sacrifice (CS)[42]***	***Benefit in risk reduction[43]***	***Proportionality***	***Control adopted***
Recover lost equipment/waste and dropped objects where safe and practicable to do so. Consider: • 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 and suitable weather).	F: Yes, however it may not always be practicable. Assessed on a case by case basis. CS: Minimal cost. Standard practice.	No reduction in likelihood, as this is an unplanned event. Since the equipment may be recovered, a reduction in consequence is possible.	Benefit outweighs cost sacrifice.	Yes C 11.3
Vessel contractor has procedures for lifts, bulk transfers and cargo loading that require: • the security of loads to be checked before starting lifts • loads to be covered if there is a risk of loss of loose materials • lifting operations to be conducted using the PTW and JSA systems to manage the specific risks of that lift, including consideration of weather and sea state.	F: Yes. CS: Minimal cost. Standard practice.	Occurs after a dropped object event, therefore no change to the likelihood. Since the object may be recovered, a reduction in consequence is possible.	Benefits outweigh cost/sacrifice.	Yes C 11.4
Professional judgement – eliminate				
None identified.				
Professional judgement – substitute				
None identified.				
Professional judgement – engineered solution				
None identified.				
ALARP statement: Based on the environmental risk assessment outcomes and use of the relevant tools appropriate to the decision type (i.e. Decision Type A; Section 2.2.5.2) and Woodside's criteria for demonstrating ALARP (Section 2.3.1), Woodside considers the adopted controls appropriate to manage the impacts and risks of disturbance to seabed from dropped objects and equipment loss. As no reasonable additional/alternative controls were identified that would further reduce the impacts and risks without grossly disproportionate sacrifice, the impacts and risks are considered ALARP.				

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Demonstration of acceptability
Acceptability statement: The impact assessment has determined that, given the adopted controls, it is possible that disturbance to seabed from dropped objects and equipment loss results in a potential consequence that is localised with no lasting effects. Further opportunities investigated to reduce the impacts and risks have been described above. The adopted controls are considered good oil-field practice/industry best practice and meet legislative requirements (Marine Order 95). Based on EPO 11 and its related controls, the Petroleum Activity is not inconsistent with the DCCEEW guidelines for Assessing and Managing Impacts to Underwater Cultural Heritage in Australian Waters. Based on the environmental impact assessment outcomes and Woodside's criteria for acceptability outlined in Section 2.3.2, this is considered an acceptable level of risk.

EPOs, EPSs and MC			
EPO	***Controls***	***Performance standard***	***MC***
EPO 11 No unplanned releases of solid hazardous or non-hazardous waste to the marine environment greater than a consequence level of F[44] during the Petroleum Activity.	C 11.1 Apply Marine Order 95 – Marine pollution prevention – garbage (as appropriate to vessel class).	PS 11.1.1 Project vessels comply with Marine Order 95 (Marine pollution prevention – garbage).	MC 11.1.1 Records demonstrate project vessels comply with Marine Order 95 (Marine pollution prevention – garbage) as appropriate to vessel class.
	C 11.2 Implement project vessel waste management plan, which requires: • 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 11.2.1 Hazardous and non-hazardous waste will be managed in accordance with the vessel waste management plan.	MC 11.2.1 Records demonstrate compliance against vessel waste management plan.
	C 11.3 Recover lost equipment/waste and dropped objects where safe and practicable to do so. Consider: • risk to personnel to retrieve object • whether the location of the object is known or is in recoverable water depths and feasible to do so • object's proximity to subsea infrastructure • ability to recover the object (i.e. nature of object, lifting equipment and suitable weather).	PS 11.3.1 Waste, equipment and objects dropped/lost to the marine environment will be recovered where safe and practicable to do so.	MC 11.3.1 Records detail the recovery attempt consideration and status of any waste, equipment and objects dropped/lost to the marine environment.

[44] *Defined as 'no lasting effect, localised impact not significant to environmental receptors', refer to Section Table 2-1.*

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EPOs, EPSs and MC			
EPO	***Controls***	***Performance standard***	***MC***
	C 11.4 Vessel contractor has procedures for lifts, bulk transfers and cargo loading that require: • the security of loads to be checked before starting lifts • loads to be covered if there is a risk of loss of loose materials • lifting operations to be conducted using the PTW and JSA systems to manage the specific risks of that lift, including consideration of weather and sea state.	PS 11.4.1 All lifts conducted in accordance with applicable vessel contractor work procedures to limit potential for dropped objects.	MC 11.4.1 Records show applicable vessel contractor work procedures are in place to limit potential for dropped objects.

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6.8.6 Physical presence: vessel collision/entanglement with marine fauna

Context		
Project vessels – Section 3.9 Marine seismic survey – Section 3.8	Protected species – Section 4.6	Stakeholder consultation – Section 5

Risk evaluation summary

Source of risk	***Environmental value potentially impacted***						***Evaluation***						
	Marine sediment	Water quality	Air quality (incl odour)	Ecosystems/habitat	Species	Socioeconomic	Decision type	Consequence/impact	Likelihood	Risk rating	ALARP tools	Acceptability	Outcome
Accidental collision between project vessels and threatened or migratory fauna					X		A	E	2	M	LCS GP	Broadly acceptable	EPO 12 EPO 2
Entanglement of threatened or migratory marine fauna with towed seismic equipment					X								

Description of source of risk

Project vessels

The project vessels operating in the Operational Area during the Petroleum Activity may present a hazard to cetaceans and other protected marine fauna such as whale sharks and marine turtles. Vessel movements can result in collisions between the vessel (hull, propellers and streamer array) 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) and the type of animal present and their behaviours.

The seismic survey vessel will be advancing at low speeds about 4 to 5 knots (7 to 9 km/hr) during seismic acquisition. The support vessel may travel up to about 8 knots for short periods when manoeuvring around the seismic survey vessel. The chase vessel may travel up to about 10 knots for short periods when investigating possible third-party vessels approaching spread.

Seismic equipment

The seismic survey vessel will tow seismic geophysical and associated equipment (comprising the acoustic source, header buoys, starboard and port deflectors or baravanes, streamers and tail buoys) within the Operational Area. The seismic survey vessel tows streamers that extend about 7 km behind the seismic survey vessel at a depth of around 18 m. The seismic source will be towed at a depth of about 5 m. Refer to Table 3-3 for further detail on survey parameters.

The seismic equipment has the potential to present an entrapment/entanglement risk to marine fauna (particularly marine turtles). Anecdotally, there have been no reported cases of marine fauna becoming entangled in seismic equipment in Australian waters.

Routine and non-routine operation of helicopters

Helicopters during the Petroleum Activity could interact with seabirds. Potential for these interactions is limited by the short duration of the Petroleum Activity and limited helicopter use.

Consequence assessment

Environmental value(s) potentially impacted

Vessel disturbance is a key threat to some migratory and threatened species identified as occurring within Operational Area, including cetaceans and marine turtles. Relevant conservation actions outlined in these plans are listed in Section 6.9.

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Marine mammals

Cetaceans are naturally inquisitive. Their reaction to the approach of a vessel is quite variable. Some species remain motionless when close to a vessel, while others are known to be curious and often approach ships that have stopped or are slow moving, although they generally do not approach and sometimes avoid faster moving ships (Richardson, et al., 1995). The Whale and Dolphin Conservation Society (2006) indicates some cetacean species, such as humpback whales, can detect and change course to avoid a vessel.

Collisions between vessels and marine mammals occur more frequently in areas where high vessel traffic and important habitat coincide (Whale and Dolphin Conservation Society, 2006). In Australia, most vessel strikes to known species involved humpback, southern right whale and sperm whales, in descending order (Peel, et al., 2016). No vessel strike collisions were reported on the northern coast of Australia (Peel, et al., 2016). The behaviour exhibited by whales before vessel collision varies, with some reported as being asleep/unmoving before the collision (Peel, et al., 2016) and others displaying a 'last-second flight response' (Laist, et al., 2001). Individual cetaceans engaged in behaviours such as feeding, mating or nursing may also be more vulnerable to vessel collisions when distracted by these activities (Department of the Environment and Energy, 2017).

The likelihood of vessel/whale collision being lethal is influenced by vessel speed; the greater the speed at impact, the greater the risk of mortality (Jensen & Silber, 2004; Laist, et al., 2001). Vanderlaan & Taggart (2007) found the chance of lethal injury to a large whale because of a vessel strike increases from about 20% at 8.6 knots to 80% at 15 knots. According to the data of Vanderlaan & Taggart (2007), it is estimated the risk is less than 10% at a speed of four knots. Vessel/whale collisions at this speed are uncommon and, based on the US NOAA database (Jensen & Silber, 2004), there are only two known instances of collisions when the vessel was travelling at less than 6 knots. Both were from whale-watching vessels that were deliberately placed among whales.

Project vessels within the Operational Area are likely to be travelling 4 to 5 knots (7 to 9 km/hr) (refer to Section 3.8). Therefore, the risk of a vessel collision with protected species resulting in death is inherently low. No known key aggregation areas (resting, breeding or feeding) are within the Operational Area.

The Operational Area spatially overlaps the migration BIA for pygmy blue whales, as well as the distribution range for pygmy blue whales (Figure 4-7). A migration BIA for humpback whales is also 2 km south-east of the Operational Area (Figure 4-8). However, the activity timing (refer to Section 3.7) is outside the northbound and southbound migration of humpback whales (June to November, refer to Table 4-14) and northbound migration of pygmy blue whales (April to July, refer to Table 4-14). It is possible pygmy blue whales may be within the Operational Area during their southern migration and there is evidence of their presence within the southern part of the northwest Australian coast between November and December (Thums, et al., 2022). As shown in Figure 4-7, the track of one individual partially overlapped the northwest extent of the Operational Area. Tracking data have shown evidence of faster southern travel speeds (travelling at 100 km per day) compared to northern travel speed, with no evidence to indicate foraging by southbound pygmy blue whales within the Operational Area (refer to Section 4.6.3.1). Most whales migrate further offshore along the north-west part of the coast, out to the abyssal plain (Thums, et al., 2022). The Operational Area is also outside of important foraging areas for the pygmy blue whale, which include: (1) the Perth Canyon and vicinity; (2) the shelf edge off Geraldton; (3) the shelf edge from Ningaloo Reef to the Rowley Shoals (not continuous) and including a couple of small areas near the shelf edge off about 25ºS; and (4) the Banda Sea (Thums, et al., 2022).

While project vessels may be present in December (but not acquiring seismic data), which overlaps the southbound migration of pygmy blue whales, the presence of all cetacean species, including pygmy blue whales, is likely to be limited to infrequent occurrences of individuals or small groups.

Vessel collisions with marine mammals are unlikely to occur, given the very slow vessel speeds, temporal restrictions on the Petroleum Activity, and presence of MFOs. The Petroleum Activity is not inconsistent with the Blue Whale Conservation Management Plan (Action Area 4 – minimising vessel collisions) (Commonwealth of Australia, 2015a), given the adopted controls or other relevant plans (refer to Section 6.9). It is considered that if a collision or entanglement were to occur, it will not result in a potential impact greater than localised and low-level impact on the individual species.

Whale shark

Whale sharks are at risk from vessel strikes when feeding at the surface. Whale sharks may traverse offshore NWS waters, including the Operational Area, during their migrations to and from Ningaloo Reef, and a BIA for foraging whale sharks overlaps the Operational Area (Figure 4-4). This BIA is centred on the 200 m isobath and whale sharks are most likely to be present in the months of July to November (outside of the activity timing – refer to Section 3.7). It is expected whale shark presence within the Operational Area would not comprise significant numbers, and their presence would be transitory and of a short duration (refer to Section 4.6.1.1). There are no constraints preventing whale sharks from moving away from project vessels to avoid injury (e.g. shallow water or shorelines).

Marine turtles

Marine turtles are at potential risk from vessel strike and entanglement with towed seismic equipment. Hazel & Gyuris (2006) reviewed vessel strike data from 1999 to 2002 on the Queensland east coast and found at least 65 turtles were killed annually during that period because of collisions with vessels. Green turtles, followed by loggerhead turtles, comprised most vessel-related records, and 72% of cases were adult or sub-adult turtles (Hazel & Gyuris, 2006). In

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Australian waters, all species of marine turtle have been involved in vessel strikes (Department of the Environment and Energy, 2016).

The effect of vessel speed and turtle flee response can be significant. A study by Hazel, et al. (2007) found 60% of green turtles fled from vessels travelling at 2.2 knots (4 km/h) while only 4% fled from vessels travelling at 10.2 knots (19 km/h). When fleeing, 75% of turtles moved away from the vessel's track, 8% swam along the vessel's track, and 18% crossed in front of the vessel. The study concluded that most turtles would be unlikely to avoid vessels travelling at speeds greater than around 2.2 knots (Hazel, et al., 2007; Department of the Environment and Energy, 2017). Furthermore, the relatively small size of turtles and the significant time spent below the surface makes their observation by vessel operators extremely difficult or impossible. Green turtles observed by Hazel, et al. (2009) generally only exposed the dorsal-anterior part of the head above the surface of the water and never for longer than two seconds.

There is no published literature on marine turtle entanglement with seismic equipment during seismic surveys. However, Nelms, et al. (2016) state they received anecdotal reports of turtle entrapments in tail buoys and airgun strings during several offshore seismic surveys off the west coast of Africa. Additionally, there is evidence of marine turtles becoming entangled in discarded seismic cable (Duncan, et al., 2017).

Marine turtle BIAs in proximity to the Operational Area are identified in Table 4-7 and include:

- flatback turtle, associated with a reproduction (internesting buffer) BIA that overlaps the Operational Area (Figure 4-5)
- hawksbill, green and loggerhead reproduction (internesting buffer) BIAs that are 7 km, 2 km and 14 km south-east of the Operational Area, respectively (Figure 4-5).

The Operational Area is unlikely to represent important habitat for marine turtles, given the absence of potential nesting or foraging habitat (i.e. no emergent islands, reef habitat or shallow shoals) and the water depth (greater than 50 m). The Recovery Plan for Marine Turtles (Commonwealth of Australia, 2017) specifies a 60 km internesting buffer for flatback turtles, and 20 km internesting buffer for green, hawksbill and loggerhead turtles. The 60 km internesting buffer for flatback turtles (Commonwealth of Australia, 2017) is based primarily on longshore movements in nearshore coastal waters or travel between island rookeries and the adjacent mainland (Whittock, et al., 2016). Whittock, et al. (2016) defined suitable internesting habitat as water 0 to 16 m deep and within 5 to 10 km of the coastline, while unsuitable internesting flatback habitat was defined as waters >25 m deep and >27 km from the coastline. There is no evidence to date to indicate flatback turtles swim out into deep offshore waters during the internesting period (Whittock, et al., 2016).

The reproduction (internesting buffer) BIA for flatback turtles and flatback habitat critical area overlaps the Operational Area (refer to Section 4.6.2); however, the nearest potential turtle nesting habitats are on the Montebello Islands (about 28 km southeast). As inferred in the paragraph above and described further in Section 4.6.2.1, presence of flatback turtles within the Operational Area is likely to be restricted to individual turtles infrequently transiting the area. Further detail on the potential for flatback turtle presence within the Operational Area is provided in Section 4.6.2.1.

It is acknowledged there are significant nesting sites along the mainland coast and islands of the region. As with cetaceans, the risk of collisions between turtles and vessels increases with vessel speed (Hazel, et al., 2007). The typical response from turtles on the surface to the presence of vessels is to dive (a potential 'startle' response), which decreases the risk of collisions (Hazel, et al., 2007). Given the low speeds of project vessels undertaking the Petroleum Activity, along with the expected low numbers of turtles within the Operational Area (as described above), interactions between project vessels and turtles are considered unlikely.

It is not deemed credible that vessel movement associated with the Petroleum Activity could have a significant impact on marine fauna populations, given:

- the low presence of transiting individuals
- avoidance behaviour commonly displayed by marine fauna
- the low operating speed of the project vessels.

Activities are considered unlikely to result in a consequence greater than localised and low-level disruption to individuals or a small proportion of the population, and no impact on critical habitat or fauna activity.

Seabirds

There is potential for seabirds to be in flight while helicopters are landing or taking off from the seismic survey vessel; however, the noise of an approaching helicopter is expected to deter birds form the area. A wedge-tailed shearwater breeding BIA overlaps the Operational Area (Figure 4-9); however, the presence of helicopters servicing the seismic survey vessel is not anticipated to impact the breeding activity, given the limited number of trips required during the activity (refer to Section 3.10).

Cultural values and heritage

Through consultation and review of available literature (Section 4.8.1), Woodside understands marine fauna that may be affected by unplanned interactions, such as marine mammals and turtles, are culturally important to Traditional Custodians. Traditional Custodians value these species both tangibly and intangibly, as they can be considered a resource or linked to songlines and Dreaming stories. Traditional Custodians also have connection to many marine

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species through kinship and totemic systems; an individual may be obligated to care for a species to which they are kin. Traditional Custodians may also have a cultural obligation to care for the environmental values of Sea Country.

For example, activities that impact turtle populations and their marine environment may have an indirect impact on some First Nations communities if they deplete hunting areas and threaten local food security (Delisle, et al., 2018). Whale species are subjects of First Nations' increase ceremonies/rituals. As these thalu ceremonies are performed to maintain and increase populations of marine species, it is considered that management applies at the species/population level and not to individuals. For example, it is anticipated the thalu site on Murujuga, which "brings in whales to beach", will continue to serve its purpose so long as whales continue to migrate through Mermaid Sound.

Related intangible cultural values and heritage may include the transmission of cultural knowledge about whales and whale behaviour, including birthing areas, whale communication and migratory patterns. Such cultural knowledge may be associated with cultural functions and activities that support the social and economic life of a community (Fijn, 2021). Intergenerational transmission of cultural knowledge (including songlines) relating to marine reptiles may be impacted where changes result in reduced sightings; for example, through population decline, changes to migration routes or changes to migration seasonality. This transfer of knowledge may be integral to managing a group's intangible cultural values and heritage (United Nations Educational, Scientific and Cultural Organisation, 2003).

As described, potential impacts to marine fauna are predicted to be at an individual level, which are not considered ecologically significant at a population level. Impacts are not expected to occur to ecologically significant proportions of the populations of the species, nor expected to decrease the quality of the habitat such that the extent of these species is likely to decline. As such, cultural values and intangible cultural heritage associated with these species are expected to be maintained.

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Demonstration of ALARP				
Control considered	***Control feasibility (F) and cost/ sacrifice (CS)[45]***	***Benefit in risk reduction[46]***	***Proportionality***	***Control adopted***
Legislation, codes and standards				
Implement EPBC Regulations 2025 Part 8 Division 8.1 Interacting with Cetaceans, which includes the following: • Vessels will not travel greater than 6 knots within 300 m of a cetacean (caution zone). • Vessels will not approach closer than 50 m for a dolphin or 100 m for a whale (except animals bow riding). • Vessel will not approach within 300 m of a calf. If a calf appears, vessel will immediately withdraw at a constant speed of less than 6 knots. • If the cetacean shows signs of being disturbed, support vessels will immediately withdraw from the caution zone at a constant speed of less than 6 knots.	F: Yes. CS: Minimal cost. Standard practice.	EPBC Regulations 2025 – Part 8 Division 8.1 Interacting with Cetaceans includes requirements relating to the speeds vessels can travel within particular distances of cetaceans. Reducing the speed vessels travel can also reduce the likelihood of an unplanned interaction.	Control based on legislative requirements – must be adopted.	Yes C 4.1
Good practice				
Fit streamer tail buoys with appropriate turtle guards, or use a design that does not represent an entanglement risk for turtles.	F: Yes. CS: Minimal cost. Standard practice.	Implementing this controls will reduce the likelihood of turtle entanglement.	Benefits outweigh cost/sacrifice. Control is also standard practice.	Yes C 12.1
Vessels will comply with *Biodiversity Conservation Regulations (WA) 2018* for whale shark speed control and separation distances: Vessels will not travel greater than 6 knots within 250 m of a whale shark and not allow the vessel to approach closer than 30 m of a whale shark.	F: Yes. CS: Minimal cost. Standard practice.	Implementing controls to reduce vessel speed around whale sharks can potentially reduce the likelihood of unplanned interaction.	Benefit outweighs cost/sacrifice.	Yes C 4.2

[45] *Qualitative measure.*
[46] *Measured in terms of reduction of likelihood, consequence and current risk rating.*

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Demonstration of ALARP				
Control considered	***Control feasibility (F) and cost/ sacrifice (CS)[45]***	***Benefit in risk reduction[46]***	***Proportionality***	***Control adopted***
Vessels will not travel greater than 6 knots within 300 m of a turtle (caution zone). If the turtle shows signs of being disturbed, vessels will immediately withdraw from the caution zone at a constant speed of less than 6 knots[47].	F: Yes. CS: Minimal cost. Standard practice.	Implementation of controls for reduced vessel speed around turtles can potentially reduce the likelihood of unplanned interaction.	Benefit outweighs cost/sacrifice.	Yes C 4.3
Apply a 'living heritage' management approach. Woodside engages with Traditional Custodians and seeks to incorporate cultural knowledge, where appropriate across activities. Cultural safety considerations are factored for our workforce and the First Nations community.	F: Yes. CS: Minimal cost.	A 'living heritage' approach acknowledges and respects First Nations communities. It supports the transfer of cultural knowledge and is an effective strategy to manage intangible cultural values.	Benefits outweigh cost/sacrifice.	Yes C 2.1
Project inductions to relevant personnel, before the individual starts the activity, will include information on cultural values and heritage, including tangible and intangible cultural heritage.	F: Yes. CS: Minimal cost.	Workforce is suitably aware of cultural values and heritage in the area they are operating.	Benefits outweigh cost/sacrifice.	Yes C 2.2
Professional judgement – eliminate				
Remove support and chase vessel for the Petroleum Activity.	F: No. Support and chase vessel required to undertake the activity. CS: Introduces unacceptable safety risk.	Not considered – control not feasible.	Not considered – control not feasible.	No

[47] For safety reasons, the distance requirements are not applied for a vessel holding station or with limited manoeuvrability, including a seismic vessel towing equipment and acquiring data, and in the event of an emergency; e.g. loading, back-loading, bunkering, close standby cover for overside working and emergency situations.

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Demonstration of ALARP				
Control considered	***Control feasibility (F) and cost/ sacrifice (CS)[45]***	***Benefit in risk reduction[46]***	***Proportionality***	***Control adopted***
Professional judgement – substitute				
Vary the timing of the Petroleum Activity to avoid turtle internesting seasons.	F: Yes. CS: The survey period is aligned with previous surveys to replicate Pluto monitor survey activity as closely as practicable and minimise variables (refer to Section 3.7). A restriction on the timing of the Petroleum Activity is already proposed to on the discharge of the seismic source to a period outside the peak migration of the humpback whale and pygmy blue whale migration (refer to C 3.8).	Peak turtle internesting periods at the Montebello, Barrow, Lowendal and Muiron Islands, North West Cape and Ningaloo Coast extend from spring through to autumn, and to plan the surveys to avoid turtle internesting would mean potentially completing the activities during the humpback whale migration seasons. Additionally, the survey period is aligned to replicate previous Pluto monitor survey activity as closely as practicable and minimise variables.	Disproportionate. The cost/sacrifice outweighs the benefit gained.	No
Professional judgement – engineered solution				
None identified.				
ALARP statement: Based on the environmental risk assessment outcomes and use of the relevant tools appropriate to the decision type (i.e. Decision Type A; Section 2.2.5.2) and Woodside's criteria for demonstrating ALARP (Section 2.3.1), Woodside considers the adopted controls appropriate to manage the impacts and risks of potential vessel collision/ entanglement with protected marine fauna. As no reasonable additional/alternative controls were identified that would further reduce the impacts and risks without grossly disproportionate sacrifice, the impacts and risks are considered ALARP.				

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Demonstration of acceptability
Acceptability statement: The impact assessment has determined that, given the adopted controls, potential vessel collision/ entanglement with protected marine fauna is unlikely to result in a potential consequence greater than a localised and low-level disruption to a small proportion of the population and no impact on critical habitat or activity. Further opportunities investigated to reduce the impacts and risks have been described above. The adopted controls are considered good oil-field practice/industry best practice and meet the requirements of Part 8 (Division 8.1) of the EPBC Regulations 2025. A temporal restriction has been applied to the Petroleum Activity to avoid the migration periods for humpback whales and the northern migration period for pygmy blue whales (C 3.8). Relevant recovery plans and conservation advice have been considered during the impact assessment, particularly the Conservation Management Plan for the Blue Whale: A Recovery Plan under the EPBC Act 1999 2015–2025 (Commonwealth of Australia, 2015a) and the Recovery Plan for Marine Turtles in Australia 2017–2027 (Commonwealth of Australia, 2017). The residual risk of vessel collision with marine fauna is not inconsistent with the relevant objectives and actions of any applicable recovery plans or threat abatement plans (refer to Section 6.9). Based on the environmental impact assessment outcomes and Woodside's criteria for acceptability outlined in Section 2.3.2, this is considered an acceptable level of risk.

EPOs, EPSs and MC			
Outcomes	***Controls***	***Performance standards***	***MC***
EPO 12 No vessel strikes with protected marine fauna (whales, whale sharks, turtles) during the Petroleum Activity.	C 4.1 Implement EPBC Regulations 2025 Part 8 Division 8.1 Interacting with Cetaceans, which includes the following: • Vessels will not travel greater than 6 knots within 300 m of a cetacean (caution zone). • Vessels will not approach closer than 50 m for a dolphin or 100 m for a whale (except animals bow riding). • Vessel will not approach within 300 m of a calf. If a calf appears, vessel will immediately withdraw at a constant speed of less than 6 knots. • If the cetacean shows signs of being disturbed, support vessels will immediately withdraw from the caution zone at a constant speed of less than 6 knots.	PS 4.1.1 Refer to Section 6.7.3.	MC 4.1.1 Refer to Section 6.7.3.
	C 4.2 Vessels will comply with *Biodiversity Conservation Regulations (WA) 2018* for whale shark speed control and separation distances: • Vessels will not travel greater than 6 knots within 250 m of a whale shark and not allow the vessel to approach closer than 30 m of a whale shark.	PS 4.2.1 Refer to Section 6.7.3.	MC 4.2.1 Refer to Section 6.7.3.

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Outcomes	*Controls*	*Performance standards*	*MC*
	C 12.1 Fit streamer tail buoys with appropriate turtle guards, or use a design that does not represent an entanglement risk for turtles.	PS 12.1.1 Streamer tail buoys to have appropriate turtle guards, or will be of a design that does not represent an entanglement risk for turtles.	MC 12.1.1 Pre-Mobilisation Inspection report confirms turtle guards have been fitted appropriately (or are not necessary by design).
	C 4.3 Vessels will not travel greater than 6 knots within 300 m of a turtle (caution zone). If the turtle shows signs of being disturbed, vessels will immediately withdraw from the caution zone at a constant speed of less than 6 knots[48].	PS 4.3.1 See Section 6.7.3.	MC 4.3.1 See Section 6.7.3.
EPO 2 Woodside supports ongoing engagement and consultation with Traditional Custodians for the purpose of assessing and avoiding impacts to cultural heritage values.	C 2.1 Apply a 'living heritage' management approach. Woodside engages with Traditional Custodians and seeks to incorporate cultural knowledge, where appropriate across activities. Cultural safety considerations are factored for our workforce and the First Nations community.	PS 2.1.1 Refer to Section 6.7.1.	MC 2.1.1 Refer to Section 6.7.1.
		PS 2.1.2 Refer to Section 6.7.1.	MC 2.1.2 Refer to Section 6.7.1.
	C 2.2 Project inductions to relevant personnel, before the individual starts the activity, will include information on cultural values and heritage, including tangible and intangible cultural heritage.	PS 2.2.1 Refer to Section 6.7.1.	MC 2.2.1 Refer to Section 6.7.1.

[48] *For safety reasons, the distance requirements are not applied for a vessel holding station or with limited manoeuvrability, including a seismic vessel towing equipment and acquiring data, and in the event of an emergency; e.g. loading, back-loading, bunkering, close standby cover for overside working and emergency situations.*

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6.8.7 Physical presence: disturbance to seabed due to loss of towed equipment

Context		
Project vessels – Section 3.9 Marine seismic survey – Section 3.8	Biological environment – Section 4.5 Socioeconomic environment – Section 4.8.1	Stakeholder consultation – Section 5

Risk evaluation summary

Source of risk	*Environmental value potentially impacted*						*Evaluation*						
	Marine sediment	Water quality	Air quality (incl odour)	Ecosystems/habitat	Species	Socioeconomic	Decision type	Consequence/impact	Likelihood	Risk rating	ALARP tools	Acceptability	Outcome
Physical loss of seismic streamers or acoustic source				X		X	A	E	3	M	LCS GP	Broadly acceptable	EPO 13

Description of source of risk

As described in Section 3.8, the seismic survey vessel will tow seismic equipment (comprising the acoustic source, header buoys, starboard and port deflectors or baravanes, streamers and tail buoys). As presented in Table 3-3, about 12 streamers, around 7,000 m long, will be towed about 500 m behind the vessel and, therefore, extend around 7.5 km behind the vessel. If the streamer loses propulsion (e.g. from impact or entanglement with a foreign object/debris), there is the potential for loss of a streamer. As described in Section 3.8.2, streamers are designed to minimise entanglement with debris and are fitted with small wings/fins that are designed to be lost to mitigate a streamer loss (note, loss of fin is risk-assessed in Section 6.8.5). The streamers are fitted with SRDs that will automatically deploy inflatable air bags to raise the lost streamer to the surface for retrieval. Solid streamers will be used instead of traditional fluid-filled streamers, to reduce the potential of damaged streamers releasing fluid to the environment (refer to Section 3.8.2).

Consequence assessment

Environmental value(s) potentially impacted

Commercial fisheries and other marine users

If equipment is lost, any commercial fisheries or other marine users of the Operational Area may be required to make minor diversions to avoid the equipment for a short period until it can be retrieved, where safe and practicable to do so. Given the nature and size of the equipment to be used during the MSS, lost equipment may result in a localised navigational hazard and any disruption to other marine users is anticipated to of low-level impact.

Benthic habitat and communities

It is possible for lost streamers to sink and impact the seabed, given the tow depth of streamers (about 18 m) and the application of depth control built into the design (SRDs). If a streamer sinks, the potential physical impacts to the seabed and benthic communities are considered localised and low-level and streamers would be recovered where safe and practicable to do so.

The Operational Area is expected to consist primarily of fine grain, soft sediments. The seabed is likely to be inhabited by a low abundance of filter feeders (primarily echinoderms) and other epifauna and infauna. A small portion of the Operational Area lies within the Ancient Coastline KEF (Figure 4-10). Given the size of seismic equipment that could be lost, only a relatively small area of the seabed would be disturbed and any impact to benthic habitats would be localised and low-level. Impacts to the value of the Ancient Coastline KEF are not anticipated based on the nature and size of equipment that could be lost.

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Demonstration of ALARP				
Control considered	***Control feasibility (F) and cost/ sacrifice (CS)[49]***	***Benefit in risk reduction[50]***	***Proportionality***	***Control adopted***
Legislation, codes and standards				
Comply with Marine Order 21 (Safety and emergency arrangements), including: • adherence to minimum safe crewing levels • maintenance of navigation equipment in efficient working order (compass/radar) • navigational systems and equipment required are those specified in Regulation 19 of Chapter V of SOLAS • AIS that provides other users with information about the vessel's identity, type, position, course, speed, navigational status and other safety-related data.	F: Yes. CS: Minimal cost. Standard practice.	Legislative requirements to be followed may slightly reduce the likelihood of equipment loss or grounding.	Controls based on legislative requirements – must be adopted.	Yes C 8.3
Good practice				
Deploy, retrieve and operate streamers as per predetermined procedures, including: • Streamer deployment will not occur in water closer than 12 NM to shore, or in waters less than 50 m deep. • Streamers will only be deployed in suitable sea state in accordance with contractor's Manual of Permitted Operations.	F: Yes. CS: Minimal cost. Standard practice.	Implementing this control will reduce the likelihood of equipment loss. The consequence is unchanged.	Benefits outweigh cost/sacrifice.	Yes C 13.1
Fit streamers with steering devices in the form of remote controlled wings/fins, and real-time monitoring equipment.	F: Yes. CS: Minimal cost. Standard practice. As discussed in Section 6.8.5, fins may be released to mitigate the loss of the entire streamer.	Implementing this control will reduce the likelihood of equipment loss. The consequence is unchanged.	Benefit outweighs cost/sacrifice.	Yes C 13.2

[49] *Qualitative measure.*
[50] *Measured in terms of reduction of likelihood, consequence and current risk rating.*

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Demonstration of ALARP				
Control considered	***Control feasibility (F) and cost/ sacrifice (CS)[49]***	***Benefit in risk reduction[50]***	***Proportionality***	***Control adopted***
Activate pressure-activated SRDs within streamers in the event of loss, to bring the equipment to the surface.	F: Yes. CS: Minimal cost. Standard practice. As discussed in Section 6.8.5, SRD caps may be released to mitigate the loss of the entire streamer.	Implementing this control will reduce the likelihood of equipment loss. The consequence is unchanged.	Benefits outweigh cost/sacrifice.	Yes C 13.3
Recover lost equipment/waste and dropped objects where safe and practicable to do so. Consider: • risk to personnel to retrieve object • whether the location of the object is known or is in recoverable water depths and feasible to do so • object's proximity to subsea infrastructure • ability to recover the object (i.e. nature of object, lifting equipment and suitable weather).	F: Yes, however it may not always be practicable. Assessed on a case by case basis. CS: Minimal cost. Standard practice.	No reduction in likelihood, as this is an unplanned event. Since the equipment may be recovered, a reduction in consequence is possible.	Benefits outweigh cost/sacrifice.	Yes C 11.3
Maintain streamers in accordance with contractor's preventative maintenance instructions.	F: Yes. CS: Minimal cost. Standard practice.	Implementing this control will reduce the likelihood of equipment loss. The consequence is unchanged.	Benefits outweigh cost/sacrifice.	Yes C 13.4
Professional judgement – eliminate				
None identified.				
Professional judgement – substitute				
Use modified short marine towed streamers (about 1.5 to 3 km long).	F: No. CS: Shorter streamers result in a significant loss of data, especially in deeper waters, and would not enable the seismic survey to image the target depth below mudline.	Not considered – control not feasible.	Not considered – control not feasible.	No
Professional judgement – engineered solution				
None identified.				
ALARP statement: Based on the environmental risk assessment outcomes and use of the relevant tools appropriate to the decision type (i.e. Decision Type A; Section 2.2.5.2) and Woodside's criteria for demonstrating ALARP (Section 2.3.1), Woodside considers the adopted controls appropriate to manage the impacts and risks to commercial fisheries, other marine users and benthic communities from physical loss of seismic streamers and acoustic source equipment to the seabed. As no reasonable additional/alternative controls were identified that would further reduce the impacts and risks without grossly disproportionate sacrifice, the impacts and risks are considered ALARP.				

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Demonstration of acceptability
Acceptability statement: The impact assessment has determined that, given the adopted controls, potential loss of seismic equipment to the seabed represents a localised, low-level consequence to commercial fisheries, other marine users and benthic community/habitat, with a possible likelihood, resulting in a moderate residual risk. Further opportunities investigated to reduce the impacts and risks have been described above. The adopted controls are considered good oil-field practice/industry best practice. The potential impacts and risks are considered broadly acceptable if the adopted controls are implemented. Based on EPO 13 and its related controls, the Petroleum Activity is not inconsistent with the DCCEEW guidelines for Assessing and Managing Impacts to Underwater Cultural Heritage in Australian Waters. Based on the environmental impact assessment outcomes and Woodside's criteria for acceptability outlined in Section 2.3.2, this is considered an acceptable level of risk.

EPOs, EPSs and MC			
EPO	***Controls***	***Performance standards***	***MC***
EPO 13 No loss of seismic equipment (i.e. streamers, acoustic source during the Petroleum Activity.	C 8.3 Comply with Marine Order 21 (Safety and emergency arrangements), including: • adherence to minimum safe crewing levels • maintenance of navigation equipment in efficient working order (compass/radar) • navigational systems and equipment required are those specified in Regulation 19 of Chapter V of SOLAS • AIS that provides other users with information about the vessel's identity, type, position, course, speed, navigational status and other safety-related data.	PS 8.3.1 Refer to Section 6.8.2.	MC 8.1.1 Refer to Section 6.8.2.
	C 13.1 Deploy, retrieve and operate streamers as per predetermined procedures, including: • Streamer deployment will not occur in water closer than 12 NM to shore, or in waters less than 50 m deep. • Streamers will only be deployed in suitable sea state in accordance with contractor's Manual of Permitted Operations.	PS 13.1.1 Seismic survey vessel compliance with predetermined procedures on deployment, retrieval and operation of streamers.	MC 13.1.1 Records confirm the seismic survey vessel holds procedures for deploying, retrieving and operating the streamers.
			MC 13.1.2 Daily report demonstrates streamers were deployed in accordance with contractor's Manual of Permitted Operations.
	C 13.2 Fit streamers with steering devices in the form of remote controlled wings/fins, and real-time monitoring equipment.	PS 13.2.1 Able to control streamer depth and the location of the streamer in relation to the seabed is known at all times	MC 13.2.1 Records confirm streamers are fitted with steerable wings/ fins, and real-time monitoring equipment.

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EPOs, EPSs and MC			
EPO	***Controls***	***Performance standards***	***MC***
	C 13.3 Activate pressure-activated SRDs within streamers in the event of loss, to bring the equipment to the surface.	PS 13.3.1 Use of SRDs.	MC 13.3.1 Records confirm streamers are equipped with pressure-activated SRDs.
	C 11.3 Recover lost equipment/waste and dropped objects where safe and practicable to do so. Consider: • risk to personnel to retrieve object • whether the location of the object is known or is in recoverable water depths and feasible to do so • object's proximity to subsea infrastructure • ability to recover the object (i.e. nature of object, lifting equipment and suitable weather).	PS 11.3.1 See Section 6.8.5.	MC 11.3.1 See Section 6.8.5.
	C 13.4 Maintain streamers in accordance with contractor's preventative maintenance instructions.	PS 13.4.1 Streamers are maintained in accordance with contractor's preventative maintenance instructions.	MC 13.4.1 Records show contractor's preventative maintenance is undertaken on streamers.

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6.8.8 Physical presence: introduction and establishment of invasive marine species

Context		
Project vessels – Section 3.9 Marine seismic survey – Section 3.8	Physical environment – Section 4.4 Biological environment – Section 4.5 Protected species – Section 4.6	Stakeholder consultation – Section 5

Risk evaluation summary

Source of risk	*Environmental value potentially impacted*						*Evaluation*						
	Marine sediment	Water quality	Air quality (incl odour)	Ecosystems/habitat	Species	Socioeconomic	Decision type	Consequence/impact	Likelihood	Risk rating	ALARP tools	Acceptability	Outcome
Introduction and establishment of invasive marine species (IMS)				X	X	X	A	D	0	L	LCS GP	Broadly acceptable	EPO 14

Description of source of risk

During the Petroleum Activity, vessels and submersible equipment have the potential to introduce IMS to the Operational Area.

Vessels

Vessels will be transiting to and from the Operational Area, potentially including traffic mobilising from international waters. There is the potential for project vessels to transfer IMS from international waters, Australian waters or coastal waters into the Operational Area.

All vessels are subject to some level of marine fouling. Organisms attach to the vessel hull, particularly in areas where organisms can find a good attachment surface (e.g. seams, strainers and unpainted surfaces) or where turbulence is lowest (e.g. niches, sea chests). Commercial vessels typically maintain anti-fouling coatings to reduce the build-up of fouling organisms. Organisms can also be drawn into ballast tanks during onboarding of ballast water required to maintain safe operating conditions.

Project vessels have the potential to introduce IMS to the Operational Area through marine biofouling (containing IMS) on vessels, as well as within high-risk ballast water exchange. Cross-contamination between vessels can also occur (e.g. IMS translocated between project vessels) during times when vessels need to be alongside each other.

Submersible equipment

Submersible equipment required for the activity (seismic array) is transported to and used within the Operational Area. There is the potential this equipment may be used on other projects before being used on the Petroleum Activity. As a consequence, there is the potential for IMS translocation.

Consequence assessment

Environmental value(s) potentially impacted

Overview

IMS have historically been introduced and translocated around Australia by a variety of human means, including biofouling and ballast water. Species of concern are those that:

- are not native to the region
- are likely to survive and establish in the region
- can spread by human-mediated or natural means.

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Species of concern vary from one region to another, depending on various environmental factors such as water temperature, salinity, nutrient levels and habitat type. These factors dictate their survival and invasive capabilities.

Introducing IMS into the local marine environment may alter the ecosystem, as IMS have characteristics that make them superior (in a survival and reproductive sense) to indigenous species. They may prey upon local species (which had previously not been subject to this kind of predation and therefore have not evolved protective measures against the attack), they may outcompete indigenous species for food, space or light, and can interbreed with local species to create hybrids such that the endemic species is lost.

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 captured early, eradication may be effective but is likely to be expensive, disruptive and, depending on the method, harmful to other local marine life.

Despite the potential high consequence of a marine pest establishing within a high value environment as a result of introduction, unlike coastal or sheltered nearshore waters, the offshore open waters of the Operational Area are not conducive to IMS settling and establishing, due to the lack of light or suitable habitat to sustain growth or survival.

Project vessels and submersible equipment required to undertake the Petroleum Activity have the potential to introduce IMS into the Operational Area. Due to the water depths (50 m to 1,185 m) and lack of submerged banks/shoals within the Operational Area and surrounding waters, settlement and establishment of IMS is not considered credible. Furthermore, the likelihood is considered remote, given the open water environment of the Operational Area, distance from shorelines (>28 km) and critical habitat, and the control measures to be implemented.

In support of Woodside's assessment of the impacts and risks of IMS introduction associated with the Petroleum Activity, Table 6-18 presents a risk and impact evaluation of the different aspects of IMS translocation.

Table 6-18: Evaluation of risks and impacts from marine pest translocation

IMS introduction location	Credibility of introduction	Consequence of introduction	Likelihood
Introduced to the Operational Area and establishment on the seafloor	***Not credible*** The Operational Area is in offshore open waters away from shorelines and critical habitat; therefore, they are not conducive to the settlement and establishment of IMS.		
Introduced to the Operational Area and establishment on a project vessel	***Credible*** There is potential to transfer marine pests between project vessels within the Operational Area.	***Environment – not credible*** The translocation of IMS from a colonised project vessel to another vessel via natural dispersion is not credible. This is because of the open water environment of the Operational Area and distance from shorelines and critical habitat. On this basis there is no credible environmental risk. ***Reputation – D*** If IMS were on a project vessel, this could impact the vessel operationally through the fouling of intakes, and 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. Such introduction would be expected to have minor impact on Woodside's reputation, particularly with Woodside's contractors, and would likely have a reputational impact on future proposals.	***Remote (0)*** Interactions between project vessels will be limited during the Petroleum Activity, with a 3 NM SNA around the seismic survey vessel, and interactions limited to short periods of time alongside (i.e. during bunkering activities). Spread of marine pests via ballast water in these open ocean environments is not considered credible due to the lack of suitable habitat for settlement and establishment.

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Transfer between project vessels and from project vessels to other marine environments beyond the Operational Area	***Not credible*** The risk is considered so remote it is considered not credible for the purposes of the activity. As described above, the transfer of IMS between project vessels was already considered remote, given the offshore open ocean environment. Project vessels will be in an offshore, open ocean environment, where IMS survival is implausible. Furthermore, the marine pest, once transferred, would need to survive on a new vessel that has good hygiene (i.e. has been through Woodside's risk assessment process, refer to Section 7.2.2), and survive transport back from the Operational Area to shore. If it survived this trip, it would then need conditions conducive to establishing a viable population in nearshore waters to which the infected vessel travels.

Demonstration of ALARP				
Control considered	***Control feasibility (F) and cost/ sacrifice (CS)[51]***	***Benefit in risk reduction[52]***	***Proportionality***	***Control adopted***
Legislation, codes and standards				
Project vessels will manage their ballast water using one of the approved ballast water management options, as outlined in the Australian Ballast Water Management Requirements.	F: Yes. CS: Minimal cost. Standard practice.	Reduces the likelihood of transferring marine pests between project vessels within the Operational Area. No change in consequence would occur.	Controls based on legislative requirements under the *Biosecurity Act 2015* – must be adopted.	Yes C 14.1
International project vessels will manage their biosecurity risk associated with biofouling, as outlined in the Australian Biofouling Management Requirements.	F: Yes. CS: Minimal cost. Standard practice.	Reduces the likelihood of transferring marine pests between project vessels within the Operational Area. No change in consequence would occur.	Controls based on legislative requirements under the *Biosecurity Act* – must be adopted.	Yes C 14.2
Good practice				
Apply Woodside's IMS risk assessment process[53] to project vessels and relevant immersible equipment undertaking the Petroleum Activity. Assessment will consider these risk factors: For vessels: • vessel type • recent IMS inspection and cleaning history, including for internal niches • out-of-water period before mobilisation • age and suitability of antifouling coating at mobilisation date	F: Yes. CS: Minimal cost. Good practice implemented across all Woodside operations.	The IMS risk assessment process will identify potential risks and with additional controls implemented accordingly. In doing so, the likelihood of transfer of IMS between project vessels within the Operational Area is reduced. No change in consequence would occur.	Benefits outweigh cost/sacrifice.	Yes C 14.3

[51] Qualitative measure.
[52] Measured in terms of reduction of likelihood, consequence and current risk rating.
[53] 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, 2023).

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Demonstration of ALARP				
Control considered	***Control feasibility (F) and cost/ sacrifice (CS)[51]***	***Benefit in risk reduction[52]***	***Proportionality***	***Control adopted***
• internal treatment systems and history • origin and proposed area of operation • number of stationary/slow speed periods >seven days • region of stationary or slow periods • type of activity – contact with seafloor. For immersible equipment: • region of deployment since last thorough clean, particularly coastal locations • duration of deployments • duration of time out of water since last deployment • transport conditions during mobilisation • post-retrieval maintenance regime. Based on the outcomes of each IMS risk assessment, management measures commensurate with the risk (such as treating internal systems, IMS inspections or cleaning) will be implemented to minimise the likelihood of IMS being introduced.				
Professional judgement – eliminate				
Do not discharge ballast water during the Petroleum Activity.	F: No. Ballast water discharges are critical for maintaining vessel stability. Given the nature of the Petroleum Activity, use of ballast water (including potential discharge) is considered a safety-critical requirement. CS: Not considered – control not feasible.	Not considered – control not feasible.	Not considered – control not feasible.	No

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Demonstration of ALARP				
Control considered	***Control feasibility (F) and cost/ sacrifice (CS)[51]***	***Benefit in risk reduction[52]***	***Proportionality***	***Control adopted***
Eliminate use of project vessels.	F: No. Given vessels must be used to complete the Petroleum Activity, there is no feasible means to eliminate the source of risk. CS: Loss of the project.	Not considered – control not feasible.	Not considered – control not feasible.	No
Professional judgement – substitute				
Source project vessels based in Australia only.	F: Potentially. Limiting activities to only use local project vessels could pose a significant risk in terms of time and duration of sourcing a vessel, as well as the ability of the local vessels to perform the required tasks. While the project will attempt to source support vessels locally, it is not always possible. Availability cannot always be guaranteed when considered competing oil and gas activities in the region. Sourcing Australian-based vessels only will also cause increases in cost due to pressures of vessel availability. CS: Significant cost and schedule impacts due to restrictions of vessel hire opportunities.	Sourcing vessels from within Australia will reduce the likelihood of IMS introduction from outside Australian waters; however, it will not reduce the likelihood of introducing species native to Australia but alien to the Operational Area. It also does not prevent the translocation of IMS that have established elsewhere in Australia. Therefore, the consequence is unchanged.	Disproportionate. 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 eliminate the risk. Furthermore, the cost to implement this control could be high, given the potential schedule impacts due to restrictions of vessel hire opportunities.	No

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Demonstration of ALARP				
Control considered	***Control feasibility (F) and cost/ sacrifice (CS)[51]***	***Benefit in risk reduction[52]***	***Proportionality***	***Control adopted***
Inspect all vessels for IMS.	F: Yes. Approach to inspect vessels could be a feasible option. CS: Significant cost and schedule impacts. In addition, Woodside's IMS risk assessment process is seen to be more cost-effective as this control allows Woodside to manage the introduction of marine pests through biofouling, while targeting its efforts and resources to areas of greatest concern.	Inspecting all vessels for IMS would reduce the likelihood of IMS being introduced to the Operational Area. However, this reduction is unlikely to be significant, given the other control measures implemented. No change in consequence would occur.	Disproportionate. The cost/sacrifice outweighs the benefit gained, as other controls to be implemented achieve an ALARP position.	No
Professional judgement – engineered solution				
None identified.				
ALARP statement: Based on the environmental risk assessment outcomes and use of the relevant tools appropriate to the decision type (i.e. Decision Type A; Section 2.2.5.2) and Woodside's criteria for demonstrating ALARP (Section 2.3.1), Woodside considers the adopted controls appropriate to manage the risks of IMS introduction. As no reasonable additional/alternative controls were identified that would further reduce the risks and consequences without disproportionate sacrifice, the risks and consequences are considered ALARP.				

Demonstration of acceptability
Acceptability statement: The impact assessment has determined that, given the adopted controls, introduction of IMS to the Operational Area through ballast water or biofouling on vessels or in-water equipment represents a low residual risk that has a remote likelihood of resulting in a potential impacts greater than minor to a small proportion of the benthic community. Further opportunities investigated to reduce the impacts and risks have been described above. The adopted controls are considered good oil-field practice/industry best practice. The potential impacts and risks are considered broadly acceptable if the adopted controls are implemented. Therefore, Woodside considers the adopted controls appropriate to manage the risks of introducing IMS to the Operational Area to a level that is broadly acceptable.

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EPOs, EPSs and MC			
EPO	***Controls***	***Performance standards***	***MC***
EPO 14 No introduction and establishment of invasive marine species into the Operational Area as a result of the Petroleum Activity.	C 14.1 Project vessels will manage their ballast water using one of the approved ballast water management options, as outlined in the Australian Ballast Water Management Requirements.	PS 14.1 Compliance with Australian Ballast Water Management Requirements (as defined under the *Biosecurity Act*) (aligned with the International Convention for the Control and Management of Ships' Ballast Water and Sediments) to prevent the introduction of IMS.	MC 14.1.1 Ballast Water Records System maintained by vessels which verifies compliance against Australian Ballast Water Management Requirements.
	C 14.2 International project vessels will manage their biosecurity risk associated with biofouling, as outlined in the Australian Biofouling Management Requirements.	PS 14.2 Compliance with Australian Biofouling Management Requirements (as defined under the *Biosecurity Act*) to prevent the introduction of IMS.	MC 14.2.1 Woodside Invasive Marine Species Vessel and Equipment Questionnaire details ballast water management and internal biofouling treatment systems.
	C 14.3 Apply Woodside's IMS risk assessment process[54] to project vessels and relevant immersible equipment undertaking the Petroleum Activity. Assessment will consider these risk factors: For vessels: • vessel type • recent IMS inspection and cleaning history, including for internal niches • out-of-water period before mobilisation • age and suitability of antifouling coating at mobilisation date • internal treatment systems and history • origin and proposed area of operation • number of stationary/slow speed periods >seven days	PS 14.3.1 Before entering the Operational Area, project vessels and relevant immersible equipment are determined to be low risk of introducing IMS of concern, and maintain this low risk status to mobilisation.	MC 14.3.1 Records of IMS risk assessments maintained for all project vessels and relevant immersible equipment entering the Operational Area or IMS management area 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 a qualified and experienced IMS inspector.	MC 14.3.2 Records confirm the IMS risk assessments were undertaken by an Environment Adviser or IMS inspector (as relevant).

[54] 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.

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EPOs, EPSs and MC			
EPO	***Controls***	***Performance standards***	***MC***
	• region of stationary or slow periods • type of activity – contact with seafloor. For immersible equipment: • region of deployment since last thorough clean, particularly coastal locations • duration of deployments • duration of time out of water since last deployment • transport conditions during mobilisation • post-retrieval maintenance regime. Based on the outcomes of each IMS risk assessment, management measures commensurate with the risk (such as treating internal systems, IMS inspections or cleaning) will be implemented to minimise the likelihood of IMS being introduced.		

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6.9 Recovery plan and threat abatement assessment

This section describes the assessment that Woodside has undertaken to demonstrate that the Petroleum Activity is not inconsistent with any relevant recovery plans or threat abatement plans. For the purposes of this assessment, the relevant Part 13 statutory instruments (recovery plans and threat abatement plans) are:

- Recovery Plan for Marine Turtles in Australia 2017–2027 (Commonwealth of Australia, 2017)
- Conservation Management Plan for the Blue Whale 2015–2025 (Commonwealth of Australia, 2015a)
- Recovery Plan for the Grey Nurse Shark (*Carcharias taurus*) 2014 (Commonwealth of Australia, 2014)
- Sawfish and River Sharks Multispecies Recovery Plan (Commonwealth of Australia, 2015b)
- Threat Abatement Plan for the impacts of marine debris on the vertebrate wildlife of Australia's coasts and oceans 2018 (Commonwealth of Australia, 2018)
- National Recovery Plan for the Southern Right Whale (DCCEEW, 2024c).

Table 6-19 lists the objectives and (where relevant) the action areas of these plans, and describes whether these objectives/action areas apply to government, the titleholder and the Petroleum Activity. For those objectives/action areas applicable to the Petroleum Activity, the relevant actions of each plan have been identified, and an evaluation has been conducted as to whether impacts and risks resulting from the activity are clearly inconsistent with that action or not. The results of this assessment against relevant actions are presented in Table 6-20 to Table 6-24.

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Table 6-19: Identification of applicability of recovery plan and threat abatement plan objectives and action areas

EPBC Act Part 13 statutory instrument	Applicable to:		
	Government	***Titleholder***	***Petroleum Activity***
Recovery Plan for Marine Turtles in Australia			
Long-term recovery objective: Minimise anthropogenic threats to allow for the conservation status of marine turtles to improve so they can be removed from the EPBC Act threatened species list	Y	Y	Y
Interim recovery objectives			
Current levels of legal and management protection for marine turtle species are maintained or improved, both domestically and throughout the migratory range of Australia's marine turtles	Y		
The management of marine turtles is supported	Y		
Anthropogenic threats are demonstrably minimised	Y	Y	Y
Trends in nesting numbers at index beaches and population demographics at important foraging grounds are described	Y	Y	
Action areas			
A. Assessing and addressing threats			
A1. Maintain and improve efficacy of legal and management protection	Y		
A2. Adaptatively manage turtle stocks to reduce risk and build resilience to climate change and variability Continue to meet Australia's international commitments to address the causes of climate change	Y	Y	Y
A3. Reduce the impacts of marine debris	Y	Y	Y
A4. Minimise chemical and terrestrial discharge	Y	Y	Y
A5. Address international take within and outside Australia's jurisdiction	Y		
A6. Reduce impacts from terrestrial predation	Y		
A7. Reduce international and domestic fisheries bycatch	Y		
A8. Minimise light pollution	Y	Y	Y
A9. Address the impacts of coastal development/infrastructure and dredging and trawling	Y	Y	
A10. Maintain and improve sustainable Indigenous management of marine turtles	Y		

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EPBC Act Part 13 statutory instrument	Applicable to:		
	Government	***Titleholder***	***Petroleum Activity***
B. Enabling and measuring recovery			
B1. Determine trends in index beaches	Y	Y	
B2. Understand population demographics at key foraging grounds	Y		
B3. Address information gaps to better facilitate the recovery of marine turtle stocks	Y	Y	Y
Blue Whale Conservation Management Plan			
Long-term recovery objective: Minimise anthropogenic threats to allow for their conservation status to improve so they can be removed from the EPBC Act threatened species list	Y	Y	Y
Interim recovery objectives			
The conservation status of blue whale populations is assessed using efficient and robust methodology	Y		
The spatial and temporal distribution, identification of biologically important areas, and population structure of blue whales in Australian waters is described	Y	Y	Y
Current levels of legal and management protection for blue whales are maintained or improved and an appropriate adaptive management regime is in place	Y		
Anthropogenic threats are demonstrably minimised	Y	Y	Y
Action areas			
A. Assessing and addressing threats			
A.1: Maintain and improve existing legal and management protection	Y		
A.2: Assess and address anthropogenic noise	Y	Y	Y
A.3: Understand impacts of climate variability and change	Y	Y	Y
A.4: Minimise vessel collisions	Y	Y	Y
B. Enabling and measuring recovery			
B.1: Measure and monitor population recovery	Y		
B.2: Investigate population structure	Y		
B.3: Describe spatial and temporal distribution and define biologically important habitat	Y	Y	Y

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EPBC Act Part 13 statutory instrument	Applicable to:		
	Government	***Titleholder***	***Petroleum Activity***
Grey Nurse Shark Recovery Plan			
Overarching objective: To assist the recovery of the grey nurse shark in the wild, throughout its range in Australian waters, with a view to: • improving the population status, leading to future removal of the grey nurse shark from the threatened species list of the EPBC Act • ensuring anthropogenic activities do not hinder the recovery of the grey nurse shark in the near future, or impact on the conservation status of the species in the future	Y	Y	Y
Specific objectives			
Develop and apply quantitative monitoring of the population status (distribution and abundance) and potential recovery of the grey nurse shark in Australian waters	Y		
Quantify and reduce the impact of commercial fishing on the grey nurse shark through incidental (accidental and/or illegal) take, throughout its range	Y		
Quantify and reduce the impact of recreational fishing on the grey nurse shark through incidental (accidental and/or illegal) take, throughout its range	Y		
Where practicable, minimise the impact of shark control activities on the grey nurse shark	Y		
Investigate and manage the impact of ecotourism on the grey nurse shark	Y		
Manage the impact of aquarium collection on the grey nurse shark	Y		
Improve understanding of the threat of pollution and disease to the grey nurse shark	Y	Y	Y
Continue to identify and protect habitat critical to the survival of the grey nurse shark and reduce the impact of threatening processes within these areas	Y	Y	
Continue to develop and implement research programs to support the conservation of the grey nurse shark	Y	Y	
Promote community education and awareness in relation to grey nurse shark conservation and management	Y		

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EPBC Act Part 13 statutory instrument	Applicable to:		
	Government	***Titleholder***	***Petroleum Activity***
Sawfish and River Sharks Recovery Plan			
Primary objective: To assist the recovery of sawfish and river sharks in Australian waters with a view to: • improving the population status leading to the removal of the sawfish and river shark species from the threatened species list of the EPBC Act • ensuring anthropogenic activities do not hinder recovery in the near future, or impact on the conservation status of the species in the future	Y	Y	Y
Specific objectives			
Reduce and, where possible, eliminate adverse impacts of commercial fishing on sawfish and river shark species	Y		
Reduce and, where possible, eliminate adverse impacts of recreational fishing on sawfish and river shark species	Y		
Reduce and, where possible, eliminate adverse impacts of Indigenous fishing on sawfish and river shark species	Y		
Reduce and, where possible, eliminate the impact of illegal, unregulated and unreported fishing on sawfish and river shark species	Y		
Reduce and, where possible, eliminate adverse impacts of habitat degradation and modification on sawfish and river shark species	Y	Y	Y
Reduce and, where possible, eliminate any adverse impacts of marine debris on sawfish and river shark species, noting the linkages with the 'Threat Abatement Plan for the impact of marine debris on vertebrate marine life'	Y	Y	Y
Reduce and, where possible, eliminate any adverse impacts of collection for public aquaria on sawfish and river shark species	Y		
Improve the information base to allow the development of a quantitative framework to assess the recovery of, and inform management options for, sawfish and river shark species	Y		
Develop research programs to assist conservation of sawfish and river shark species	Y	Y	
Improve community understanding and awareness in relation to sawfish and river shark conservation and management	Y		
Threat Abatement Plan for the impacts of marine debris on the vertebrate wildlife of Australia's coasts and oceans			
Objectives			
Contribute to long-term prevention of the incidence of marine debris	Y	Y	
Understand the scale of impacts from marine plastic and microplastic on key species, ecological communities and locations	Y	Y	Y

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EPBC Act Part 13 statutory instrument	Applicable to:		
	Government	***Titleholder***	***Petroleum Activity***
Remove existing marine debris	Y		
Monitor the quantities, origins, types and hazardous chemical contaminants of marine debris, and assess the effectiveness of management arrangements for reducing marine debris	Y		
Increase public understanding of the causes and impacts of harmful marine debris, including microplastic and hazardous chemical contaminants, to bring about behaviour change	Y		
National Recovery Plan for the Southern Right Whale			
Long-term recovery objective: increase population to a level that the conservation status has improved and the species no longer qualifies for listing as threatened under any of the EPBC Act listing criteria	Y	Y	Y
Interim recovery objectives			
Current levels of Commonwealth and State legislative and management protection for southern right whales are implemented, maintained, or improved, so threats continue to be managed and reduced over the life of the plan	Y	Y	
Anthropogenic threats are managed consistent with ecologically sustainable principles to facilitate recovery of southern right whales	Y	Y	Y
Population dynamics, including demographics, distribution, residency and coastal movement across the species range, are monitored and quantified using robust, standardised, best-practice methodology to assess population recovery	Y		
The population structure in Australian waters is clearly characterised to evaluate the degree to which the western and eastern populations are separate and inform the degree of connectivity with other southern right whale populations	Y		
Capability of First Nation Australians, research, citizen science and general community groups is improved to assist in addressing recovery actions of southern right whales in Australia	Y		
Action areas			
<u>Assessing and addressing key threats</u>			
A1: Maintain, implement and improve efficacy of current legislative and management protection for southern right whales	Y		
A2: Address habitat degradation impacts from coastal and offshore marine infrastructure developments within the species' range	Y	Y	
A3: Understand impacts of climate variability and anthropogenic climate change on the species biology and population recovery	Y	Y	
A4: Manage and mitigate the threat of entanglements from commercial active or discarded fishing gear throughout the species' range in Australian waters	Y		

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EPBC Act Part 13 statutory instrument	Applicable to:		
	Government	***Titleholder***	***Petroleum Activity***
A5: Assess, manage and mitigate impacts from anthropogenic underwater noise	Y	Y	Y
A6: Manage, minimise and mitigate the threat of vessel strike	Y	Y	Y
Enabling and measuring recovery			
B1: Measure and monitor population demographics and recovery	Y		
B2: Characterise population structure	Y		
B3: Determine migratory paths and offshore distribution	Y		
B4: Improve capability of First Nation Australians, research, citizen science and general community groups to assist with management of southern right whales	Y		

Table 6-20: Assessment against relevant actions of the Recovery Plan for Marine Turtles in Australia

Part 13 statutory instrument	Relevant action areas/objectives	Relevant actions	Evaluation	Relevant EPO and EPS
Recovery Plan for Marine Turtles in Australia	Action Area A3: Reduce the impacts from marine debris.	Action: Support implementation of the 'Threat Abatement Plan for the impacts of marine debris on the vertebrate wildlife of Australia's coasts and oceans'. Priority actions at stock level: • Green turtles, NWS (G-NWS) – Understand the threat posed to this stock by marine debris. • Loggerhead turtles, WA (LH-WA) – Determine the extent to which marine debris is impacting loggerhead turtles. • Flatback turtles, Pilbara (F-Pil) – No relevant actions.	Refer to Section 6.8.5 and 6.8.7. Not inconsistent assessment: The assessment of disturbance to seabed from dropped objects and equipment loss and disturbance to seabed due to loss of towed equipment has considered the potential risks to marine turtles. Controls have been implemented to reduce the likelihood of accidental release of solid wastes for the duration of the Petroleum Activity.	EPO 11 C 11.1, C 11.2, C 11.4 EPO 13 C 8.3, C 3.1, C 13.2, C 13.3, C 13.4

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Part 13 statutory instrument	Relevant action areas/objectives	Relevant actions	Evaluation	Relevant EPO and EPS
	Action Area A4: Minimise chemical and terrestrial discharge.	Action: Ensure spill risk strategies and response programs adequately include management for marine turtles and their habitats, particularly in reference to 'slow to recover habitats', such as nesting habitat, seagrass meadows or coral reefs. Priority actions at stock level: • G-NWS – Ensure spill risk strategies and response programs include management for turtles and their habitats. • LH-WA and F-Pil – Ensure spill risk strategies and response programs include management for turtles and their habitats, particularly in reference to slow-to-recover habitats, such as seagrass meadows or corals.	Refer to Sections 6.8.2, 6.8.3 and 6.8.4. Not inconsistent assessment: The assessment of accidental release of chemicals/hydrocarbons has considered the potential risks to marine turtles. Spill risk strategies and the response program include management measures for turtles and their nesting habitats.	Detailed oil spill preparedness and response performance outcomes, standards and measurement criteria for the Petroleum Activity are presented in Appendix G.
	Action Area A8: Minimise light pollution.	Action: Manage artificial light within or adjacent to habitat critical to the survival of marine turtles such that marine turtles are not displaced from these habitats. Priority actions at stock level: • G-NWS – As above. • LH-WA – No relevant actions. • F-Pil – Manage artificial light from onshore and offshore sources to ensure biologically important behaviours of nesting adults and emerging/ dispersing hatchlings can continue.	Refer to Section 6.7.5. Not inconsistent assessment: The assessment of light emissions has considered the potential impacts to marine turtles. Based on the nature and scale of the Petroleum Activity, internesting, mating, foraging or migrating turtles impacts are limited to localised and temporary behavioural disturbance to isolated transient individuals, which is unlikely to result in displacement of adult turtles from internesting or nesting habitat critical to the survival of marine turtles.	EPO 6a, EPO 6b C 6.2

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Part 13 statutory instrument	Relevant action areas/objectives	Relevant actions	Evaluation	Relevant EPO and EPS
	Action Area B1: Determine trends at index beaches.	Action: Maintain or establish long-term monitoring programs at index beaches to collect standardised data critical for determining stock trends, including data on hatchling production. Priority actions at stock level: • G-NWS – Continue long-term monitoring of index beaches. • LH-WA – Continue long-term monitoring of nesting and foraging populations. • F-Pil – No relevant actions.	Not inconsistent assessment: Woodside contributes to Action Area B1 via its support of the Ningaloo Turtle Program[55].	N/A

[55] http://www.ningalooturtles.org.au/media_reports.html.

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Part 13 statutory instrument	Relevant action areas/objectives	Relevant actions	Evaluation	Relevant EPO and EPS
	Action Area B3: Address information gaps to better facilitate the recovery of marine turtle stocks.	Action: Understand the impacts of anthropogenic noise on marine turtle behaviour and biology. Priority actions at stock level: • G-NWS – Given this is a relatively accessible stock that is likely to be exposed to anthropogenic noise, investigate the impacts of anthropogenic noise on turtle behaviour and biology and extrapolate findings from the NWS stock to other stocks. • LH-WA – No relevant actions. • F-Pil – No relevant actions.	Refer to Sections 6.7.2 and 6.7.3. Not inconsistent assessment: The assessment of acoustic emissions has considered the potential impacts to marine turtles. Acoustic modelling (Connell, et al., 2025) has been completed specific to the seismic source from the Petroleum Activity to inform the impact assessment in Section 6.7.2. Noise related to the Petroleum Activity is not expected to result in impacts greater than localised and temporary behavioural change. Impacts at a population level are not anticipated, given the nature and scale of the activity. Vessel and seismic acoustic emissions could cause localised and short-term behavioural disturbance to isolated transient individuals, which is unlikely to result in displacement of adult turtles from internesting or nesting habitat critical to the survival of marine turtles. Acoustic modelling (Connell, et al., 2025) shows the TSS (SEL_{24h}) contour extends away from the Montebello Islands, where internesting and nesting activity are present. Therefore, impacts to these areas are not anticipated.	EPO 3a, EPO 3b, EPO 4 C 3.1, C 3.5, C 3.6, C 4.3
Assessment summary The Recovery Plan for Marine Turtles in Australia has been considered when assessing impacts and risks, and the Petroleum Activity is considered to be not inconsistent with the relevant actions of this plan.				

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Table 6-21: Assessment against relevant actions of the Conservation Management Plan for the Blue Whale

Part 13 statutory instrument	Relevant action areas/objectives	Relevant actions	Evaluation	Relevant EPO and EPS
Conservation Management Plan for the Blue Whale	Action Area A.2: Assess and address anthropogenic noise.	Action 2: Assess the effect of anthropogenic noise on blue whale behaviour. Action 3: Manage anthropogenic noise in biologically important areas such that any blue whale continues to use the area without injury and is not displaced from a foraging area.	Refer to Section 6.7.2 and Section 6.7.3 Not inconsistent assessment: The assessment of acoustic emissions has considered the potential impacts to pygmy blue whales. The Operational Area overlaps the pygmy blue whale migration BIA; however, as per the Petroleum Activity timing (refer to Section 3.7) and C 3.8, the seismic source discharge is restricted to a period outside the peak migration of pygmy blue whales (April to July northbound, and November to December southbound). Acoustic and animat modelling (Connell, et al., 2025) has been completed specific to the seismic source from the Petroleum Activity to inform the impact assessment in Section 6.7.2. The maximum distance at which the NOAA (2019) marine mammal behavioural response criterion of 160 dB re 1 µPa (SPL) for impulsive noise was reached was 8.43 km. The results of the animat modelling predicted the maximum $ER_{95\%}$ to SEL_{24h} thresholds was 4.79 km for TTS and 0.06 km for PTS. While threshold criteria for TSS contour overlap the pygmy blue whale migration BIA, this overlap represents a small portion of the overall BIA. The species is also not constrained spatially and is able to move outside the area of TSS. To account for the potential presence of blue pygmy whale during the southbound migration, additional management procedures will be implemented to manage potential impacts, including: • Apply EPBC Act Policy Statement 2.1 Part A standard management procedures to whales and Part B.4 (shutdown and observation zones) (C 3.1).	EPO 3a, EPO 3b C 3.1, C 3.2, C 3.3, C 3.4, C 3.5, C 3.6, C 3.8 EPO 4 C 4.1

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Part 13 statutory instrument	Relevant action areas/objectives	Relevant actions	Evaluation	Relevant EPO and EPS
			• Apply EPBC Act Policy Statement 2.1 Part B.1 – MFOs (C 3.2). • Apply EPBC Act Policy Statement 2.1 Part B.5 –PAM (C 3.3). • Apply EPBC Act Policy Statement 2.1 Part B.6 – adaptive management measures (C.3.4). • Restrict the seismic source discharge to a period outside the peak migration of humpback whales (June to November) and pygmy blue whales (April to July and November to December) (C 3.8). The impact assessment (Section 6.7.2) has determined seismic acquisition may be undertaken in a manner that is not inconsistent with the requirements of the Conservation Management Plan for the Blue Whale. While the activity occurs within the migration BIA, controls are in place to ensure impacts are reduced to ALARP and acceptable levels. It is anticipated pygmy blue whales will continue to use the migration BIA without significant behavioural disturbance.	
	Action Area A.3: Understand impacts of climate variability and change.	Action 1: Understand impacts of climate variability and change	Refer to Section 6.7.4. Not inconsistent assessment. Given the nature and scale of the Petroleum Activity, impacts are not anticipated.	N/A
	Action Area A.4: Minimise vessel collisions.	Action 3: Ensure the risk of vessel strikes on blue whales is considered when assessing actions that increase vessel traffic in areas where blue whales occur and, if required, appropriate mitigation measures are implemented.	Refer to Section 6.8.6. Not inconsistent assessment: The assessment of a vessel collision with marine fauna has considered the potential risks to cetaceans. The Operational Area overlaps the pygmy blue whale migration BIA; however, temporal restrictions are in place for the Petroleum Activity to avoid peak migration (C 3.8). Vessel collisions with pygmy blue whales are highly unlikely to occur, given the very slow vessel speeds and controls in place.	EPO 12 C 4.1

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Part 13 statutory instrument	Relevant action areas/objectives	Relevant actions	Evaluation	Relevant EPO and EPS
	Action Area B.3: Describe spatial and temporal distribution and define biologically important habitat.	Action 2: Identify migratory pathways between breeding and feeding grounds. Action 3: Assess timing and residency within biologically important areas.	Not inconsistent assessment: Woodside contributes to Action Area B3 via its support of targeted research initiatives (e.g. satellite tracking of pygmy blue whale migratory movements (Double, et al., 2014)).	N/A
Assessment summary The Conservation Management Plan for the Blue Whale has been considered when assessing impacts and risks, and the Petroleum Activity is considered to be not inconsistent with the relevant actions of this plan				

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Table 6-22: Assessment against relevant actions of the Recovery Plan for the Grey Nurse Shark (*Carcharias taurus*)

Part 13 statutory instrument	Relevant action areas/objectives	Relevant actions	Evaluation	Relevant EPO and EPS
Recovery Plan for the Grey Nurse Shark	Objective 7: Improve understanding of the threat of pollution and disease to the grey nurse shark.	Action 7.1: Review and assess the potential threat of introduced species, pathogens and pollutants.	Refer to Section 6.8.5 and Section 6.8.7 Not inconsistent assessment: This EP includes an assessment of the impacts from disturbance to seabed from dropped objects and equipment loss and disturbance to seabed due to loss of towed equipment.	EPO 11 C 11.1, C 11.2, C 11.4 EPO 13 C 8.3, C 3.1, C 13.2, C 13.3, C 13.4
			Refer to Sections 6.8.2, 6.8.3 and 6.8.4. The assessment of accidental release of chemicals/ hydrocarbons has considered the potential risks to grey nurse sharks.	Detailed oil spill preparedness and response performance outcomes, standards and measurement criteria for the Petroleum Activity are presented in Appendix G.
Assessment summary The Recovery Plan for the Grey Nurse Shark has been considered when assessing impacts and risks, and the Petroleum Activity is considered to be not inconsistent with the relevant actions of this plan.				

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Table 6-23: Assessment against relevant actions of the Sawfish and River Sharks Multispecies Recovery Plan

Part 13 statutory instrument	Relevant action areas/objectives	Relevant actions	Evaluation	Relevant EPO and EPS
Sawfish and River Sharks Multispecies Recovery Plan	Objective 5: Reduce and, where possible, eliminate adverse impacts of habitat degradation and modification on sawfish and river shark species.	Action 5c: Identify risks to important sawfish and river shark habitat and measures needed to reduce those risks.	Refer to Sections 6.8.2, 6.8.3 and 6.8.4. Not inconsistent assessment: The assessment of accidental release of chemicals/ hydrocarbons has considered the potential risks to sawfish and river shark.	Detailed oil spill preparedness and response performance outcomes, standards and measurement criteria for the Petroleum Activity are presented in Appendix G.
	Objective 6: Reduce and, where possible, eliminate any adverse impacts of marine debris on sawfish and river shark species, noting the linkages with the 'Threat Abatement Plan for the impact of marine debris on vertebrate marine life'.	Action 6a: Assess the impacts of marine debris, including ghost nets, fishing gear and plastics, on sawfish and river shark species.	Refer to Section 6.8.5 and Section 6.8.7 Not inconsistent assessment: The assessment of disturbance to seabed from dropped objects and equipment loss and disturbance to seabed due to loss of towed equipment has considered the potential risks to sawfish and river sharks.	EPO 11 C 11.1, C 11.2, C 11.4 EPO 13 C 8.3, C 3.1, C 13.2, C 13.3, C 13.4
Assessment summary The Sawfish and River Sharks Recovery Plan has been considered when assessing impacts and risks, and the Petroleum Activity is considered to be not inconsistent with the relevant actions of this plan.				

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Table 6-24: Assessment against relevant actions of the Threat Abatement Plan for the impacts of marine debris on the vertebrate wildlife of Australia's coasts and oceans

Part 13 statutory instrument	Relevant action areas/objectives	Relevant actions	Evaluation	Relevant EPO and EPS
Threat Abatement Plan for the impacts of marine debris on the vertebrate wildlife of Australia's coasts and oceans	Objective 2: Understand the scale of marine plastic and microplastic impact on key species, ecological communities and locations.	Action 2.04: Build understanding related to plastic and microplastic pollution.	Refer to Section 6.8.5 and Section 6.8.7. Not inconsistent assessment: The assessment of disturbance to seabed from dropped objects and equipment loss and disturbance to seabed due to loss of towed equipment has considered the potential risks to vertebrate wildlife.	EPO 11 C 11.1, C 11.2, C 11.4 EPO 13 C 8.3, C 3.1, C 13.2, C 13.3, C 13.4
Assessment summary The 'Threat Abatement Plan for the impacts of marine debris on the vertebrate wildlife of Australia's coasts and oceans' has been considered when assessing impacts and risks, and the Petroleum Activity is considered to be not inconsistent with the relevant actions of this plan.				

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Table 6-25: Assessment against relevant actions of the National Recovery Plan for the Southern Right Whale

Part 13 statutory instrument	Relevant action areas/objectives	Relevant actions	Evaluation	Relevant EPO and EPS
National Recovery Plan for the Southern Right Whale	Action Area A5: Assess, manage and mitigate impacts from anthropogenic underwater noise.	Action 2: Actions within and adjacent to southern right whale BIAs and habitat critical to the survival should demonstrate it does not prevent any southern right whale from using the area or cause auditory impairment. Action 3: Actions within and adjacent to southern right whale BIAs and habitat critical to the survival should demonstrate the risk of behavioural disturbance is minimised. Action 4: Ensure environmental assessments associated with underwater noise-generating activities include consideration of national policy (e.g. EPBC Act Policy Statement 2.1) and guidelines related to managing anthropogenic underwater noise and implement appropriate mitigation measures to reduce risks to southern right whales to the lowest possible level. Action 5: Quantify the risks of anthropogenic underwater noise to southern right whales, including studies aimed to measure physiological effects, behavioural disturbance, and changes to acoustic communication (e.g. masking of vocalisations) to whales.	Refer to Section 6.7.2 and Section 6.7.3 Not inconsistent assessment: This EP assesses the potential impacts of the Petroleum Activity on cetaceans. No BIAs for habitat critical to the survival for the southern right whale overlap the noise EMBA.	EPO 3a, EPO 3b C 3.1, C 3.2, C 3.3, C 3.4, C 3.5, C 3.6, C 3.8 EPO 4 C 4.1
	Action Area A6: Manage, minimise and mitigate the threat of vessel strike.	Action 1: Assess risk of vessel strike to southern right whales in BIAs. Action 3: Ensure environmental impact assessments and associated plans consider and quantify the risk of vessel strike and associated potential cumulative risks in BIAs and habitat critical to their survival.	Refer to Section 6.8.6. Not inconsistent assessment: The assessment of a vessel collision with marine fauna has considered the potential risks to cetaceans. Vessel collisions with southern right whales are highly unlikely to occur, given the low operating speed of support vessels.	EPO 12 C 4.1
Assessment summary The National Recovery Plan for the Southern Right Whale has been considered when assessing impacts and risks, and the Petroleum Activity is considered to be not inconsistent with the relevant actions of this plan.				

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7. IMPLEMENTATION STRATEGY

7.1 Overview

Regulation 22 of the Environment Regulations requires an EP to contain an implementation strategy for the activity. The implementation strategy for the Petroleum Activity confirms fit-for-purpose systems, practices and procedures are in place to direct, review and manage the activities so environmental risks and impacts are continually being reduced to ALARP and are acceptable, and that EPOs and EPSs outlined in this EP are achieved.

Woodside, as operator, is responsible for ensuring the Petroleum Activity is managed in accordance with this implementation strategy and Our WMS (Section 1.6).

7.2 Systems, practices, and procedures

All operational activities are planned and performed in accordance with relevant legislation and standards, management measures identified in this EP, and internal environment standards and procedures (Section 6).

Processes are implemented to verify controls to manage environmental impacts and risks to:

- a level that is ALARP and acceptable
- meet EPOs
- comply with EPSs defined in this EP.

Document names and reference numbers may change during the statutory duration of this EP and will be managed through a Change Register and update process.

7.2.1 Assessment of project chemicals

As part of Woodside's chemical approval process, chemicals required by the Petroleum Activity are selected and approved in accordance with the Woodside Environment Chemical Selection and Assessment Guideline. This procedure is used to demonstrate the potential impacts of the chemicals selected are acceptable and ALARP, in line with Woodside's Environmental Management Standard. The procedure requires selecting chemicals that have the lowest practicable environmental impacts and risks, subject to technical constraints.

Woodside's Environment Chemical Selection and Assessment Guideline includes the requirements set out by the Australian Government under the Industrial Chemicals Environmental Standard. Chemicals proposed for this activity will be assessed against those listed in the Industrial Chemicals Environmental Standard Register under one of seven schedules according to their environmental risk. The selection and management of any chemical will adhere to the specific risk management measures, storage, use and handling requirements outlined in the corresponding schedule.

No chemical discharges are planned as part of this Petroleum Activity. AFFF may be discharged where project vessel helideck testing requirements (typically annual) fall within the on-hire period, or in an emergency (refer to Section 6.7.6).

The chemical assessment process follows the principles outlined in the OCNS, which manages chemical use and discharge in the United Kingdom (UK) 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 managing chemicals.

All chemical substances 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 two schemes (as shown in Figure 7-1):

- Hazard Quotient (HQ) Colour Band: Gold, Silver, White, Blue, Orange or Purple (listed in order of increasing environmental hazard)
- 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.

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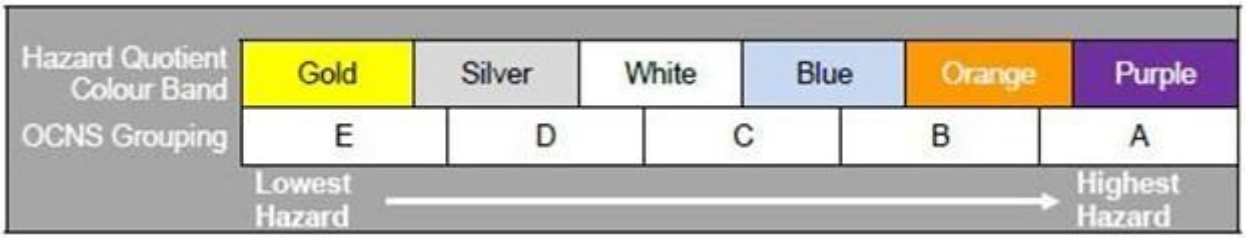


Figure 7-1: Offshore Chemical Notification Scheme ranking

Chemicals fall into the following assessment types:

- **No further assessment** – Chemicals with an 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 an HQ band of White, Blue, Orange or Purple or an OCNS ranking of A, B or C
  - chemicals with an OCNS product or substitution warning.

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 DMPE Environmental Risk Assessment of Chemicals used in WA Petroleum Activities Guideline.

7.2.1.1 Ecotoxicity

Chemical ecotoxicity is assessed using the criteria used by CEFAS to group chemicals based on ecotoxicity results (Table 7-1). 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 7-1: Centre for Environment, Fisheries and Aquaculture Science's Offshore Chemical Notification Scheme grouping based on ecotoxicity results

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

7.2.1.2 Biodegradation

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

CEFAS categorises biodegradation into three groups:

- readily biodegradable: results of >60% biodegradation in 28 days to an OSPAR harmonised offshore chemical notification format (HOCNF)-accepted ready biodegradation protocol
- inherently biodegradable: results >20% and <60% to an OSPAR HOCNF-accepted ready biodegradation protocol or result of >20% by OSPAR-accepted inherent biodegradation study

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- not biodegradable: results from OSPAR HOCNF-accepted ready biodegradation protocol or inherent biodegradation protocol of <20%, or half-life values derived from aquatic simulation test indicate persistence.

Chemicals with >60% biodegradation in 28 days to an OSPAR HOCNF-accepted ready biodegradation protocol are considered acceptable in terms of biodegradation:

- 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.

7.2.1.3 Bioaccumulation

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

The following guidance is used by CEFAS:

- Non-bioaccumulative: Log Pow <3, or Bioconcentration Factor ≤100 and molecular weight is ≥700.
- Bioaccumulative: Log Pow ≥3 or Bioconcentration Factor >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, the following options are considered:

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

7.2.1.4 Alternatives

If no environmental data are 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 an HQ band of Gold or Silver, or OCNS Group E or D with no substitution or product warnings.

7.2.1.5 Decision

Once the further assessment/ALARP justification has been completed, the relevant environment adviser must concur that the environmental risk as a result of chemical use is ALARP and acceptable.

7.2.2 Woodside invasive marine species risk assessment process

7.2.2.1 Objective and scope

To minimise the risk of introducing IMS because of the Petroleum Activity, all applicable project vessels and immersible equipment will be subject to Woodside's IMS risk assessment process (unless exempt as outlined below).

The objective of the process is to identify the level of threat a contracted project vessel, or immersible equipment, poses if no additional risk reduction management measures are implemented. This allows Woodside (and its contractors) to apply management options that are commensurate to the identified level of risk.

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The IMS risk assessment process does not apply to:

- vessels or immersible equipment that do not plan to enter the IMS Management Area[56]
- 'new build' vessels or immersible equipment launched less than 14 days before mobilisation
- locally sourced vessels or immersible equipment from within the Western Locally Sourced Zone[57]. Vessels, or immersible equipment are defined as locally sourced when the same supply facilities/port have been used since their last IMS inspection, full hull clean in dry dock, or application of antifouling coating (AFC).

7.2.2.2 Risk assessment process

Woodside's IMS risk assessment process was developed by considering 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, 2023).

To effectively evaluate the potential for project 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 planned to undertake activities within an IMS Management Area or Operational Area. The risk assessment process considers a range of factors, as listed in Table 7-2 and Table 7-3.

The IMS risk assessments will be undertaken by a trained environment adviser who has completed relevant Woodside IMS training or by a qualified and experienced IMS inspector. Woodside implements a quality assurance and control process for all IMS risk assessments it conducts, where a secondary trained environment adviser verifies the assessment to minimise the risk of misapplication and errors within the process.

[56] The IMS Management Area is defined as all nearshore waters around Australia, extending from the lowest astronomical tide mark to 12 NM from land ('Territorial Seas', and including Australian territorial islands). The IMS Management Area also includes: (i) all waters that are shallower than the 50 m depth contour outside of the 12 NM boundary, thereby encompassing submerged reefs and atolls, and (ii) Operational Areas defined in environmental approvals. The IMS Management Area is based on current maritime boundary definitions, legal frameworks and requirements, IMS risk interpretations, and existing management arrangements applied by Commonwealth and State/Territory regulatory agencies.

[57] The Western Locally Sourced Zone spans an area that includes the entire WA coastline out to the Exclusive Economic Zone limit at 200 NM, but it excludes any government-declared Quarantine Areas.

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

Factors	Details
Vessel type	The risk of IMS infection depends on the type of vessel undertaking the activity. A higher risk rating is applied for more complex, slow-moving vessels (e.g. dredges) compared 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, risk ratings depend on whether out-of-water or in-water inspections by qualified IMS inspectors and cleaning (if required) have been undertaken before the contract begins. If an IMS inspection (and clean if required) has not been undertaken in the past six months (from the time the contract begins), 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 then mobilised as deck cargo or by road, 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 3 knots), and its main operational region (i.e. tropical, subtropical 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 is 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 climatic region of the proposed area of operation. The highest risk rating is applied to similar climatic regions.
Number of stationary/slow speed periods exceeding seven days	A risk factor is calculated based on the number of seven-day periods the vessel has been stationary or operated at low speed (<3 knots) in port or coastal waters, which is any waters <50 m deep outside 12 NM from land or any waters within 12 NM of land. The greater the number of periods, the higher the risk factor applied.
Region of stationary or slow periods	A further multiplier is applied depending on the location of the stationary and slow speed periods. The highest risk rating is applied if these periods occurred within ports or coastal waters of the same climatic region.
Type of activity – contact with seafloor	The potential for introducing IMS varies based on the planned vessel activity. Those activities that touch sediments, and thus have the potential to accumulate and harbour IMS in areas such as hoppers (dredges) and spud cans (drilling rigs), are considered to have a greater risk of infection.

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

Factors	Details
Region of deployment since last thorough clean, particularly coastal locations	Climatic region of use since last overhaul, thorough cleaning or prolonged period out of water (>28 days). Highest risk rating is applied to similar climatic regions. Activities occurring in nearshore areas (<50 m deep or within 12 NM of land) are given the highest risk rating.
Duration of deployment	Maximum duration of deployment (maximum time in water) since last overhaul or thorough cleaning. The longer the immersion period, 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, a high risk factor is applied, but if equipment is stored in dry and well ventilated (low humidity) conditions, 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 dissembled between project sites, while a higher risk rating is applied where no routine cleaning occurs.

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After the risk assessment process is implemented, project vessels and immersible equipment are classified as one of three risk categories:

- low – low risk of introducing IMS of concern and hence no additional management required, or management options have been applied to reduce the risk
- uncertain – risk of introducing IMS is not apparent so the precautionary approach is adopted, and additional management options may be required
- high – high risk of introducing IMS, which means additional management options are required before this vessel mobilises to the Operational Area.

After allocating a 'low' risk rating for a project vessel or immersible equipment, the information provided by the vessel operator for the purposes of risk assessment must be confirmed before mobilisation. For project 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 ALARP. It is a flexible approach that allows a range of management actions to be tailored for a specific vessel movement. These will be assessed on a case-by-case basis and may include:

- having a suitably qualified and experienced IMS inspector inspect (desktop, in-water or dry dock) to verify risk status; where practicable, the inspection shall occur within seven days (but not more than 14 days) before final departure to the Operational Area
- applying in-water or dry-dock cleaning of the hull and other niche areas, typically applied where the risk is 'high' and driven by the age of the AFC on the project vessel and its time spent in similar climatic region ports
- limiting the duration the vessel spends within the IMS Management Area to a maximum of 48 hours (cumulative entries); applicable for 'uncertain' risk project vessels only
- rejecting the vessel.

In some circumstances, such as emergency scenarios or in the presence of serious logistic constraints or other factors outside of Woodside's control, it may not be possible to effectively apply any of the IMS management measures available and described above. In the absence of regulatory conditions, commitments, or other legislative obligations that prescribe management measures for IMS, a risk-assessed alternative process is available that must be approved by the relevant Business Vice President and HSE Vice President.

Before they enter the Operational Area, project vessels and immersible equipment are required to be a low risk of introducing IMS.

7.2.3 Offshore Seabird Management Plan

Project vessels will implement Woodside's Offshore Seabird Management Plan, which aligns with recommendations in the National Light Pollution Guidelines for Wildlife (DCCEEW, 2023). When implemented, the SBMP addresses seabird interaction reporting and management for offshore and inshore activities within the NWMR, specifically where the activity is located within a nocturnal seabird species BIA.

The SBMP is used to manage interactions with seabirds offshore to ensure any impacts and risks are reduced to ALARP and an acceptable level. The plan also provides frontline workers with guidance to manage seabird interactions and related potential impacts identified as caused by Woodside's activities, as demonstrated in Figure 5-2.

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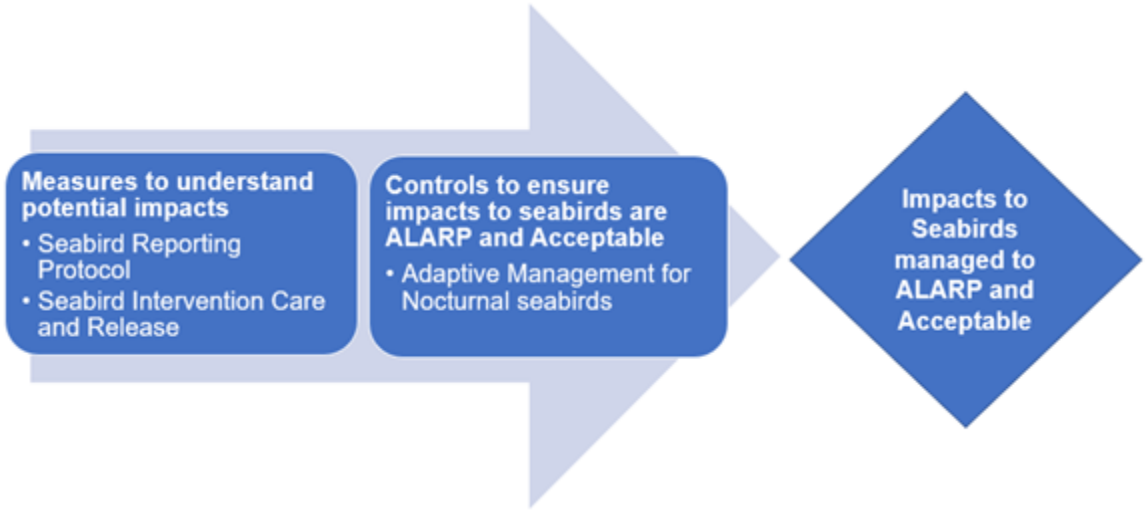


Figure 7-2: Schematic for Offshore Seabird Management Plan to manage seabird impacts to acceptable and as low as reasonably practicable levels

Woodside has established the SBMP adaptive management framework to manage the uncertainty of potential impacts of artificial night at light on nocturnal seabirds. It is applied when a project is within a nocturnal seabird BIA and more than 20 km from a known rookery. Where interactions with nocturnal seabirds are identified, adaptive management controls under the SBMP may be triggered in a tiered approach.

This may include an initial assessment of:

- seabird species' important habitat proximity, life cycle seasonality, and periods of heightened sensitivity such as fledgling exodus
- overlap of seabird interactions and inclement weather (for example, post-cyclonic metocean conditions are known to increase seabird groundings)

and the possible controls and mitigation actions, for example:

- extinguish outdoor/deck lights not necessary for but allowing safe operations and navigation at night.

The SBMP will be available aboard the project vessels during the Petroleum Activity. Vessel crew will be made aware of the SBMP through the environment induction. This induction will include the requirement to report seabird sightings to the offshore HSE advisers on the seismic survey vessel and the onshore Woodside Environment Adviser. The SBMP will be implemented by frontline personnel with support from Woodside activity-focused Environmental Advisers, the Science Team and a dedicated seabird subject matter expert.

7.3 Roles and responsibilities

Key roles and responsibilities for Woodside and contractor personnel relating to implementing, managing and reviewing this EP are described in Table 7-4. Roles and responsibilities for oil spill preparation and response are outlined in the Oil Pollution First Strike Plan (Appendix H) and the Woodside Incident Management Handbook.

All Woodside employees and contractors are responsible for implementing the Environment and Biodiversity Policy (refer to Appendix A) in their areas of responsibility and must be suitably trained and competent in their respective roles.

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Table 7-4: Roles and responsibilities

Title (role)	Environmental responsibilities
Office-based personnel	
Woodside Survey Operations Project Manager	• Verify the relevant environmental approvals exist before starting the activities. • Monitor and manage the activity so it is performed as per the relevant standards and commitments in this EP. • Notify the Woodside Environment Adviser in a timely manner of any scope changes. • Liaise with regulatory authorities as required. • Review this EP as necessary and manage change requests. • Ensure all project and support vessel crew members complete a project (including HSE) induction. • Verify that contractors meet environmental-related contractual obligations. • Liaise with contractors to ensure communication and understanding of environment requirements as outlined in this EP. • Confirm environmental incident reporting meets regulatory requirements (as outlined in this EP) and Woodside's HSE Reporting and Investigation Procedure. • Monitor and close out corrective actions identified during environmental monitoring or audits. • Track compliance with EPOs and EPSs as per the requirements of this EP.
Woodside Environmental Adviser	• Prepare the environmental component of relevant induction package. • Review compliance with EPOs and EPSs as per the requirements of this EP. • Ensure the relevant environmental approvals exist before starting the activities. • Provide input to the environmental component of the relevant induction package. • Assist with reviewing, investigating and reporting environmental incidents as required. • Assist with environmental monitoring and inspections/audits to ensure they are performed as per the requirements of this EP as needed. • Liaise with relevant regulatory authorities as required. • Assist in preparing required external regulatory reports, in line with environmental approval requirements and Woodside incident reporting procedures. • Advise relevant Woodside personnel and contractors to help them understand their environment responsibilities. • Support the Survey Operations Project Manager in ensuring communications and understanding of environment requirements as outlined in this EP. • Provide environmental support for activities through regular engagement with the Woodside Site Representative.
Woodside Corporate Affairs Adviser	• Prepare and implement the Stakeholder Consultation Plan for the Petroleum Activity. • Report on stakeholder consultation. • Continuously liaise and provide notification as required as outlined in the EP.

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Title (role)	Environmental responsibilities
Woodside Marine Assurance Superintendent	• Source and conduct relevant audit and inspection to confirm vessels comply with vessel class and Woodside marine assurance requirements.
Woodside Corporate Incident Management Team (CIMT) Incident Commander	On receiving notification of an incident: • Establish and take control of the Incident Management Team (IMT) and establish an appropriate command structure for the incident. • Assess the 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, including objectives for action. • Approve, implement and manage the Incident Action Plan. • Communicate within and beyond the incident management structure. • Manage and review the safety of responders. • Address the broader public safety considerations. • Conclude and review activities.
Vessel-based personnel	
Vessels Master	• Ensure the vessel management system and procedures are implemented. • Ensure personnel starting work on the vessel receive an environmental induction that meets the relevant requirements specified in this EP. • Ensure personnel are competent to perform the work they have been assigned. • Verify SOPEP drills are conducted as per the vessel's schedule. • Ensure the vessel Emergency Response Team has been given sufficient training to implement the SOPEP. • Ensure any environmental incidents or breaches of relevant EPOs or EPSs, detailed in this EP, are reported immediately to the Party Chief and Woodside Site Representative. • Ensure corrective actions for incidents or breaches are developed, communicated to the Woodside Site Representative, and tracked to closeout in a timely manner. Ensure closeout of actions is communicated to the Woodside Site Representative.
Party Chief/ Manager	• Understand and manage environmental aspects of the seismic operations per this EP and approval conditions. • Provide copies of documents, records, reports and certifications (as requested by Woodside) in a timely manner to assist in compliance reporting. • Ensure any environmental incidents or breaches of EPOs or EPSs, detailed in this EP, are reported immediately to the Woodside Site Representative and Woodside Survey Operations Project Manager.

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Title (role)	Environmental responsibilities
Woodside Site Representative	• Ensure project personnel adhere to the requirements of this EP so the EPOs are met, and the EPSs are implemented during seismic operations. • Ensure environmental incidents or breaches of outcomes or standards are reported as per Woodside's event notification requirements. Corrective actions for incidents and breaches must be developed, tracked and closed out in a timely manner. • Ensure periodic environmental inspections are completed. Monitor and close out corrective actions identified during environmental monitoring, audits and inspections. • Ensure any environmental incidents or breaches of EPOs or EPSs detailed in this EP, are reported immediately to the Woodside Survey Operations Project Manager. • Review contractors' procedures, input into Toolbox Talks and JSAs. • Provide environmental support for activities through regular engagement with Woodside Environmental Adviser.
Marine Fauna Observer	• Provide training through induction/briefing to all vessel crew likely to assist with marine fauna observations. • Record observations of marine fauna and monitor and report on compliance with acoustic operating requirements.
Passive Acoustic Monitoring Operatives	• Monitor marine fauna using PAM. • Record observations of marine fauna and monitor and report on compliance with acoustic operating requirements.

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7.4 Training and competency

7.4.1 Overview

As part of its contracting process, Woodside assesses a proposed contractor's environmental management systems to determine the level of compliance with the standard AS/NZ ISO 14001. This assessment is performed for the Petroleum Activity as part of the pre-mobilisation process. The assessment determines whether there is:

- a clearly defined organisational structure that sets out the roles and responsibilities for key positions
- an up-to-date training matrix that defines any corporate and site/activity-specific environmental training and competency requirements.

As a minimum, environmental awareness training is required for all personnel, detailing awareness and compliance with the contractor's environmental policy and environmental management system.

7.4.2 Inductions

Inductions are provided to all relevant personnel (e.g. contractors and Woodside representatives) before mobilising to or on arrival at the activity location. The induction covers the HSE requirements and environmental information specific to the activity location. Attendance records will be maintained.

The induction may include, but is not limited to:

- description of the activity
- ecological and socioeconomic values of the activity location
- regulations relevant to the activity
- Woodside's Environmental Management System – Environment and Biodiversity Policy
- EP importance, structure, implementation, and roles and responsibilities
- main environmental aspects/hazards and potential environmental impacts and related EPOs
- oil spill preparedness and response
- monitoring and reporting on EPOs and standards using measurement criteria
- incident reporting
- the prohibition of recreational fishing from seismic vessels.

7.4.3 Petroleum Activity specific environmental awareness

Before starting the survey associated with the Petroleum Activity, a pre-activity meeting will be held with all relevant personnel. The pre-activity meeting provides an opportunity to reiterate specific environmental sensitivities or commitments associated with the activity. Relevant sections of the pre-activity meeting will also be communicated to the project vessel personnel. Attendance lists will be recorded and retained.

During operations, regular HSE meetings will be held on the project vessels. During these meetings, environmental incidents will be reviewed and awareness material presented. Attendance lists will be recorded and retained.

7.5 Monitoring, auditing and managing non-conformance and review

7.5.1 Monitoring

Regulation 22(5) states that the implementation strategy is to provide for monitoring, auditing, managing non-conformance, and reviewing the operator's environmental performance and the implementation strategy itself.

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This section of the EP outlines the measures Woodside undertakes to regularly monitor the management of environmental risks and impacts of the Petroleum Activity against the EPOs, EPSs and MC, with a view to continuously improve environmental performance.

Woodside's environmental compliance and action register (ECAR) is a key tool used when implementing the EP. This internal tool is developed at EP acceptance and maintained until the EP is closed. The ECAR contains all the commitments, controls, EPSs and MC from the EP and tracks compliance against each of these items. Before a project vessel is mobilised, Woodside confirms the compliance systems in place on the vessel and identifies, and records in the ECAR, the specific records the project vessel contractor will provide during the offshore campaign. This provides Woodside with the opportunity to confirm the records provided during the activity are sufficient for demonstrating compliance against the EP. It also serves as a central repository for compliance information relevant to each Petroleum Activity.

7.5.1.1 Source-based impacts and risks

The tools and systems to monitor environmental performance, where relevant, will include:

- daily reports, which include leading indicator compliance
- use of contractor's risk identification program that requires personnel to routinely record and submit safety and environment risk observation cards (frequency varies with contractor)
- collection of evidence of compliance with the controls detailed in the EP relevant to offshore activities by the Woodside Site Representative (other compliance evidence is collected onshore)
- environmental discharge reports that record volumes of planned and unplanned discharges to the ocean and atmosphere
- monitoring of progress against the Global Wells and Seismic Function and Operations Division scorecards for key performance indicators
- internal auditing and assurance program as described in Section 7.5.2.

Throughout this activity, Woodside will identify new source-based risks and impacts through the monitoring and auditing systems and tools listed above and described in Section 7.5.2.

7.5.2 Auditing

Environmental performance will be audited to:

- identify potential new, or changes to, environmental impacts and risk, and methods for reducing those to ALARP
- confirm mitigation measures detailed in this EP are effectively reducing environmental impacts and risk, that mitigation measures proposed are practicable and provide appropriate information to verify compliance
- confirm compliance with the EPOs, EPSs and MCs detailed in this EP.

The internal audits/inspections and reviews, combined with the ongoing monitoring described in Section 7.5.1, and collection of evidence for MC are used to assess EPOs and EPSs.

A relevant person will conduct a pre-mobilisation inspection/audit of the seismic survey vessel before starting the Petroleum Activity. The scope of the audit will generally focus on aspects relating to ensuring appropriate understanding of environmental commitments and the operational readiness of the activity scope, including appropriate environmental controls in place.

As part of Woodside's Environmental Management System and assurances processes, activities may also be periodically selected for environmental audits as per Woodside's auditing process. Audit, inspection and review findings relevant to continuously improving the environmental performance are tracked through the ECAR. This ECAR is used to track compliance with EP commitments, including any findings and corrective actions. Identified non-conformances will be reported and tracked in accordance with this EP.

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7.5.2.1 Marine assurance

Woodside's marine assurance is managed by the Marine Assurance Team of the Operational Services in accordance with the Offshore Vessel Assurance Standard. Woodside's 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.

The process is mandatory for all project vessels (other than tankers and floating production, storage and offloading vessels) hired for Woodside operations, including for short-term hires (i.e. less than three months in duration). It defines applicable marine assurance activities, ensuring all project 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:

- offshore vessel management system assessment
- dynamic positioning system verification
- vessel inspections
- Offshore Vessel Inspection Database or condition and suitability assessment
- 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's 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:

- Woodside Marine Vessel Inspection
- Oil Companies International Marine Forum Offshore Vessel Inspection Database Inspection
- International Marine Contractors Association Common Marine Inspection Document Inspection
- Marine Warranty Survey.

Upon completion of the marine assurance process, to confirm identified concerns are addressed appropriately and conditions imposed are managed, Woodside's Marine Assurance Team will issue the vessel a statement of approval. Should a vessel not meet the requirements of Woodside's marine offshore vessel assurance process and be rejected, there does exist an opportunity to further scrutinise the proposed vessel.

If a vessel inspection or offshore vessel management system assessment verification review is not available, and all reasonable efforts based on time and resource availability have been made to complete this (e.g. short-term vessel hire), the Marine Assurance Specialist Offshore may approve the use of an alternative means of inspection, known as a risk assessment.

7.5.2.2 Risk assessment

Woodside conducts a risk assessment of project vessels where either an offshore vessel management system assessment verification review 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 a 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 project vessel for a particular task or role. The process compares the level of management control a project vessel is subject to against the risk factors associated with the activity or role.

Several factors are assessed as part of a project vessel risk assessment, including:

- management control factors:
  - company audit score (i.e. management system)
  - vessel HSE incidents

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  - 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 project 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 or vessel inspection may be required before awarding work.

The risk assessment is valid for the period a project vessel is on hire and for the defined scope of work.

7.5.3 Management of non-conformance

Woodside classifies non-conformances with EPOs and EPSs in this EP as environmental incidents. Woodside employees and contractors are required to report all environmental incidents, and these are managed as per HSE Event Reporting and Investigations Work Instruction, which includes learning requirements.

First Priority, an internal computerised database, 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 recurrence are all recorded. Corrective actions are monitored using First Priority and closed out in a timely manner.

Woodside uses a consequence matrix to classify environmental incidents, with the significant categories being A, B and C. Detailed investigations are completed for high potential and all category A, B and C environmental incidents.

7.5.4 Review

7.5.4.1 Management review

Within the Environment teams, the effectiveness of the EP implementation strategy is regularly reviewed at a frequency commensurate with activity duration and risk. This review may consider:

- key performance indicators
- effectiveness of tools and systems to monitor environmental performance
- lessons learned from implementation during previous campaigns or activities
- reviews of oil spill arrangements and testing performed in accordance with this EP.

Within each Asset, Project Team or Business Unit, managers review environmental performance regularly, usually through incident and event reporting and monthly HSE reports. The outcome of such reviews will inform whether further action is needed to address key or recurring environmental performance matters.

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7.5.4.2 Learning and knowledge-sharing

Learning and knowledge-sharing occurs via several methods, including:

- HSE meetings
- event investigations
- event bulletins
- post-activity review, including the review of environmental incidents, as relevant
- ongoing communication with seismic vessel operators
- formal and informal industry benchmarking
- cross-asset learnings
- engineering and technical authorities discipline communications and sharing.

7.5.4.3 Review of impacts, risks and controls across the life of the Environment Plan

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, Woodside will review impacts, risks and controls.

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 or are reduced to ALARP and acceptable levels. Information learned from previous activities conducted under this EP will be considered. Controls that have previously been excluded based on proportionality will be reconsidered. Any required changes will be managed by the MOC process outlined in Section 7.7.

7.6 Management of knowledge

Woodside reviews knowledge relevant to the existing environment, to identify changes relating to the understanding of the environment or legislation that supports the risk and impact assessments for EPs (in force and in preparation). New knowledge checks take place both routinely, primarily via quarterly and annual knowledge reviews, and ad hoc as information is obtained, and encompasses the following topics:

- environmental science – update checks conducted via desktop reviews: scientific literature, government publications and Woodside-supported publications and studies relating to existing environment topics (including species and habitats) and EPBC Act Matters of National Environmental Significance (Part 3) and Part 13 statutory instruments
- socioeconomic environment and stakeholder information – update checks conducted via desktop reviews: scientific literature, government publications and Woodside consultation
- environmental legislation – monitoring of emerging regulatory changes and the subsequent management of regulatory change (as outlined in the Regulatory Compliance Our Expectations).

A management of knowledge tracker is maintained to record reviews and updates. Communication of relevant new knowledge is addressed at the EP regular cross team environment meetings where changes in knowledge prompt a consideration of MOC, this is actioned and documented appropriately.

The frequency and documentation of reviews, communication of relevant new knowledge, and consideration of MOC, are documented in the WMS EP Delivery Guideline.

Any relevant new information about cultural values and heritage will be assessed using the EP MOC process (refer to Section 7.7).

Under the oil spill Operational and Scientific Monitoring Program, the environmental baseline studies database is reviewed and updated annually, and documented. Periodic location-focused environmental studies and baseline data gap analyses are completed and documented. Any subsequent studies scoped and executed because of such gap analysis are managed by the Biodiversity and Science Team and tracked via the Corporate Environment Baseline Database.

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7.7 Management of change and revision

7.7.1 Environment Plan management of change

Changes are managed in accordance with Woodside's Environmental Approval Requirements Australia Commonwealth Guideline. Changes relevant to this EP, concerning the scope of the activity (Section 3) described in this EP – including review of advances in technology at stages where new equipment may be selected such as project vessel contracting; changes in understanding of the environment, 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 6.9); and potential new advice from external stakeholders (Section 5) – will be managed in accordance with Regulation 39 of the Environment Regulations.

Risk will be assessed in accordance with the environmental risk management methodology detailed in this EP, 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 39 of the Environment Regulations.

Minor changes, where a review of the activity and the environmental risks and impacts of the activity do not trigger a requirement for a formal revision under Regulation 39 of the Environment Regulations, will be considered a 'minor revision'. Minor administrative changes to this EP, where an assessment of the environmental risks and impacts is not required (e.g. document references, phone numbers), will also be considered a 'minor revision'. Woodside will use its document control process for minor revisions, tracking them in an MOC Register to ensure visibility of cumulative risk changes, and to enable internal EP updates and reissuing as required. This document will be made available to NOPSEMA during regulator environment inspections.

7.7.2 Oil Pollution Emergency Plan management of change

Relevant documents from the OPEP will be reviewed in the following circumstances:

- implementation of improved preparedness measures
- a change in the availability of equipment stockpiles
- a change in the availability of personnel that reduces or improves preparedness and the capacity to respond
- the introduction of a new or improved technology that may be considered in a response for this activity
- to incorporate, where relevant, lessons learned from exercises or events
- if national or state response frameworks and Woodside's integration with them changes.

Where changes are required to the OPEP, based on the outcomes of the reviews described above, they will be assessed against Regulation 38 and 39 to determine if EP, including OPEP, resubmission is required. Changes with potential to influence minor or technical changes to the OPEP are tracked in MOC records, project records, and incorporated during internal updates of the OPEP or EP.

New sources of receptor-based impacts and risks, identified through monitoring and auditing systems and tools and Woodside's Environment Knowledge Management System, are assessed using the MOC process.

7.8 Record-keeping

Woodside will maintain compliance records referenced in the MC contained within Sections 6.7 and 6.7 of this EP. Many of the MC refer to 'records', which in this context Woodside considers to mean any hard or soft copy of information such as data, observations, certifications or photographs that can show a point in time and can be duplicated, such that they can be stored in compliance systems and provided to internal and external auditors (i.e. NOPSEMA) on request.

Record-keeping will be in accordance with Regulation 22(6) that addresses maintaining records of emissions and discharges.

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7.9 Ongoing consultation

Although consultation for the purpose of Regulation 25 is complete, in accordance with Regulation 22(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 relevant interested persons throughout the life of the EP. Recent new information identified during ongoing consultation will be assessed as appropriate.

Woodside hosts community forums at which members are regularly provided updates on Woodside activities (for example, at community reference group meetings). Representatives who are at those meetings are from community and industry and include Woodside, state government (for instance, relevant regional development commissions), local government, Indigenous groups, industry representative bodies, community and industry organisations.

Relevant persons and those who are simply interested in the activities, can otherwise remain up-to-date on this activity by subscribing to Woodside's website, or by reading the publicly available version of the EP on NOPSEMA's website, where available.

Should consultation feedback be received after EP acceptance that identifies relevant new information or a measure or control that requires implementation or update to meet the intended outcome of consultation, Woodside will apply its EP management of knowledge (Section 7.6) and MOC (Section 7.7) processes as appropriate.

Woodside supports ongoing engagement with Traditional Custodians, which complies with Woodside policies, strategies and procedures and is directly informed by feedback from Traditional Custodians.

It provides a mechanism for ongoing dialogue so Traditional Custodians can, on an ongoing basis, provide Woodside with feedback relating to the Petroleum Activity and in relation to caring for and managing Country, including Sea Country. The approach will be tailored to each Traditional Custodian group and may include, as agreed with relevant Traditional Custodians:

- social investment to support Indigenous ranger programs
- support for Indigenous oil spill response capabilities
- support for recording Sea Country values
- support to Traditional Custodian groups to build capabilities and capacity with respect to ability to engage with Woodside and the broader oil and gas industry on activities
- development of ongoing relationships with Traditional Custodian groups
- any other initiatives proposed for protecting Country, including cultural values.

At the time of EP submission, activities as part of ongoing consultation regarding the activity are planned with Traditional Custodians. Where Traditional Custodian relevant persons have requested information or further engagement considered as ongoing consultation, but have not requested a framework agreement, these requests have been captured in Table 7-5.

Table 7-5: Ongoing consultation engagements

Report/ information	Recipient	Purpose	Frequency	Content
Notification (email)	AHO	As requested by AMSA and AHO during consultation	No less than four weeks before activities begin.	PS 1.4 (Section 6.7.1) Date of activity start and duration
Notification (email)	AMSA	As requested during consultation	Notify AMSA Response Centre at least 24 to 48 hours before operations begin.	PS 1.5 (Section 6.7.1) Date of activity start and end

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Report/ information	Recipient	Purpose	Frequency	Content
Notification (email)	Director of National Parks	As required under the class approval for activities within ICUN Category VI zone	Notify at least 10 days before entering the Montebello Marine Park Multiple Use Zone, and at the conclusion of activities.	PS 1.11 (Section 6.7.1) Date of activity start and end
		As requested during consultation	Notify DNP upon acceptance of this EP.	PS 1.11 (Section 6.7.1)
Notification (email)	Department of Defence	Standard practice	Notify at least five weeks before activities begin.	PS 1.12 (Section 6.7.1) Date of activity start and end
Notification (email)	DMPE	Standard practice	Notify at least 10 days before activities begin and after completion.	Date of activity start and end
Notification (email)	DPIRD, CFA, WAFIC, DAFF – Fisheries, individual relevant Commonwealth fishery licence holders in the Operational Area (North West Slope Trawl Fishery)	Standard practice	Notify at least 10 days before activities begin and after completion.	PS 1.6 (Section 6.7.1) Date of activity start and end
Notification (email)	AFMA, Recfishwest, Recreational Marine Users	As requested during consultation	Notify at least 10 days before activities begin and after completion.	PS 1.6 (Section 6.7.1) Date of activity start and end
Notification (email)	All relevant persons	Notification of significant change	As required.	Notification of significant change
Notification (email)	Operators in adjacent titles	Standard practice	Notify at least 10 days before activities begin and after completion.	PS 1.6 (Section 6.7.1) Date of activity start and end
Emails/ meetings	Persons or organisations who provide feedback to Woodside after EP submission	Identification, assessment and consideration of feedback, claims and objections	As appropriate.	Assessment of claims and objections Relevant new information will be assessed using the EP Management of Knowledge (Section 7.6) and MOC (refer to Section 7.7) processes

7.10 Reporting

To meet the EPOs and EPSs outlined in this EP, Woodside reports at various levels, as outlined in the next sections.

7.10.1 Routine reporting (internal)

7.10.1.1 Regular health, safety and environment meetings

The project vessels will hold regular HSE meetings that cover all crews. During these meetings, environmental incidents will be reviewed, and awareness material presented. All personnel are required to attend the HSE

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meetings and attendances sheets are retained by the project vessel contractor. Daily meetings held onboard the project vessels will 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.

7.10.1.2 Performance reporting

Monthly and quarterly performance reports are developed and reviewed by the Divisional Leadership teams. These reports cover several subject matters, including:

- HSE incidents (including high potential incidents and those related to this EP) and recent activities
- corporate key performance indicator targets, which include environmental metrics
- outstanding actions from audits or incident investigations
- technical highlights and lowlights.

7.10.2 Routine reporting (external)

7.10.2.1 Start and end notifications of the Petroleum Activity

In accordance with Regulation 54, Woodside will notify NOPSEMA of the start of the Petroleum Activity at least 10 days before the activity begins and will notify NOPSEMA within 10 days of completing the activity.

7.10.2.2 Environmental performance review and reporting

In accordance with applicable environmental legislation for the activity, Woodside is required to report information about environmental performance to the appropriate regulator. Regulatory reporting requirements are summarised in Table 7-6.

Table 7-6: Routine external reporting requirements

Report	Recipient	Frequency	Content
Monthly Recordable Incident Reports (Appendix D)	NOPSEMA	By the 15th of each month (in the event a recordable incident occurred the previous month).	Details of recordable incidents that have occurred during the Petroleum Activity for previous month (if applicable)
Environmental Performance Report	NOPSEMA	Annually, with the first report submitted within 12 months of starting the Petroleum Activity covered by this EP (as per the requirements of Regulation 22(7))	Compliance with EPOs, controls and EPSs outlined in this EP, in accordance with the Environment Regulations Decommissioning progress update

7.10.2.3 End of the Environmental Plan

The EP will end when Woodside notifies NOPSEMA that the Petroleum Activity has ended and all the obligations identified in this EP are completed, and NOPSEMA has accepted the notification, in accordance with Regulation 46 of the Environment Regulations.

7.10.3 Incident reporting (internal)

Woodside's Project Manager is responsible for ensuring reporting of environmental incidents meets Woodside and regulatory reporting requirements, as detailed in the Woodside HSE Event Reporting and Investigations Work Instruction and this section of the EP.

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7.10.4 Incident reporting (external) – Reportable and recordable

7.10.4.1 Reportable incidents

Definition

A reportable incident is defined under Regulation 5 of the Environment Regulations as:

> *an incident relating to the activity that has caused, or has the potential to cause, moderate to significant environmental damage.*

A reportable incident for the Petroleum Activity is an incident that:

- has caused environmental damage with a consequence level of Moderate (C) or above, as defined under Woodside's risk table (refer to Section 2.2.7)
- has the potential to cause environmental damage with a consequence level of Moderate (C) or above, as defined under Woodside's risk table (refer to Section 2.2.7).

The environmental risk assessment for the Petroleum Activity identifies those risks with a potential consequence level of Moderate (C) or above for environment. The incident that has the potential to cause this level of impact is an accidental loss of hydrocarbons from a vessel collision (Section 6.8.2).

Any such incidents represent potential events that would be reportable incidents. Incident reporting is performed with consideration of NOPSEMA's Guidance Note (N-03300-GN2303 A1179039) (NOPSEMA, 2025), stating "if in doubt, notify NOPSEMA", and assessed on a case-by-case basis to determine if they trigger a reportable incident as defined in this EP and by the Environment Regulations.

Notification

NOPSEMA will be notified of all reportable incidents, according to the requirements of Regulations 47, 48 and 49 of the Environment Regulations. Woodside will:

- report all reportable incidents to the regulator (orally) as soon as practicable, but within two hours of the incident or its detection by Woodside
- provide a written record of the reported incident to NOPSEMA, the National Offshore Petroleum Titles Administrator and the department of the responsible State Minister (DMPE) as soon as practicable after orally reporting the incident
- complete a written report for all reportable incidents using a format consistent with the NOPSEMA Form FM0831 – Reportable Environmental Incident (Appendix D), which must be submitted to NOPSEMA as soon as possible, but within three days of the incident or its detection by Woodside
- provide a copy of the written report to the National Offshore Petroleum Titles Administrator and DMPE, within seven days of the written report being provided to NOPSEMA.

AMSA will be notified of oil spill incidents as soon as possible after their occurrence, and DCCEEW notified if MNES are to be affected by the incident.

7.10.4.2 Recordable incidents

Definition

A recordable incident as defined under Regulation 5 of the Environment Regulations is an incident arising from the activity that "breaches an EPO or EPS, in the EP that applies to the activity, that is not a reportable incident".

Notification

NOPSEMA will be notified of all recordable incidents, according to the requirements of Regulation 50(4), no later than 15 days after the end of the calendar month using the NOPSEMA Form – Recordable Environmental Incident Monthly Summary Report (Appendix D), detailing:

- all recordable incidents that occurred during the calendar month
- all material facts and circumstances concerning the recordable incidents that the operator knows or is able, by reasonable search or enquiry, to find out
- action taken to avoid or mitigate any adverse environment impacts of the recordable incidents

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- the action that has been taken, or is proposed to be taken, to prevent a similar incident occurring.

7.10.4.3 Other external incident reporting requirements

Table 7-7 describes the incident reporting requirements that apply in the Operational Area, in addition to the notification and reporting of environmental incidents defined under the Environment Regulations and Woodside requirements.

The pollution activities that should also be reported to ARC Australia by the Vessel Master are:

- any loss of significant plastic material (e.g. streamers)
- garbage disposed in the sea within 12 NM of land (garbage includes food, paper, bottles, etc)
- any loss of hazardous materials.

For oil spill incidents, Woodside will notify other agencies and organisations as appropriate to the nature and scale of the incident, as per procedures and contact lists in the Hydrocarbon Spill Australia Regulatory Framework[58]and the Oil Pollution First Strike Plan (Appendix H).

[58] *In accordance with Regulation 56 of the Environment Regulations, references to the Woodside Hydrocarbon Spill Australia Regulatory Framework within this EP refer to Appendix K of the North West Shelf Phase 1 Plug and Abandonment and TPA03 Well Intervention EP, which is available on NOPSEMA's website using the following link: https://docs.nopsema.gov.au/A1282745.*

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Table 7-7: External incident reporting requirements

Event	Responsibility	Notifiable party	Notification requirements	Contact	Contact detail
Any marine incidents during Petroleum Activity	Vessel Master	AMSA	Submit Incident Alert Form 18 as soon as reasonably practicable. Within 72 hours after becoming aware of the incident, submit Incident Report Form 19.	AMSA	reports@amsa.gov.au
Oil pollution incidents in Commonwealth waters	Vessel Master	AMSA Response Centre	As per Article 8 and Protocol I of The International Convention for the Prevention of Pollution From Ships, 1973 (MARPOL) verbally notify within two hours via the national emergency 24-hour notification contacts and provide a written report within 24 hours of the request by AMSA.	AMSA Response Centre	If the ship is at sea: Free call: 1800 641 792 Phone: 08 9430 2100 (Fremantle)
	Vessel Master	AMSA Response Centre	Without delay as per the *Protection of the Sea (Prevention of Pollution from Ships) Act 1983* (Cth), part II, section 11(1), notify AMSA Response Centre verbally via the national emergency 24-hour notification contact of the hydrocarbon spill; follow up with a written Pollution Report as soon as possible after verbal notification.	AMSA Response Centre	Phone: 1800 641 792 OR +61 2 6230 6811
Any oil pollution incident that has the potential to enter a National Park or requires oil spill response activities to be conducted within a National Park	Vessel Master	DCCEEW	Report verbally, as soon as possible.	Director of National Parks	Phone: +61 419 293 465
Activity that causes unintentional death of or injury to fauna species listed as threatened or migratory under the EPBC Act	Vessel Master	DCCEEW	Report within seven days of becoming aware.	Secretary of DCCEEW	Phone: 1800 803 772 Email: protected.species@environment.gov.au

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Event	Responsibility	Notifiable party	Notification requirements	Contact	Contact detail
Within two hours of becoming aware of a marine pollution incident that occurs in or may impact State waters	CIMT Incident Commander or delegate	DTMI	Verbally notify DTMI that a spill has occurred and, if required, request use of equipment stored in Karratha. Follow up with a written pollution report as soon as practicable after verbal notification. Additionally, notify DTMI if spill is likely to extend into WA waters. Request DTMI to provide liaison to Woodside CIMT.	DTMI Maritime Environmental Emergency Response Unit Duty Officer	Phone: 08 9480 9924
Within 24 hours of Woodside reporting an oil spill or discharge of any pollutant that impacts State waters to the appropriate authority (e.g. DTMI)	CIMT Incident Commander or delegate	DPIRD	Notify DPIRD via email within 24 hours of Woodside reporting the incident to the appropriate authority.	-	Email: environment@dpird.wa.gov.au
Within 24 hours of detection of suspected or confirmed presence/introduction of any marine pest in WA waters	Qualified IMS inspector, Woodside Environment Adviser or contractor	DPIRD	Report suspected or confirmed presence/ introduction of any marine pest detected within WA waters to the department within 24 hours by email or phone.	DPIRD WA FishWatch	Email: aquatic.biosecurity@dpird.wa.gov.au Phone:1800 815 507

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7.11 Emergency preparedness and response

7.11.1 Overview

Under Regulation 22(8), the implementation strategy must contain an OPEP and provide for updating it. Regulation 22(9) outlines the requirements for the OPEP, which must include adequate arrangements for responding to and monitoring oil pollution.

Table 7-8 summarises how this EP and supporting documents address the requirements of Environment Regulations that relate to oil pollution response arrangements.

Table 7-8: Oil pollution preparedness and response overview

Content	Environment Regulations	Document/section reference
Details (oil pollution response) control measures that will be used to reduce the impacts and risks of the activity to ALARP and an acceptable level	Regulations 21(5), (6), 22(2)	Oil Spill Preparedness and Response Mitigation Assessment (Appendix G)
Describes the OPEP	Regulation 22(8)	Woodside's OPEP has the following components: • Hydrocarbon Spill Australia Regulatory Framework (refer to Section 7.10.4.3) • Oil Pollution First Strike Plan (Appendix H) • Oil Spill Preparedness and Response Mitigation Assessment (Appendix G)
Details the arrangements for responding to and monitoring oil pollution (to inform response activities), including control measures	Regulation 22(9)	Oil Spill Preparedness and Response Mitigation Assessment (Appendix G) Oil Pollution First Strike Plan (Appendix H)
Details the arrangements for updating and testing the oil pollution response arrangements	Regulations 22(8), 22(12), 22(13), 22(14)	Section 7.12.2 of this EP Oil Spill Preparedness and Response Mitigation Assessment (Appendix G)
Details provisions for monitoring impacts to the environment from oil pollution and response activities	Regulation 22(10)	Oil Spill Preparedness and Response Mitigation Assessment (Appendix G)
Demonstrates the oil pollution response arrangements are consistent with the national system for oil pollution preparedness and control	Regulation 22(16)	Hydrocarbon Spill Australia Regulatory Framework (refer to Section 7.10.4.3)

7.11.2 Emergency response training

Regulation 22(4) requires that the implementation strategy includes measures to ensure employees and contractors have the appropriate competencies and training. Woodside has conducted a risk-based training needs analysis on positions required for effectively responding to an oil spill. After mapping training to Woodside-identified competencies, training was then mapped to positions based on their required competencies (Table 7-9).

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Table 7-9: Emergency response training requirements

IMT position	Minimum competency
CIMT Incident Commander and Deputy Incident Commander	IMT Fundamentals (internal course) or equivalent Incident Command System 100/200 IMO3 or equivalent spill response specialist level with an oil spill response organisation Participation in Level 2 activation, exercise or skills maintenance
Operations, Planning, Logistics and Finance Sections, and other rostered members of the CIMT	IMT Fundamentals course or equivalent Incident Command System 100/200 Oil Spill theory Participation in Level 2 activation, exercise or skills maintenance
Environment Unit Lead	IMT Fundamentals course Incident Command System 100/200 IMO2 or equivalent spill response specialist level with an oil spill response organisation Participation in Level 2 activation, exercise or skills maintenance
Note on competency/equivalency	
In 2023 Woodside reviewed its incident and crisis systems, processes and tools to assess whether these were fit-for purpose and has rolled out a change to the crisis and emergency management training and the oil spill response training requirements for IMT roles. The revised IMT Fundamentals training program aligns with the performance requirements of PMAOMIR320 – Manage Incident Response Information and PMAOM0R418 – Coordinate Incident Response. In 2023, Woodside decided to align its global incident command arrangements to the Incident Command System. As such, all rostered members of the IMT are trained up to Incident Command System 200. In addition to baseline incident management training, all rostered members of the IMT undertake a level of hydrocarbon spill response training. Depending upon the role, this may take the form of IMO training or completion of Woodside's internal oil spill training course, which involves completing two online AMSA Modules (Introduction to National Plan and Incident Management; and Introduction to Oil Spills) and face-to-face training. Woodside Learning Services is responsible for collating and maintaining personnel training records. The Hydrocarbon Spills Preparedness Dashboard reflects the competencies required for each oil spill role (IMT/operational).	

7.11.3 Emergency response preparation

The Emergency Operations Centre, based in Woodside's head office in Perth, is the onshore coordination point for an offshore emergency, and the location for the CIMT during an incident. The Emergency Operations Centre is staffed by an appropriately skilled team available on call 24 hours a day. This team coordinates rescues, minimises damage to the environment and facilities, and liaises with external agencies. Woodside's incident command structure is included in the Oil Pollution First Strike Plan (Appendix H) and response arrangements are further detailed in the Hydrocarbon Spill Australia Regulatory Framework (refer to Section 7.10.4.3). Roles and responsibilities for emergency response are detailed in Woodside's Incident Management Handbook.

Woodside will have an Emergency Response Plan in place relevant to the Petroleum Activity. The Emergency Response Plan provides procedural guidance specific to the asset and location of operations to control, coordinate and respond to an emergency or incident.

In a vessel-based emergency, the Vessel Master will assume overall onsite command and act as the Incident Commander. All persons aboard the vessel will be required to act under the Incident Commander's directions. The vessel will maintain communications with the onshore Project Manager and other emergency services. Emergency response support can be provided by the contractor's emergency centre or Woodside Communication Centre if requested by the Incident Commander.

The vessels will have equipment onboard for responding to emergencies, including medical, firefighting and hydrocarbon spill response equipment.

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7.11.4 Oil and other hazardous materials spill

A significant hydrocarbon spill during the Petroleum Activity is unlikely, but should such an event occur, it has the potential to cause serious environmental and reputational damage if not managed properly. The Hydrocarbon Spill Australia Regulatory Framework (refer to Section 7.10.4.3) , supported by the Oil Pollution First Strike Plan (Appendix H) which provides tactical response guidance to the activity/area, and the Oil Spill Preparedness and Response Mitigation Assessment (Appendix G), cover spill response for this Petroleum Activity.

The Crisis and Emergency Management Business Function manages Woodside's hydrocarbon spill response equipment stockpile. Woodside also maintains a suite of contracts for access to additional specialist response equipment and trained personnel, as required, via Australian and international spill response organisations and labour supply companies. In the event of a major spill, Woodside will enact first strike response actions, in liaison with the relevant control agency, as detailed in the activity-specific Oil Pollution First Strike Plan (Appendix H).

Vessels will have SOPEPs in accordance with the requirements of MARPOL 73/78 Annex I. These plans outline responsibilities, specify procedures and identify resources available in the event of a hydrocarbon or chemical spill from project vessel activities. The Oil Pollution First Strike Plan (Appendix H) is intended to work in conjunction with the SOPEPs, if hydrocarbons are released to the marine environment from a project vessel.

Woodside has established EPOs, EPSs and MC to be used for hydrocarbon spill response during the Petroleum Activity, as detailed in Appendix G.

7.12 Emergency and spill response

Woodside categorises incidents in relation to response requirements:

- Level 1 incidents are those that can be resolved by 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.
- A Level 2 incident is 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.
- A Level 3 incident or crisis is identified as a critical event that seriously threatens the organisation's people, the environment, company assets, reputation or livelihood. 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 and commercial, reputation, etc). The CIMT (see Level 2 above) may also be activated as required to manage the operational incident response.

7.12.1 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 7-10. Emergency response testing is aligned to existing or developing risks associated with Woodside's operations and activities. Corporate hazards and risks outlined in the corporate risk register, respective safety cases or project risk registers, are reference points for developing and scheduling emergency and crisis management exercises. External participants may be invited to attend exercises; for example, 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 teams and IMTs in their ability to respond to major accident and 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.

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Table 7-10: Testing of response capability

Response category	Scope	Response testing frequency	Response testing objective
Level 1 response	Exercises are project- and activity-specific	One Level 1 'first strike' drill conducted within two weeks of activity start.	Comprehensive exercises test elements of the First Strike Plan (Appendix H). Emergency drills are scheduled to test other aspects of the Emergency Response Plan.
Level 2 response	Exercises are vessel-specific	At least one emergency management exercise per campaign.	Test both the facility IMT response and that of the CIMT after handover of incident control.
Level 3 response	Exercises are relevant to all Woodside assets	The number of Crisis Management Team 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.

7.12.2 Testing of hydrocarbon spill response arrangements

Woodside is required to test hydrocarbon spill response arrangements as per Regulations 22(12), 22(13) and 22(14) in the Environment Regulations. Woodside's arrangements for spill response are common across Australian operating assets and activities to ensure controls are consistent. The overall objective of testing these arrangements is to ensure Woodside maintains an ability to respond to a hydrocarbon spill, specifically to:

- ensure relevant responders, contractors and key personnel understand and practice their assigned roles and responsibilities
- test response arrangements and actions to validate response plans
- ensure lessons learned are incorporated into Woodside processes and procedures and improvements 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, relevant response arrangements will be tested as soon as practicable.

In addition to the testing of response capability described in Table 7-10, up to eight formal exercises are planned annually, across Woodside, to specifically test arrangements for responding to a hydrocarbon spill to the marine environment.

7.12.3 Testing of arrangements schedule

Woodside's Testing of Arrangements Schedule (Figure 7-3) aligns with international good practice for spill preparedness and response management; the testing is compatible with the International Petroleum Industry Environmental Conservation Association Good Practice Guide and the Australian Institute for Disaster Resilience 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.

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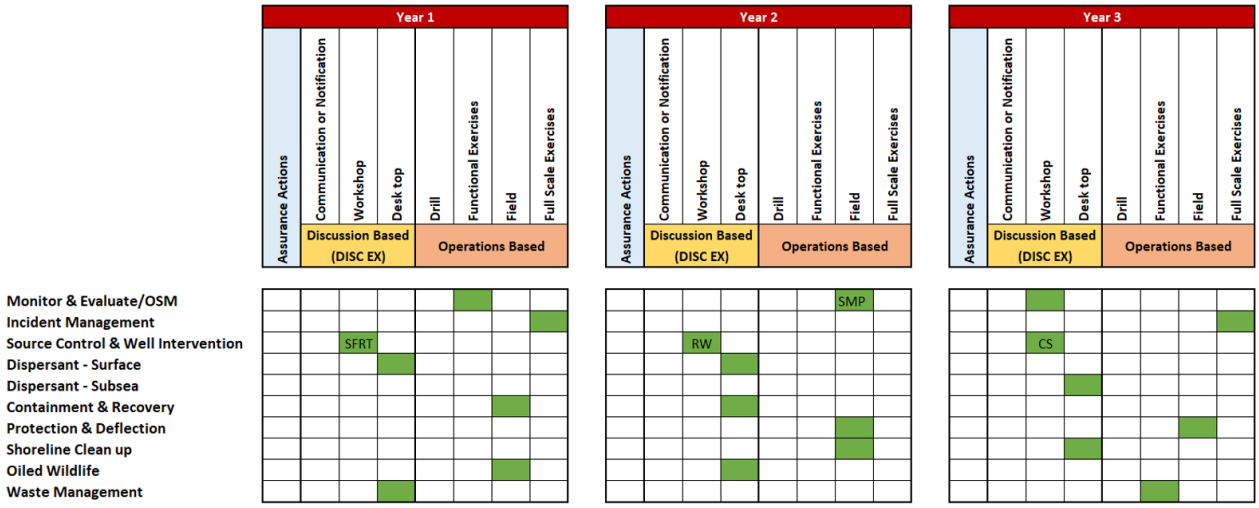


Figure 7-3: Indicative three-yearly testing of arrangements schedule

Note: Schedule is subject to change, additional detail is included in the live document.

The hydrocarbon spill arrangements shown in the rows of the schedule are tested against Woodside's regulatory commitments. Each arrangement has a support agency/company and an area to be tested (e.g. capability, equipment and personnel). For example, an arrangement could be to test Woodside's personnel capability for conducting operational monitoring, or the ability of the Australian Marine Oil Spill Centre to provide response personnel and equipment.

The vertical columns relate to how hydrocarbon spill arrangements will be tested over the three-year rolling schedule. The subheading for the column describes the standard method of testing likely to be undertaken (e.g. discussion exercise, desktop exercise), and the green cells indicate the arrangements that could be tested for each method.

Some arrangements may be tested across multiple exercises (e.g. critical arrangements), or via 'additional assurance' methods outside the formal Testing of Arrangements Schedule that also constitute sufficient evidence of testing of arrangements (e.g. audits, no-notice drills, internal exercises, assurance drills).

7.13 Cyclone and dangerous weather preparation

Tropical cyclones and other severe weather events are a potential risk to the safety and health of personnel. They potentially cause spills of hazardous materials into the environment from infrastructure or damaged vessels.

Facilities and relevant project vessels on hire to Woodside receive regular forecasts from Woodside Meteorologists, who liaise closely with the Bureau of Meteorology. If a cyclone (or severe weather event) is forecast, the path and its development is plotted and monitored using the Bureau of Meteorology data. If there is the potential for the cyclone (severe weather event) to affect the Petroleum Activity, the vessel-specific Cyclone Contingency Plan or equivalent will be actioned. If required, vessels can transit from the proposed track of the cyclone (severe weather event).

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9. LIST OF TERMS AND ACRONYMS

Table 9-1: List of terms and definitions

Term	Definition
ABARES	Australian Bureau of Agricultural and Resource Economics and Sciences
AFC	antifouling coating
AFFF	aqueous film-forming foam
AFMA	Australian Fisheries Management Authority
AHO	Australian Hydrographic Office
AIS	Automatic Identification System
ALARP	as low as reasonably practicable
AMP	Australian Marine Park
AMSA	Australian Maritime Safety Authority
AS	Australian Standard
CEFAS	Centre for Environment, Fisheries and Aquaculture Science
CIMT	Corporate Incident Management Team (Level 2/3 incident response)
CMMS	Computerised Maintenance Management System
CoA	Commonwealth of Australia
CONOPS	concurrent operations
CS	cost/sacrifice
CV	company values
DCCEEW	Commonwealth Department of Climate Change, Energy, Environment and Water
DMPE	Department of Mines, Petroleum and Exploration
DNP	Director of National Parks
DoEE	Department of the Environment and Energy
DPIRD	WA Department of Primary Industries and Regional Development
DTMI	WA Department of Transport and Major Infrastructure
DP	dynamic positioning
DPLH	Department of Planning, Lands and Heritage
DSEWPaC	Department of Sustainability, Environment, Water Population and Communities
ECAR	Environmental Compliance Action Register
EMBA	environment that may be affected
EMS	Environmental Management System
ENVID	environment identification
Environment Regulations	Commonwealth Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2023
EP	Environment Plan
EPBC Act	Commonwealth *Environment Protection and Biodiversity Conservation Act 1999*
EPBC Regulations	Environment Protection and Biodiversity Conservation Regulations 2025
EPO	environmental performance outcome

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Term	Definition
EPS	environmental performance standard
ESD	ecologically sustainable development
F	feasibility
F-Pil	flatback turtles, Pilbara stock
FCA/FCAFC	Federal Court of Australia – Full Court
G-NWS	green turtles, NWS stock
GHG	greenhouse gas
GNSS	global navigation satellite system
GP	good industry practice
HF	high frequency
HOCNF	Harmonised Offshore Chemical Notification Format
HQ	hazard quotient
HSE	health, safety and environment
IC	Incident Commander
IChEMS	Industrial Chemicals Environmental Standard
ICLDP	Incident and Crisis Leadership Development Program
ID	identity/identification
ILUA	Indigenous Land Use Agreement
IMMR	inspection, maintenance, monitoring and repair
IMO	International Maritime Organization
IMS	invasive marine species
IMT	Incident Management Team (onsite)
ISO	International Organization for Standardization
IUCN	International Union for Conservation of Nature
JSA	job safety assessment
KEF	key ecological feature
LAT	lowest astronomical tide
LCS	legislation, codes and standards
LF	low frequency
LH-WA	loggerhead turtles, WA stock
LNG	liquefied natural gas
M3	Monitor 3
MAE	major accident event
MARPOL	The International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978 (also known as MARPOL 73/78)
MC	measurement criteria
MEE	major environmental event
MFO	marine fauna observer

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Term	Definition
MGO	marine gas oil
MNES	matter of national environmental significance
MOC	management of change
MSPS	Management System Performance Standard
MSS	marine seismic survey
N/A	not applicable
NMFS	National Marine Fisheries Service
NOAA	National Oceanic and Atmospheric Administration
NOPSEMA	National Offshore Petroleum Safety and Environmental Management Authority
NWMR	North-west Marine Region
NZ	New Zealand
OCNS	Offshore Chemical Notification Scheme
OPEP	Oil Pollution Emergency Plan
OPGGS Act	Commonwealth *Offshore Petroleum and Greenhouse Gas Storage Act 2006*
OPP	Offshore Project Proposal
OSPAR Convention	Convention for the Protection of the Marine Environment of the North-East Atlantic
Our WMS	the Woodside Management System
PAM	passive acoustic monitoring
PBC	Prescribed Body Corporate
PFOS	perfluoroctane sulfonic acid
PJ	professional judgement
PK	peak
PK-PK	peak to peak
PMI	potential mortal injury
PMST	Protected Matters Search Tool
PS	performance standard
PSM	process safety management
PSRA	process safety risk assessment
PSZ	petroleum safety zone
PTS	permanent threshold shift
PTW	permit to work
Q#	quarter
RBA	risk-based analysis
RCC	Regional Coordination Centre
SBMP	Offshore Seabird Management Plan
SCE	safety and environment critical element
SCQ	safety and environment critical equipment
SEL	sound exposure level

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Term	Definition
SIMAP	Spill Impact Mapping and Analysis Program
SIMOPS	simultaneous operations
SNA	Safe Navigation Area
SOLAS	Safety of Life at Sea
SOPEP	Shipboard Oil Pollution Emergency Plan
SPL	sound pressure level
SRD	streamer recovery device
SV	societal value
TSSC	Threatened Species Scientific Committee
TTS	temporary threshold shift
UAV	uncrewed aerial vehicles
UK	United Kingdom
VHF	very high frequency
WA	Western Australia
WAFIC	Western Australian Fishing Industry Council
WMS	Woodside Management System
Woodside	Woodside Burrup Pty Ltd

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APPENDIX A WOODSIDE ENVIRONMENT AND BIODIVERSITY, CLIMATE AND RISK MANAGEMENT POLICIES

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Environment and Biodiversity Policy

OBJECTIVE

Woodside recognises the intrinsic value of nature and the importance of conserving biodiversity and ecosystem services to support the sustainable development of our society. We are committed to doing our part. We understand and embrace our responsibility to undertake activities in an environmentally sustainable way.

PRINCIPLES

Woodside commits to:

- Implementing a systematic approach to the management of the impacts and risks of our operating activities on an ongoing basis, including emissions and air quality, discharge and waste management, water management, biodiversity and protected areas.
- Applying the mitigation hierarchy principle (avoid, minimise, restore) and a continuous improvement approach to ensure we maintain compliance, improve resource use efficiency and reduce our environmental impacts.
- Embedding environmental and biodiversity management, and opportunities, in our business planning and decision-making processes.
- Complying with relevant laws and regulations and applying responsible standards where laws do not exist.
- Not undertaking new activities[1] within the boundaries of natural sites on the UNESCO World Heritage List.[2]
- Not undertaking new activities within IUCN Protected Areas[3] unless compatible with management plans in place for the area.
- Achieving net zero deforestation[4] for new activities.
- Developing Biodiversity Management Plans for all new major projects (CAPEX >US$2 billion).
- Supporting positive biodiversity outcomes in regions and areas in which we undertake activities.
- Setting targets and publicly reporting on our environmental and biodiversity performance.

APPLICABILITY

Responsibility for the application of this Policy rests with all Woodside employees, contractors and joint venturers engaged in activities under Woodside operational control. Woodside managers are also responsible for promotion of this Policy in non-operated joint ventures.

This Policy will be reviewed regularly and updated as required.

Revised by the Woodside Energy Group Ltd Board in December 2024.

[1] Does not include non-industrial and existing activities that are compatible with maintenance of the listed outstanding universal values.
[2] New UNESCO World Heritage Listings that overlap existing activities will be assessed at the time of listing.
[3] New IUCN Protected Areas that overlap existing activities will be assessed at the time of listing.
[4] Definition of Forest: 'native trees higher than 5 metres and a canopy cover of more than 10 percent on the land to be cleared'.

Climate Policy

BACKGROUND

The Intergovernmental Panel on Climate Change has stated that "it is unequivocal that human influence has warmed the atmosphere, ocean and land". An objective of the Paris Agreement is to hold "the increase in the global average temperature to well below 2ºC above pre-industrial levels" and to pursue "efforts to limit the temperature increase to 1.5ºC". Many countries have set targets to reduce greenhouse gas emissions, including by changing the way they produce and consume energy.

OBJECTIVE

Woodside's objective is to thrive in this energy transition as a low cost, lower carbon energy provider.

PRINCIPLES

Woodside aims to achieve the objective by:

- Setting science-based[1] near, mid, and long-term net emissions reduction targets that are consistent with Paris-aligned[2] scenarios, covering equity scope 1 and 2 emissions, both operated and non-operated.[3]
- Developing and operating oil and gas projects in a manner that is consistent with these targets. This includes the deployment of lower-emission technologies (Design Out), supporting efficient operations (Operate Out) and use of robust offsets (Offset) as methods to reduce and offset greenhouse gas emissions.
- Investing in new energy products and lower carbon services to reduce customers' emissions (part of Woodside's Scope 3 emissions), including but not limited to hydrogen, ammonia and carbon capture, utilisation and storage.
- Publishing transparent climate-related disclosures aligned to the recommendations of the Task Force on Climate-related Financial Disclosures (TCFD) or other recognised global reporting standards.
- Aligning our advocacy to the principles of this Climate Policy.

[1] Woodside is using the draft Prototype IFRS Sustainability Disclosure Standard definition of "science-based" (published 2021) which states "targets are considered 'science-based' if they are in line with what the most recent climate science sets out is necessary to meet the goals of the Paris Agreement—limiting global warming to below 2 degrees Celsius above pre-industrial levels and pursuing efforts to limit warming to 1.5 degrees Celsius.". See https://www.ifrs.org/content/dam/ifrs/groups/trwg/trwg-climate-related-disclosures- prototype.pdf (Appendix A).

[2] Woodside is using the draft Prototype IFRS Sustainability Disclosure Standard definition of "Paris-aligned scenarios" (published 2021) which states "scenarios consistent with limiting global warming to below 2 degrees Celsius above pre-industrial levels and pursuing efforts to limit warming to 1.5 degrees Celsius." See https://www.ifrs.org/content/dam/ifrs/groups/trwg/trwg-climate-related-disclosures- prototype.pdf (Appendix A).

[3] Equity emissions means the share of the total emissions arising from an activity that are attributable to Woodside in proportion to Woodside's ownership interest in the activity, irrespective of whether Woodside operates the activity. Operated emissions are the total emissions arising from an activity that Woodside operates, irrespective of Woodside's ownership interest.

APPLICABILITY

Responsibility for the application of this Policy rests with all Woodside employees, contractors and joint venture participants engaged in activities under Woodside operational control. Woodside managers are also responsible for promotion of this Policy in non-operated joint ventures.

This Policy will be reviewed regularly and updated as required.

Reviewed by the Woodside Energy Group Ltd Board in December 2024.

Risk Management Policy

OBJECTIVES

Woodside recognises that risk is inherent in our business and the effective management of risk is vital to deliver our strategic objectives, continued growth and success. We are committed to managing risks in a proactive and effective manner as a source of competitive advantage.

Our approach protects us against potential negative impacts, enables us to take risk for reward and improves our resilience against emerging risks. The objective of our risk management framework is to provide a single consolidated view of risks across the company to understand our full risk exposure and prioritise risk management and governance.

The success of our approach lies in the responsibility placed on everyone at all levels to proactively identify, assess and treat risks relating to the objectives they are accountable for delivering.

PRINCIPLES

Woodside achieves these objectives by:

- Applying a structured and comprehensive framework for the identification, assessment and treatment of current risks and response to emerging risks;
- Ensuring line of sight of financial and non-financial risks at appropriate levels of the organisation;
- Demonstrating leadership and commitment to integrating risk management into our business activities and governance practices;
- Recognising the value of stakeholder engagement, best available information and proactive identification of potential changes in external and internal context;
- Embedding risk management into our critical business processes and control framework;
- Understanding our exposure to risk and tolerance for uncertainty to inform our decision making and assure that Woodside is operating with due regard to the risk appetite endorsed by the Board; and
- Evaluating and improving the effectiveness and efficiency our approach.

APPLICABILITY

The Managing Director of Woodside is accountable to the Board of Directors for ensuring this Policy is effectively implemented.

Responsibility for the application of this Policy rests with all Woodside employees, contractors and joint venturers engaged in activities under Woodside operational control. Woodside managers are also responsible for promotion of this Policy in non-operated joint ventures.

This Policy will be reviewed regularly and updated as required.

Reviewed by the Woodside Energy Group Ltd Board in December 2024.

APPENDIX B RELEVANT REQUIREMENTS

The below table refers to Commonwealth legislation related to the Petroleum Activity.

Commonwealth legislation	Summary
Aboriginal and Torres Strait Islander Heritage Protection Act 1984	This Act seeks "to preserve and protect places, areas and objects of particular significance" to Aboriginal people. Under the Section 9 and 10 provisions of the Act, the Minister for the Environment may declare significant Aboriginal areas temporarily or permanently protected if they are considered under threat. Similar declarations regarding Aboriginal objects can be made under Section 12. Under Section 22 of the Act, the contravention of any of these declarations is an offence. Additionally, the discovery of any Aboriginal remains must be reported to the Minister under Section 20. Damage or interference with Aboriginal objects or places is not an offence under the Act except within Victoria under Section 21U.
Air Navigation Act 1920 Air Navigation Regulations 1947 Air Navigation (Aerodrome Flight Corridors) Regulations 1994 Air Navigation (Aircraft Engine Emissions) Regulations 1995 Air Navigation (Aircraft Noise) Regulations 1984 Air Navigation (Fuel Spillage) Regulations 1999	This Act relates to managing air navigation.
Australian Maritime Safety Authority Act 1990	This Act establishes a legal framework for AMSA, which represents the Australian Government and international forums in the development, implementation and enforcement of international standards, including those governing ship safety and marine environment protection. AMSA is responsible for administering the Marine Orders in Commonwealth waters.
Australian Radiation Protection and Nuclear Safety Act 1998	This Act relates to protecting the health and safety of people, and protecting the environment from the harmful effects of radiation.
Biosecurity Act 2015 Quarantine Regulations 2000 Biosecurity Regulation 2016 Australian Ballast Water Management Requirements 2022 Biosecurity Amendment (Biofouling Management) Regulations 2021	This Act provides the Commonwealth with powers to take quarantine measures, and implement necessary related programs, to prevent introducing any plant, animal, organism or matter that could contain anything that could threaten Australia's native flora and fauna or natural environment. The Commonwealth's powers include entry, seizure, detention and disposal. This Act includes mandatory controls on using seawater as ballast in ships and declaring sea vessels voyaging out of and into Commonwealth waters. The Regulations stipulate that all information regarding the voyage of the vessel and the ballast water is declared correctly to the quarantine officers. The Biofouling Management Regulations requires ships to report information about biofouling management and the voyage history of the ship in the past 12 months through a pre-arrival report.

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Commonwealth legislation	Summary
Environment Protection and Biodiversity Conservation Act 1999 Environment Protection and Biodiversity Conservation Regulations 2025	This Act protects MNES. It streamlines the national environmental assessment and approvals process, protects Australian biodiversity and integrates management of important natural and culturally significant places. Under this Act, actions that may be likely to have a significant impact on MNES must be referred to the Minister for the Environment and Water.
Environment Protection (Sea Dumping) Act 1981 Environment Protection (Sea Dumping) Regulations 1983	This Act provides for protecting the environment by regulating dumping of matter into the sea, incineration of waste at sea, and placement of artificial reefs.
Industrial Chemicals (Notification and Assessment Act) 1989 Industrial Chemicals (Notification and Assessment) Regulations 1990	This Act creates a national register of industrial chemicals. The Act also provides for restricting the use of certain chemicals that could have harmful effects on the environment or health.
National Environment Protection Measures (Implementation) Act 1998 National Environment Protection Measures (Implementation) Regulations 1999	This Act and Regulations provide for implementing National Environment Protection Measures to protect, restore and enhance the quality of the environment in Australia and ensure the community has access to relevant and meaningful information about pollution. The National Environment Protection Council has made National Environment Protection Measures relating to ambient air quality, movement of controlled waste between states and territories, the National Pollutant Inventory, and used packaging materials.
National Greenhouse and Energy Reporting Act 2007 National Greenhouse and Energy Reporting (Safeguard Mechanism) Rule 2015	This Act and associated Rule establishes the legislative framework for the National Greenhouse and Energy Reporting Scheme for reporting GHG emissions and energy consumption and production by corporations in Australia.
Navigation Act 2012 Marine Order 12: Construction – subdivision and stability, machinery and electrical installations Marine Order 30: Prevention of collisions Marine Order 47: Offshore Industry units Marine Order 57: Helicopter operations Marine Order 91: Marine pollution prevention – oil Marine Order 93: Marine pollution prevention – noxious liquid substances Marine Order 94: Marine pollution prevention – packaged harmful substances Marine Order 96: Marine pollution prevention – sewage Marine Order 97: Marine pollution prevention – air pollution	This Act regulates navigation and shipping, including SOLAS. This Act is the primary legislation that regulates ship and seafarer safety and shipboard aspects of marine environment protection and pollution prevention.
Offshore Petroleum and Greenhouse Gas Storage Act 2006 Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2023 Offshore Petroleum and Greenhouse Gas Storage (Resource Management and Administration) Regulations 2011 Offshore Petroleum and Greenhouse Gas Storage (Safety) Regulations 2024	This Act is the principal Act governing offshore petroleum exploration and production in Commonwealth waters. Specific environmental, resource management and safety obligations are set out in the listed Regulations.

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Commonwealth legislation	Summary
Ozone Protection and Synthetic Greenhouse Gas Management Act 1989 Ozone Protection and Synthetic Greenhouse Gas Management Regulations 1995	This Act provides for protecting ozone in the atmosphere by controlling and ultimately reducing the manufacture, import and export of ozone-depleting substances and synthetic GHGs, and replacing them with suitable alternatives. The Act will only apply to Woodside if it manufactures, imports or exports ozone-depleting substances.
Protection of the Sea (Powers of Intervention) Act 1981	This Act authorises the Commonwealth to take measures to protect the sea from pollution by oil and other noxious substances discharged from ships. It provides legal immunity for persons acting under an AMSA direction.
Protection of the Sea (Prevention of Pollution from Ships) Act 1983 Protection of the Sea (Prevention of Pollution from Ships) (Orders) Regulations 1994 Marine Order 91: Marine pollution prevention – oil Marine Order 93: Marine pollution prevention – noxious liquid substances Marine Order 94: Marine pollution prevention – packaged harmful substances Marine Order 95: Marine pollution prevention – garbage Marine Order 96: Marine pollution prevention – sewage Maritime Legislation Amendment (Prevention of Air Pollution from Ships) Act 2007 MARPOL Convention	This Act relates to protecting the sea from pollution by oil and other harmful substances discharged from ships. Under this Act, discharge of oil or other harmful substances from ships into the sea is an offence. There is also a requirement to keep records of the ships dealing with such substances. The Act applies to all Australian ships, regardless of their location. It applies to foreign ships operating between 3 NM off the coast out to the end of the Australian Exclusive Economic Zone (200 NM). It also applies within the 3 NM of the coast where the State/Northern Territory does not have complementary legislation. All the Marine Orders listed, except for Marine Order 95, are enacted under both the *Navigation Act* and the *Protection of the Sea (Prevention of Pollution from Ships) Act*. The *Maritime Legislation Amendment (Prevention of Air Pollution from Ships) Act 2007* is an amendment to the *Protection of the Sea (Prevention of Pollution from Ships) Act 1983*. This amended Act provides for protecting the sea from pollution by oil and other harmful substances discharged from ships.
Protection of the Sea (Harmful Antifouling Systems) Act 2006 Marine Order 98: Marine pollution – anti-fouling systems	This Act relates to protecting the sea from the effects of harmful anti-fouling systems. It prohibits applying or reapplying harmful anti-fouling compounds on Australian ships or foreign ships that are in an Australian shipping facility.
Recycling and Waste Reduction (Mandatory Product Stewardship – Mercury-added Products) Rules 2021 (Minamata Convention on Mercury 2017)	This Convention is an agreement to protect human and environmental health from the effects of releases of mercury and mercury-containing compounds to the environment. The convention has been ratified by Australia and is implemented in Commonwealth law.

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Commonwealth legislation	Summary
Underwater Cultural Heritage Act 2018 Underwater Cultural Heritage Guidance for Offshore Developments Guidelines to Protect Underwater Cultural Heritage	The Act prescribes penalties for damaging protected Underwater Cultural Heritage without a permit under Section 30 or in contravention of a permit under Section 28. Protected Underwater Cultural Heritage is prescribed in Section 16 to automatically include the remains and associated artefacts of any vessel or aircraft that has been in Australian waters for 75 years, whether known or unknown. This protection is also extended to Underwater Cultural Heritage in Commonwealth waters specified by the Environment Minister under Section 17. Without a declaration under this section, Aboriginal Underwater Cultural Heritage is not protected under the *Underwater Cultural Heritage Act*.

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APPENDIX C EPBC ACT PROTECTED MATTERS SEARCH TOOL RESULTS

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EPBC Act Protected Matters Report

This report provides general guidance on matters of national environmental significance and other matters protected by the EPBC Act in the area you have selected. Please see the caveat for interpretation of information provided here.

Report created: 10-Oct-2025

Summary
Details
- Matters of NES
- Other Matters Protected by the EPBC Act
- Extra Information

Caveat
Acknowledgements

Summary

Matters of National Environment Significance

This part of the report summarises the matters of national environmental significance that may occur in, or may relate to, the area you nominated. Further information is available in the detail part of the report, which can be accessed by scrolling or following the links below. If you are proposing to undertake an activity that may have a significant impact on one or more matters of national environmental significance then you should consider the Administrative Guidelines on Significance.

World Heritage Properties:	1
National Heritage Places:	1
Wetlands of International Importance (Ramsar	None
Great Barrier Reef Marine Park:	None
Commonwealth Marine Area:	2
Listed Threatened Ecological Communities:	None
Listed Threatened Species:	52
Listed Migratory Species:	64

Other Matters Protected by the EPBC Act

This part of the report summarises other matters protected under the Act that may relate to the area you nominated. Approval may be required for a proposed activity that significantly affects the environment on Commonwealth land, when the action is outside the Commonwealth land, or the environment anywhere when the action is taken on Commonwealth land. Approval may also be required for the Commonwealth or Commonwealth agencies proposing to take an action that is likely to have a significant impact on the environment anywhere.

The EPBC Act protects the environment on Commonwealth land, the environment from the actions taken on Commonwealth land, and the environment from actions taken by Commonwealth agencies. As heritage values of a place are part of the 'environment', these aspects of the EPBC Act protect the Commonwealth Heritage values of a Commonwealth Heritage place. Information on the new heritage laws can be found at https://www.dcceew.gov.au/parks-heritage/heritage

A permit may be required for activities in or on a Commonwealth area that may affect a member of a listed threatened species or ecological community, a member of a listed migratory species, whales and other cetaceans, or a member of a listed marine species.

Commonwealth Lands:	1
Commonwealth Heritage Places:	1
Listed Marine Species:	103
Whales and Other Cetaceans:	31
Critical Habitats:	None
Commonwealth Reserves Terrestrial:	None
Australian Marine Parks:	3
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:	15
Regional Forest Agreements:	None
Nationally Important Wetlands:	1
EPBC Act Referrals:	164
Key Ecological Features (Marine):	6
Biologically Important Areas:	32
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
Commonwealth Marine Areas (EPBC Act)
Commonwealth Marine Areas (EPBC Act)

Listed Threatened Species		[Resource Information]

Status of Conservation Dependent and Extinct are not MNES under the EPBC Act.
Number is the current name ID.

Scientific Name	Threatened Category	Presence Text
BIRD		
Calidris acuminata		
Sharp-tailed Sandpiper [874]	Vulnerable	Species or species habitat known to occur within area
Calidris canutus		
Red Knot, Knot [855]	Vulnerable	Species or species habitat known to occur within area
Calidris ferruginea		
Curlew Sandpiper [856]	Critically Endangered	Species or species habitat known to occur within area
Charadrius leschenaultii		
Greater Sand Plover, Large Sand Plover [877]	Vulnerable	Species or species habitat known to occur within area

Scientific Name	Threatened Category	Presence Text
Erythrotriorchis radiatus Red Goshawk [942]	Endangered	Species or species habitat may occur within area
Falco hypoleucos Grey Falcon [929]	Vulnerable	Species or species habitat likely to occur within area
Limnodromus semipalmatus Asian Dowitcher [843]	Vulnerable	Species or species habitat known to occur within area
Limosa lapponica menzbieri Northern Siberian Bar-tailed Godwit, Russkoye Bar-tailed Godwit [86432]	Endangered	Species or species habitat known to occur within area
Macronectes giganteus Southern Giant-Petrel, Southern Giant Petrel [1060]	Endangered	Species or species habitat may occur within area
Malurus leucopterus edouardi White-winged Fairy-wren (Barrow Island), Barrow Island Black-and-white Fairy-wren [26194]	Vulnerable	Species or species habitat likely to occur within area
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat known to occur within area
Pezoporus occidentalis Night Parrot [59350]	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
Phaethon rubricauda westralis Red-tailed Tropicbird (Indian Ocean), Indian Ocean Red-tailed Tropicbird [91824]	Endangered	Species or species habitat likely to occur within area
Pterodroma mollis Soft-plumaged Petrel [1036]	Vulnerable	Species or species habitat may occur within area

Scientific Name	Threatened Category	Presence Text
Rostratula australis Australian Painted Snipe [77037]	Endangered	Species or species habitat likely to occur within area
Sternula albifrons Little Tern [82849]	Vulnerable	Breeding known 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
Tringa nebularia Common Greenshank, Greenshank [832]	Endangered	Species or species habitat likely to occur within area
FISH		
Milyeringa justitia Barrow Cave Gudgeon [86867]	Endangered	Species or species habitat known to occur within area
Milyeringa veritas Cape Range Cave Gudgeon, Blind Gudgeon [66676]	Vulnerable	Species or species habitat known to occur within area
Ophisternon candidum Blind Cave Eel [66678]	Vulnerable	Species or species habitat known to occur within area
MAMMAL		
Balaenoptera borealis Sei Whale [34]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area
Balaenoptera musculus Blue Whale [36]	Endangered	Migration route known to occur within area
Balaenoptera physalus Fin Whale [37]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area

Scientific Name	Threatened Category	Presence Text
Bettongia lesueur Barrow and Boodie Islands subspecies		
Boodie, Burrowing Bettong (Barrow and Boodie Islands) [88021]	Vulnerable	Species or species habitat known to occur within area
Dasyurus hallucatus		
Northern Quoll, Digul [Gogo-Yimidir], Wijingadda [Dambimangari], Wiminji [Martu] [331]	Endangered	Species or species habitat may occur within area
Eubalaena australis		
Southern Right Whale [40]	Endangered	Species or species habitat likely to occur within area
Isoodon auratus barrowensis		
Golden Bandicoot (Barrow Island) [66666]	Vulnerable	Species or species habitat known to occur within area
Lagorchestes conspicillatus conspicillatus		
Spectacled Hare-wallaby (Barrow Island) [66661]	Vulnerable	Species or species habitat known to occur within area
Lagorchestes hirsutus Central Australian subspecies		
Mala, Rufous Hare-Wallaby (Central Australia) [88019]	Endangered	Translocated population known to occur within area
Orcaella heinsohni		
Australian Snubfin Dolphin [81322]	Vulnerable	Species or species habitat known to occur within area
Osphranter robustus isabellinus		
Barrow Island Wallaroo, Barrow Island Euro [89262]	Vulnerable	Species or species habitat likely to occur within area
Petrogale lateralis lateralis		
Black-flanked Rock-wallaby, Moororong, Black-footed Rock Wallaby [66647]	Endangered	Species or species habitat known to occur within area
Rhinonicteris aurantia (Pilbara form)		
Pilbara Leaf-nosed Bat [82790]	Vulnerable	Species or species habitat known to occur within area
Sousa sahulensis		
Australian Humpback Dolphin [87942]	Vulnerable	Species or species habitat known to occur within area
REPTILE		

Scientific Name	Threatened Category	Presence Text
Aipysurus apraefrontalis Short-nosed Sea Snake, Short-nosed Seasnake [1115]	Critically Endangered	Species or species habitat known to occur within area
Aipysurus foliosquama Leaf-scaled Sea Snake, Leaf-scaled Seasnake [1118]	Critically Endangered	Species or species habitat known to occur within area
Caretta caretta Loggerhead Turtle [1763]	Endangered	Breeding known to occur within area
Chelonia mydas Green Turtle [1765]	Vulnerable	Breeding known to occur within area
Ctenotus zastictus Hamelin Ctenotus [25570]	Vulnerable	Species or species habitat likely to occur within area
Dermochelys coriacea Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Species or species habitat known to occur within area
Eretmochelys imbricata Hawksbill Turtle [1766]	Vulnerable	Breeding known to occur within area
Natator depressus Flatback Turtle [59257]	Vulnerable	Breeding known to occur within area
SHARK		
Carcharias taurus (west coast population) Grey Nurse Shark (west coast population) [68752]	Vulnerable	Congregation or aggregation known to occur within area
Carcharodon carcharias White Shark, Great White Shark [64470]	Vulnerable	Species or species habitat known to occur within area
Pristis clavata Dwarf Sawfish, Queensland Sawfish [68447]	Vulnerable	Species or species habitat known to occur within area
Pristis pristis Largetooth Sawfish, Freshwater Sawfish, River Sawfish, Leichhardt's Sawfish, Northern Sawfish [60756]	Endangered	Species or species habitat likely to occur within area

Scientific Name	Threatened Category	Presence Text
Pristis zijsron Green Sawfish, Dindagubba, Narrowsnout Sawfish [68442]	Vulnerable	Species or species habitat known to occur within area
Rhincodon typus Whale Shark [66680]	Vulnerable	Foraging, feeding or related behaviour known to occur within area
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
null		
Balaenoptera omurai Omura's Whale [87136]		Species or species habitat likely to occur within area
Migratory Marine Birds		
Anous stolidus Common Noddy [825]		Species or species habitat likely to occur within area
Apus pacificus Fork-tailed Swift [678]		Species or species habitat likely to occur within area
Ardenna carneipes Flesh-footed Shearwater, Fleshy-footed Shearwater [82404]		Species or species habitat likely to occur within area
Ardenna pacifica Wedge-tailed Shearwater [84292]		Breeding known to occur within area
Calonectris leucomelas Streaked Shearwater [1077]		Species or species habitat likely to occur within area
Fregata ariel Lesser Frigatebird, Least Frigatebird [1012]		Species or species habitat likely to occur within area

Scientific Name	Threatened Category	Presence Text
Fregata minor Great Frigatebird, Greater Frigatebird [1013]		Species or species habitat may occur within area
Hydroprogne caspia Caspian Tern [808]		Breeding known to occur within area
Macronectes giganteus Southern Giant-Petrel, Southern Giant Petrel [1060]	Endangered	Species or species habitat may occur within area
Onychoprion anaethetus Bridled Tern [82845]		Breeding known to occur within area
Phaethon lepturus White-tailed Tropicbird [1014]		Species or species habitat known to occur within area
Phaethon rubricauda Red-tailed Tropicbird [994]		Species or species habitat likely to occur within area
Sterna dougallii Roseate Tern [817]		Breeding known to occur within area
Sternula albifrons Little Tern [82849]	Vulnerable	Breeding known to occur within area
Thalassarche carteri Indian Yellow-nosed Albatross [64464]	Vulnerable	Species or species habitat may occur within area
Migratory Marine Species		
Anoxypristis cuspidata Narrow Sawfish, Knifetooth Sawfish [68448]		Species or species habitat known to occur within area
Balaenoptera bonaerensis Antarctic Minke Whale, Dark-shoulder Minke Whale [67812]		Species or species habitat likely to occur within area
Balaenoptera borealis Sei Whale [34]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area

Scientific Name	Threatened Category	Presence Text
Balaenoptera edeni Bryde's Whale [35]		Species or species habitat likely to occur within area
Balaenoptera musculus Blue Whale [36]	Endangered	Migration route known to occur within area
Balaenoptera physalus Fin Whale [37]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area
Carcharhinus longimanus Oceanic Whitetip Shark [84108]		Species or species habitat likely to occur within area
Carcharias taurus Grey Nurse Shark [64469]		Congregation or aggregation known to occur within area
Carcharodon carcharias White Shark, Great White Shark [64470]	Vulnerable	Species or species habitat known to occur within area
Caretta caretta Loggerhead Turtle [1763]	Endangered	Breeding known to occur within area
Chelonia mydas Green Turtle [1765]	Vulnerable	Breeding known to occur within area
Crocodylus porosus Salt-water Crocodile, Estuarine Crocodile [1774]		Species or species habitat may occur within area
Dermochelys coriacea Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Species or species habitat known to occur within area
Dugong dugon Dugong [28]		Breeding known to occur within area
Eretmochelys imbricata Hawksbill Turtle [1766]	Vulnerable	Breeding known to occur within area

Scientific Name	Threatened Category	Presence Text
Eubalaena australis as Balaena glacialis australis		
Southern Right Whale [40]	Endangered	Species or species habitat likely to occur within area
Isurus oxyrinchus		
Shortfin Mako, Mako Shark [79073]		Species or species habitat likely to occur within area
Isurus paucus		
Longfin Mako [82947]		Species or species habitat likely to occur within area
Megaptera novaeangliae		
Humpback Whale [38]		Breeding known to occur within area
Mobula alfredi as Manta alfredi		
Reef Manta Ray, Coastal Manta Ray [90033]		Species or species habitat known to occur within area
Mobula birostris as Manta birostris		
Giant Manta Ray [90034]		Species or species habitat known to occur within area
Natator depressus		
Flatback Turtle [59257]	Vulnerable	Breeding known to occur within area
Orcaella heinsohni		
Australian Snubfin Dolphin [81322]	Vulnerable	Species or species habitat known to occur within area
Orcinus orca		
Killer Whale, Orca [46]		Species or species habitat may occur within area
Physeter macrocephalus		
Sperm Whale [59]		Species or species habitat may occur within area
Pristis clavata		
Dwarf Sawfish, Queensland Sawfish [68447]	Vulnerable	Species or species habitat known to occur within area
Pristis pristis		
Largetooth Sawfish, Freshwater Sawfish, River Sawfish, Leichhardt's Sawfish, Northern Sawfish [60756]	Endangered	Species or species habitat likely to occur within area

Scientific Name	Threatened Category	Presence Text
[Pristis zijsron](#) Green Sawfish, Dindagubba, Narrowsnout Sawfish [68442]	Vulnerable	Species or species habitat known to occur within area
[Rhincodon typus](#) Whale Shark [66680]	Vulnerable	Foraging, feeding or related behaviour known to occur within area
[Sousa sahulensis as Sousa chinensis](#) Australian Humpback Dolphin [87942]	Vulnerable	Species or species habitat known to occur within area
[Tursiops aduncus (Arafura/Timor Sea populations)](#) Spotted Bottlenose Dolphin (Arafura/Timor Sea populations) [78900]		Species or species habitat known to occur within area
Migratory Terrestrial Species		
[Hirundo rustica](#) Barn Swallow [662]		Species or species habitat may occur within area
[Motacilla cinerea](#) Grey Wagtail [642]		Species or species habitat may occur within area
[Motacilla flava](#) Yellow Wagtail [644]		Species or species habitat may occur within area
Migratory Wetlands Species		
[Actitis hypoleucos](#) Common Sandpiper [59309]		Species or species habitat known to occur within area
[Calidris acuminata](#) Sharp-tailed Sandpiper [874]	Vulnerable	Species or species habitat known to occur within area
[Calidris canutus](#) Red Knot, Knot [855]	Vulnerable	Species or species habitat known to occur within area
[Calidris ferruginea](#) Curlew Sandpiper [856]	Critically Endangered	Species or species habitat known to occur within area

Scientific Name	Threatened Category	Presence Text
Calidris melanotos Pectoral Sandpiper [858]		Species or species habitat may occur within area
Charadrius leschenaultii Greater Sand Plover, Large Sand Plover [877]	Vulnerable	Species or species habitat known to occur within area
Charadrius veredus Oriental Plover, Oriental Dotterel [882]		Species or species habitat may occur within area
Glareola maldivarum Oriental Pratincole [840]		Species or species habitat may occur within area
Limnodromus semipalmatus Asian Dowitcher [843]	Vulnerable	Species or species habitat known to occur within area
Limosa lapponica Bar-tailed Godwit [844]		Species or species habitat known to occur within area
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat known to occur within area
Pandion haliaetus Osprey [952]		Breeding known to occur within area
Thalasseus bergii Greater Crested Tern [83000]		Breeding known to occur within area
Tringa nebularia Common Greenshank, Greenshank [832]	Endangered	Species or species habitat likely to occur within area

Other Matters Protected by the EPBC Act

Commonwealth Lands [Resource Information]

The Commonwealth area listed below may indicate the presence of Commonwealth land in this vicinity. Due to the unreliability of the data source, all proposals should be checked as to whether it impacts on a Commonwealth area, before making a definitive decision. Contact the State or Territory government land department for further information.

Commonwealth Land Name	State
Defence	
Defence - EXMOUTH VLF TRANSMITTER STATION [50123]	WA

Commonwealth 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 known to occur within area
Anous stolidus		
Common Noddy [825]		Species or species habitat likely to occur within area
Apus pacificus		
Fork-tailed Swift [678]		Species or species habitat likely to occur within area overfly marine area
Ardenna carneipes as Puffinus carneipes		
Flesh-footed Shearwater, Fleshy-footed Shearwater [82404]		Species or species habitat likely to occur within area
Ardenna pacifica as Puffinus pacificus		
Wedge-tailed Shearwater [84292]		Breeding known to occur within area
Bubulcus ibis as Ardea ibis		
Cattle Egret [66521]		Species or species habitat may occur within area overfly marine area
Calidris acuminata		
Sharp-tailed Sandpiper [874]	Vulnerable	Species or species habitat known to occur within area

Scientific Name	Threatened Category	Presence Text
Calidris canutus Red Knot, Knot [855]	Vulnerable	Species or species habitat known to occur within area overfly marine area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat known to occur within area overfly marine area
Calidris melanotos Pectoral Sandpiper [858]		Species or species habitat may occur within area overfly marine area
Calonectris leucomelas Streaked Shearwater [1077]		Species or species habitat likely to occur within area
Chalcites osculans as Chrysococcyx osculans Black-eared Cuckoo [83425]		Species or species habitat likely to occur within area overfly marine area
Charadrius leschenaultii Greater Sand Plover, Large Sand Plover [877]	Vulnerable	Species or species habitat known to occur within area
Charadrius veredus Oriental Plover, Oriental Dotterel [882]		Species or species habitat may occur within area overfly marine area
Chroicocephalus novaehollandiae as Larus novaehollandiae Silver Gull [82326]		Breeding known to occur within area
Fregata ariel Lesser Frigatebird, Least Frigatebird [1012]		Species or species habitat likely to occur within area
Fregata minor Great Frigatebird, Greater Frigatebird [1013]		Species or species habitat may occur within area

Scientific Name	Threatened Category	Presence Text
Glareola maldivarum Oriental Pratincole [840]		Species or species habitat may occur within area overfly marine area
Haliaeetus leucogaster White-bellied Sea-Eagle [943]		Species or species habitat likely to occur within area
Hirundo rustica Barn Swallow [662]		Species or species habitat may occur within area overfly marine area
Hydroprogne caspia as Sterna caspia Caspian Tern [808]		Breeding known to occur within area
Limnodromus semipalmatus Asian Dowitcher [843]	Vulnerable	Species or species habitat known to occur within area overfly marine area
Limosa lapponica Bar-tailed Godwit [844]		Species or species habitat known to occur within area
Macronectes giganteus Southern Giant-Petrel, Southern Giant Petrel [1060]	Endangered	Species or species habitat may occur within area
Merops ornatus Rainbow Bee-eater [670]		Species or species habitat may occur within area overfly marine area
Motacilla cinerea Grey Wagtail [642]		Species or species habitat may occur within area overfly marine area
Motacilla flava Yellow Wagtail [644]		Species or species habitat may occur within area overfly marine area

Scientific Name	Threatened Category	Presence Text
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat known to occur within area
Onychoprion anaethetus as Sterna anaethetus Bridled Tern [82845]		Breeding known to occur within area
Onychoprion fuscatus as Sterna fuscata Sooty Tern [90682]		Breeding known to occur within area
Pandion haliaetus Osprey [952]		Breeding known to occur within area
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
Phaethon rubricauda Red-tailed Tropicbird [994]		Species or species habitat likely to occur within area
Pterodroma mollis Soft-plumaged Petrel [1036]	Vulnerable	Species or species habitat may occur within area
Rostratula australis as Rostratula benghalensis (sensu lato) Australian Painted Snipe [77037]	Endangered	Species or species habitat likely to occur within area overfly marine area
Sterna dougallii Roseate Tern [817]		Breeding known to occur within area
Sternula albifrons as Sterna albifrons Little Tern [82849]	Vulnerable	Breeding known to occur within area
Sternula nereis as Sterna nereis Fairy Tern [82949]		Breeding known to occur within area

Scientific Name	Threatened Category	Presence Text
Thalassarche carteri		
Indian Yellow-nosed Albatross [64464]	Vulnerable	Species or species habitat may occur within area
Thalasseus bengalensis as Sterna bengalensis		
Lesser Crested Tern [66546]		Breeding known to occur within area
Thalasseus bergii as Sterna bergii		
Greater Crested Tern [83000]		Breeding known to occur within area
Tringa nebularia		
Common Greenshank, Greenshank [832]	Endangered	Species or species habitat likely to occur within area overfly marine area
Fish		
Acentronura larsonae		
Helen's Pygmy Pipehorse [66186]		Species or species habitat may occur within area
Bulbonaricus brauni		
Braun's Pughead Pipefish, Pug-headed Pipefish [66189]		Species or species habitat may occur within area
Campichthys tricarinatus		
Three-keel Pipefish [66192]		Species or species habitat may occur within area
Choeroichthys brachysoma		
Pacific Short-bodied Pipefish, Short-bodied Pipefish [66194]		Species or species habitat may occur within area
Choeroichthys latispinosus		
Muiron Island Pipefish [66196]		Species or species habitat may occur within area
Choeroichthys suillus		
Pig-snouted Pipefish [66198]		Species or species habitat may occur within area
Corythoichthys flavofasciatus		
Reticulate Pipefish, Yellow-banded Pipefish, Network Pipefish [66200]		Species or species habitat may occur within area

Scientific Name	Threatened Category	Presence Text
Cosmocampus banneri Roughridge Pipefish [66206]		Species or species habitat may occur within area
Doryrhamphus dactyliophorus Banded Pipefish, Ringed Pipefish [66210]		Species or species habitat may occur within area
Doryrhamphus excisus Bluestripe Pipefish, Indian Blue-stripe Pipefish, Pacific Blue-stripe Pipefish [66211]		Species or species habitat may occur within area
Doryrhamphus janssi Cleaner Pipefish, Janss' Pipefish [66212]		Species or species habitat may occur within area
Doryrhamphus multiannulatus Many-banded Pipefish [66717]		Species or species habitat may occur within area
Doryrhamphus negrosensis Flagtail Pipefish, Masthead Island Pipefish [66213]		Species or species habitat may occur within area
Festucalex scalaris Ladder Pipefish [66216]		Species or species habitat may occur within area
Filicampus tigris Tiger Pipefish [66217]		Species or species habitat may occur within area
Halicampus brocki Brock's Pipefish [66219]		Species or species habitat may occur within area
Halicampus grayi Mud Pipefish, Gray's Pipefish [66221]		Species or species habitat may occur within area
Halicampus nitidus Glittering Pipefish [66224]		Species or species habitat may occur within area

Scientific Name	Threatened Category	Presence Text
Halicampus spinirostris Spiny-snout Pipefish [66225]		Species or species habitat may occur within area
Haliichthys taeniophorus Ribboned Pipehorse, Ribboned Seadragon [66226]		Species or species habitat may occur within area
Hippichthys penicillus Beady Pipefish, Steep-nosed Pipefish [66231]		Species or species habitat may occur within area
Hippocampus angustus Western Spiny Seahorse, Narrow-bellied Seahorse [66234]		Species or species habitat may occur within area
Hippocampus histrix Spiny Seahorse, Thorny Seahorse [66236]		Species or species habitat may occur within area
Hippocampus kuda Spotted Seahorse, Yellow Seahorse [66237]		Species or species habitat may occur within area
Hippocampus planifrons Flat-face Seahorse [66238]		Species or species habitat may occur within area
Hippocampus spinosissimus Hedgehog Seahorse [66239]		Species or species habitat may occur within area
Hippocampus trimaculatus Three-spot Seahorse, Low-crowned Seahorse, Flat-faced Seahorse [66720]		Species or species habitat may occur within area
Micrognathus micronotopterus Tidepool Pipefish [66255]		Species or species habitat may occur within area
Phoxocampus belcheri Black Rock Pipefish [66719]		Species or species habitat may occur within area

Scientific Name	Threatened Category	Presence Text
Solegnathus hardwickii Pallid Pipehorse, Hardwick's Pipehorse [66272]		Species or species habitat may occur within area
Solegnathus lettiensis Gunther's Pipehorse, Indonesian Pipefish [66273]		Species or species habitat may occur within area
Solenostomus cyanopterus Robust Ghostpipefish, Blue-finned Ghost Pipefish, [66183]		Species or species habitat may occur within area
Syngnathoides biaculeatus Double-end Pipehorse, Double-ended Pipehorse, Alligator Pipefish [66279]		Species or species habitat may occur within area
Trachyrhamphus bicoarctatus Bentstick Pipefish, Bend Stick Pipefish, Short-tailed Pipefish [66280]		Species or species habitat may occur within area
Trachyrhamphus longirostris Straightstick Pipefish, Long-nosed Pipefish, Straight Stick Pipefish [66281]		Species or species habitat may occur within area
Mammal		
Dugong dugon Dugong [28]		Breeding known to occur within area
Reptile		
Aipysurus apraefrontalis Short-nosed Sea Snake, Short-nosed Seasnake [1115]	Critically Endangered	Species or species habitat known to occur within area
Aipysurus duboisii Dubois' Sea Snake, Dubois' Seasnake, Reef Shallows Sea Snake [1116]		Species or species habitat may occur within area
Aipysurus foliosquama Leaf-scaled Sea Snake, Leaf-scaled Seasnake [1118]	Critically Endangered	Species or species habitat known to occur within area
Aipysurus laevis Olive Sea Snake, Olive-brown Sea Snake [1120]		Species or species habitat may occur within area

Scientific Name	Threatened Category	Presence Text
Aipysurus mosaicus as Aipysurus eydouxii Mosaic Sea Snake [87261]		Species or species habitat may occur within area
Aipysurus tenuis Brown-lined Sea Snake, Mjoberg's Sea Snake [1121]		Species or species habitat may occur within area
Caretta caretta Loggerhead Turtle [1763]	Endangered	Breeding known to occur within area
Chelonia mydas Green Turtle [1765]	Vulnerable	Breeding known to occur within area
Crocodylus porosus Salt-water Crocodile, Estuarine Crocodile [1774]		Species or species habitat may occur within area
Dermochelys coriacea Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Species or species habitat known to occur within area
Emydocephalus annulatus Eastern Turtle-headed Sea Snake [1125]		Species or species habitat may occur within area
Ephalophis greyae as Ephalophis greyi Mangrove Sea Snake [93738]		Species or species habitat may occur within area
Eretmochelys imbricata Hawksbill Turtle [1766]	Vulnerable	Breeding known to occur within area
Hydrelaps darwiniensis Port Darwin Sea Snake, Black-ringed Mangrove Sea Snake [1100]		Species or species habitat may occur within area
Hydrophis czeblukovi Fine-spined Sea Snake [59233]		Species or species habitat may occur within area
Hydrophis elegans Elegant Sea Snake, Bar-bellied Sea Snake [1104]		Species or species habitat may occur within area

Scientific Name	Threatened Category	Presence Text
Hydrophis kingii as Disteira kingii		
Spectacled Sea Snake [93511]		Species or species habitat may occur within area
Hydrophis macdowelli as Hydrophis mcdowelli		
MacDowell's Sea Snake, Small-headed Sea Snake, [75601]		Species or species habitat may occur within area
Hydrophis major as Disteira major		
Olive-headed Sea Snake [93512]		Species or species habitat may occur within area
Hydrophis ornatus		
Spotted Sea Snake, Ornate Reef Sea Snake [1111]		Species or species habitat may occur within area
Hydrophis peronii as Acalyptophis peronii		
Horned Sea Snake [93509]		Species or species habitat may occur within area
Hydrophis platura as Pelamis platurus		
Yellow-bellied Sea Snake [93746]		Species or species habitat may occur within area
Hydrophis stokesii as Astrotia stokesii		
Stokes' Sea Snake [93510]		Species or species habitat may occur within area
Natator depressus		
Flatback Turtle [59257]	Vulnerable	Breeding known to occur within area

Whales and Other Cetaceans		[Resource Information]
Current Scientific Name	Status	Type of Presence
Mammal		
Balaenoptera acutorostrata		
Minke Whale [33]		Species or species habitat may occur within area
Balaenoptera bonaerensis		
Antarctic Minke Whale, Dark-shoulder Minke Whale [67812]		Species or species habitat likely to occur within area

Current Scientific Name	Status	Type of Presence
Balaenoptera borealis Sei Whale [34]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area
Balaenoptera edeni Bryde's Whale [35]		Species or species habitat likely to occur within area
Balaenoptera musculus Blue Whale [36]	Endangered	Migration route known to occur within area
Balaenoptera omurai Omura's Whale [87136]		Species or species habitat likely to occur within area
Balaenoptera physalus Fin Whale [37]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area
Delphinus delphis Common Dolphin, Short-beaked Common Dolphin [60]		Species or species habitat may occur within area
Eubalaena australis Southern Right Whale [40]	Endangered	Species or species habitat likely to occur within area
Feresa attenuata Pygmy Killer Whale [61]		Species or species habitat may occur within area
Globicephala macrorhynchus Short-finned Pilot Whale [62]		Species or species habitat may occur within area
Grampus griseus Risso's Dolphin, Grampus [64]		Species or species habitat may occur within area
Kogia breviceps Pygmy Sperm Whale [57]		Species or species habitat may occur within area

Current Scientific Name	Status	Type of Presence
[Kogia sima](#) Dwarf Sperm Whale [85043]		Species or species habitat may occur within area
[Lagenodelphis hosei](#) Fraser's Dolphin, Sarawak Dolphin [41]		Species or species habitat may occur within area
[Megaptera novaeangliae](#) Humpback Whale [38]		Breeding known to occur within area
[Mesoplodon densirostris](#) Blainville's Beaked Whale, Dense-beaked Whale [74]		Species or species habitat may occur within area
[Orcaella heinsohni](#) Australian Snubfin Dolphin [81322]	Vulnerable	Species or species habitat known to occur within area
[Orcinus orca](#) Killer Whale, Orca [46]		Species or species habitat may occur within area
[Peponocephala electra](#) Melon-headed Whale [47]		Species or species habitat may occur within area
[Physeter macrocephalus](#) Sperm Whale [59]		Species or species habitat may occur within area
[Pseudorca crassidens](#) False Killer Whale [48]		Species or species habitat likely to occur within area
[Sousa sahulensis](#) Australian Humpback Dolphin [87942]	Vulnerable	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

Current Scientific Name	Status	Type of Presence
Stenella coeruleoalba Striped Dolphin, Euphrosyne Dolphin [52]		Species or species habitat may occur within area
Stenella longirostris Long-snouted Spinner Dolphin [29]		Species or species habitat may occur within area
Steno bredanensis Rough-toothed Dolphin [30]		Species or species habitat may occur within area
Tursiops aduncus Indian Ocean Bottlenose Dolphin, Spotted Bottlenose Dolphin [68418]		Species or species habitat likely to occur within area
Tursiops aduncus (Arafura/Timor Sea populations) Spotted Bottlenose Dolphin (Arafura/Timor Sea populations) [78900]		Species or species habitat known to occur within area
Tursiops truncatus s. str. Bottlenose Dolphin [68417]		Species or species habitat may occur within area
Ziphius cavirostris Cuvier's Beaked Whale, Goose-beaked Whale [56]		Species or species habitat may occur within area

Australian Marine Parks	[Resource Information]
Park Name	Zone & IUCN Categories
Gascoyne	Multiple Use Zone (IUCN VI)
Montebello	Multiple Use Zone (IUCN VI)
Ningaloo	Recreational Use Zone (IUCN IV)

Habitat Critical to the Survival of Marine Turtles		[Resource Information]
Scientific Name	Behaviour	Presence
All year (Jun - Aug)		
Natator depressus Flatback Turtle [59257]	Nesting	Known to occur
Nov-Feb		

Scientific Name	Behaviour	Presence
Caretta caretta Loggerhead Turtle [1763]	Nesting	Known to occur
Oct - Feb		
Eretmochelys imbricata Hawksbill Turtle [1766]	Nesting	Known to occur
Oct - Mar		
Chelonia mydas Green Turtle [1765]	Nesting	Known to occur

Extra Information

State and Territory Reserves [Resource Information]

Protected Area Name	Reserve Type	State
Airlie Island	Nature Reserve	WA
Barrow Island	Nature Reserve	WA
Barrow Island	Marine Park	WA
Barrow Island	Marine Management Area	WA
Boodie, Double Middle Islands	Nature Reserve	WA
Jurabi Coastal Park	5(1)(h) Reserve	WA
Montebello Islands	Conservation Park	WA
Montebello Islands	Conservation Park	WA
Montebello Islands	Marine Park	WA
Muiron Islands	Nature Reserve	WA
Muiron Islands	Marine Management Area	WA
Ningaloo	Marine Park	WA
Thevenard Island	Nature Reserve	WA
Thevenard Island	Nature Reserve	WA
Unnamed WA40322	5(1)(h) Reserve	WA

Nationally Important Wetlands [Resource Information]

Wetland Name	State
Cape Range Subterranean Waterways	WA

EPBC Act Referrals			[Resource Information]
Title of referral	Reference	Referral Outcome	Assessment Status
3D Seismic Survey in the Carnarvon Bsin on the North West Shelf	2002/778		Completed
Babylon 3D Marine Seismic Survey, Commonwealth Waters, nr Exmouth WA	2013/7081		Completed
Browse to North West Shelf Development, Indian Ocean, WA	2018/8319		Approval
DAVROS MC 3D marine seismic survey northwaet of Dampier, WA	2013/7092		Completed
Deep Water Northwest Shelf 2D Seismic Survey	2007/3260		Completed
Development of Mutineer and Exeter petroleum fields for oil production, Permit	2003/1033		Completed
Gorgon Gas Development	2003/1294		Post-Approval
Project Highclere Cable Lay and Operation	2022/09203		Completed
Action clearly unacceptable			
Highlands 3D Marine Seismic Survey	2012/6680	Action Clearly Unacceptable	Completed
Controlled action			
'Van Gogh' Petroleum Field Development	2007/3213	Controlled Action	Post-Approval
Construct and operate LNG & domestic gas plant including onshore and offshore facilities - Wheatston	2008/4469	Controlled Action	Post-Approval
Develop Jansz-Io deepwater gas field in Permit Areas WA-18-R, WA-25-R and WA-26-	2005/2184	Controlled Action	Post-Approval
Development of Angel gas and condensate field, North West Shelf	2004/1805	Controlled Action	Post-Approval
Development of Browse Basin Gas Fields (Upstream)	2008/4111	Controlled Action	Completed
Development of Coniston/Novara fields within the Exmouth Sub-basin	2011/5995	Controlled Action	Post-Approval

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
Echo-Yodel Production Wells	2000/11	Controlled Action	Post-Approval
Enfield full field development	2001/257	Controlled Action	Post-Approval
Equus Gas Fields Development Project, Carnarvon Basin	2012/6301	Controlled Action	Completed
Gorgon Gas Development 4th Train Proposal	2011/5942	Controlled Action	Post-Approval
Greater Enfield (Vincent) Development	2005/2110	Controlled Action	Post-Approval
Greater Gorgon Development - Optical Fibre Cable, Mainland to Barrow Island	2005/2141	Controlled Action	Completed
Light Crude Oil Production	2001/365	Controlled Action	Post-Approval
Pluto Gas Project	2005/2258	Controlled Action	Completed
Pluto Gas Project Including Site B	2006/2968	Controlled Action	Post-Approval
Pyrenees Oil Fields Development	2005/2034	Controlled Action	Post-Approval
Vincent Appraisal Well	2000/22	Controlled Action	Post-Approval
Not controlled action			
'Goodwyn A' Low Pressure Train Project	2003/914	Not Controlled Action	Completed
'Van Gogh' Oil Appraisal Drilling Program, Exploration Permit Area WA-155-P(1)	2006/3148	Not Controlled Action	Completed
Airlie Island soil and groundwater investigations, Exmouth Gulf, offshore Pilbara coast	2014/7250	Not Controlled Action	Completed
Barrow Island 2D Seismic survey	2006/2667	Not Controlled Action	Completed
Bollinger 2D Seismic Survey 200km North of North West Cape WA	2004/1868	Not Controlled Action	Completed

Title of referral	Reference	Referral Outcome	Assessment Status
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
Cazadores 2D seismic survey	2004/1720	Not Controlled Action	Completed
Construction and operation of an unmanned sea platform and connecting pipeline to Varanus Island for	2004/1703	Not Controlled Action	Completed
Controlled Source Electromagnetic Survey	2007/3262	Not Controlled Action	Completed
Development of Halyard Field off the west coast of WA	2010/5611	Not Controlled Action	Completed
Drilling of an exploration well Gats-1 in Permit Area WA-261-P	2004/1701	Not Controlled Action	Completed
Eagle-1 Exploration Drilling, North West Shelf, WA	2019/8578	Not Controlled Action	Completed
Echo A Development WA-23-L, WA-24-L	2005/2042	Not Controlled Action	Completed
Exploration drilling well WA-155-P(1)	2003/971	Not Controlled Action	Completed
Exploration of appraisal wells	2006/3065	Not Controlled Action	Completed
Exploration Well (Taunton-2)	2002/731	Not Controlled Action	Completed
Exploration Well in Permit Area WA-155-P(1)	2002/759	Not Controlled Action	Completed
Exploratory drilling in permit area WA-225-P	2001/490	Not Controlled Action	Completed
HCA05X Macedon Experimental Survey	2004/1926	Not Controlled Action	Completed
Hess Exploration Drilling Programme	2007/3566	Not Controlled Action	Completed
Improving rabbit biocontrol: releasing another strain of RHDV, sthrn two thirds of Australia	2015/7522	Not Controlled Action	Completed
Infill Production Well (Griffin-9)	2001/417	Not Controlled Action	Completed

Title of referral	Reference	Referral Outcome	Assessment Status
Not controlled action			
Jansz-2 and 3 Appraisal Wells	2002/754	Not Controlled Action	Completed
Klammer 2D Seismic Survey	2002/868	Not Controlled Action	Completed
Maia-Gaea Exploration wells	2000/17	Not Controlled Action	Completed
Manaslu - 1 and Huascaran - 1 Offshore Exploration Wells	2001/235	Not Controlled Action	Completed
Montesa-1 and Bultaco-1 Exploration Wells	2000/102	Not Controlled Action	Completed
North Rankin B gas compression facility	2005/2500	Not Controlled Action	Completed
Pipeline System Modifications Project	2000/3	Not Controlled Action	Completed
Project Highclere Geophysical Survey	2021/9023	Not Controlled Action	Completed
Searipple gas and condensate field development	2000/89	Not Controlled Action	Completed
Spool Base Facility	2001/263	Not Controlled Action	Completed
Subsea Gas Pipeline From Stybarrow Field to Griffin Venture Gas Export Pipeline	2005/2033	Not Controlled Action	Completed
sub-sea tieback of Perseus field wells	2004/1326	Not Controlled Action	Completed
Telstra North Rankin Spur Fibre Optic Cable	2016/7836	Not Controlled Action	Completed
Thevenard Island Retirement Project	2015/7423	Not Controlled Action	Completed
To construct and operate an offshore submarine fibre optic cable, WA	2014/7373	Not Controlled Action	Completed
Wanda Offshore Research Project, 80 km north-east of Exmouth, WA	2018/8293	Not Controlled Action	Completed
Western Flank Gas Development	2005/2464	Not Controlled Action	Completed
Wheatstone 3D seismic survey, 70km north of Barrow Island	2004/1761	Not Controlled Action	Completed
Not controlled action (particular manner)			

Title of referral	Reference	Referral Outcome	Assessment Status
Not controlled action (particular manner)			
'Kate' 3D marine seismic survey, exploration permits WA-320-P and WA-345-P, 60km	2005/2037	Not Controlled Action (Particular Manner)	Post-Approval
'Tourmaline' 2D marine seismic survey, permit areas WA-323-P, WA-330-P and WA-32	2005/2282	Not Controlled Action (Particular Manner)	Post-Approval
"Leanne" offshore 3D seismic exploration, WA-356-P	2005/1938	Not Controlled Action (Particular Manner)	Post-Approval
2D and 3D seismic surveys	2005/2151	Not Controlled Action (Particular Manner)	Post-Approval
2D Seismic Survey	2005/2146	Not Controlled Action (Particular Manner)	Post-Approval
2D Seismic Survey Permit Area WA-352-P	2008/4628	Not Controlled Action (Particular Manner)	Post-Approval
2D seismic survey within permit WA-291	2007/3265	Not Controlled Action (Particular Manner)	Post-Approval
3D marine seismic survey	2008/4281	Not Controlled Action (Particular Manner)	Post-Approval
3D Marine Seismic Survey in Permit Areas WA-15-R, WA-18-R, WA-205-P, WA-253-P, WA-267-P and WA-268-P	2003/1271	Not Controlled Action (Particular Manner)	Post-Approval
3D Marine Seismic Survey in WA 457-P & WA 458-P, North West Shelf, offshore WA	2013/6862	Not Controlled Action (Particular Manner)	Post-Approval
3D marine seismic survey over petroleum title WA-268-P	2007/3458	Not Controlled Action (Particular Manner)	Post-Approval
3D Marine Seismic Surveys - Contos CT-13 & Supertubes CT-13, offshore WA	2013/6901	Not Controlled Action (Particular	Post-Approval

Title of referral	Reference	Referral Outcome	Assessment Status
Not controlled action (particular manner)			
		Manner)	
3D seismic survey	2006/2715	Not Controlled Action (Particular Manner)	Post-Approval
3D Seismic Survey, WA	2008/4428	Not Controlled Action (Particular Manner)	Post-Approval
3D sesmic survey	2006/2781	Not Controlled Action (Particular Manner)	Post-Approval
Apache Northwest Shelf Van Gogh Field Appraisal Drilling Program	2007/3495	Not Controlled Action (Particular Manner)	Post-Approval
Aperio 3D Marine Seismic Survey, WA	2012/6648	Not Controlled Action (Particular Manner)	Post-Approval
Artemis-1 Drilling Program (WA-360-P)	2010/5432	Not Controlled Action (Particular Manner)	Post-Approval
Balnaves Condensate Field Development	2011/6188	Not Controlled Action (Particular Manner)	Post-Approval
Cable Seismic Exploration Permit areas WA-323-P and WA-330-P	2008/4227	Not Controlled Action (Particular Manner)	Post-Approval
CGGVERITAS 2010 2D Seismic Survey	2010/5714	Not Controlled Action (Particular Manner)	Post-Approval
Charon 3D Marine Seismic Survey	2007/3477	Not Controlled Action (Particular Manner)	Post-Approval
Cue Seismic Survey within WA-359-P, WA-361-P and WA-360-P	2007/3647	Not Controlled Action (Particular Manner)	Post-Approval

Title of referral	Reference	Referral Outcome	Assessment Status
Not controlled action (particular manner)			
CVG 3D Marine Seismic Survey	2012/6654	Not Controlled Action (Particular Manner)	Post-Approval
Decommissioning of the Legendre facilities	2010/5681	Not Controlled Action (Particular Manner)	Post-Approval
Deep Water Drilling Program	2010/5532	Not Controlled Action (Particular Manner)	Post-Approval
Demeter 3D Seismic Survey, off Dampier, WA	2002/900	Not Controlled Action (Particular Manner)	Post-Approval
Draeck 3D Marine Seismic Survey, WA-205-P	2006/3067	Not Controlled Action (Particular Manner)	Post-Approval
Drilling 35-40 offshore exploration wells in deep water	2008/4461	Not Controlled Action (Particular Manner)	Post-Approval
Eendracht Multi-Client 3D Marine Seismic Survey	2009/4749	Not Controlled Action (Particular Manner)	Post-Approval
Enfield M3 & Vincent 4D Marine Seismic Surveys	2008/3981	Not Controlled Action (Particular Manner)	Completed
Enfield M3 4D, Vincent 4D & 4D Line Test Marine Seismic Surveys	2008/4122	Not Controlled Action (Particular Manner)	Post-Approval
Enfield M4 4D Marine Seismic Survey	2008/4558	Not Controlled Action (Particular Manner)	Post-Approval
Enfield oilfield 3D Seismic Survey	2006/3132	Not Controlled Action (Particular Manner)	Post-Approval
Exmouth West 2D Marine Seismic Survey	2008/4132	Not Controlled Action (Particular	Post-Approval

Title of referral	Reference	Referral Outcome	Assessment Status
Not controlled action (particular manner)			
		Manner)	
Exploration drilling of Zeus-1 well	2008/4351	Not Controlled Action (Particular Manner)	Post-Approval
Fletcher-Finucane Development, WA26-L and WA191-P	2011/6123	Not Controlled Action (Particular Manner)	Post-Approval
Foxhound 3D Non-Exclusive Marine Seismic Survey	2009/4703	Not Controlled Action (Particular Manner)	Post-Approval
Gazelle 3D Marine Seismic Survey in WA-399-P and WA-42-L	2010/5570	Not Controlled Action (Particular Manner)	Post-Approval
Geco Eagle 3D Marine Seismic Survey	2008/3958	Not Controlled Action (Particular Manner)	Post-Approval
Glencoe 3D Marine Seismic Survey WA-390-P	2007/3684	Not Controlled Action (Particular Manner)	Post-Approval
Greater Western Flank Phase 1 gas Development	2011/5980	Not Controlled Action (Particular Manner)	Post-Approval
Grimalkin 3D Seismic Survey	2008/4523	Not Controlled Action (Particular Manner)	Post-Approval
Guacamole 2D Marine Seismic Survey	2008/4381	Not Controlled Action (Particular Manner)	Post-Approval
Harmony 3D Marine Seismic Survey	2012/6699	Not Controlled Action (Particular Manner)	Post-Approval
Harpy 1 exploration well	2001/183	Not Controlled Action (Particular Manner)	Post-Approval

Title of referral	Reference	Referral Outcome	Assessment Status
Not controlled action (particular manner)			
Huzzas MC3D Marine Seismic Survey (HZ-13) Carnarvon Basin, offshore WA	2013/7003	Not Controlled Action (Particular Manner)	Post-Approval
Huzzas phase 2 marine seismic survey, Exmouth Plateau, Northern Carnarvon Basin, WA	2013/7093	Not Controlled Action (Particular Manner)	Post-Approval
John Ross & Rosella Off Bottom Cable Seismic Exploration Program	2008/3966	Not Controlled Action (Particular Manner)	Post-Approval
Judo Marine 3D Seismic Survey within and adjacent to WA-412-P	2008/4630	Not Controlled Action (Particular Manner)	Post-Approval
Judo Marine 3D Seismic Survey within and adjacent to WA-412-P	2009/4801	Not Controlled Action (Particular Manner)	Post-Approval
Julimar Brunello Gas Development Project	2011/5936	Not Controlled Action (Particular Manner)	Post-Approval
Klimt 2D Marine Seismic Survey	2007/3856	Not Controlled Action (Particular Manner)	Post-Approval
Laverda 3D Marine Seismic Survey and Vincent M1 4D Marine Seismic Survey	2010/5415	Not Controlled Action (Particular Manner)	Post-Approval
Leopard 2D marine seismic survey	2005/2290	Not Controlled Action (Particular Manner)	Post-Approval
Macedon Gas Field Development	2008/4605	Not Controlled Action (Particular Manner)	Post-Approval
Moosehead 2D seismic survey within permit WA-192-P	2005/2167	Not Controlled Action (Particular Manner)	Post-Approval
Munmorah 2D seismic survey within permits WA-308/9-P	2003/970	Not Controlled Action (Particular	Post-Approval

Title of referral	Reference	Referral Outcome	Assessment Status
Not controlled action (particular manner)			
		Manner)	
Ocean Bottom Cable Seismic Program, WA-264-P	2007/3844	Not Controlled Action (Particular Manner)	Post-Approval
Ocean Bottom Cable Seismic Survey	2005/2017	Not Controlled Action (Particular Manner)	Post-Approval
Offshore Drilling Campaign	2011/5830	Not Controlled Action (Particular Manner)	Post-Approval
Orcus 3D Marine Seismic Survey in WA-450-P	2010/5723	Not Controlled Action (Particular Manner)	Post-Approval
Osprey and Dionysus Marine Seismic Survey	2011/6215	Not Controlled Action (Particular Manner)	Post-Approval
Pomodoro 3D Marine Seismic Survey in WA-426-P and WA-427-P	2010/5472	Not Controlled Action (Particular Manner)	Post-Approval
Pyrenees 4D Marine Seismic Monitor Survey, HCA12A	2012/6579	Not Controlled Action (Particular Manner)	Post-Approval
Pyrenees-Macedon 3D marine seismic survey	2005/2325	Not Controlled Action (Particular Manner)	Post-Approval
Reindeer gas reservior development, Devil Creek, Carnarvon Basin - WA	2007/3917	Not Controlled Action (Particular Manner)	Post-Approval
Rose 3D Seismic Program	2008/4239	Not Controlled Action (Particular Manner)	Post-Approval
Rydal-1 Petroleum Exploration Well, WA	2012/6522	Not Controlled Action (Particular Manner)	Post-Approval

Title of referral	Reference	Referral Outcome	Assessment Status
Not controlled action (particular manner)			
Santos Winchester three dimensional seismic survey - WA-323-P & WA-330-P	2011/6107	Not Controlled Action (Particular Manner)	Post-Approval
Skorpion Marine Seismic Survey WA	2001/416	Not Controlled Action (Particular Manner)	Post-Approval
Stag 4D & Reindeer MAZ Marine Seismic Surveys, WA	2013/7080	Not Controlled Action (Particular Manner)	Post-Approval
Stag Off-bottom Cable Seismic Survey	2007/3696	Not Controlled Action (Particular Manner)	Post-Approval
Stybarrow 4D Marine Seismic Survey	2011/5810	Not Controlled Action (Particular Manner)	Post-Approval
Stybarrow Baseline 4D marine seismic survey	2008/4530	Not Controlled Action (Particular Manner)	Post-Approval
Tidepole Maz 3D Seismic Survey Campaign	2007/3706	Not Controlled Action (Particular Manner)	Post-Approval
Triton 3D Marine Seismic Survey, WA-2-R and WA-3-R	2006/2609	Not Controlled Action (Particular Manner)	Post-Approval
Undertake a 3D marine seismic survey	2010/5695	Not Controlled Action (Particular Manner)	Post-Approval
Undertake a three dimensional marine seismic survey	2010/5679	Not Controlled Action (Particular Manner)	Post-Approval
Undertake a three dimensional marine seismic survey	2010/5715	Not Controlled Action (Particular Manner)	Post-Approval
Vincent M1 and Enfield M5 4D Marine Seismic Survey	2010/5720	Not Controlled Action (Particular	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
West Anchor 3D Marine Seismic Survey	2008/4507	Not Controlled Action (Particular Manner)	Post-Approval
West Panaeus 3D seismic survey	2006/3141	Not Controlled Action (Particular Manner)	Post-Approval
Westralia SPAN Marine Seismic Survey, WA & NT	2012/6463	Not Controlled Action (Particular Manner)	Post-Approval
Wheatstone 3D MAZ Marine Seismic Survey	2011/6058	Not Controlled Action (Particular Manner)	Post-Approval
Wheatstone Iago Appraisal Well Drilling	2008/4134	Not Controlled Action (Particular Manner)	Post-Approval
Wheatstone Iago Appraisal Well Drilling	2007/3941	Not Controlled Action (Particular Manner)	Post-Approval
Referral decision			
3D Marine Seismic Survey in the offshore northwest Carnarvon Basin	2011/6175	Referral Decision	Completed
3D Seismic Survey	2008/4219	Referral Decision	Completed
Bianchi 3D Marine Seismic Survey, Carnavon Basin, WA	2013/7078	Referral Decision	Completed
CVG 3D Marine Seismic Survey	2012/6270	Referral Decision	Completed
Enfield 4D Marine Seismic Surveys, Production Permit WA-28-L	2005/2370	Referral Decision	Completed
Rose 3D Seismic acquisition survey	2008/4220	Referral Decision	Completed

Title of referral	Reference	Referral Outcome	Assessment Status
Referral decision			
Stybarrow Baseline 4D Marine Seismic Survey (Permit Areas WA-255-P, WA-32-L, WA-	2008/4165	Referral Decision	Completed
Two Dimensional Transition Zone Seismic Survey - TP/7 (R1)	2010/5507	Referral Decision	Completed

Key Ecological Features [Resource Information]

Key Ecological Features are the parts of the marine ecosystem that are considered to be important for the biodiversity or ecosystem functioning and integrity of the Commonwealth Marine Area.

Name	Region
Ancient coastline at 125 m depth contour	North-west
Canyons linking the Cuvier Abyssal Plain and the Cape Range Peninsula	North-west
Commonwealth waters adjacent to Ningaloo Reef	North-west
Continental Slope Demersal Fish Communities	North-west
Exmouth Plateau	North-west
Glomar Shoals	North-west

Biologically Important Areas [Resource Information]

Scientific Name	Behaviour	Presence
Dugong		
Dugong dugon Dugong [28]	Breeding	Known to occur
Dugong dugon Dugong [28]	Calving	Known to occur
Dugong dugon Dugong [28]	Foraging (high density seagrass beds)	Known to occur
Dugong dugon Dugong [28]	Nursing	Known to occur
Marine Turtles		
Caretta caretta Loggerhead Turtle [1763]	Internesting buffer	Known to occur

Scientific Name	Behaviour	Presence
Caretta caretta Loggerhead Turtle [1763]	Nesting	Known to occur
Chelonia mydas Green Turtle [1765]	Aggregation	Known to occur
Chelonia mydas Green Turtle [1765]	Basking	Known to occur
Chelonia mydas Green Turtle [1765]	Foraging	Known to occur
Chelonia mydas Green Turtle [1765]	Internesting	Known to occur
Chelonia mydas Green Turtle [1765]	Internesting buffer	Known to occur
Chelonia mydas Green Turtle [1765]	Mating	Known to occur
Chelonia mydas Green Turtle [1765]	Nesting	Known to occur
Eretmochelys imbricata Hawksbill Turtle [1766]	Foraging	Known to occur
Eretmochelys imbricata Hawksbill Turtle [1766]	Internesting buffer	Known to occur
Eretmochelys imbricata Hawksbill Turtle [1766]	Mating	Known to occur
Eretmochelys imbricata Hawksbill Turtle [1766]	Nesting	Known to occur
Natator depressus Flatback Turtle [59257]	Aggregation	Known to occur
Natator depressus Flatback Turtle [59257]	Foraging	Known to occur

Scientific Name	Behaviour	Presence
Natator depressus Flatback Turtle [59257]	Internesting	Known to occur
Natator depressus Flatback Turtle [59257]	Internesting buffer	Known to occur
Natator depressus Flatback Turtle [59257]	Mating	Known to occur
Natator depressus Flatback Turtle [59257]	Nesting	Known to occur
Seabirds		
Ardenna tenuirostris Short-tailed Shearwater [84292]	Breeding	Known to occur
Sterna dougallii Roseate Tern [817]	Breeding	Known to occur
Sternula nereis Fairy Tern [82949]	Breeding	Known to occur
Thalasseus bengalensis Lesser Crested Tern [66546]	Breeding	Known to occur
Sharks		
Rhincodon typus Whale Shark [66680]	Foraging	Known to occur
Rhincodon typus Whale Shark [66680]	Foraging (high density prey)	Known to occur
Whales		
Balaenoptera musculus brevicauda Pygmy Blue Whale [81317]	Foraging	Known to occur
Balaenoptera musculus brevicauda Pygmy Blue Whale [81317]	Migration	Known to occur
Megaptera novaeangliae Humpback Whale [38]	Migration (north and south)	Known to occur

Caveat

1 PURPOSE

This report is designed to assist in identifying the location of matters of national environmental significance (MNES) and other matters protected by the Environment Protection and Biodiversity Conservation Act 1999 (Cth) (EPBC Act) which may be relevant in determining obligations and requirements under the EPBC Act.

The report contains the mapped locations of:

- World and National Heritage properties;
- Wetlands of International and National Importance;
- Commonwealth and State/Territory reserves;
- distribution of listed threatened, migratory and marine species;
- listed threatened ecological communities; and
- other information that may be useful as an indicator of potential habitat value.

2 DISCLAIMER

This report is not intended to be exhaustive and should only be relied upon as a general guide as mapped data is not available for all species or ecological communities listed under the EPBC Act (see below). Persons seeking to use the information contained in this report to inform the referral of a proposed action under the EPBC Act should consider the limitations noted below and whether additional information is required to determine the existence and location of MNES and other protected matters.

Where data is available to inform the mapping of protected species, the presence type (e.g. known, likely or may occur) that can be determined from the data is indicated in general terms. It is the responsibility of any person using or relying on the information in this report to ensure that it is suitable for the circumstances of any proposed use. The Commonwealth cannot accept responsibility for the consequences of any use of the report or any part thereof. To the maximum extent allowed under governing law, the Commonwealth will not be liable for any loss or damage that may be occasioned directly or indirectly through the use of, or reliance on the contents of this report.

3 DATA SOURCES

Threatened ecological communities

For threatened ecological communities where the distribution is well known, maps are generated based on information contained in recovery plans, State vegetation maps and remote sensing imagery and other sources. Where threatened ecological community distributions are less well known, existing vegetation maps and point location data are used to produce indicative distribution maps.

Threatened, migratory and marine species

Threatened, migratory and marine species distributions have been discerned through a variety of methods. Where distributions are well known and if time permits, distributions are inferred from either thematic spatial data (i.e. vegetation, soils, geology, elevation, aspect, terrain, etc.) together with point locations and described habitat; or modelled (MAXENT or BIOCLIM habitat modelling) using point locations and environmental data layers.

Where little information is available for a species or large number of maps are required in a short time-frame, maps are derived either from 0.04 or 0.02 decimal degree cells; by an automated process using polygon capture techniques (static two kilometre grid cells, alpha-hull and convex hull); or captured manually or by using topographic features (national park boundaries, islands, etc.).

In the early stages of the distribution mapping process (1999-early 2000s) distributions were defined by degree blocks, 100K or 250K map sheets to rapidly create distribution maps. More detailed distribution mapping methods are used to update these distributions when time permits.

4 LIMITATIONS

The following species and ecological communities have not been mapped and do not appear in this report:

- threatened species listed as extinct or considered vagrants;
- some recently listed species and ecological communities;
- some listed migratory and listed marine species, which are not listed as threatened species; and
- migratory species that are very widespread, vagrant, or only occur in Australia in small numbers.

The following groups have been mapped, but may not cover the complete distribution of the species:

- listed migratory and/or listed marine seabirds, which are not listed as threatened, have only been mapped for recorded breeding sites; and
- seals which have only been mapped for breeding sites near the Australian continent

The breeding sites may be important for the protection of the Commonwealth Marine environment.

Refer to the metadata for the feature group (using the Resource Information link) for the currency of the information.

Acknowledgements

This database has been compiled from a range of data sources. The department acknowledges the following custodians who have contributed valuable data and advice:

-Office of Environment and Heritage, New South Wales
-Department of Environment and Primary Industries, Victoria
-Department of Primary Industries, Parks, Water and Environment, Tasmania
-Department of Environment, Water and Natural Resources, South Australia
-Department of Land and Resource Management, Northern Territory
-Department of Environmental and Heritage Protection, Queensland
-Department of Parks and Wildlife, Western Australia
-Environment and Planning Directorate, ACT
-Birdlife Australia
-Australian Bird and Bat Banding Scheme
-Australian National Wildlife Collection
-Natural history museums of Australia
-Museum Victoria
-Australian Museum
-South Australian Museum
-Queensland Museum
-Online Zoological Collections of Australian Museums
-Queensland Herbarium
-National Herbarium of NSW
-Royal Botanic Gardens and National Herbarium of Victoria
-Tasmanian Herbarium
-State Herbarium of South Australia
-Northern Territory Herbarium
-Western Australian Herbarium
-Australian National Herbarium, Canberra
-University of New England
-Ocean Biogeographic Information System
-Australian Government, Department of Defence
Forestry Corporation, NSW
-Geoscience Australia
-CSIRO
-Australian Tropical Herbarium, Cairns
-eBird Australia
-Australian Government – Australian Antarctic Data Centre
-Museum and Art Gallery of the Northern Territory
-Australian Government National Environmental Science Program
-Australian Institute of Marine Science
-Reef Life Survey Australia
-American Museum of Natural History
-Queen Victoria Museum and Art Gallery, Inveresk, Tasmania
-Tasmanian Museum and Art Gallery, Hobart, Tasmania
-Other groups and individuals

The Department is extremely grateful to the many organisations and individuals who provided expert advice and information on numerous draft distributions.

Please feel free to provide feedback via the Contact us page.

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EPBC Act Protected Matters Report

This report provides general guidance on matters of national environmental significance and other matters protected by the EPBC Act in the area you have selected. Please see the caveat for interpretation of information provided here.

Report created: 10-Oct-2025

Summary
Details
- Matters of NES
- Other Matters Protected by the EPBC Act
- Extra Information

Caveat
Acknowledgements

Summary

Matters of National Environment Significance

This part of the report summarises the matters of national environmental significance that may occur in, or may relate to, the area you nominated. Further information is available in the detail part of the report, which can be accessed by scrolling or following the links below. If you are proposing to undertake an activity that may have a significant impact on one or more matters of national environmental significance then you should consider the Administrative Guidelines on Significance.

World Heritage Properties:	None
National Heritage Places:	None
Wetlands of International Importance (Ramsar	None
Great Barrier Reef Marine Park:	None
Commonwealth Marine Area:	2
Listed Threatened Ecological Communities:	None
Listed Threatened Species:	26
Listed Migratory Species:	43

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:	71
Whales and Other Cetaceans:	29
Critical Habitats:	None
Commonwealth Reserves Terrestrial:	None
Australian Marine Parks:	1
Habitat Critical to the Survival of Marine Turtles:	1

Extra Information

This part of the report provides information that may also be relevant to the area you have

State and Territory Reserves:	None
Regional Forest Agreements:	None
Nationally Important Wetlands:	None
EPBC Act Referrals:	40
Key Ecological Features (Marine):	2
Biologically Important Areas:	7
Bioregional Assessments:	None
Geological and Bioregional Assessments:	None

Details

Matters of National Environmental Significance

Commonwealth Marine Area [Resource Information]

Approval is required for a proposed activity that is located within the Commonwealth Marine Area which has, will have, or is likely to have a significant impact on the environment. Approval may be required for a proposed action taken outside a Commonwealth Marine Area but which has, may have or is likely to have a significant impact on the environment in the Commonwealth Marine Area.

Feature Name
Commonwealth Marine Areas (EPBC Act)
Commonwealth Marine Areas (EPBC Act)

Listed Threatened Species [Resource Information]

Status of Conservation Dependent and Extinct are not MNES under the EPBC Act.
Number is the current name ID.

Scientific Name	Threatened Category	Presence Text
BIRD		
Calidris acuminata Sharp-tailed Sandpiper [874]	Vulnerable	Species or species habitat may occur within area
Calidris canutus Red Knot, Knot [855]	Vulnerable	Species or species habitat may occur within area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area
Macronectes giganteus Southern Giant-Petrel, Southern Giant Petrel [1060]	Endangered	Species or species habitat may occur within area
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat may occur within area
Phaethon lepturus fulvus Christmas Island White-tailed Tropicbird, Golden Bosunbird [26021]	Endangered	Species or species habitat may occur within area

Scientific Name	Threatened Category	Presence Text
Phaethon rubricauda westralis		
Red-tailed Tropicbird (Indian Ocean), Indian Ocean Red-tailed Tropicbird [91824]	Endangered	Species or species habitat likely to occur within area
Sternula nereis nereis		
Australian Fairy Tern [82950]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area
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
Orcaella heinsohni		
Australian Snubfin Dolphin [81322]	Vulnerable	Species or species habitat may occur within area
Sousa sahulensis		
Australian Humpback Dolphin [87942]	Vulnerable	Species or species habitat may occur within area
REPTILE		
Aipysurus apraefrontalis		
Short-nosed Sea Snake, Short-nosed Seasnake [1115]	Critically Endangered	Species or species habitat may occur within area
Caretta caretta		
Loggerhead Turtle [1763]	Endangered	Species or species habitat known to occur within area
Chelonia mydas		
Green Turtle [1765]	Vulnerable	Species or species habitat known to occur within area
Dermochelys coriacea		
Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Species or species habitat likely to occur within area

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		
Carcharias taurus (west coast population)		
Grey Nurse Shark (west coast population) [68752]	Vulnerable	Species or species habitat likely to occur within area
Carcharodon carcharias		
White Shark, Great White Shark [64470]	Vulnerable	Species or species habitat may occur within area
Pristis clavata		
Dwarf Sawfish, Queensland Sawfish [68447]	Vulnerable	Species or species habitat known to occur within area
Pristis pristis		
Largetooth Sawfish, Freshwater Sawfish, River Sawfish, Leichhardt's Sawfish, Northern Sawfish [60756]	Endangered	Species or species habitat may occur within area
Pristis zijsron		
Green Sawfish, Dindagubba, Narrowsnout Sawfish [68442]	Vulnerable	Species or species habitat known to occur within area
Rhincodon typus		
Whale Shark [66680]	Vulnerable	Foraging, feeding or related behaviour known to occur within area
Sphyrna lewini		
Scalloped Hammerhead [85267]	Conservation Dependent	Species or species habitat known to occur within area

Listed Migratory Species		[Resource Information]
Scientific Name	Threatened Category	Presence Text
null		
Balaenoptera omurai		
Omura's Whale [87136]		Species or species habitat likely to occur within area
Migratory Marine Birds		

Scientific Name	Threatened Category	Presence Text
Anous stolidus Common Noddy [825]		Species or species habitat may occur within area
Calonectris leucomelas Streaked Shearwater [1077]		Species or species habitat likely to occur within area
Fregata ariel Lesser Frigatebird, Least Frigatebird [1012]		Species or species habitat likely to occur within area
Fregata minor Great Frigatebird, Greater Frigatebird [1013]		Species or species habitat may occur within area
Macronectes giganteus Southern Giant-Petrel, Southern Giant Petrel [1060]	Endangered	Species or species habitat may occur within area
Phaethon lepturus White-tailed Tropicbird [1014]		Species or species habitat may occur within area
Phaethon rubricauda Red-tailed Tropicbird [994]		Species or species habitat likely to occur within area
Migratory Marine Species		
Anoxypristis cuspidata Narrow Sawfish, Knifetooth Sawfish [68448]		Species or species habitat may occur within area
Balaenoptera borealis Sei Whale [34]	Vulnerable	Species or species habitat likely to occur within area
Balaenoptera edeni Bryde's Whale [35]		Species or species habitat likely to occur within area
Balaenoptera musculus Blue Whale [36]	Endangered	Migration route known to occur within area

Scientific Name	Threatened Category	Presence Text
Balaenoptera physalus Fin Whale [37]	Vulnerable	Species or species habitat likely to occur within area
Carcharhinus longimanus Oceanic Whitetip Shark [84108]		Species or species habitat likely to occur within area
Carcharias taurus Grey Nurse Shark [64469]		Species or species habitat likely to occur within area
Carcharodon carcharias White Shark, Great White Shark [64470]	Vulnerable	Species or species habitat 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
Crocodylus porosus Salt-water Crocodile, Estuarine Crocodile [1774]		Species or species habitat may occur within area
Dermochelys coriacea Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Species or species habitat likely to occur within area
Eretmochelys imbricata Hawksbill Turtle [1766]	Vulnerable	Species or species habitat known to occur within area
Isurus oxyrinchus Shortfin Mako, Mako Shark [79073]		Species or species habitat likely to occur within area
Isurus paucus Longfin Mako [82947]		Species or species habitat likely to occur within area

Scientific Name	Threatened Category	Presence Text
Megaptera novaeangliae Humpback Whale [38]		Breeding known to occur within area
Mobula alfredi as Manta alfredi Reef Manta Ray, Coastal Manta Ray [90033]		Species or species habitat likely to occur within area
Mobula birostris as Manta birostris Giant Manta Ray [90034]		Species or species habitat likely to occur within area
Natator depressus Flatback Turtle [59257]	Vulnerable	Congregation or aggregation known to occur within area
Orcaella heinsohni Australian Snubfin Dolphin [81322]	Vulnerable	Species or species habitat may occur within area
Orcinus orca Killer Whale, Orca [46]		Species or species habitat may occur within area
Physeter macrocephalus Sperm Whale [59]		Species or species habitat may occur within area
Pristis clavata Dwarf Sawfish, Queensland Sawfish [68447]	Vulnerable	Species or species habitat known to occur within area
Pristis pristis Largetooth Sawfish, Freshwater Sawfish, River Sawfish, Leichhardt's Sawfish, Northern Sawfish [60756]	Endangered	Species or species habitat may occur within area
Pristis zijsron Green Sawfish, Dindagubba, Narrowsnout Sawfish [68442]	Vulnerable	Species or species habitat known to occur within area
Rhincodon typus Whale Shark [66680]	Vulnerable	Foraging, feeding or related behaviour known to occur within area

Scientific Name	Threatened Category	Presence Text
Sousa sahulensis as Sousa chinensis		
Australian Humpback Dolphin [87942]	Vulnerable	Species or species habitat may occur within area
Tursiops aduncus (Arafura/Timor Sea populations)		
Spotted Bottlenose Dolphin (Arafura/Timor Sea populations) [78900]		Species or species habitat likely to occur within area
Migratory Wetlands Species		
Actitis hypoleucos		
Common Sandpiper [59309]		Species or species habitat may occur within area
Calidris acuminata		
Sharp-tailed Sandpiper [874]	Vulnerable	Species or species habitat may occur within area
Calidris canutus		
Red Knot, Knot [855]	Vulnerable	Species or species habitat may occur within area
Calidris ferruginea		
Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area
Calidris melanotos		
Pectoral Sandpiper [858]		Species or species habitat may occur within area
Numenius madagascariensis		
Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat may occur within area
Pandion haliaetus		
Osprey [952]		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		

Scientific Name	Threatened Category	Presence Text
Actitis hypoleucos Common Sandpiper [59309]		Species or species habitat may occur within area
Anous stolidus Common Noddy [825]		Species or species habitat may occur within area
Calidris acuminata Sharp-tailed Sandpiper [874]	Vulnerable	Species or species habitat may occur within area
Calidris canutus Red Knot, Knot [855]	Vulnerable	Species or species habitat may occur within area overfly marine area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area overfly marine area
Calidris melanotos Pectoral Sandpiper [858]		Species or species habitat may occur within area overfly marine area
Calonectris leucomelas Streaked Shearwater [1077]		Species or species habitat likely to occur within area
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

Scientific Name	Threatened Category	Presence Text
Pandion haliaetus		
Osprey [952]		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
Phaethon rubricauda		
Red-tailed Tropicbird [994]		Species or species habitat likely to occur within area
Fish		
Acentronura larsonae		
Helen's Pygmy Pipehorse [66186]		Species or species habitat may occur within area
Bulbonaricus brauni		
Braun's Pughead Pipefish, Pug-headed Pipefish [66189]		Species or species habitat may occur within area
Campichthys tricarinatus		
Three-keel Pipefish [66192]		Species or species habitat may occur within area
Choeroichthys brachysoma		
Pacific Short-bodied Pipefish, Short-bodied Pipefish [66194]		Species or species habitat may occur within area
Choeroichthys latispinosus		
Muiron Island Pipefish [66196]		Species or species habitat may occur within area
Choeroichthys suillus		
Pig-snouted Pipefish [66198]		Species or species habitat may occur within area
Corythoichthys flavofasciatus		
Reticulate Pipefish, Yellow-banded Pipefish, Network Pipefish [66200]		Species or species habitat may occur within area

Scientific Name	Threatened Category	Presence Text
Cosmocampus banneri Roughridge Pipefish [66206]		Species or species habitat may occur within area
Doryrhamphus dactyliophorus Banded Pipefish, Ringed Pipefish [66210]		Species or species habitat may occur within area
Doryrhamphus excisus Bluestripe Pipefish, Indian Blue-stripe Pipefish, Pacific Blue-stripe Pipefish [66211]		Species or species habitat may occur within area
Doryrhamphus janssi Cleaner Pipefish, Janss' Pipefish [66212]		Species or species habitat may occur within area
Doryrhamphus multiannulatus Many-banded Pipefish [66717]		Species or species habitat may occur within area
Doryrhamphus negrosensis Flagtail Pipefish, Masthead Island Pipefish [66213]		Species or species habitat may occur within area
Festucalex scalaris Ladder Pipefish [66216]		Species or species habitat may occur within area
Filicampus tigris Tiger Pipefish [66217]		Species or species habitat may occur within area
Halicampus brocki Brock's Pipefish [66219]		Species or species habitat may occur within area
Halicampus grayi Mud Pipefish, Gray's Pipefish [66221]		Species or species habitat may occur within area
Halicampus nitidus Glittering Pipefish [66224]		Species or species habitat may occur within area

Scientific Name	Threatened Category	Presence Text
Halicampus spinirostris Spiny-snout Pipefish [66225]		Species or species habitat may occur within area
Haliichthys taeniophorus Ribboned Pipehorse, Ribboned Seadragon [66226]		Species or species habitat may occur within area
Hippichthys penicillus Beady Pipefish, Steep-nosed Pipefish [66231]		Species or species habitat may occur within area
Hippocampus angustus Western Spiny Seahorse, Narrow-bellied Seahorse [66234]		Species or species habitat may occur within area
Hippocampus histrix Spiny Seahorse, Thorny Seahorse [66236]		Species or species habitat may occur within area
Hippocampus kuda Spotted Seahorse, Yellow Seahorse [66237]		Species or species habitat may occur within area
Hippocampus planifrons Flat-face Seahorse [66238]		Species or species habitat may occur within area
Hippocampus spinosissimus Hedgehog Seahorse [66239]		Species or species habitat may occur within area
Hippocampus trimaculatus Three-spot Seahorse, Low-crowned Seahorse, Flat-faced Seahorse [66720]		Species or species habitat may occur within area
Micrognathus micronotopterus Tidepool Pipefish [66255]		Species or species habitat may occur within area
Phoxocampus belcheri Black Rock Pipefish [66719]		Species or species habitat may occur within area

Scientific Name	Threatened Category	Presence Text
Solegnathus hardwickii Pallid Pipehorse, Hardwick's Pipehorse [66272]		Species or species habitat may occur within area
Solegnathus lettiensis Gunther's Pipehorse, Indonesian Pipefish [66273]		Species or species habitat may occur within area
Solenostomus cyanopterus Robust Ghostpipefish, Blue-finned Ghost Pipefish, [66183]		Species or species habitat may occur within area
Syngnathoides biaculeatus Double-end Pipehorse, Double-ended Pipehorse, Alligator Pipefish [66279]		Species or species habitat may occur within area
Trachyrhamphus bicoarctatus Bentstick Pipefish, Bend Stick Pipefish, Short-tailed Pipefish [66280]		Species or species habitat may occur within area
Trachyrhamphus longirostris Straightstick Pipefish, Long-nosed Pipefish, Straight Stick Pipefish [66281]		Species or species habitat may occur within area
Reptile		
Aipysurus apraefrontalis Short-nosed Sea Snake, Short-nosed Seasnake [1115]	Critically Endangered	Species or species habitat may occur within area
Aipysurus duboisii Dubois' Sea Snake, Dubois' Seasnake, Reef Shallows Sea Snake [1116]		Species or species habitat may occur within area
Aipysurus laevis Olive Sea Snake, Olive-brown Sea Snake [1120]		Species or species habitat may occur within area
Aipysurus mosaicus as Aipysurus eydouxii Mosaic Sea Snake [87261]		Species or species habitat may occur within area
Aipysurus tenuis Brown-lined Sea Snake, Mjoberg's Sea Snake [1121]		Species or species habitat may occur within area

Scientific Name	Threatened Category	Presence Text
Caretta caretta Loggerhead Turtle [1763]	Endangered	Species or species habitat known to occur within area
Chelonia mydas Green Turtle [1765]	Vulnerable	Species or species habitat known to occur within area
Crocodylus porosus Salt-water Crocodile, Estuarine Crocodile [1774]		Species or species habitat may occur within area
Dermochelys coriacea Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Species or species habitat likely to occur within area
Emydocephalus annulatus Eastern Turtle-headed Sea Snake [1125]		Species or species habitat may occur within area
Ephalophis greyae as Ephalophis greyi Mangrove Sea Snake [93738]		Species or species habitat may occur within area
Eretmochelys imbricata Hawksbill Turtle [1766]	Vulnerable	Species or species habitat known to occur within area
Hydrophis czeblukovi Fine-spined Sea Snake [59233]		Species or species habitat may occur within area
Hydrophis elegans Elegant Sea Snake, Bar-bellied Sea Snake [1104]		Species or species habitat may occur within area
Hydrophis kingii as Disteira kingii Spectacled Sea Snake [93511]		Species or species habitat may occur within area
Hydrophis major as Disteira major Olive-headed Sea Snake [93512]		Species or species habitat may occur within area

Scientific Name	Threatened Category	Presence Text
Hydrophis ornatus Spotted Sea Snake, Ornate Reef Sea Snake [1111]		Species or species habitat may occur within area
Hydrophis peronii as Acalyptophis peronii Horned Sea Snake [93509]		Species or species habitat may occur within area
Hydrophis platura as Pelamis platurus Yellow-bellied Sea Snake [93746]		Species or species habitat may occur within area
Hydrophis stokesii as Astrotia stokesii Stokes' Sea Snake [93510]		Species or species habitat may occur within area
Natator depressus Flatback Turtle [59257]	Vulnerable	Congregation or aggregation known to occur within area

Whales and Other Cetaceans		[Resource Information]
Current Scientific Name	Status	Type of Presence
Mammal		
Balaenoptera acutorostrata Minke Whale [33]		Species or species habitat may occur within area
Balaenoptera 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 omurai Omura's Whale [87136]		Species or species habitat likely to occur within area

Current Scientific Name	Status	Type of Presence
[Balaenoptera physalus](#) Fin Whale [37]	Vulnerable	Species or species habitat likely to occur within area
[Delphinus delphis](#) Common Dolphin, Short-beaked Common Dolphin [60]		Species or species habitat may occur within area
[Feresa attenuata](#) Pygmy Killer Whale [61]		Species or species habitat may occur within area
[Globicephala macrorhynchus](#) Short-finned Pilot Whale [62]		Species or species habitat may occur within area
[Grampus griseus](#) Risso's Dolphin, Grampus [64]		Species or species habitat may occur within area
[Kogia breviceps](#) Pygmy Sperm Whale [57]		Species or species habitat may occur within area
[Kogia sima](#) Dwarf Sperm Whale [85043]		Species or species habitat may occur within area
[Lagenodelphis hosei](#) Fraser's Dolphin, Sarawak Dolphin [41]		Species or species habitat may occur within area
[Megaptera novaeangliae](#) Humpback Whale [38]		Breeding known to occur within area
[Mesoplodon densirostris](#) Blainville's Beaked Whale, Dense-beaked Whale [74]		Species or species habitat may occur within area
[Orcaella heinsohni](#) Australian Snubfin Dolphin [81322]	Vulnerable	Species or species habitat may occur within area

Current Scientific Name	Status	Type of Presence
Orcinus orca Killer Whale, Orca [46]		Species or species habitat may occur within area
Peponocephala electra Melon-headed Whale [47]		Species or species habitat may occur within area
Physeter macrocephalus Sperm Whale [59]		Species or species habitat may occur within area
Pseudorca crassidens False Killer Whale [48]		Species or species habitat likely to occur within area
Sousa sahulensis Australian Humpback Dolphin [87942]	Vulnerable	Species or species habitat may occur within area
Stenella attenuata Spotted Dolphin, Pantropical Spotted Dolphin [51]		Species or species habitat may occur within area
Stenella coeruleoalba Striped Dolphin, Euphrosyne Dolphin [52]		Species or species habitat may occur within area
Stenella longirostris Long-snouted Spinner Dolphin [29]		Species or species habitat may occur within area
Steno bredanensis Rough-toothed Dolphin [30]		Species or species habitat may occur within area
Tursiops aduncus Indian Ocean Bottlenose Dolphin, Spotted Bottlenose Dolphin [68418]		Species or species habitat may occur within area
Tursiops aduncus (Arafura/Timor Sea populations) Spotted Bottlenose Dolphin (Arafura/Timor Sea populations) [78900]		Species or species habitat likely to occur within area

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
Montebello	Multiple Use Zone (IUCN VI)

Habitat Critical to the Survival of Marine Turtles [Resource Information]

Scientific Name	Behaviour	Presence
All year (Jun - Aug)		
Natator depressus Flatback Turtle [59257]	Nesting	Known to occur

Extra Information

EPBC Act Referrals [Resource Information]

Title of referral	Reference	Referral Outcome	Assessment Status
DAVROS MC 3D marine seismic survey northwaet of Dampier, WA	2013/7092		Completed
Deep Water Northwest Shelf 2D Seismic Survey	2007/3260		Completed
Gorgon Gas Development	2003/1294		Post-Approval
Project Highclere Cable Lay and Operation	2022/09203		Completed
Controlled action			
Construct and operate LNG & domestic gas plant including onshore and offshore facilities - Wheatston	2008/4469	Controlled Action	Post-Approval
Equus Gas Fields Development Project, Carnarvon Basin	2012/6301	Controlled Action	Completed
Gorgon Gas Development 4th Train Proposal	2011/5942	Controlled Action	Post-Approval

Title of referral	Reference	Referral Outcome	Assessment Status
Controlled action			
Pluto Gas Project	2005/2258	Controlled Action	Completed
Pluto Gas Project Including Site B	2006/2968	Controlled Action	Post-Approval
Not controlled action			
Construction and operation of an unmanned sea platform and connecting pipeline to Varanus Island for	2004/1703	Not Controlled Action	Completed
Development of Halyard Field off the west coast of WA	2010/5611	Not Controlled Action	Completed
Exploration of appraisal wells	2006/3065	Not Controlled Action	Completed
Project Highclere Geophysical Survey	2021/9023	Not Controlled Action	Completed
To construct and operate an offshore submarine fibre optic cable, WA	2014/7373	Not Controlled Action	Completed
Wheatstone 3D seismic survey, 70km north of Barrow Island	2004/1761	Not Controlled Action	Completed
Not controlled action (particular manner)			
'Tourmaline' 2D marine seismic survey, permit areas WA-323-P, WA-330-P and WA-32	2005/2282	Not Controlled Action (Particular Manner)	Post-Approval
"Leanne" offshore 3D seismic exploration, WA-356-P	2005/1938	Not Controlled Action (Particular Manner)	Post-Approval
3D Marine Seismic Survey in Permit Areas WA-15-R, WA-18-R, WA-205-P, WA-253-P, WA-267-P and WA-268-P	2003/1271	Not Controlled Action (Particular Manner)	Post-Approval
3D seismic survey	2006/2715	Not Controlled Action (Particular Manner)	Post-Approval
Aperio 3D Marine Seismic Survey, WA	2012/6648	Not Controlled Action (Particular Manner)	Post-Approval
Balnaves Condensate Field Development	2011/6188	Not Controlled Action (Particular Manner)	Post-Approval

Title of referral	Reference	Referral Outcome	Assessment Status
Not controlled action (particular manner)			
Cable Seismic Exploration Permit areas WA-323-P and WA-330-P	2008/4227	Not Controlled Action (Particular Manner)	Post-Approval
CGGVERITAS 2010 2D Seismic Survey	2010/5714	Not Controlled Action (Particular Manner)	Post-Approval
Cue Seismic Survey within WA-359-P, WA-361-P and WA-360-P	2007/3647	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
Foxhound 3D Non-Exclusive Marine Seismic Survey	2009/4703	Not Controlled Action (Particular Manner)	Post-Approval
Harmony 3D Marine Seismic Survey	2012/6699	Not Controlled Action (Particular Manner)	Post-Approval
John Ross & Rosella Off Bottom Cable Seismic Exploration Program	2008/3966	Not Controlled Action (Particular Manner)	Post-Approval
Julimar Brunello Gas Development Project	2011/5936	Not Controlled Action (Particular Manner)	Post-Approval
Moosehead 2D seismic survey within permit WA-192-P	2005/2167	Not Controlled Action (Particular Manner)	Post-Approval
Osprey and Dionysus Marine Seismic Survey	2011/6215	Not Controlled Action (Particular Manner)	Post-Approval
Pomodoro 3D Marine Seismic Survey in WA-426-P and WA-427-P	2010/5472	Not Controlled Action (Particular Manner)	Post-Approval
Santos Winchester three dimensional seismic survey - WA-323-P & WA-330-P	2011/6107	Not Controlled Action (Particular	Post-Approval

Title of referral	Reference	Referral Outcome	Assessment Status
Not controlled action (particular manner)			
		Manner)	
Triton 3D Marine Seismic Survey, WA-2-R and WA-3-R	2006/2609	Not Controlled Action (Particular Manner)	Post-Approval
West Anchor 3D Marine Seismic Survey	2008/4507	Not Controlled Action (Particular Manner)	Post-Approval
West Panaeus 3D seismic survey	2006/3141	Not Controlled Action (Particular Manner)	Post-Approval
Westralia SPAN Marine Seismic Survey, WA & NT	2012/6463	Not Controlled Action (Particular Manner)	Post-Approval
Wheatstone 3D MAZ Marine Seismic Survey	2011/6058	Not Controlled Action (Particular Manner)	Post-Approval
Wheatstone Iago Appraisal Well Drilling	2008/4134	Not Controlled Action (Particular Manner)	Post-Approval
Wheatstone Iago Appraisal Well Drilling	2007/3941	Not Controlled Action (Particular Manner)	Post-Approval

Key Ecological Features

[Resource Information]

Key Ecological Features are the parts of the marine ecosystem that are considered to be important for the biodiversity or ecosystem functioning and integrity of the Commonwealth Marine Area.

Name	Region
Ancient coastline at 125 m depth contour	North-west
Continental Slope Demersal Fish Communities	North-west

Biologically Important Areas

[Resource Information]

Scientific Name	Behaviour	Presence
Marine Turtles		
Chelonia mydas		
Green Turtle [1765]	Internesting buffer	Known to occur

Scientific Name	Behaviour	Presence
[Eretmochelys imbricata](#) Hawksbill Turtle [1766]	Internesting buffer	Known to occur
[Natator depressus](#) Flatback Turtle [59257]	Internesting buffer	Known to occur
Seabirds		
[Ardenna tenuirostris](#) Short-tailed Shearwater [84292]	Breeding	Known to occur
Sharks		
[Rhincodon typus](#) Whale Shark [66680]	Foraging	Known to occur
Whales		
[Balaenoptera musculus brevicauda](#) Pygmy Blue Whale [81317]	Migration	Known to occur
[Megaptera novaeangliae](#) Humpback Whale [38]	Migration (north and south)	Known to occur

Caveat

1 PURPOSE

This report is designed to assist in identifying the location of matters of national environmental significance (MNES) and other matters protected by the Environment Protection and Biodiversity Conservation Act 1999 (Cth) (EPBC Act) which may be relevant in determining obligations and requirements under the EPBC Act.

The report contains the mapped locations of:

- World and National Heritage properties;
- Wetlands of International and National Importance;
- Commonwealth and State/Territory reserves;
- distribution of listed threatened, migratory and marine species;
- listed threatened ecological communities; and
- other information that may be useful as an indicator of potential habitat value.

2 DISCLAIMER

This report is not intended to be exhaustive and should only be relied upon as a general guide as mapped data is not available for all species or ecological communities listed under the EPBC Act (see below). Persons seeking to use the information contained in this report to inform the referral of a proposed action under the EPBC Act should consider the limitations noted below and whether additional information is required to determine the existence and location of MNES and other protected matters.

Where data is available to inform the mapping of protected species, the presence type (e.g. known, likely or may occur) that can be determined from the data is indicated in general terms. It is the responsibility of any person using or relying on the information in this report to ensure that it is suitable for the circumstances of any proposed use. The Commonwealth cannot accept responsibility for the consequences of any use of the report or any part thereof. To the maximum extent allowed under governing law, the Commonwealth will not be liable for any loss or damage that may be occasioned directly or indirectly through the use of, or reliance on the contents of this report.

3 DATA SOURCES

Threatened ecological communities

For threatened ecological communities where the distribution is well known, maps are generated based on information contained in recovery plans, State vegetation maps and remote sensing imagery and other sources. Where threatened ecological community distributions are less well known, existing vegetation maps and point location data are used to produce indicative distribution maps.

Threatened, migratory and marine species

Threatened, migratory and marine species distributions have been discerned through a variety of methods. Where distributions are well known and if time permits, distributions are inferred from either thematic spatial data (i.e. vegetation, soils, geology, elevation, aspect, terrain, etc.) together with point locations and described habitat; or modelled (MAXENT or BIOCLIM habitat modelling) using point locations and environmental data layers.

Where little information is available for a species or large number of maps are required in a short time-frame, maps are derived either from 0.04 or 0.02 decimal degree cells; by an automated process using polygon capture techniques (static two kilometre grid cells, alpha-hull and convex hull); or captured manually or by using topographic features (national park boundaries, islands, etc.).

In the early stages of the distribution mapping process (1999-early 2000s) distributions were defined by degree blocks, 100K or 250K map sheets to rapidly create distribution maps. More detailed distribution mapping methods are used to update these distributions when time permits.

4 LIMITATIONS

The following species and ecological communities have not been mapped and do not appear in this report:

- threatened species listed as extinct or considered vagrants;
- some recently listed species and ecological communities;
- some listed migratory and listed marine species, which are not listed as threatened species; and
- migratory species that are very widespread, vagrant, or only occur in Australia in small numbers.

The following groups have been mapped, but may not cover the complete distribution of the species:

- listed migratory and/or listed marine seabirds, which are not listed as threatened, have only been mapped for recorded breeding sites; and
- seals which have only been mapped for breeding sites near the Australian continent

The breeding sites may be important for the protection of the Commonwealth Marine environment.

Refer to the metadata for the feature group (using the Resource Information link) for the currency of the information.

Acknowledgements

This database has been compiled from a range of data sources. The department acknowledges the following custodians who have contributed valuable data and advice:

-Office of Environment and Heritage, New South Wales
-Department of Environment and Primary Industries, Victoria
-Department of Primary Industries, Parks, Water and Environment, Tasmania
-Department of Environment, Water and Natural Resources, South Australia
-Department of Land and Resource Management, Northern Territory
-Department of Environmental and Heritage Protection, Queensland
-Department of Parks and Wildlife, Western Australia
-Environment and Planning Directorate, ACT
-Birdlife Australia
-Australian Bird and Bat Banding Scheme
-Australian National Wildlife Collection
-Natural history museums of Australia
-Museum Victoria
-Australian Museum
-South Australian Museum
-Queensland Museum
-Online Zoological Collections of Australian Museums
-Queensland Herbarium
-National Herbarium of NSW
-Royal Botanic Gardens and National Herbarium of Victoria
-Tasmanian Herbarium
-State Herbarium of South Australia
-Northern Territory Herbarium
-Western Australian Herbarium
-Australian National Herbarium, Canberra
-University of New England
-Ocean Biogeographic Information System
-Australian Government, Department of Defence
Forestry Corporation, NSW
-Geoscience Australia
-CSIRO
-Australian Tropical Herbarium, Cairns
-eBird Australia
-Australian Government – Australian Antarctic Data Centre
-Museum and Art Gallery of the Northern Territory
-Australian Government National Environmental Science Program
-Australian Institute of Marine Science
-Reef Life Survey Australia
-American Museum of Natural History
-Queen Victoria Museum and Art Gallery, Inveresk, Tasmania
-Tasmanian Museum and Art Gallery, Hobart, Tasmania
-Other groups and individuals

The Department is extremely grateful to the many organisations and individuals who provided expert advice and information on numerous draft distributions.

Please feel free to provide feedback via the Contact us page.

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APPENDIX D NOPSEMA REPORT FORMS

NOPSEMA Recordable Environmental Incident Monthly Reporting Form:

Monthly Environmental Incident Reports form (A198750).docx

Report of an Accident, Dangerous Occurrence or Environmental Incident:

Form - Report of an Accident Dangerous Occurrence or Environmental Incident (A159980).docx

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APPENDIX E ACOUSTIC MODELLING STUDY

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Pluto 4D M3 Marine Seismic Survey

Acoustic Modelling for Assessing Marine Fauna Sound Exposures

JASCO Applied Sciences (Australia) Pty Ltd

21 October 2025

Submitted to:

Woodside Energy

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Executive Summary

JASCO Applied Sciences (JASCO) previously performed a modelling study of underwater acoustic noise levels associated with the planned Woodside Pluto 4D M3 Marine Seismic Survey (MSS) (McPherson et al. 2019). Since that study, new underwater noise criteria and thresholds for marine mammals (NMFS 2024) and turtles (Accomando et al. 2025) have been published, and the survey layout and seismic source have been revised. Consequently, the previously modelled scenarios were reprocessed.

The modelling study specifically assessed distances from operations where underwater sound levels reached thresholds corresponding to criteria including behavioural response and impairment (temporary threshold shift (TTS) and permanent threshold shift (PTS)). Within the most recent NMFS (2024) guidance, the term PTS has been replaced with auditory injury (AUD INJ), which is reflective of a policy decision in the United States. However, in this report the use of the term PTS will be retained for consistency with scientific terminology and previous reports. It is important to note that both PTS and AUD INJ refer to the same effect criteria.

The modelling considered an airgun array with a total volume 3147 in^3, towed at 5 m depth in a double source configuration behind a single vessel. A specialised airgun array source model was used to predict the acoustic signature of the seismic source, and complementary underwater acoustic propagation models were used in conjunction with the array signature to estimate sound levels considering site-specific environmental influences. Single-impulse sound fields were predicted at 12 sites within the proposed survey area, with water depths ranging from 0 to ~1720 m. An accumulated sound exposure field was predicted for one representative scenario for likely survey operations over 24 hours.

The modelling methodology considered source directivity and range-dependent environmental properties likely to be encountered within the survey area. Estimated underwater acoustic levels are presented as sound pressure levels (SPL, L_p), zero-to-peak pressure levels (PK, L_{pk}), peak-to-peak pressure levels (PK-PK; $L_{pk\text{-}pk}$), and either single-impulse (i.e., per-pulse) or accumulated sound exposure levels (SEL, L_E) as appropriate for different noise effect criteria. In this report, the assessment period for SEL accumulation is defined as a 24-hour period over which sound energy may be integrated; the level is specified with the abbreviation SEL_{24h}.

SEL_{24h} is a cumulative metric that reflects the dosimetric effect of noise levels over 24 hours, based on the assumption that a receiver (e.g., 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 the SEL_{24h} criteria does not mean that marine fauna travelling within this radius of the source will be impaired, but rather that an animal could be exposed to the sound level associated with impairment if it remained within the ensonified area for 24 hours.

A more realistic representation of the potential exposures for south-bound migrating pygmy blue whales in the migrating Biologically Important Area (BIA) was undertaken using animal movement modelling (‘animat modelling’). While acoustic modelling inherently assumes static animals, the JASCO Animal Simulation Model Including Noise Exposure (JASMINE) combines modelled sound fields with realistic animal movements to predict how animals might be impacted through sound exposure. The exposure ranges account for animats sampling the sound field vertically and horizontally based on species-specific diving and movement parameters. One animal movement modelling scenario was modelled to address the line acquisition plan for likely survey operations over 24 hours.

The analysis considered the distances away from the seismic source at which assessment criteria or relevant sound levels were reached. The results are summarised below for the representative single-

impulse sites and accumulated SEL scenario. Maps are provided in the report to assist with contextualising tabulated distances.

Marine mammals

Table 1 summarises the distances to criteria for marine mammals.

- The maximum distance at which the NOAA (2024) marine mammal behavioural response criterion of 160 dB re 1 µPa (SPL) for impulsive noise was reached was 8.43 km.
- The results for marine mammal impairment considered the criteria from NMFS (2024). These criteria contain two metrics (PK and SEL_{24h}), both required for the assessment of marine mammal TTS and PTS. The longest distance associated with either metric is required to be applied for assessment; Table 1 summarises the maximum distances, along with the relevant metric.

Table 1. Summary of marine mammal results: Summary of maximum (R_{max}) horizontal distances (in km) from the seismic survey to the marine mammal behavioural response criterion of 160 dB re 1 µPa (SPL) and frequency-weighted temporary threshold shift (TTS) and permanent threshold shift (PTS) criteria, showing the relevant metric.

Hearing group	Maximum modelled distance to noise effect criteria (R_{max})		
	Behavioural response [a] (km)	TTS [b] (km)	PTS/AUD INJ [b] (km)
LF cetaceans	8.43	48.0 (SEL_{24h})	0.80 (SEL_{24h})
HF cetaceans		–	–
VHF cetaceans		0.44 (SEL_{24h})	0.20 (PK)

Noise exposure criteria: [a] NOAA (2024) and [b] NMFS (2024).
A dash indicates the threshold was not reached within the limits of the modelling resolution (20 m).

Animal movement modelling

Animal movement modelling ('animat modelling') focussed on migrating pygmy blue whales. In this case, the moving receivers (the animats) were set to simulate the real-world movements of migrating pygmy blue whales in a southbound direction. Animats were considered either restricted to the pygmy blue whale migration biologically important area (BIA) or unrestricted throughout the modelling area. The distributions of distances at which animats were predicted to be exposed to sound levels above relevant thresholds were used to calculate the 95th percentile exposure range ($ER_{95\%}$), and associated probability of exposure above threshold (P_{exp}).

The results of the animal movement modelling predicted that the maximum $ER_{95\%}$ to SEL_{24h} thresholds was 4.79 km for TTS and 0.06 km for PTS. Between 40.5 and 78.4% of animats within the $ER_{95\%}$ ranges were exposed above the respective thresholds. Exposures above accumulated sound criteria are most sensitive to the dwell time of animats within the ensonified area.

The maximum $ER_{95\%}$ to the behavioural response SPL threshold of 160 dB re 1 µPa was 4.60 km in the unrestricted scenario and 4.99 km in the restricted scenario. Single-exposure metrics, such as SPL, are not sensitive to changes in dwell time, but rather the distribution of noise within the water column and the use of the water column by the simulated animals.

Table 2. Summary of animat simulation results for migrating pygmy blue whales. The 95th percentile exposures ranges ($ER_{95\%}$) in km and probability of animats being exposed above threshold within the $ER_{95\%}$ (P_{exp} (%)) are provided.

Threshold		Scenario 1	
Description	Threshold level (dB)	$ER_{95\%}$ (km)	P_{exp} (%)
Unrestricted seeding			
PTS (SEL_{24h})	183 [a]	0.06	64.7%
TTS (SEL_{24h})	168 [a]	4.00	47.6%
Behavioural response (SPL)	160 [b]	4.60	64.5%
Restricted seeding			
PTS (SEL_{24h})	183 [a]	0.05	70.6%
TTS (SEL_{24h})	168 [a]	4.79	40.5%
Behavioural response (SPL)	160 [b]	4.99	78.4%

[a] LF-weighted SEL_{24h} ($L_{E,24h}$; dB re 1 $\mu Pa^2 \cdot s$), NMFS (2024).
[b] SPL (L_p; dB re 1 µPa), NOAA (2024).

Sea turtles

Table 3 summarises the distances to criteria for sea turtles.

- The PK sea turtle impairment threshold of 224 dB re 1 µPa for TTS and 230 dB re 1 µPa for PTS from Accomando et al. (2025) were not exceeded. The SEL_{24h} sea turtle impairment threshold of 184 dB re 1 µPa for PTS and 169 dB re 1 µPa for TTS from Accomando et al. (2025) were exceeded up to 0.63 km and 46.1 km, respectively. As is the case with marine mammals, a reported radius for SEL_{24h} criteria does not mean that sea turtles travelling within this radius of the source will be impaired, but rather that an animal could be exposed to the sound levels associated with TTS or PTS if it remained within the respective ensonified areas for 24 hours.
- Table 3 also summarises the distances within which the criteria for behavioural response (166 dB re 1 µPa (SPL)) and behavioural disturbance (175 dB re 1 µPa (SPL)) (McCauley et al. 2000) could be exceeded.

Table 3. Summary of sea turtle results: Summary of horizontal distances (in km) to turtle behavioural response criteria, temporary threshold shift (TTS), and permanent threshold shift (PTS).

Hearing group	Maximum modelled distance to effect threshold (R_{max}) (km)					
	Behavioural response [1]	Behavioural disturbance[1]	TTS - SEL_{24h} [2]	TTS - PK [2]	PTS - SEL_{24h} [2]	PTS - PK [2]
Sea Turtles	3.30	1.12	46.1	–	0.63	–

Noise exposure criteria: [1] McCauley et al. (2000), and [2] Accomando et al. (2025)

Fish, fish eggs, and fish larvae

This modelling study assessed the ranges for quantitative criteria based on Popper et al. (2014) and considered both PK and SEL_{24h} metrics associated with mortality and potential mortal injury as well as impairment in the following groups:

- Fish without a swim bladder (also appropriate for sharks in the absence of other information),
- Fish with a swim bladder that do not use it for hearing,
- Fish that use their swim bladders for hearing,

- Fish eggs and fish larvae.

Table 4 summarises distances to effect criteria for fish, fish eggs, and fish larvae along with the relevant metric.

Table 4. Summary of fish results: Summary of maximum onset distances for injury and temporary threshold shift (TTS) in fish, fish eggs, and larvae considering single impulse (PK) and 24-hour sound exposure level (SEL_{24h}) within the modelled scenarios.

Relevant hearing group	Effect criteria	Metric associated with longest distance to criteria	R_{max} (km)
Fish: No swim bladder	Mortality and potential mortal injury	PK	0.06
	Recoverable injury	PK	0.06
	TTS	SEL_{24h}	1.80
Fish: Swim bladder not involved in hearing and Swim bladder involved in hearing	Mortality and potential mortal injury	PK	0.11
	Recoverable injury	PK	0.11
	TTS	SEL_{24h}	1.80
Fish eggs, and larvae (relevant to plankton)	Mortality and potential mortal injury	PK	0.11

Benthic invertebrates and coral

To assist with assessing the potential effects on these receptors, the following results were determined:

- Crustaceans and bivalves: Sound levels exceeding 202 dB re 1 µPa PK-PK, at which effects may occur (Payne et al. 2008, Day et al. 2016a, Day et al. 2017, 2019), were considered at the seafloor; the sound level was exceeded up to 358 m from the modelled sites.
- Sponges and coral: The PK sound level at the seafloor directly underneath the seismic source was estimated at three representative water depths and compared to the sound level of 226 dB re 1 µPa PK at which sponges and corals are not visibly affected (Heyward et al. 2018); the threshold was not reached from any of the considered modelled sites.

1. Introduction

JASCO Applied Sciences (JASCO) previously performed a modelling study of underwater acoustic noise levels associated with the planned Woodside Pluto 4D M3 Marine Seismic Survey (MSS) (McPherson et al. 2019). Since that study, new underwater noise criteria and thresholds for marine mammals (NMFS 2024) and turtles (Accomando et al. 2025) have been published, and the survey layout and seismic source have been updated. Consequently, the previously modelled scenarios were reprocessed.

The modelling study specifically assessed distances from operations where underwater sound levels reached thresholds corresponding to criteria including behavioural response and impairment (temporary threshold shift (TTS) and permanent threshold shift (PTS)). Within the most recent NMFS (2024) guidance, the term PTS has been replaced with auditory injury (AUD INJ), which is reflective of a policy decision in the United States. However, in this report the use of the term PTS will be retained for consistency with scientific terminology and previous reports. It is important to note that both PTS and AUD INJ refer to the same effect criteria.

The modelling study considered a 3147 in^3 seismic source in a double array configuration with 50 m cross-line separation. JASCO's specialised Airgun Array Source Model (AASM) was used to predict the acoustic signature and spectra for the seismic source. AASM accounts for individual airgun volumes, airgun bubble interactions, and array geometry to yield accurate source predictions.

Complementary underwater acoustic propagation models were used in conjunction with the array signature to estimate sound levels considering site-specific environmental influences. Single-impulse sound fields were predicted at twelve sites within the proposed survey area, and accumulated sound exposure fields were predicted for one representative scenario for likely survey operations over 24 hours. A conservative sound speed profile that would be most supportive of sound propagation conditions was defined and applied throughout.

The modelling methodology considered source directivity and range-dependent environmental properties. Estimated underwater acoustic levels are presented as sound pressure levels (SPL, L_p), zero-to-peak pressure levels (PK, L_{pk}), peak-to-peak pressure levels (PK-PK; $L_{pk\text{-}pk}$), and either single-impulse (i.e., per-pulse) or accumulated sound exposure levels (SEL, L_E) as appropriate for different noise effect criteria. In this report, the duration period for SEL accumulation is defined as a 24-hour period over which sound energy is integrated; the level is specified with the abbreviation SEL_{24h}.

SEL_{24h} is a cumulative metric that reflects the dosimetric effect of noise levels within 24 hours, based on the assumption that a receiver (e.g., an animal) is consistently exposed to such noise levels at a fixed position. More realistically, marine mammals, fish, and sea turtles would not stay in the same location for 24 hours (especially in the absence of location-specific habitat) but rather a shorter period, depending on the animal's behaviour and the source's proximity and movements. Therefore, a reported radius for the SEL_{24h} criteria does not mean that marine fauna travelling within this radius of the source will be impaired, but rather that an animal could be exposed to the sound level associated with impairment (either temporary threshold shift (TTS) or permanent threshold shift (PTS)) if it remained within the ensonified area for 24 hours.

A more realistic representation of the potential exposures for southbound migrating pygmy blue whales (*Balaenoptera musculus brevicauda*) was undertaken using animal movement modelling ('animat modelling'). The acoustic modelling results were used in conjunction with animal movement modelling simulations to predict the distances at which pygmy blue whales are expected to be exposed above threshold criteria for TTS, PTS, and behavioural response. Sound exposure distribution estimates are determined by moving large numbers of simulated animals (animats) through a modelled time-evolving sound field, computed using specialised sound source and sound propagation models. This approach provides the most realistic prediction of the maximum expected SPL and SEL for comparison against the relevant thresholds.

This report is further structured as follows: the remainder of Section 1 provides details on the scenarios considered for modelling; Section 2 explains the metrics used to represent underwater acoustic fields and the effect criteria considered; Section 3 details the methodology for predicting the source levels and modelling the sound propagation, including the specifications of the seismic source and all environmental parameters the propagation models require. Section 3 also explains animal movement and exposure modelling methods. Section 4 presents the acoustic results as tabulated ranges to thresholds and as sound level contour maps. Section 4.2 presents the animal movement modelling results. All modelling results are then discussed in Section 5.

1.1. Modelling Scenarios

Twelve representative single impulse sites and one 24-hour acquisition scenarios were modelled considering a 3147 in^3 seismic source. The locations of the modelled sites are provided in Table 5, and the acquisition scenarios are detailed in Table 6, with all considered sites and acquisition lines shown in Figure 1. The modelling assumed that a survey vessel sailed along survey lines at ~4.5 knots, towed a 3147 in^3 array in a double source configuration, with an impulse interval (inter-pulse interval) of 18.75 m and crossline separation of 50 m. The single impulse sites and accumulated SEL scenarios were selected based on a proposed survey plan where the survey lines run at 0 and 180°.

One 24-hour scenario was modelled, named Scenario 1 (Table 6). For modelling purposes, the seismic source was assumed not to operate during line turns. Scenario 1 accounted for 6602 impulses during the 15.24 hour period of acquisition within the 24-hour scenario (inclusive of run-ins and run-outs).

Table 5. Location details for the single impulse modelled sites.

Site	Latitude (S)	Longitude (E)	MGA[1] Zone 50		Water depth (m)	Tow Direction (°)
			X (m)	Y (m)		
1	20° 03' 28.803"	115° 14' 48.366"	316648.0	7781138	100	0
2	20° 01' 12.835"	115° 14' 49.858"	316647.5	7785319	125	0
3	19° 58' 23.066"	115° 14' 51.754"	316648.0	7790540	154	0
4	19° 53' 28.478"	115° 14' 54.970"	316647.1	7799600	226	0
5	19° 48' 46.866"	115° 14' 58.066"	316647.3	7808260	328	0
6	19° 45' 52.523"	115° 14' 59.981"	316647.6	7813622	593	0
7	19° 44' 14.457"	115° 11' 55.600"	311248.0	7816581	959	180
8	19° 48' 27.754"	115° 11' 52.732"	311247.4	7808791	573	180
9	19° 53' 13.914"	115° 11' 49.489"	311247.1	7799991	326	180
10	19° 59' 17.906"	115° 11' 45.360"	311247.2	7788797	177	180
11	20° 05' 26.472"	115° 11' 41.173"	311247.9	7777462	121	180
12	20° 04' 26.392"	115° 16' 12.381"	319107.6	7779393	76	0

[1] Map Grid of Australia (MGA)

Table 6. Parameters for the modelled scenario.

Scenario	Source volume (in^3)	Tow depth (m)	Source configuration	Number of survey lines	Average time per line (h)	Impulse interval (m)	Number of impulses
1	3147	5	Double	3	5.08	18.75	6602

Table 7. Sound field sampling locations for single impulse sound fields in each Survey Area relevant to identified receptors.

Receiver name	Relevant modelled site	Distance (km)	Location		Water depth (m)
			Latitude (S)	Longitude (E)	
Flatback Turtle Internesting BIA	12	0.78	20° 04' 47.59"	115° 16' 27.41"	73
Montebello Islands Marine Park (WA)		32.8	20° 18' 48.03"	115° 27' 18.00"	33
Humpback Whale BIA, Migration (north and south)		19.8	20° 14' 00.91"	115° 21' 16.81"	18
Tryal Rocks		24.1	20° 16' 05.00"	115° 22' 25.00"	23

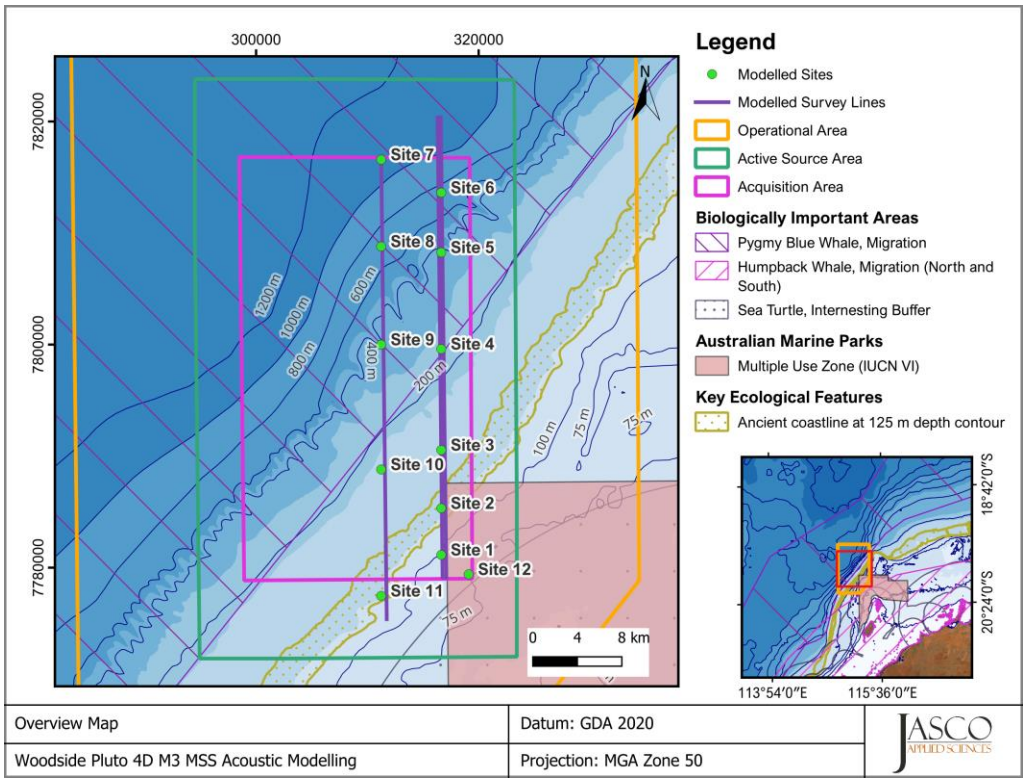


Figure 1. Overview map of modelling features along with key ecologically and biologically important areas.

1.2. Animal Movement Modelling Scenarios

Animal movement modelling simulations were run for migrating pygmy blue whales considering the nominal 24-hour acquisition scenario. Southbound migration was modelled. Animats were considered

either restricted to the pygmy blue whale migration biologically important area (BIA) or unrestricted throughout the modelling area.

In the unrestricted seeding scenarios, animats are randomly placed, or seeded, within the entire simulation area at a specified density (animats/km^2) within the species preferred depth range. Restricted seeding limits the animats' movement to within its respective BIA. During simulations, if an animats' movement takes it outside of its preferred depth range, it will begin to make movements (while still following the parameters within its species behaviour file) back towards its preferred depth range.

Animats were seeded at a nominal horizontal sampling density of 4 animats/km^2. The animat simulation was run for a representative 24-hour duration.

2. Noise Effect Criteria

To assess the potential effects of a sound–producing activity, it is necessary to first establish exposure criteria (thresholds) for which sound levels may be expected to have a negative effect on animals. Whether acoustic exposure levels might injure or disturb marine fauna is an active research topic. Since 2007, several expert groups have developed SEL–based assessment approaches for evaluating auditory injury, with key works including Southall et al. (2007b), Finneran and Jenkins (2012), Popper et al. (2014), United States National Marine Fisheries Service (NMFS 2018), Southall et al. (2019), NMFS (2024) and Accomando et al. (2025). The number of studies that investigate the level of behavioural disturbance to marine fauna by anthropogenic sound has also increased substantially.

The perceived loudness of sound, especially impulsive noise such as from pile driving, is not generally proportional to the instantaneous acoustic pressure. Rather, perceived loudness depends on the pulse rise-time and duration, and the frequency content. Several sound level metrics, such as PK, SPL, and SEL, are commonly used to evaluate noise and its effects on marine life (Appendix A). The period of accumulation associated with SEL is defined, with this report referencing either a "per-pulse" assessment or over 24 hours. The acoustic metrics in this report reflect the ISO standard for acoustic terminology, ISO/DIS 18405:2017 (2017).

Seismic surveying activities have been assessed as an impulsive noise source consistent with the considered thresholds and guidelines. The following thresholds and guidelines for this study were chosen because they represent the best available science, and sound levels presented in literature for fauna with no defined thresholds:

- Marine mammals:
  - Peak pressure levels (PK; L_{pk}) and frequency–weighted accumulated sound exposure levels (SEL; $L_{E,24h}$) from NMFS (2024) for the onset of temporary threshold shift (TTS) and permanent threshold shift (PTS) in marine mammals for impulsive sources. As discussed within Accomando et al (2025) and NMFS (2024), intense noise exposures can cause auditory injury (represented by either AUD INJ or AINJ) without PTS occurring. In this report, the terms PTS and auditory injury can be considered to be used interchangeably, however it is acknowledged that auditory injury may occur without PTS.
  - Marine mammal behavioural thresholds based on the current U.S. National Oceanic and Atmospheric Administration (NOAA) (2024) unweighted criterion for marine mammals of 160 dB re 1 µPa (SPL; L_p) for impulsive sound sources.
- Fish, fish eggs, and larvae:
  - Sound exposure guidelines for fish, fish eggs, and larvae (used as a surrogate for plankton) (Popper et al. 2014).
- Sea turtles:
  - Peak pressure levels (PK; L_{pk}) and frequency–weighted accumulated sound exposure levels (SEL; $L_{E,24h}$) from Accomando et al. (2025) for the onset of TTS and PTS in turtles for impulsive sound sources.
  - Sea turtle behavioural response threshold of 166 dB re 1 µPa (SPL; L_p) for impulsive noise, along with a sound level associated with behavioural disturbance 175 dB re 1 µPa (SPL; L_p) (McCauley et al. 2000).
- Benthic invertebrates
  - PK-PK sound levels exceeding 202 dB re 1 µPa (Payne et al. 2008)
  - PK-PK sound levels of 212, and 213 dB re 1 µPa to allow comparison to the maximum sound levels measured in Day et al. (2016a) and Day et al. (2017).

- Additionally, to assess the size of the low-power zone required under the Australian Environment Protection and Biodiversity Conservation (EPBC) Act Policy Statement 2.1, Department of the Environment, Water, Heritage and the Arts (DEWHA 2008), the distance to an unweighted per-pulse SEL of 160 dB re 1 µPa^2·s (L_E) is reported.

The following sections (along with Appendices A.3 and A.4), expand on the thresholds, guidelines and sound levels for all marine fauna.

2.1. Marine Mammals

The criteria applied in this study to assess possible effects of impulsive noise sources on marine mammals are summarised Table 8; low-frequency cetaceans, high-frequency cetaceans, and very high-frequency cetaceans, were identified as the hearing groups requiring assessment.

There are two categories of auditory threshold shifts or hearing loss: Temporary Threshold Shift (TTS), a temporary reduction in an animal's hearing sensitivity as the result of receptor hair cells in the cochlea becoming fatigued; and permanent threshold shift (PTS), a physical injury to an animal's hearing organs. As discussed within Accomando et al (2025) and NMFS (2024), intense noise exposures can cause auditory injury (represented by either AUD INJ or AINJ) without PTS occurring. In this report, the terms PTS and auditory injury can be considered to be used interchangeably, however it is acknowledged that auditory injury may occur without PTS.

Details on thresholds related to auditory threshold shifts or hearing loss and behavioural response are provided in Appendix A.3, with frequency weighting explained in detail in Appendix A.4. The behavioural response criterion from the U.S. National Oceanic and Atmospheric Administration (NOAA) (2024) has been applied.

Table 8. Acoustic effects of impulsive noise on marine mammals: Unweighted SPL, SEL_{24h}, and PK thresholds. In this report, PTS is used interchangeably with auditory injury (AUD INJ).

Hearing group	NOAA (2024)	NMFS (2024)			
	Behaviour	TTS onset thresholds* (received level)		PTS onset thresholds* (received level)	
	SPL (L_p; dB re 1 µPa)	Weighted SEL_{24h} ($L_{E,24h}$; dB re 1 µPa^2·s)	PK (L_{pk}; dB re 1 µPa)	Weighted SEL_{24h} ($L_{E,24h}$; dB re 1 µPa^2·s)	PK (L_{pk}; dB re 1 µPa)
Low–Frequency (LF) cetaceans	160	168	216	183	222
High–frequency (HF) cetaceans		178	224	193	230
Very High–frequency (VHF) cetaceans		144	196	159	202

* Dual metric (SEL_{24h} and PK) acoustic thresholds for impulsive sounds: Use whichever results in the largest isopleth for calculating TTS and PTS onset.
L_p denotes sound pressure level and has a reference value of 1 µPa.
L_{pk} denotes peak sound pressure is flat weighted or unweighted and has a reference value of 1 µPa.
$L_{E,24h}$ denotes cumulative sound exposure over a 24 h period and has a reference value of 1 µPa^{2}s.

2.2. Fish, Fish Eggs, and Fish Larvae

In 2006, the Working Group on the Effects of Sound on Fish and Sea Turtles was formed to continue developing noise exposure criteria for fish and sea turtles, work begun by a NOAA panel two years

earlier. The Working Group developed guidelines with specific thresholds for different levels of effects for several species groups (Popper et al. 2014). The guidelines define quantitative thresholds for three types of immediate effects:

- Mortality, including injury leading to death,
- Recoverable injury, including injuries unlikely to result in mortality, such as hair cell damage and minor haematoma, and
- TTS.

Masking and behavioural effects can be assessed qualitatively, by assessing relative risk rather than by specific sound level thresholds. However, as these depend upon activity–based subjective ranges, these effects are not addressed in this report and are included in Tables 9 for completeness only. Because the presence or absence of a swim bladder has a role in hearing, fish's susceptibility to injury from noise exposure depends on the species and the presence and possible role of a swim bladder in hearing. Thus, different thresholds were proposed for fish without a swim bladder (also appropriate for sharks and applied to whale sharks in the absence of other information), fish with a swim bladder not used for hearing, and fish that use their swim bladders for hearing. Sea turtles, fish eggs, and fish larvae are considered separately. Table 9 lists relevant effects thresholds from Popper et al. (2014). In general, whether an impulsive sound adversely effects fish behaviour depends on the species, the state of the individual exposed, and other factors.

The SEL metric integrates noise intensity over some period of exposure. Because the period of integration for regulatory assessments is not well defined for sounds that do not have a clear start or end time, or for very long–lasting exposures, an exposure evaluation time must be defined. Southall et al. (2007b) defines the exposure evaluation time as the greater of 24 hours or the duration of the activity. Popper et al. (2014) recommend a standard period of the duration of the activity; however, the publication also includes caveats about considering the actual exposure times if fish move. Popper et al. (2014) summarises that in all TTS studies considered, fish that showed TTS recovered to normal hearing levels within 18–24 hours. Due to this, a period of accumulation of 24 hours has been applied in this study for SEL, as per NMFS (2024).

Table 9. Criteria for seismic noise exposure for fish, adapted from Popper et al. (2014).

Type of animal	Mortality and Potential mortal injury	Impairment			Behaviour
		Recoverable injury	TTS	Masking	
Fish: No swim bladder (particle motion detection)	>219 dB SEL_{24h} or >213 dB PK	>216 dB SEL_{24h} or >213 dB PK	>>186 dB SEL_{24h}	(N) Low (I) Low (F) Low	(N) High (I) Moderate (F) Low
Fish: Swim bladder not involved in hearing (particle motion detection)	210 dB SEL_{24h} or >207 dB PK	203 dB SEL_{24h} or >207 dB PK	>>186 dB SEL_{24h}	(N) Low (I) Low (F) Low	(N) High (I) Moderate (F) Low
Fish: Swim bladder involved in hearing (primarily pressure detection)	207 dB SEL_{24h} or >207 dB PK	203 dB SEL_{24h} or >207 dB PK	186 dB SEL_{24h}	(N) Low (I) Low (F) Moderate	(N) High (I) High (F) Moderate
Fish eggs and fish larvae (relevant to plankton)	>210 dB SEL_{24h} or >207 dB PK	(N) Moderate (I) Low (F) Low	(N) Moderate (I) Low (F) Low	(N) Low (I) Low (F) Low	(N) Moderate (I) Low (F) Low

Peak sound pressure level: dB re 1 µPa; SEL_{24h} dB re 1µPa^2·s.
All criteria are presented as sound pressure even for fish without swim bladders since no data for particle motion exist.
Relative risk (high, moderate, low) is given for animals at three distances from the source defined in relative terms as near

(N), intermediate (I), and far (F).

2.3. Sea Turtles

There is a paucity of data regarding responses of turtles to acoustic exposure, and no studies of hearing loss due to exposure to loud sounds. Popper et al. (2014) suggested thresholds for onset of mortal injury (including PTS) and mortality for sea turtles and, in absence of taxon–specific information, adopted the levels for fish that do not hear well (suggesting that this likely would be conservative for sea turtles).

Finneran et al. (2017) presented revised thresholds for sea turtle injury and hearing impairment (TTS and PTS). Their rationale is that sea turtles have best sensitivity at low frequencies and are known to have poor auditory sensitivity (Bartol and Ketten 2006, Dow Piniak et al. 2012). Accordingly, TTS and PTS thresholds for turtles are likely more similar to those of fishes than to marine mammals (Popper et al. 2014). These thresholds have subsequently been superseded by those presented by Accomando et al. (2025) (Table 10).

McCauley et al. (2000) observed the behavioural response of caged sea turtles—green (*Chelonia mydas*) and loggerhead (*Caretta caretta*)—to an approaching seismic airgun. For received levels above 166 dB re 1 µPa (SPL), the sea turtles increased their swimming activity, and above 175 dB re 1 µPa they began to behave erratically, which was interpreted as an agitated state. The Recovery Plan for Marine Turtles in Australia (Department of the Environment and Energy et al. 2017) acknowledges the 166 dB re 1 µPa SPL reported (McCauley et al. 2000) as the level that may result in a behavioural response to marine turtles. Noting that the McCauley et al. (2000) study found more significant responses were observed above 175 dB re 1 µPa, this is recommended as the criterion for behavioural disturbance; these thresholds are shown in Table 10. Both thresholds are reported for scientific completeness.

Table 10. Acoustic effects of impulsive noise on sea turtles: Unweighted sound pressure level (SPL), 24-hour sound exposure level (SEL_{24h}), and peak pressure (PK) thresholds. In this report, PTS is used interchangeably with auditory injury (AUD INJ).

Effect type	Reference	SPL (L_p; dB re 1 µPa)	Weighted SEL_{24h} ($L_{E,24h}$; dB re 1 µPa^2·s)	PK (L_{pk}; dB re 1 µPa)
Behavioural response	McCauley et al. (2000)	166	NA	
Behavioural disturbance		175		
PTS onset thresholds[1] (received level)	Accomando et al. (2025)	NA	184	230
TTS onset thresholds[1] (received level)			169	224

[1] Dual metric (SEL_{24h} and PK) acoustic thresholds for impulsive sounds: Use whichever results in the largest isopleth for calculating PTS and TTS onset.

L_p denotes sound pressure level and has a reference value of 1 µPa.

L_{pk} denotes peak sound pressure is flat weighted or unweighted and has a reference value of 1 µPa.

$L_{E,24h}$ denotes cumulative sound exposure over a 24 h period and has a reference value of 1 µPa^{2}s.

2.4. Benthic Invertebrates

Research is ongoing into the relationship between sound and its effects on crustaceans, including the relevant metrics for both effect and impact. Available literature suggests particle motion, rather than sound pressure, is a more important factor for crustacean and bivalve hearing. Water depth and seismic source size are related to the particle motion levels at the seafloor, with larger arrays and

shallower water being related to higher particle motion levels, more likely relevant to effects on crustaceans and bivalves.

At the seafloor interface, crustaceans and bivalves are subject to particle motion stimuli from several acoustic or acoustically-induced waves. These include the particle motion associated with an impinging sound pressure wave in the water column (the incident, reflected, and transmitted portions), substrate acoustic waves, and interface waves of the Scholte type. However, it is unclear which aspect(s) of these waves is/are most relevant to the animals, either when they normally sense the environment or their physiological responses to loud sounds, so there is not enough information to establish similar criteria and thresholds as done for marine mammals and fish. Including recent research, such as Day et al. (2016b), current literature does not clearly define an appropriate metric or identify relevant levels (pressure or particle motion) for an assessment. This includes the consideration of what particle motion levels lead to a behavioural response, or mortality. Therefore, at this stage, we cannot propose authoritative thresholds to inform the impact assessment.

The pressure and acceleration examples provided in Day et al. (2016a) indicate that the acceleration and pressure signals occurred simultaneously, which was interpreted as an indication that the waterborne sounds were responsible for the accelerations measured by the geophones. For clarity, it is important to distinguish that the acceleration from waterborne sound energy is *not* ground roll, which Day et al. (2016a) correctly define as the sound that propagates along the interface at a speed lower than the shear wave speed of the sediment. However, the report subsequently uses ground roll for all further discussions of particle acceleration. While Day et al. (2016a) discuss that they chose the simplest measure of ground roll, it should have been referring to as ‘the acceleration from waterborne sound energy’, or ‘waterborne acceleration’ for short. For this reason, when particle motion is not modelled, PK-PK sound energy is considered to be a suitable indicator in the context of this project of the potential for impact to crustaceans and bivalves.

In consideration of the evolving research, for crustaceans a PK-PK sound level of 202 dB re 1 µPa (Payne et al. 2008) is considered to be associated with no effect. PK-PK sound levels exceeding 202 dB re 1 µPa are therefore assessed here. Additionally for context related to different levels of potential impairment, the PK-PK sound levels of 209-212 dB re 1 µPa determined by Day et al. (2016b) to affect crustaceans, and 213 dB re 1 µPa from Day et al. (2019), are also included.

For bivalves, PK-PK sound levels of 212, and 213 dB re 1 µPa are presented to allow comparison to the maximum sound levels measured in Day et al. (2016a) and Day et al. (2017) for scallops and pearl shell oyster at which behavioural and physiological effects occurred.

3. Methods and Parameters

3.1. Acoustic Source Model

The pressure signature of the individual airguns and the composite decidecade bands point-source equivalent directional levels (i.e., source levels) of the seismic source were modelled with JASCO's Airgun Array Source Model (AASM). Although AASM accounts for notional pressure signatures of each seismic source with respect to the effects of surface-reflected signals on bubble oscillations and inter-bubble interactions, the surface-reflected signal (known as surface ghost) is not included in the far-field source signatures. The acoustic propagation models account for those surface reflections, which are a property of the propagating medium rather than the source.

AASM considers:

- Array layout.
- Volume, tow depth, and firing pressure of each airgun.
- Interactions between different airguns in the array.

The seismic source was modelled over AASM's full frequency range, up to 25 kHz. Appendix B.1 details this model.

3.2. Environmental Parameters

The specifications of the environmental parameters used in the propagation models are described in detail in Appendix D.1. A single sound speed profile for December was considered in this modelling study; this was identified as the seasonal period that was most favourable for sound propagation, resulting in the longest ranges to considered noise effect criteria.

The seabed beneath the modelled site will likely consist of a sediment surface layer underlain with increasingly cemented packstone layers with depth. Further details on the associated geoacoustic properties used in this modelling study are provided in Appendix D.1.3.

3.3. Sound Propagation Models

Three sound propagation models were used to predict the acoustic field around the seismic source:

- Combined range-dependent parabolic equation and Gaussian beam acoustic ray-trace model (MONM-BELLHOP, 10 Hz to 25 kHz).
- Full Waveform Range-dependent Acoustic Model (FWRAM, 10 to 1024 Hz).
- Wavenumber integration model (VSTACK, 10 to 1024 Hz).

The models were used in combination to characterise the acoustic fields at short and long ranges in terms of SEL, SPL, PK, and PK-PK. Appendix C provides further detailed information about each model.

MONM-BELLHOP was used to calculate SEL of a 360° area around each source location. FWRAM was used to model synthetic seismic pulses and to calculate water column PK and PK-PK levels. FWRAM was also used to generate a generalised SEL to SPL conversion function for the considered modelled sites. The conversion function was applied to predicted per-pulse SEL results from MONM-BELLHOP to estimate SPL values.

VSTACK was used to calculate close range PK and PK-PK levels along transects at the seafloor for the endfire and broadside directions of the seismic source at three modelling sites/water depths: 76, 100, and 125 m.

3.4. Geometry and Modelled Regions

To assess sound levels with MONM-BELLHOP, the sound field modelling calculated propagation losses up to distances of 100 km from the source in each cardinal direction, with a horizontal separation of 20 m between receiver points along the modelled radials. The sound fields were modelled with a horizontal angular resolution of $\Delta\theta$ = 2.5° for a total of N = 144 radial planes. The single-impulse sound fields were modelled within a 200 × 200 km box area. Receiver depths were chosen to span the entire water column, from 2 m to a maximum of 1700 m, with step sizes that increased with depth. To supplement the MONM results (10 Hz to 1 kHz), high-frequency propagation loss was modelled using BELLHOP for frequencies from 1.25 to 25 kHz. The MONM and BELLHOP results were combined to produce results for the full frequency range of interest.

FWRAM was run to 100 km with a 20 m receiver range step, which increases with distance from the source along four radials (fore and aft endfire, and port and starboard broadside). This was done to compute SEL-to-SPL conversions (Appendix D.3) but also to quantify water column PK levels.

The maximum modelled range for VSTACK was 1000 m, and a variable receiver range increment that increased away from the source was used, which increased from 10 to 25 m. Received levels were computed for receiver depths at 5 and 50 cm above the seafloor.

3.5. Accumulated SEL

During a seismic survey, new sound energy is introduced into the environment with each pulse from the seismic source. While some impact criteria are based on the per-pulse energy released, others, such as the marine mammal and fish SEL criteria used in this report (Section 2), account for the total acoustic energy marine fauna is subjected to over a specified duration. The duration is defined in this report as 24 hours. An accurate assessment of the accumulated sound energy depends not only on the parameters of each seismic impulse but also on the number of impulses delivered in a duration and the relative positions of the impulses.

When there are many seismic impulses, it becomes computationally prohibitive to perform sound propagation modelling for every single event. When the distance between the consecutive seismic impulses is small enough, such that the environmental parameters that influence sound propagation are virtually the same for many impulse points, the acoustic fields can be modelled for a subset of seismic pulses and estimated at several adjacent ones. After sound fields from representative impulse locations are calculated, they are adjusted to account for the source position for nearby impulses.

Estimating the cumulative sound field with the described approach is not as precise as modelling sound propagation at every impulse location. Nonetheless, small-scale, site-specific sound propagation features tend to blur and become less relevant when sound fields from adjacent impulses are summed. Larger scale sound propagation features, primarily dependent on water depth, dominate the cumulative field. The accuracy of the present method acceptably reflects those large-scale features, thus providing a meaningful estimate of a wide area SEL field in a computationally feasible framework.

To produce maps of accumulated received sound level distributions and calculate distances to specified sound level thresholds, the maximum-over-depth and seafloor levels were calculated at each sampling point within the modelled region. The radial grids of maximum-over-depth and seafloor sound levels for each impulse were then resampled (by linear triangulation) to produce a regular

Cartesian grid. The sound field grids from all impulses were summed (see Equation A-5) to produce the cumulative sound field grid with cell sizes of 20 m. The contours and threshold ranges were calculated from these flat Cartesian projections of the modelled acoustic fields.

3.6. Animal Movement and Exposure Modelling

The JASCO Animal Simulation Model Including Noise Exposure (JASMINE) was used to predict the exposure of animats to sound arising from the modelled scenario (Section 1.1). JASMINE integrates the predicted sound field with biologically meaningful movement rules for each marine mammal species (pygmy blue whales for the current analysis) that results in an exposure history for each animat in the model. An overview of the exposure modelling process using JASMINE is shown in Figure 2.

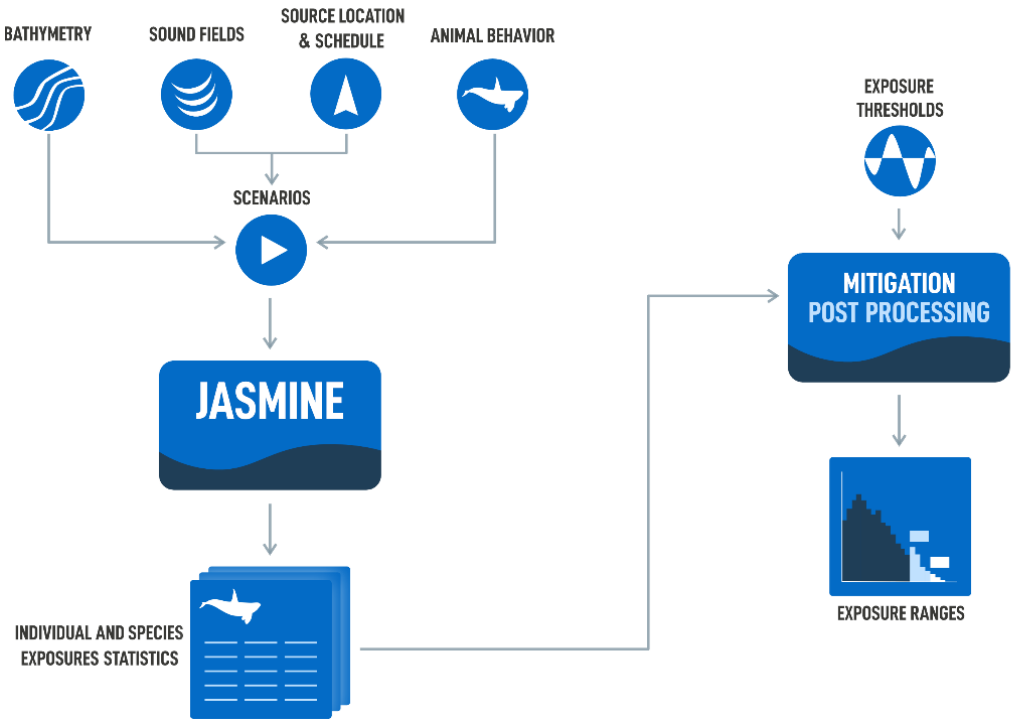


Figure 2. Exposure modelling process overview.

In JASMINE, the sound received by the animats is determined by the proposed seismic survey operations. As illustrated in Figure 3, animats are programmed to behave like the marine animals that may be present in an area. The parameters used for forecasting realistic behaviours (e.g., diving and foraging depth, swim speed, surface times) are determined and interpreted from marine mammal studies (e.g., tagging studies) where available, or reasonably extrapolated from related or comparable species. For cumulative metrics, an individual animat's sound exposure levels are summed over a 24-hour duration to determine its total received energy, and then compared to the relevant threshold criteria. For single-exposure metrics, the maximum exposure is evaluated against threshold criteria for each 24-hour period. For additional information on JASMINE, see Appendix E.

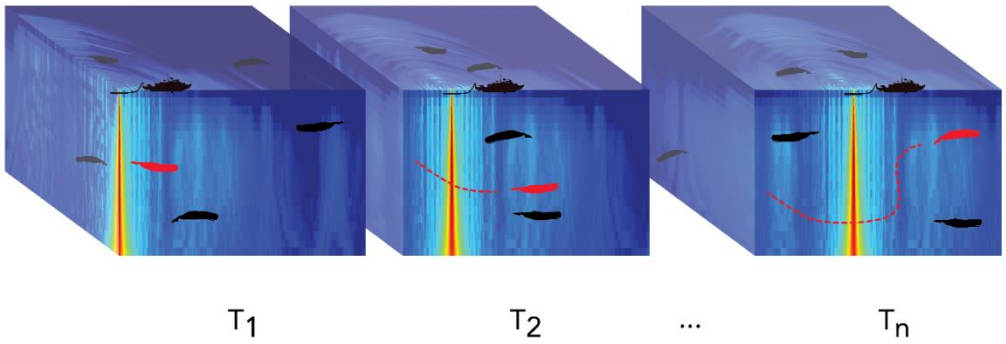


Figure 3. Depiction of animats in a moving sound field. Example animat (red) shown moving with each time step (T_n). The acoustic exposure of each animat is determined by where it is in the sound field, and its exposure history is accumulated as the simulation steps through time.

The exposure criteria for impulsive sounds (described in Section 2) were used to determine the number of animats that exceeded thresholds. To generate statistically reliable probability density functions, model simulations were run with animat sampling densities of 4 animats/km^2. The modelling results are not related to real-world density estimates for pygmy blue whales, as the real-world density of pygmy blue whales is unknown. To evaluate TTS, PTS, and behavioural response, exposure results were obtained using detailed behavioural information for pygmy blue whales (described in Section 3.6.2).

The seismic source was modelled as a vessel towing an airgun array at a speed of 4.5 knots, with an impulse interval of 18.75 m. The simulated source tracks followed a racetrack configuration with acquisition not occurring on turns. At the time and location of each seismic pulse, the modelled source location with the closest distance was selected for exposure modelling. The track lines, along with the acoustic modelling locations, are shown in Figure 1. The simulation was run for a representative period of 24 hours to coincide with the acoustic modelling effort. Due to the overlap of the survey lines with the migratory pygmy blue whale BIA, the considered scenario was run for migrating pygmy blue whales restricted to the BIA as well as unrestricted.

Figure 4 shows an example animat track (generated for information purposes only and not related to the results presented in this report) with associated received levels from a stationary point source. The top panel displays the animat track relative to the point source, and the bottom panel displays the accumulation of SEL_{24h} for TTS and PTS criteria. At approximately 50 seconds, the animat is exposed so that the TTS threshold is exceeded, and at approximately 500 seconds the animat is exposed so that the PTS threshold is exceeded.

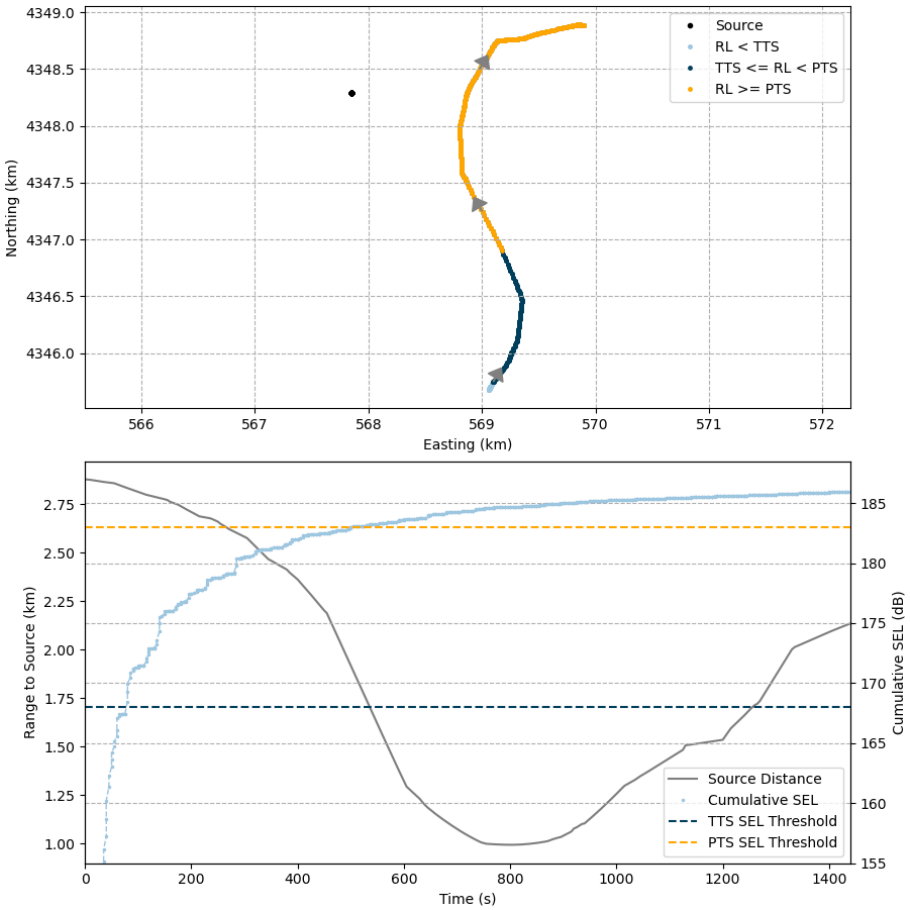


Figure 4. Animat track from an example simulation showing northward movement over a 1400 s duration. The upper panel shows a plan view of both a stationary point source and a foraging animat. Animat steps are coloured to indicate whether the accumulated sound energy at that point has exceeded either TTS or PTS threshold criteria. The lower panel shows horizontal distance in kilometres to the source (grey line; left y-axis) and cumulative 24-h SEL ($L_{E,24h}$, dB re 1 µPa²·s; right y-axis) as a function of time. Note that this example does not use data from the current study.

3.6.1. Exposure-based Radial Distance Estimation

The results from the animal movement and exposure modelling provided a way to estimate radial distances to effect thresholds. The distance to the closest point of approach (CPA) for each of the animats was recorded. The $ER_{95\%}$ (95% Exposure Range) is the horizontal distance that includes 95% of the animat CPAs that exceeded a given effect threshold (Figure 5). Within the $ER_{95\%}$, there is generally some proportion of animats that do not exceed threshold criteria. This occurs for several reasons, including the spatial and temporal characteristics of the sound field and the way in which animats sample the sound field over time, both vertically and horizontally. The sound field varies as a function of range, depth, and azimuth based on a variety of factors such as bathymetry, sound speed profile, and geoacoustic parameters. The way the animats sample the sound field depends upon species-typical swimming and diving characteristics (e.g., swim speed, dive depth, surface intervals, and reversals). Furthermore, even within a particular species definition, these characteristics vary with behavioral state (e.g., feeding, migrating). As this results in some animats not exceeding threshold criteria even within the $ER_{95\%}$, the probability that an animat within that distance was exposed above threshold within the $ER_{95\%}$ was also computed (P_{exp}) to provide additional context.

Acoustic ranges are reported for both $R_{95\%}$ and R_{max}, however, exposure ranges are reported for $ER_{95\%}$ only since, statistically, ER_{max} is not defined. JASMINE is a Monte Carlo simulation, and the results are

probabilistic in nature. This is in contrast with acoustic modelling, where there is a specific maximum isopleth range for a given source/environment setup.

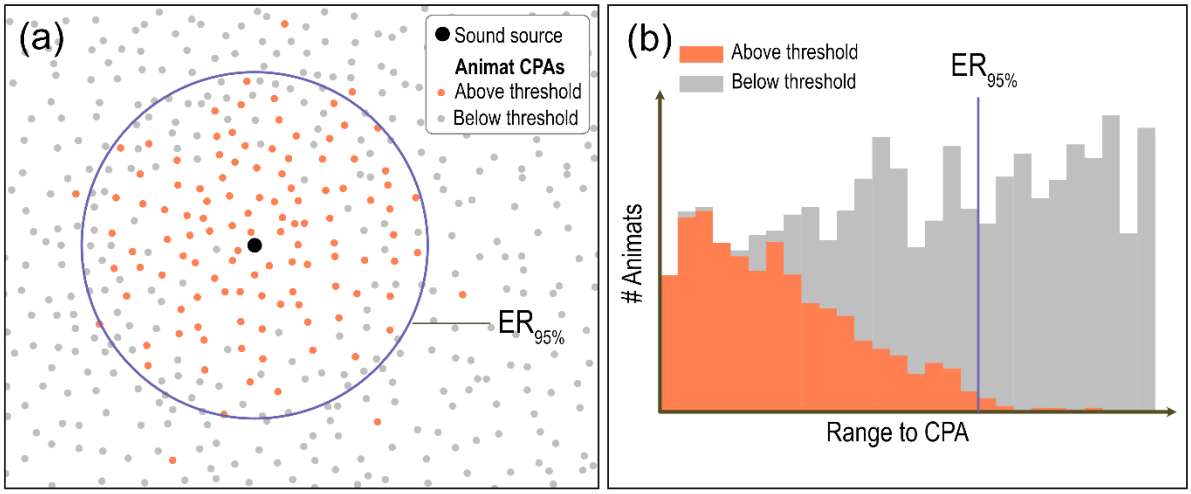


Figure 5. Example distribution of animat closest points of approach (CPAs). Panel (a) shows the horizontal distribution of animats near a sound source. Panel (b) shows the distribution of distances to animat CPAs. The 95% exposure range ($ER_{95\%}$) is indicated in both panels.

3.6.2. Pygmy Blue Whale Behaviour

The proposed seismic activities overlap the migration BIA for pygmy blue whales, therefore migratory behaviour was considered. Southbound migration was modelled. Detailed information on pygmy blue whales was derived from a range of sources that used multi-sensor tags to record fine-scale dive and movement behaviour (Owen et al. 2016, AIMS unpublished data 2021, Thums et al. 2025), as well as satellite tags to record travel speed (Thums and Ferreira 2021). Based on the most recently available satellite tag data, migratory profiles have been updated and exposure ranges for both north and southbound animals are likely to be similar. Given this, modelling of southbound animals is expected to yield results that are representative of likely exposure ranges irrespective of migratory direction.

Multi-sensor tags typically record the depth of an animal along with various movement parameters such as swim speed and their body's orientation. Owen et al. (2016) equipped a sub-adult pygmy blue whale with a multi-sensor tag off Western Australia. They classified dives for the tagged animal as migratory, feeding, or exploratory (i.e., no lunges recorded which would indicate feeding), each of which were undertaken by the whale in distinct bouts. The migratory behaviour profile modelled here comprised exploratory dives and migratory dives. Within the migratory behaviour profiles, the two dive types were modelled together such that the animats were migrating 95% of the time and engaged in exploratory dives 5% of the time (Owen et al. 2016).

Using data from Thums et al. (2025), the approximate length of a bout of exploratory dives could be determined, as well as the average (± SD) depth of this dive type. The analysis of the dive data showed that the depth of migratory dives was highly consistent over time and unrelated to local bathymetry. The mean depth of migratory dives was 12.8 m while the mean maximum depth of exploratory dives was 118 m (Thums et al. 2025).

The behaviour of migrating pygmy blue whales was modelled to reflect animats transiting through the modelling area on a 225° track for their southbound migration. This represents the animals migrating along the west coast of Australia from their breeding grounds in Indonesia to feeding areas south of Australia (Double et al. 2014, Thums and Ferreira 2021). The migration direction follows the alignment of the eastern edge of the migration BIA in this area. The speed of travel for both exploratory and

migratory movements was calculated from data presented in Thums and Ferreira (2021), who analysed data from satellite tags deployed on pygmy blue whales in the Northwest Marine Region.

4. Results

4.1. Acoustic Source Levels and Directivity

AASM (Appendix B.1) was used to predict the horizontal and vertical overpressure signatures and corresponding power spectrum levels for the seismic source, with results provided in Appendix B.2 along with the horizontal directivity plots for the selected source.

Table 11 shows the PK and per-pulse SEL source levels in the horizontal-plane broadside (perpendicular to the tow direction), endfire (along the tow direction), and vertical directions for the modelled array signature (a 3147 in^3 seismic source). The vertical source level that accounts for the "surface ghost" (the out-of-phase reflected pulse from the water surface) is also presented to make it easier to compare the output to other seismic source models.

Figure B-2 in Appendix B.2 shows the broadside, endfire, and vertical overpressure signature and corresponding power spectrum levels for the source. The signature consists of a strong primary peak, related to the initial release of high-pressure air, followed by a series of pulses associated with bubble oscillations. Most energy was produced at frequencies below 500 Hz. Frequency-dependent peaks and nulls in the spectrum result from interference among airguns in the source and correspond with the volumes and relative locations of the airguns to each other.

Table 11. Far-field source level specifications for the 3147 in^3 source, for a 5 m tow depth. Source levels are for a point-like acoustic source with equivalent far-field acoustic output in the specified direction. Sound level metrics are per-pulse and unweighted.

Direction	Peak source pressure level ($L_{S,pk}$; dB re 1 µPa m)	Per-pulse source SEL ($L_{S,E}$; dB re 1 μPa^2m^2s)	
		10-2000 Hz	2000-25000 Hz
Broadside	247.6	224.8	185.1
Endfire	249.5	226.1	189.5
Vertical	256.6	229.7	195.8
Vertical (surface affected source level)	256.6	232.7	198.9

4.2. Per-Pulse Sound Fields

This section presents the per-pulse sound fields in terms of maximum-over-depth SPL, SEL, and PK. The different metrics are presented for the following reasons:

- SPL sound fields were used to determine the distances to marine mammal and turtle behavioural thresholds (see Section 2).
- Per-pulse SEL sound fields are used as inputs into the 24 h SEL scenario and to provide context for the range to 160 dB re 1 $\mu Pa^2 \cdot s$, relevant for the EPBC Act Policy Statement 2.1 (DEWHA 2008).
- PK metrics within the water column are relevant to thresholds and guidelines for marine mammals, sea turtles, fish, fish eggs and larvae (Section 2).
- PK metrics at the seafloor are relevant to guidelines for fish, fish eggs and larvae (Section 2) and the sound level for effects on corals and sponges.

- PK-PK metrics at the seafloor are relevant to sound levels used in the assessment of effect on benthic invertebrates (Section 2).

The maximum and 95% distances to per-pulse SEL and SPL metrics are presented in Tables 12 to 15. The SPL sound fields, and distances to relevant isopleths can be visualised on the contour maps presented in Section 4.2.2.1. The SPL sound fields are also presented as vertical slices for modelled sites along the broadside and endfire directions of the 0/180 degree tow direction out to 7.5 km, with the airgun array in the centre (Section 4.2.2.2).

Maximum distances to maximum-over-depth water column PK thresholds were calculated for three representative single impulse sites and are presented in Table 16. Table 17 shows the received levels of the sample receivers (see Table 7). Seafloor sound levels were assessed at three representative depths within the survey area (76, 100 and 125 m) and Tables 18 and 19 present the PK and PK-PK results.

4.2.1. Tabulated Results

4.2.1.1. Water Column

Table 12. Maximum (R_{max}) and 95% ($R_{95\%}$) horizontal distances (in km) from the seismic source to modelled maximum-over-depth unweighted per-pulse sound exposure level (SEL) isopleths from the modelled single impulse sites, with the water depth indicated.

Per-pulse SEL (L_E; dB re 1 µPa²·s)	Site 1 (100 m)		Site 2 (125 m)		Site 3 (154 m)		Site 4 (226 m)		Site 5 (328 m)		Site 6 (593 m)	
	R_{max} (km)	$R_{95\%}$ (km)	R_{max} (km)	$R_{95\%}$ (km)	R_{max} (km)	$R_{95\%}$ (km)	R_{max} (km)	$R_{95\%}$ (km)	R_{max} (km)	$R_{95\%}$ (km)	R_{max} (km)	$R_{95\%}$ (km)
190	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
180	0.14	0.12	0.14	0.12	0.14	0.12	0.12	0.12	0.12	0.12	0.12	0.12
170	0.46	0.40	0.50	0.42	0.50	0.44	0.64	0.52	0.52	0.44	0.42	0.36
160[1]	1.17	0.98	1.30	1.10	1.32	1.10	2.06	1.62	1.68	1.37	2.28	2.02
150	3.02	2.71	3.29	2.86	3.31	2.97	7.30	5.14	6.70	5.22	9.16	8.29
140	6.40	5.82	7.04	6.20	7.43	6.61	25.8	16.9	31.4	27.1	34.9	31.3
130	13.1	11.4	14.4	12.1	15.6	13.1	>100	/	>100	/	>100	/

[1] Low power zone assessment criteria DEWHA (2008).
A slash indicates that $R_{95\%}$ radius to threshold is not reported when the R_{max} is greater than the maximum modelling extent.

Table 13. Maximum (R_{max}) and 95% ($R_{95\%}$) horizontal distances (in km) from the seismic source to modelled maximum-over-depth unweighted per-pulse sound exposure level (SEL) isopleths from the modelled single impulse sites, with the water depth indicated.

Per-pulse SEL (L_E; dB re 1 µPa²·s)	Site 7 (959 m)		Site 8 (573 m)		Site 9 (326 m)		Site 10 (177 m)		Site 11 (121 m)		Site 12 (76 m)	
	R_{max} (km)	$R_{95\%}$ (km)	R_{max} (km)	$R_{95\%}$ (km)	R_{max} (km)	$R_{95\%}$ (km)	R_{max} (km)	$R_{95\%}$ (km)	R_{max} (km)	$R_{95\%}$ (km)	R_{max} (km)	$R_{95\%}$ (km)
190	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
180	0.12	0.12	0.12	0.12	0.12	0.12	0.14	0.12	0.14	0.12	0.14	0.13
170	0.42	0.36	0.42	0.37	0.52	0.43	0.52	0.44	0.50	0.41	0.44	0.38
160[1]	1.72	1.48	2.28	1.82	1.88	1.41	1.30	1.12	1.18	1.00	1.19	1.05
150	8.51	6.84	10.3	7.83	9.22	7.49	3.28	2.95	2.98	2.72	3.07	2.69
140	41.4	24.9	36.2	29.2	42.7	33.7	8.43	6.99	6.42	5.76	6.00	5.45
130	>100	/	>100	/	>100	/	20.7	16.4	12.0	10.8	11.7	10.5

[1] Low power zone assessment criteria DEWHA (2008).
A slash indicates that $R_{95\%}$ radius to threshold is not reported when the R_{max} is greater than the maximum modelling extent.

Table 14. Maximum (R_{max}) and 95% ($R_{95\%}$) horizontal distances (in km) from the seismic source to modelled maximum-over-depth per-pulse sound pressure level (SPL) isopleths from the modelled single impulse sites, with the water depth indicated.

SPL (L_p; dB re 1 µPa)	Site 1 (100 m)		Site 2 (125 m)		Site 3 (154 m)		Site 4 (226 m)		Site 5 (328 m)		Site 6 (593 m)	
	R_{max} (km)	$R_{95\%}$ (km)	R_{max} (km)	$R_{95\%}$ (km)	R_{max} (km)	$R_{95\%}$ (km)	R_{max} (km)	$R_{95\%}$ (km)	R_{max} (km)	$R_{95\%}$ (km)	R_{max} (km)	$R_{95\%}$ (km)
200	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03
190	0.13	0.12	0.12	0.11	0.12	0.10	0.12	0.10	0.10	0.10	0.10	0.10
180	0.40	0.34	0.42	0.37	0.44	0.38	0.48	0.41	0.44	0.37	0.36	0.32
175[1]	0.67	0.60	0.72	0.66	0.74	0.64	0.94	0.81	1.10	0.90	0.78	0.65
170	0.99	0.87	1.06	0.94	1.08	0.96	1.88	1.44	1.54	1.28	2.16	1.38
166[2]	1.58	1.25	1.57	1.35	1.52	1.39	3.00	2.36	2.60	2.17	2.85	2.40
160[3]	2.44	2.17	2.62	2.36	2.90	2.48	5.99	4.47	5.88	4.59	7.99	5.08
150	5.15	4.80	5.66	5.09	6.04	5.25	18.7	12.9	29.8	18.3	33.7	25.7
140	10.1	9.09	10.4	9.26	11.5	9.62	88.7	68.5	>100	/	>100	/

[1] Threshold for turtle behavioural disturbance from impulsive noise (McCauley et al. 2000).
[2] Threshold for turtle behavioural response to impulsive noise (McCauley et al. 2000).
[3] Marine mammal behavioural threshold for impulsive sound sources (NOAA 2024).
A slash indicates that $R_{95\%}$ radius to threshold is not reported when the R_{max} is greater than the maximum modelling extent.

Table 15. Maximum (R_{max}) and 95% ($R_{95\%}$) horizontal distances (in km) from the seismic source to modelled maximum-over-depth per-pulse sound pressure level (SPL) isopleths from the modelled single impulse sites, with the water depth indicated.

SPL (L_p; dB re 1 µPa)	Site 7 (959 m)		Site 8 (573 m)		Site 9 (326 m)		Site 10 (177 m)		Site 11 (121 m)		Site 12 (76 m)	
	R_{max} (km)	$R_{95\%}$ (km)	R_{max} (km)	$R_{95\%}$ (km)	R_{max} (km)	$R_{95\%}$ (km)	R_{max} (km)	$R_{95\%}$ (km)	R_{max} (km)	$R_{95\%}$ (km)	R_{max} (km)	$R_{95\%}$ (km)
200	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03
190	0.10	0.10	0.10	0.10	0.12	0.10	0.10	0.10	0.12	0.11	0.12	0.12
180	0.36	0.32	0.36	0.32	0.46	0.37	0.46	0.38	0.42	0.36	0.40	0.32
175[1]	0.64	0.56	0.78	0.64	1.12	0.92	0.76	0.67	0.70	0.62	0.62	0.56
170	1.52	1.22	2.08	1.70	1.60	1.28	1.18	1.00	1.02	0.90	1.07	0.92
166[2]	3.30	2.06	2.76	2.11	2.96	2.30	1.59	1.37	1.47	1.26	1.49	1.33
160[3]	7.43	3.94	8.43	5.50	8.33	4.37	2.64	2.35	2.59	2.21	2.55	2.22
150	25.5	18.6	26.6	21.0	27.2	22.2	6.47	5.31	5.06	4.75	5.13	4.66
140	90.2	70.3	>100	/	>100	/	13.3	10.8	9.52	8.60	9.09	8.27

[1] Threshold for turtle behavioural disturbance from impulsive noise (McCauley et al. 2000).
[2] Threshold for turtle behavioural response to impulsive noise (McCauley et al. 2000).
[3] Marine mammal behavioural threshold for impulsive sound sources (NOAA 2024).
A slash indicates that $R_{95\%}$ radius to threshold is not reported when the R_{max} is greater than the maximum modelling extent.

Table 16. Maximum (R_{max}) horizontal distances (in km) from the seismic source to modelled maximum-over-depth peak pressure level (PK) thresholds based on NMFS (2024) for marine mammals, Popper et al. (2014) for fish, and Accomando et al. (2025) for sea turtles, at the modelled single impulse sites, with the water depth indicated.

Hearing group	PK threshold (L_{pk}; dB re 1 µPa)	Distance R_{max} (km)		
		Site 1 (100 m)	Site 7 (959 m)	Site 9 (326 m)
PTS/AUD INJ				
LF cetaceans	222	0.02	0.02	0.02
HF cetaceans	230	–	–	–
VHF cetaceans	202	0.20	0.19	0.19
Sea turtles	230	–	–	–
TTS				
LF cetaceans	216	0.04	0.04	0.04
HF cetaceans	224	–	–	–
VHF cetaceans	196	0.36	0.37	0.36
Sea turtles	224	–	–	–
Fish				
Fish: No swim bladder (also applied to sharks)[1]	213	0.06	0.06	0.06
Fish: Swim bladder not involved in hearing[1], Swim bladder involved in hearing[1] Fish eggs, and larvae[2]	207	0.10	0.11	0.11

[1] Mortality and potential mortal injury, and recoverable injury threshold
[2] Mortality and potential mortal injury threshold

A dash indicates the threshold is not reached within the limits of the modelling resolution (20 m).

Table 17. Received maximum-over-depth SPL at sound field sampling receivers (Table 7) from the closest modelled site, Site 12.

Receiver name	Relevant modelled site	Distance (km)	Location		Received SPL (L_p; dB re 1 µPa)
			Latitude (S)	Longitude (E)	
Flatback Turtle Internesting BIA	12	0.78	20° 04' 47.59"	115° 16' 27.41"	170.2
Montebello Islands Marine Park (WA)		32.8	20° 18' 48.03"	115° 27' 18.00"	103.1
Humpback Whale BIA, Migration (north and south)		19.8	20° 14' 00.91"	115° 21' 16.81"	117.5
Tryal Rocks		24.1	20° 16' 05.00"	115° 22' 25.00"	112.6

4.2.1.2. Seafloor

Ranges presented at the seafloor provided in Tables 18 and 19 are different to those for the maximum-over-depth modelling results presented in Table 16. This is because the model used for the water column results, FWRAM (Appendix C.2), does not represent the maximum sound levels at the seafloor close to the array. This is because FWRAM is based on a wide-angle parabolic equation (PE) algorithm which is valid to only approximately 70° down angle from the horizontal, and while it provides accurate predictions in the horizontal direction, it cannot predict sound levels directly under the array. The VSTACK model (Appendix C.3) is therefore used to determine the levels at the seafloor directly under the array, and due to seafloor interactions, these can be greater than those elsewhere in the water column.

Table 18. Maximum (R_{max}) horizontal distances (in m) from the seismic source to modelled seafloor (receiver located 50 cm above seafloor) peak pressure level thresholds (PK) for three water depths within the modelling area.

Hearing group/animal type	PK threshold (L_{pk}; dB re 1 µPa)	Distance R_{max} (m)		
		Site 1 (100 m)	Site 2 (125 m)	Site 12 (76 m)
Sound levels for sponges and corals[1]	226	*	*	*
Fish: I	213	60	50	69
Fish: II, III, Fish eggs, and larvae	207	156	148	165

[1] Heyward et al. (2018)
An asterisk indicates that the sound level was not reached.
Fish I–No swim bladder; Fish II–Swim bladder not involved with hearing; Fish III–Swim bladder involved with hearing.

Table 19. Maximum (R_{max}) horizontal distances (in m) from the seismic source to modelled seafloor (receiver located 5 cm above seafloor) peak-peak pressure levels (PK-PK) for three water depths within the modelling area. Results included in relation to benthic invertebrates.

PK-PK ($L_{pk\text{-}pk}$; dB re 1 µPa)	Distance R_{max} (m)		
	Site 1 (100 m)	Site 2: (125 m)	Site 12: (76 m)
213[1,2,3]	111	110	113
212[2,3]	122	123	124
210[1,2]	154	151	157
209[1,2]	169	176	173
202[4]	358	374	324

[1] Day et al. (2019), lobster
[2] Day et al. (2016a), lobster and scallops
[3] Day et al. (2017), scallops.
[4] Payne et al. (2008), lobster
An asterisk indicates that the sound level was not reached.

4.2.2. Sound Field Maps and Graphs

4.2.2.1. Sound Level Contour Maps

Sound level contour maps of SPL are included in this section for tow azimuths; 0° and 180°.

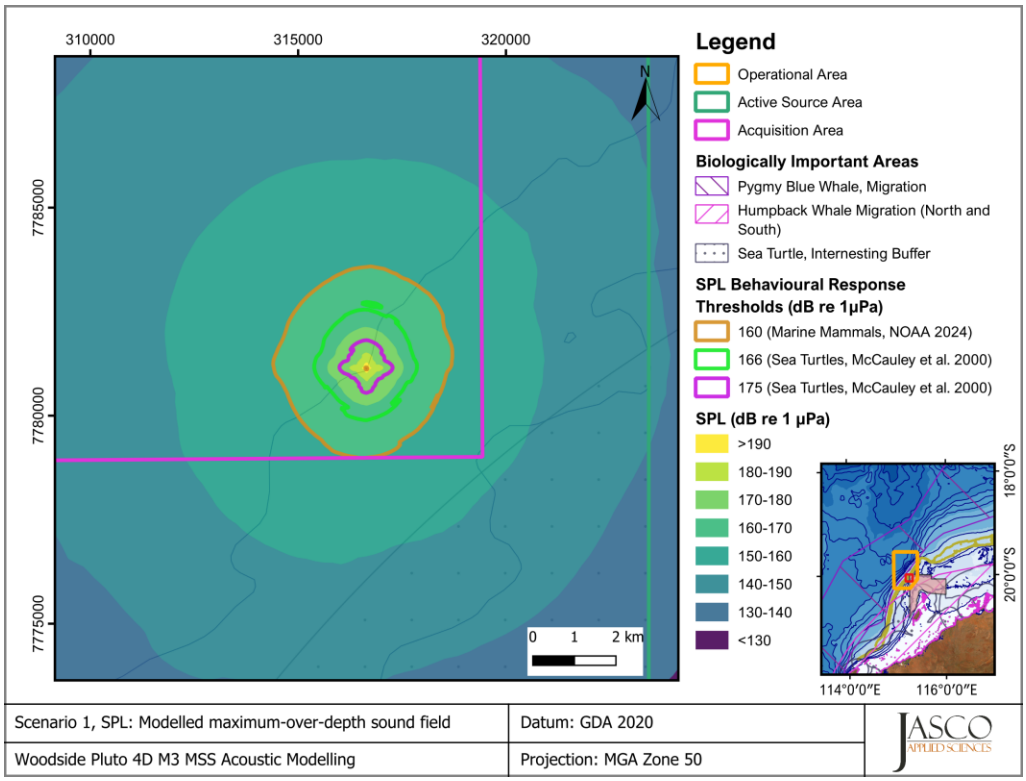


Figure 6. *Site 1, tow azimuth 0°, SPL*: Sound level contour map of unweighted maximum-over-depth sound field in 10 dB steps, and the isopleths for behavioural response thresholds for marine mammals and turtles.

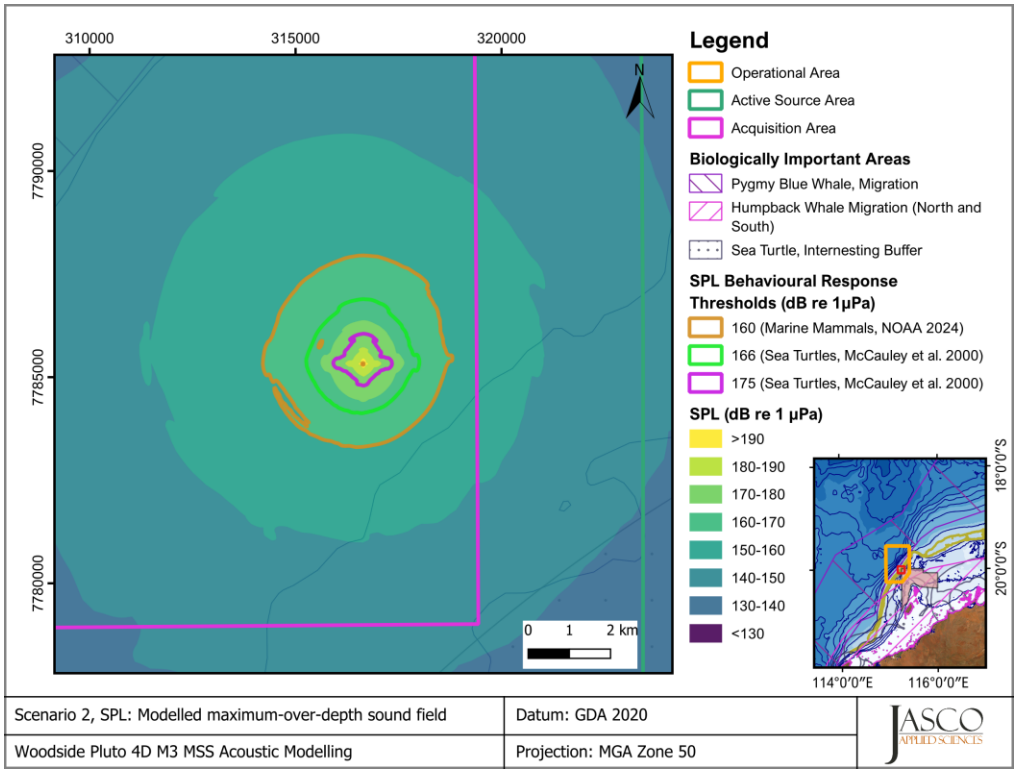


Figure 7. *Site 2, tow azimuth 0°, SPL*: Sound level contour map of unweighted maximum-over-depth sound field in 10 dB steps, and the isopleths for behavioural response thresholds for marine mammals and turtles.

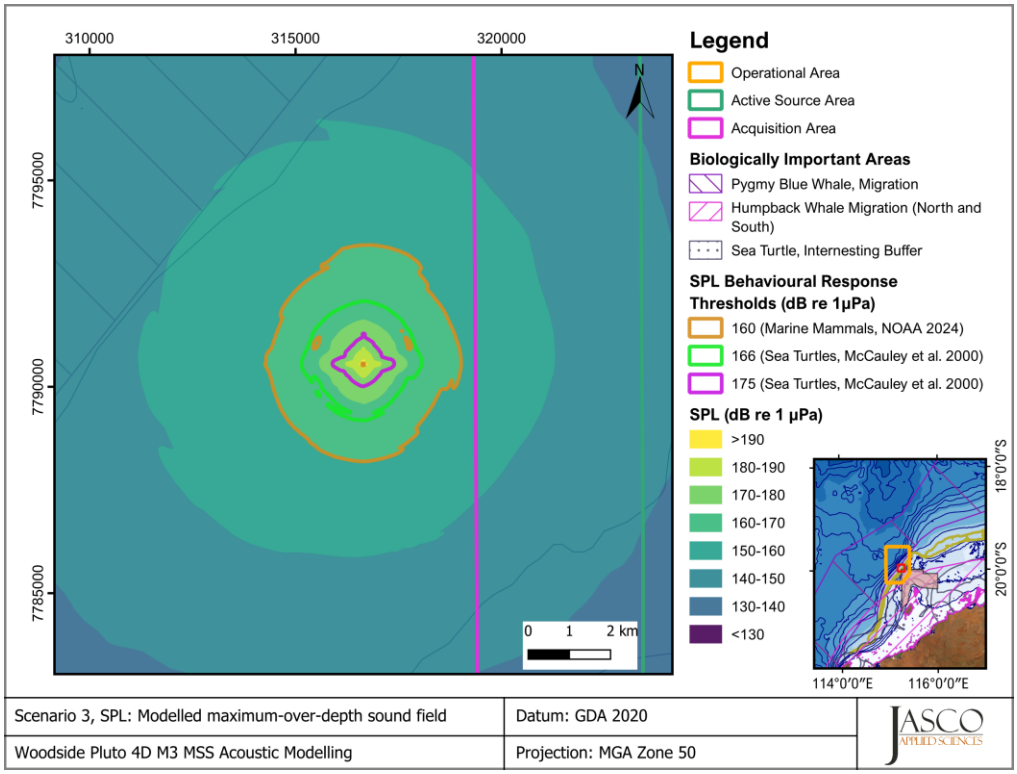


Figure 8. *Site 3, tow azimuth 0°, SPL*: Sound level contour map of unweighted maximum-over-depth sound field in 10 dB steps, and the isopleths for behavioural response thresholds for marine mammals and turtles.

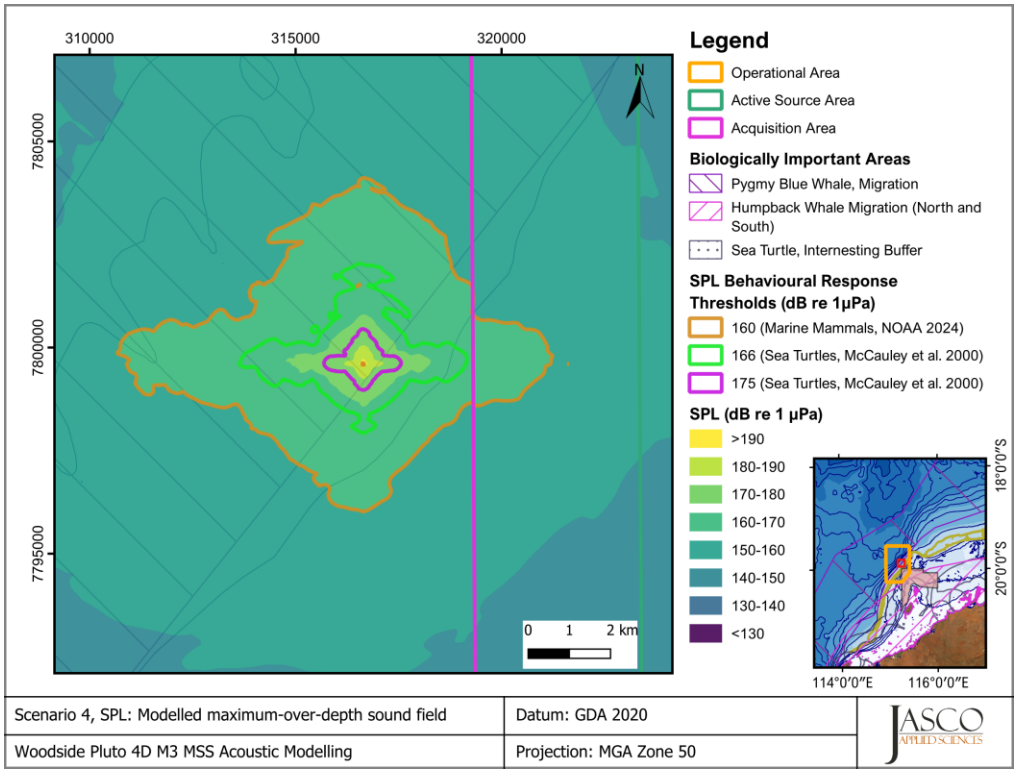


Figure 9. *Site 4, tow azimuth 0°, SPL*: Sound level contour map of unweighted maximum-over-depth sound field in 10 dB steps, and the isopleths for behavioural response thresholds for marine mammals and turtles.

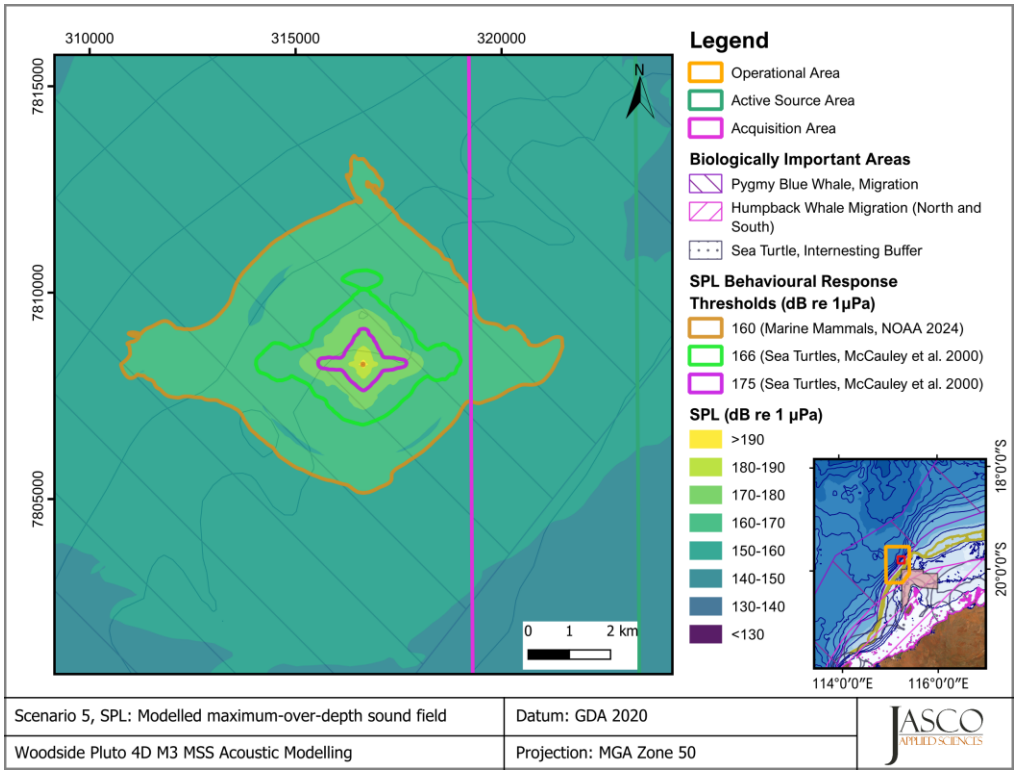


Figure 10. *Site 5, tow azimuth 0°, SPL*: Sound level contour map of unweighted maximum-over-depth sound field in 10 dB steps, and the isopleths for behavioural response thresholds for marine mammals and turtles.

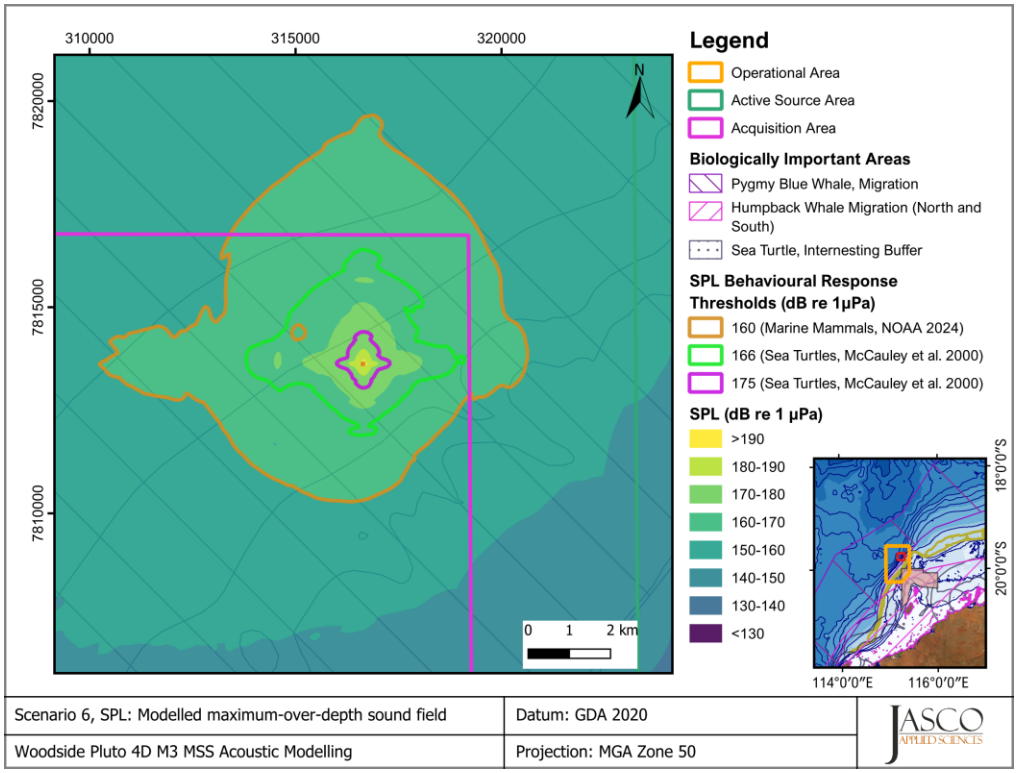


Figure 11. *Site 6, tow azimuth 0°, SPL*: Sound level contour map of unweighted maximum-over-depth sound field in 10 dB steps, and the isopleths for behavioural response thresholds for marine mammals and turtles.

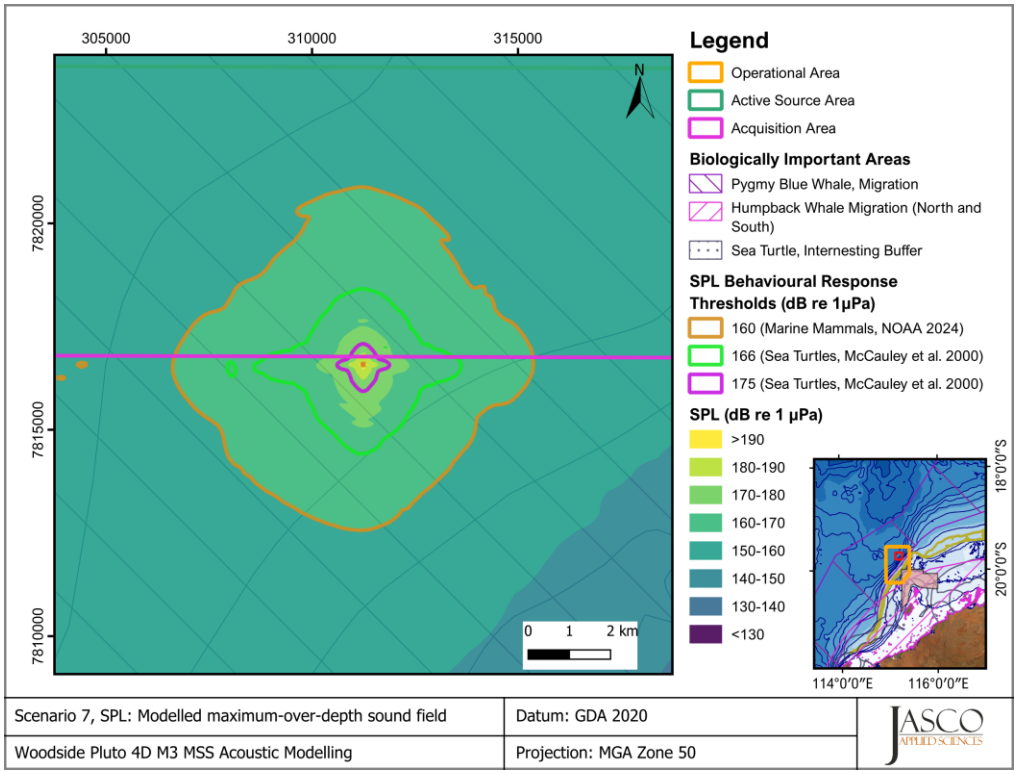


Figure 12. *Site 7, tow azimuth 180°, SPL*: Sound level contour map of unweighted maximum-over-depth sound field in 10 dB steps, and the isopleths for behavioural response thresholds for marine mammals and turtles.

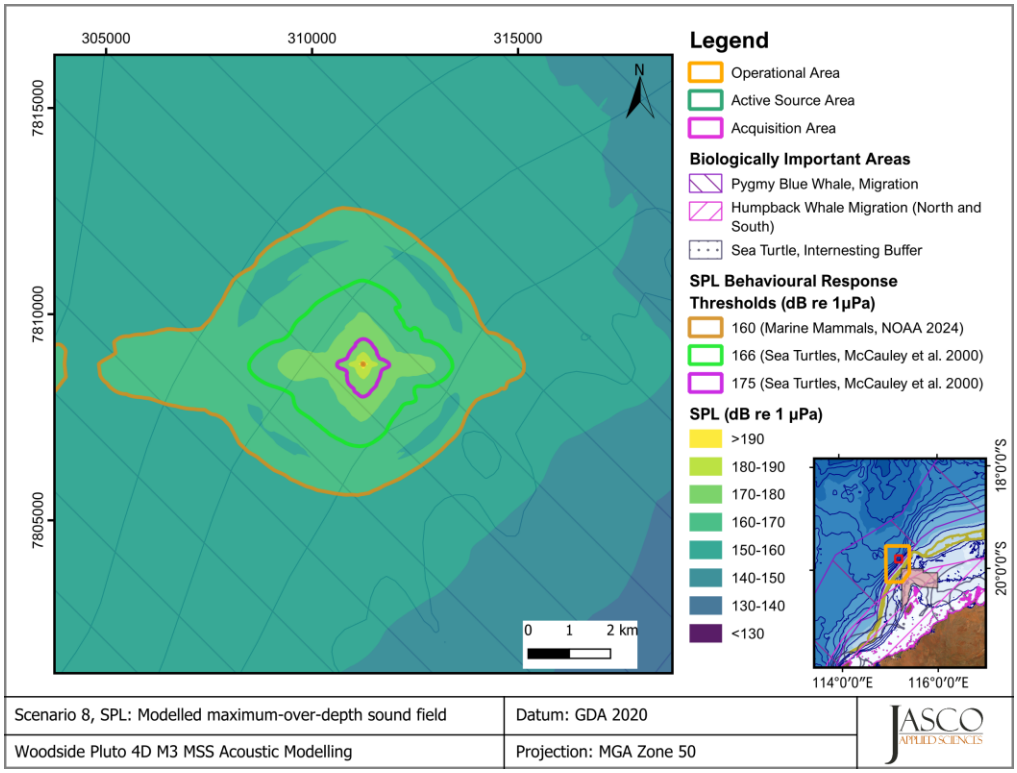


Figure 13. *Site 8, tow azimuth 180°, SPL*: Sound level contour map of unweighted maximum-over-depth sound field in 10 dB steps, and the isopleths for behavioural response thresholds for marine mammals and turtles.

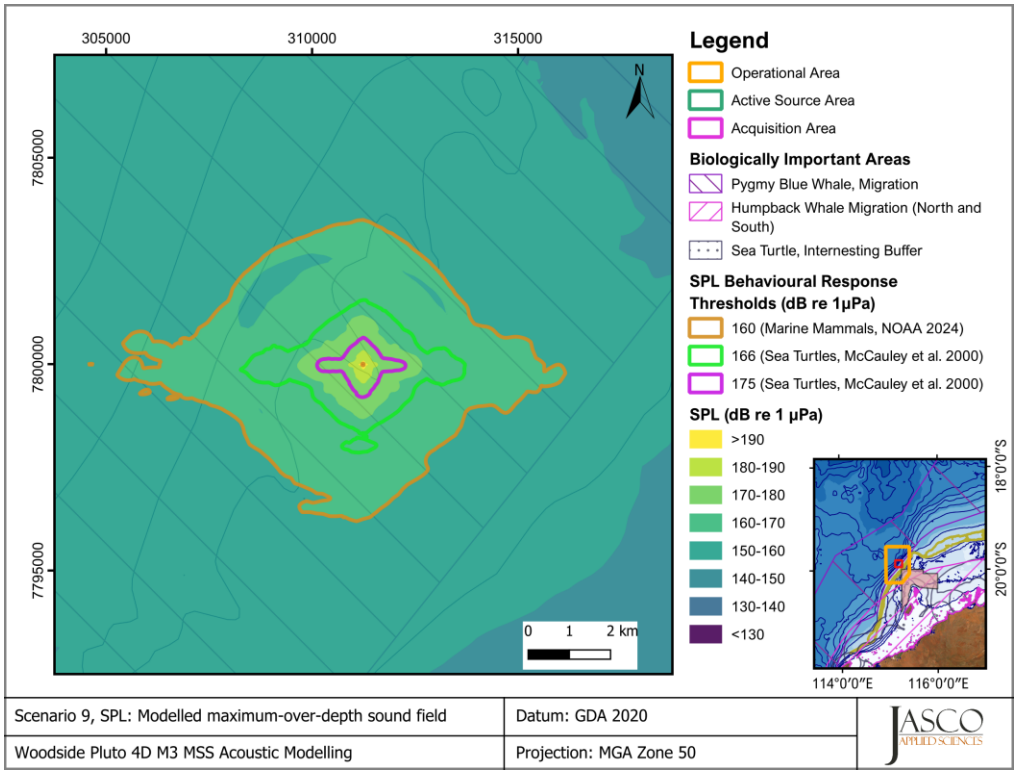


Figure 14. *Site 9, tow azimuth 180°, SPL*: Sound level contour map of unweighted maximum-over-depth sound field in 10 dB steps, and the isopleths for behavioural response thresholds for marine mammals and turtles.

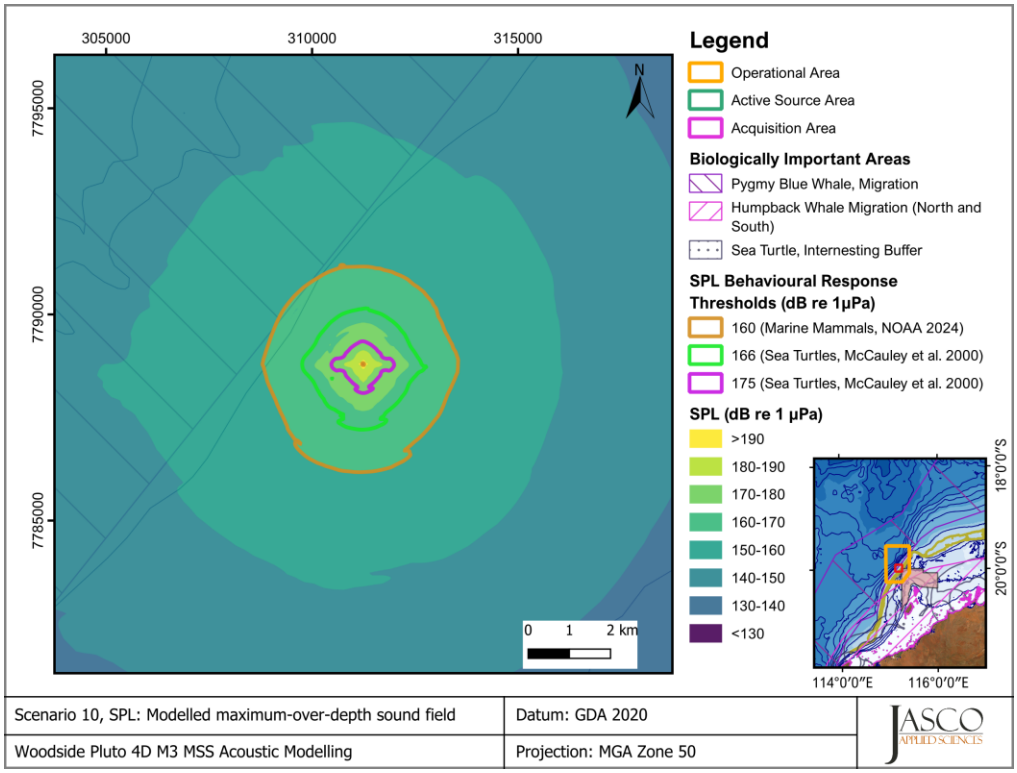


Figure 15. *Site 10, tow azimuth 180°, SPL*: Sound level contour map of unweighted maximum-over-depth sound field in 10 dB steps, and the isopleths for behavioural response thresholds for marine mammals and turtles.

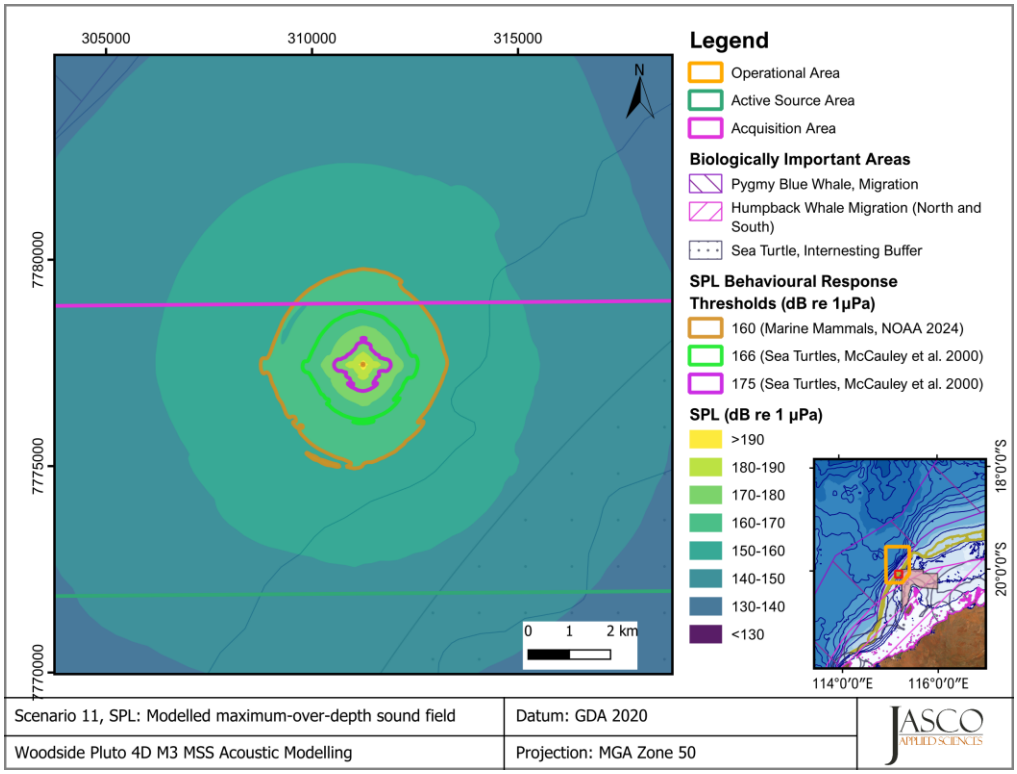


Figure 16. *Site 11, tow azimuth 180°, SPL*: Sound level contour map of unweighted maximum-over-depth sound field in 10 dB steps, and the isopleths for behavioural response thresholds for marine mammals and turtles.

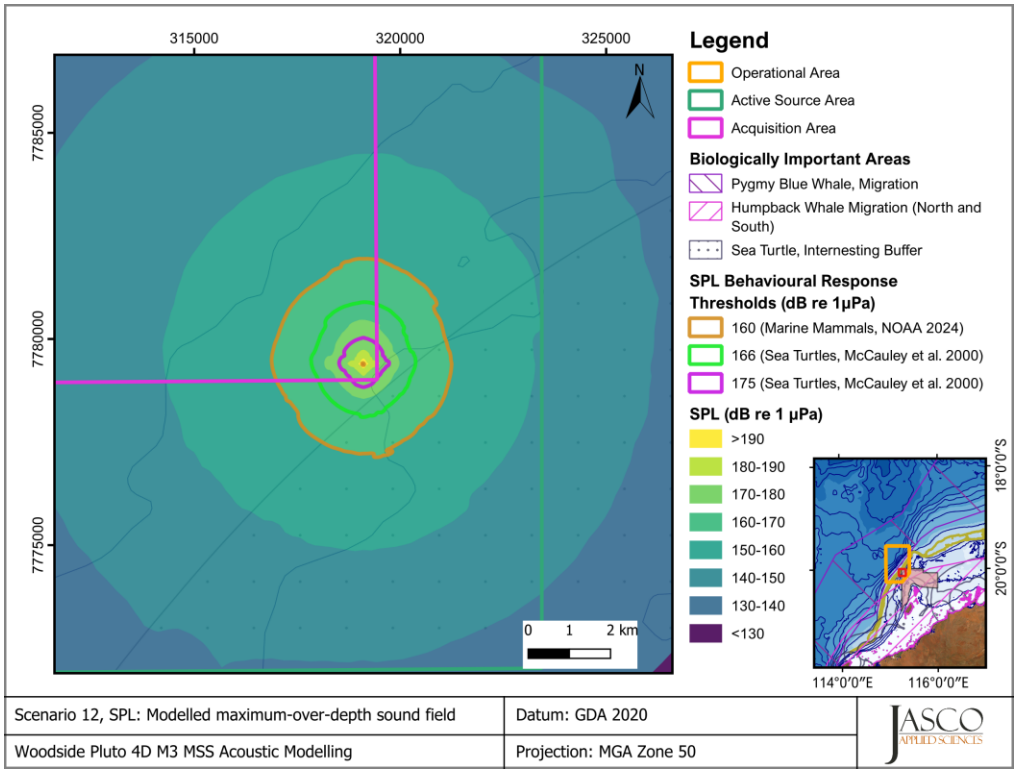


Figure 17. *Site 12, tow azimuth 0°, SPL*: Sound level contour map of unweighted maximum-over-depth sound field in 10 dB steps, and the isopleths for behavioural response thresholds for marine mammals and turtles.

4.2.2.2. Vertical Slices of Modelled Sound Fields

The SPL sound fields are presented below as vertical slices for all modelled sites along the broadside and endfire directions of the 0/180 degree tow direction out to 7.5 km, with the airgun array in the centre.

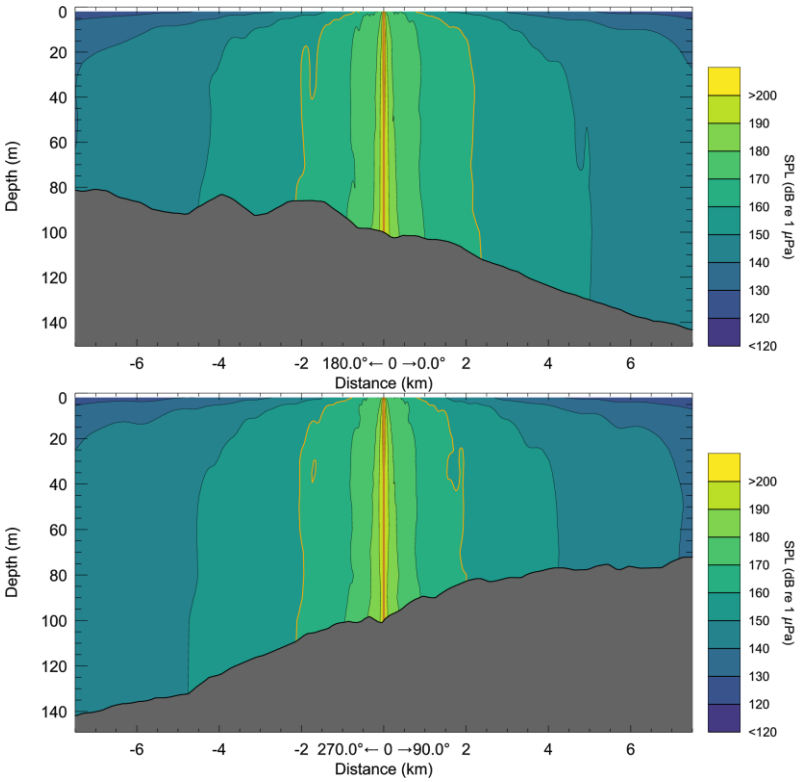


Figure 18. *Site 1, tow azimuth 0°, SPL vertical slice plot*: Sound level contours in vertical slice of the sound field, along (0/180°, broadside, top) and perpendicular to the tow direction (90/270°, endfire, bottom). The 160 dB re 1 µPa threshold for marine mammal behavioural response is shown in orange for reference.

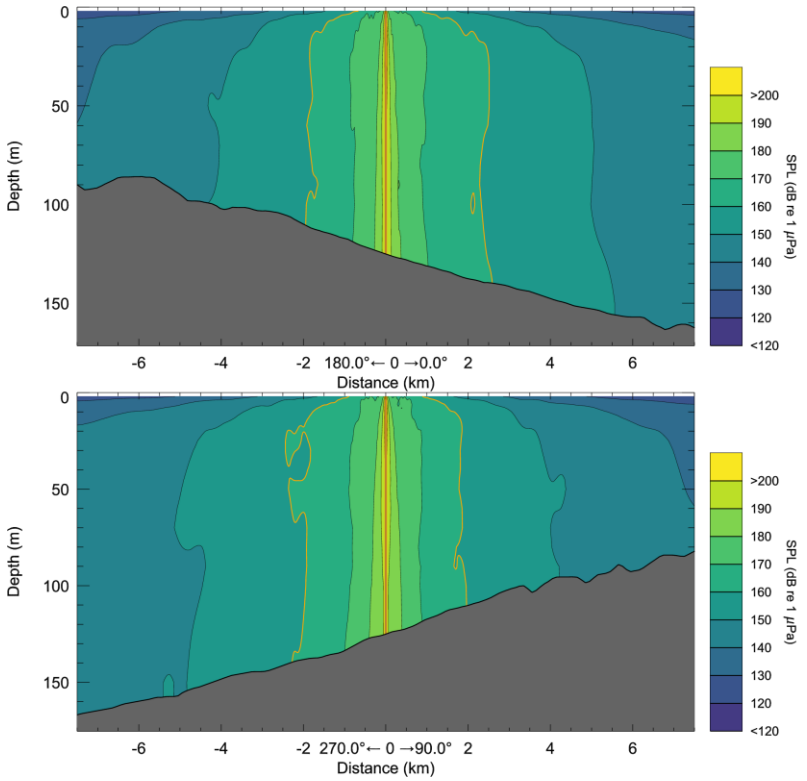


Figure 19. *Site 2, tow azimuth 0°, SPL vertical slice plot*: Sound level contours in vertical slice of the sound field, along (0/180°, broadside, top) and perpendicular to the tow direction (90/270°, endfire, bottom). The 160 dB re 1 µPa threshold for marine mammal behavioural response is shown in orange for reference.

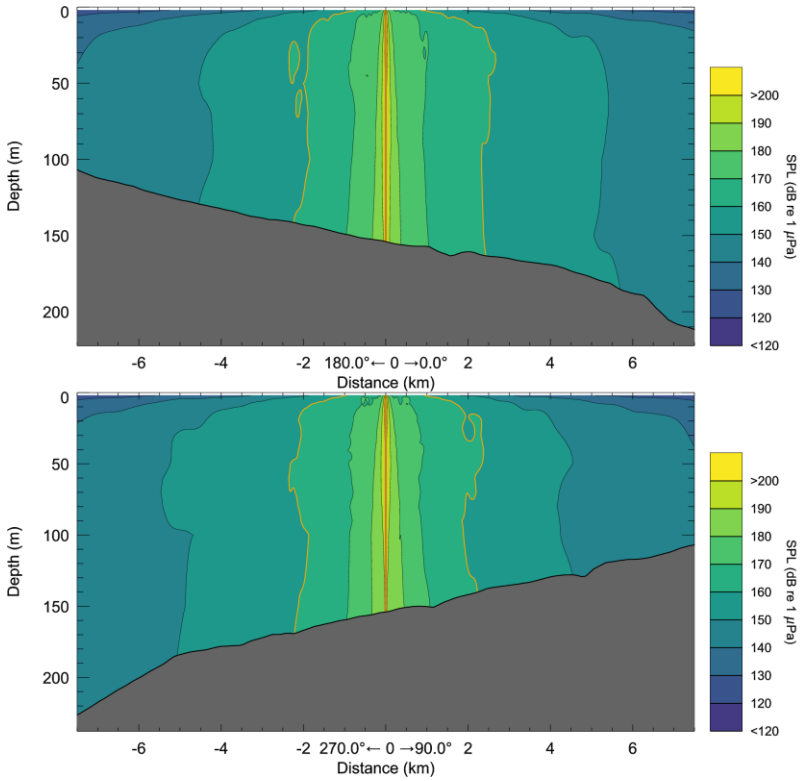


Figure 20. *Site 3, tow azimuth 0°, SPL vertical slice plot*: Sound level contours in vertical slice of the sound field, along (0/180°, broadside, top) and perpendicular to the tow direction (90/270°, endfire, bottom). The 160 dB re 1 µPa threshold for marine mammal behavioural response is shown in orange for reference.

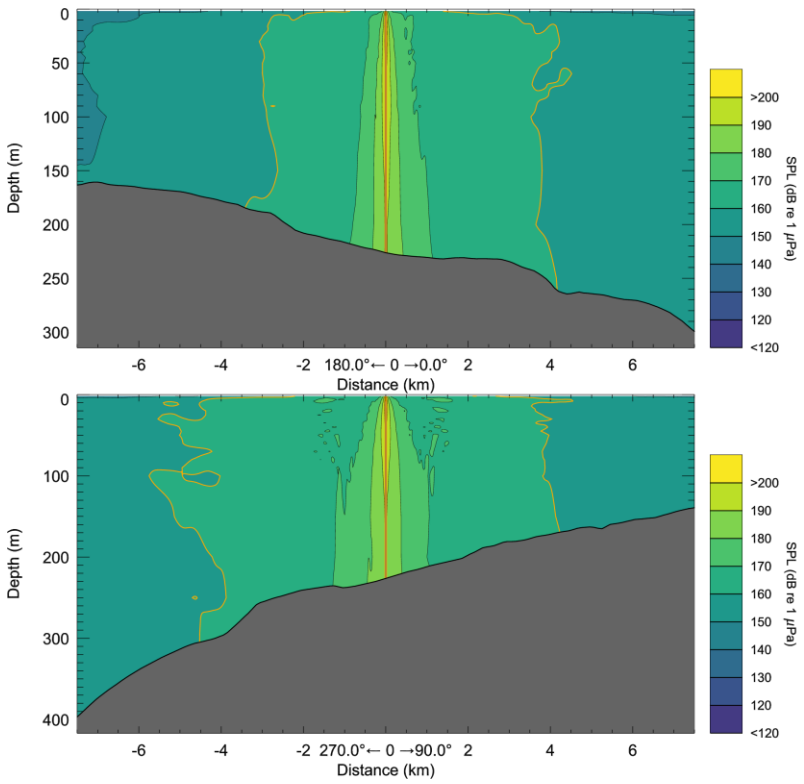


Figure 21. *Site 4, tow azimuth 0°, SPL vertical slice plot*: Sound level contours in vertical slice of the sound field, along (0/180°, broadside, top) and perpendicular to the tow direction (90/270°, endfire, bottom). The 160 dB re 1 µPa threshold for marine mammal behavioural response is shown in orange for reference.

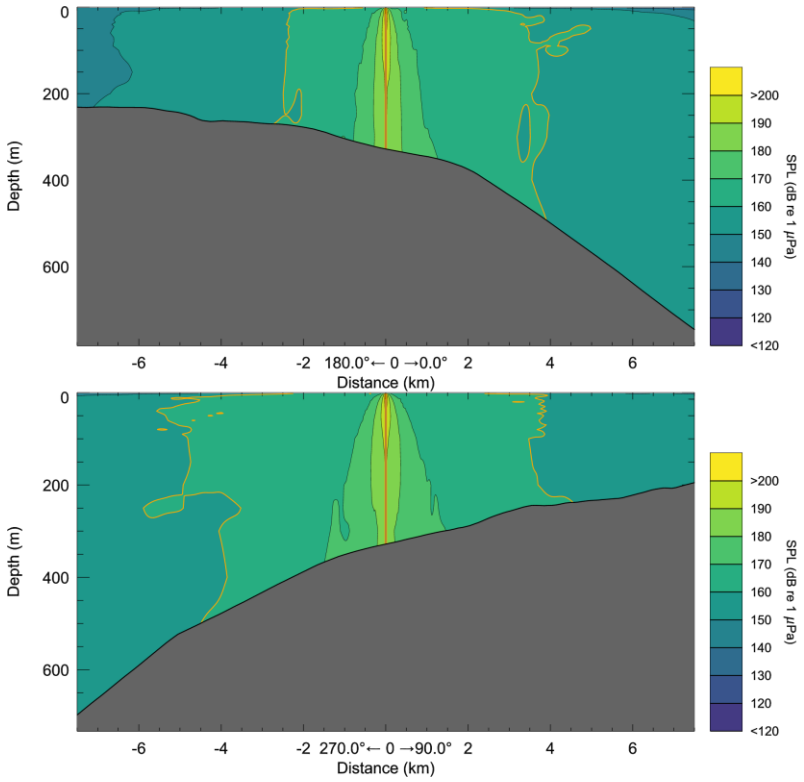


Figure 22. *Site 5, tow azimuth 0°, SPL vertical slice plot*: Sound level contours in vertical slice of the sound field, along (0/180°, broadside, top) and perpendicular to the tow direction (90/270°, endfire, bottom). The 160 dB re 1 µPa threshold for marine mammal behavioural response is shown in orange for reference.

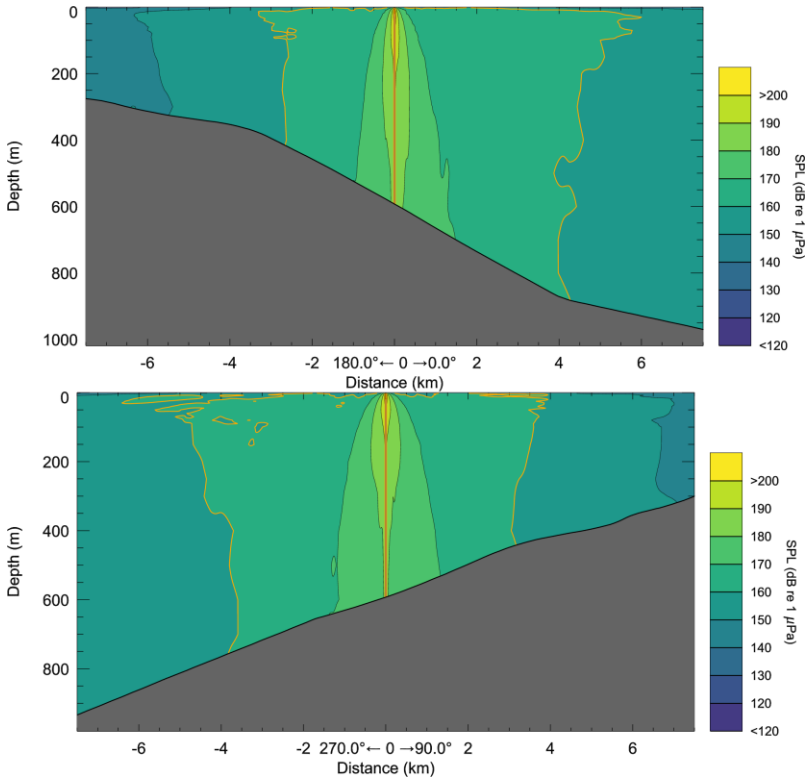


Figure 23. *Site 6, tow azimuth 0°, SPL vertical slice plot*: Sound level contours in vertical slice of the sound field, along (0/180°, broadside, top) and perpendicular to the tow direction (90/270°, endfire, bottom). The 160 dB re 1 µPa threshold for marine mammal behavioural response is shown in orange for reference.

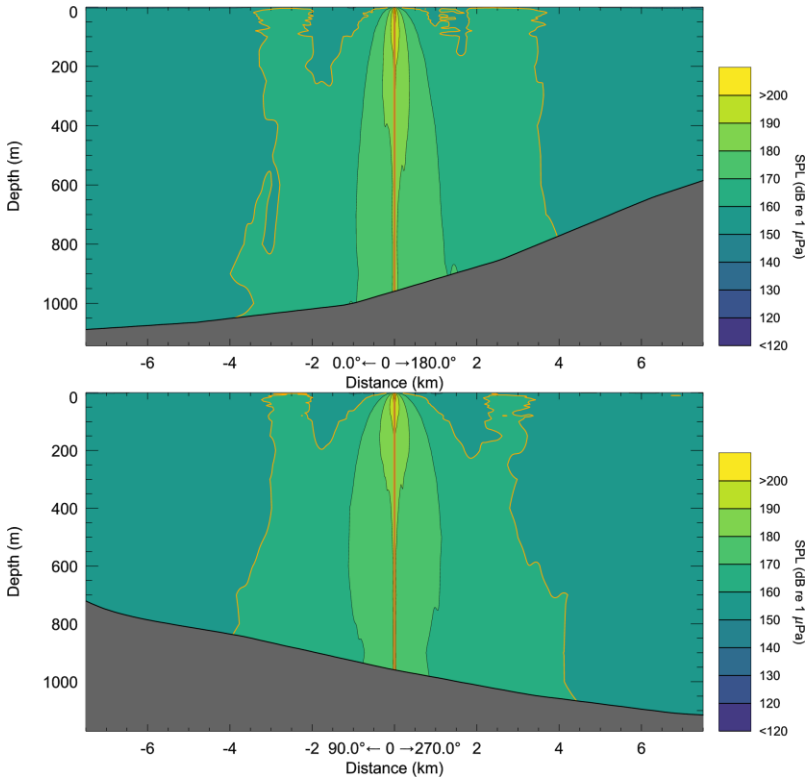


Figure 24. *Site 7, tow azimuth 180°, SPL vertical slice plot*: Sound level contours in vertical slice of the sound field, along (0/180°, broadside, top) and perpendicular to the tow direction (90/270°, endfire, bottom). The 160 dB re 1 µPa threshold for marine mammal behavioural response is shown in orange for reference.

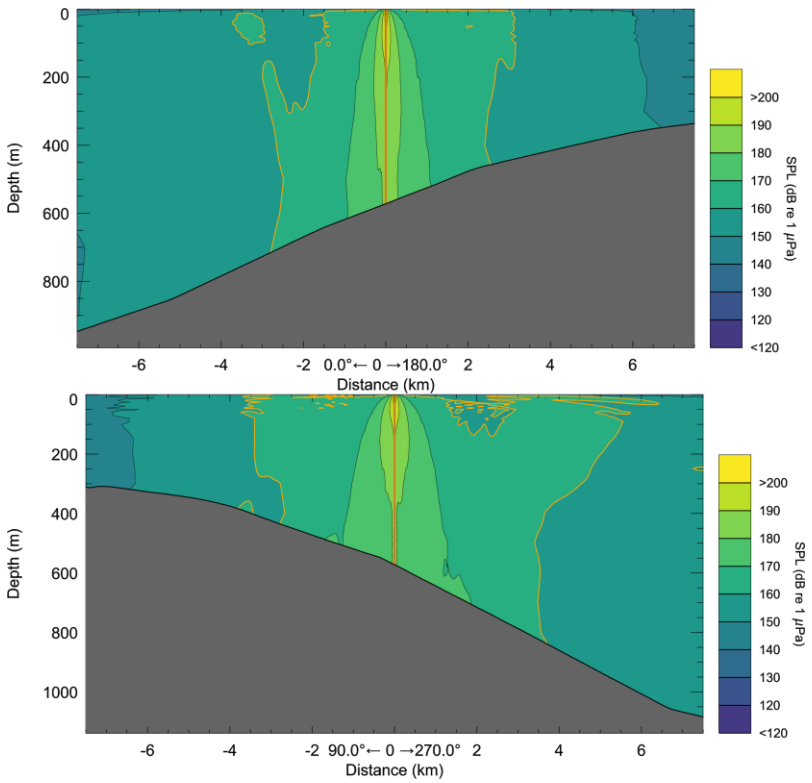


Figure 25. *Site 8, tow azimuth 180°, SPL vertical slice plot*: Sound level contours in vertical slice of the sound field, along (0/180°, broadside, top) and perpendicular to the tow direction (90/270°, endfire, bottom). The 160 dB re 1 µPa threshold for marine mammal behavioural response is shown in orange for reference.

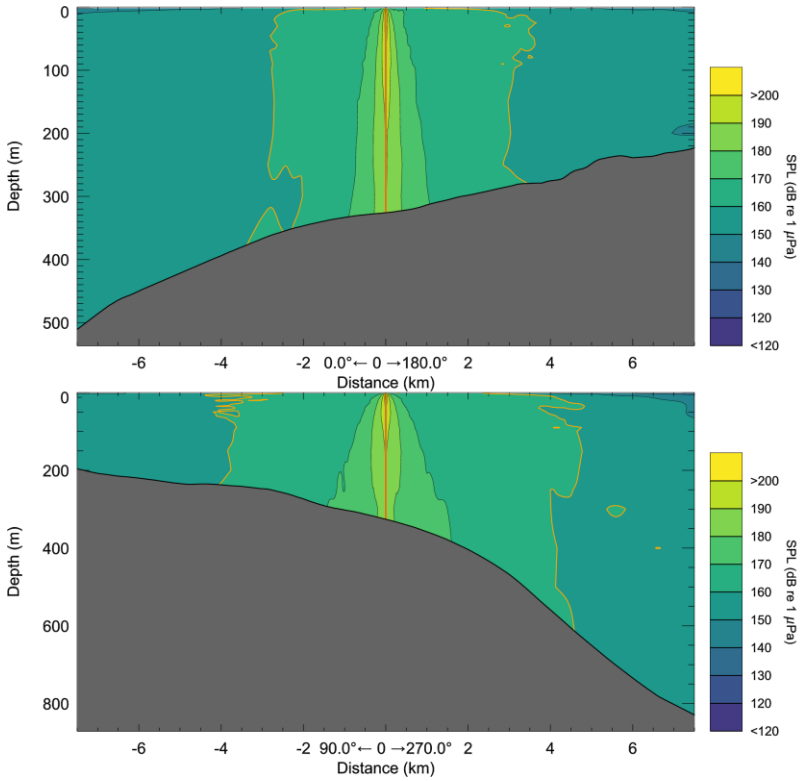


Figure 26. *Site 9, tow azimuth 180°, SPL vertical slice plot*: Sound level contours in vertical slice of the sound field, along (0/180°, broadside, top) and perpendicular to the tow direction (90/270°, endfire, bottom). The 160 dB re 1 µPa threshold for marine mammal behavioural response is shown in orange for reference.

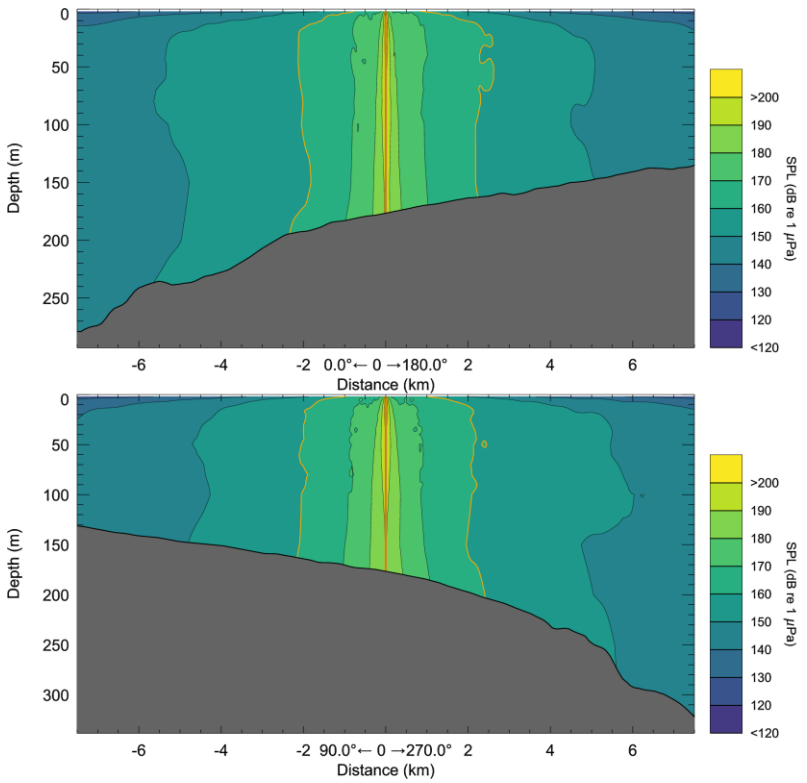


Figure 27. *Site 10, tow azimuth 180°, SPL vertical slice plot*: Sound level contours in vertical slice of the sound field, along (0/180°, broadside, top) and perpendicular to the tow direction (90/270°, endfire, bottom). The 160 dB re 1 µPa threshold for marine mammal behavioural response is shown in orange for reference.

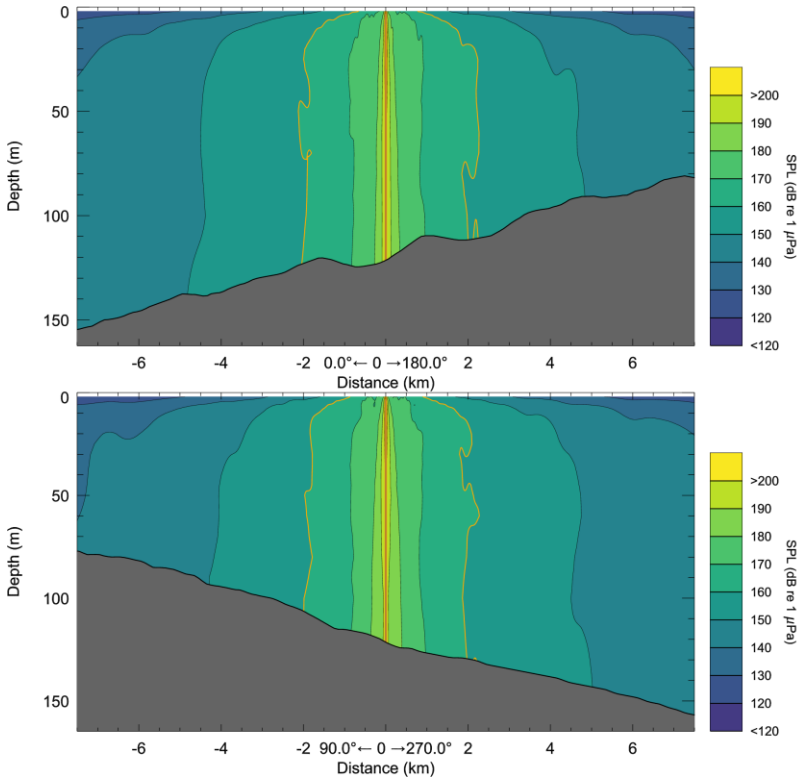


Figure 28. *Site 11, tow azimuth 180°, SPL vertical slice plot*: Sound level contours in vertical slice of the sound field, along (0/180°, broadside, top) and perpendicular to the tow direction (90/270°, endfire, bottom). The 160 dB re 1 µPa threshold for marine mammal behavioural response is shown in orange for reference.

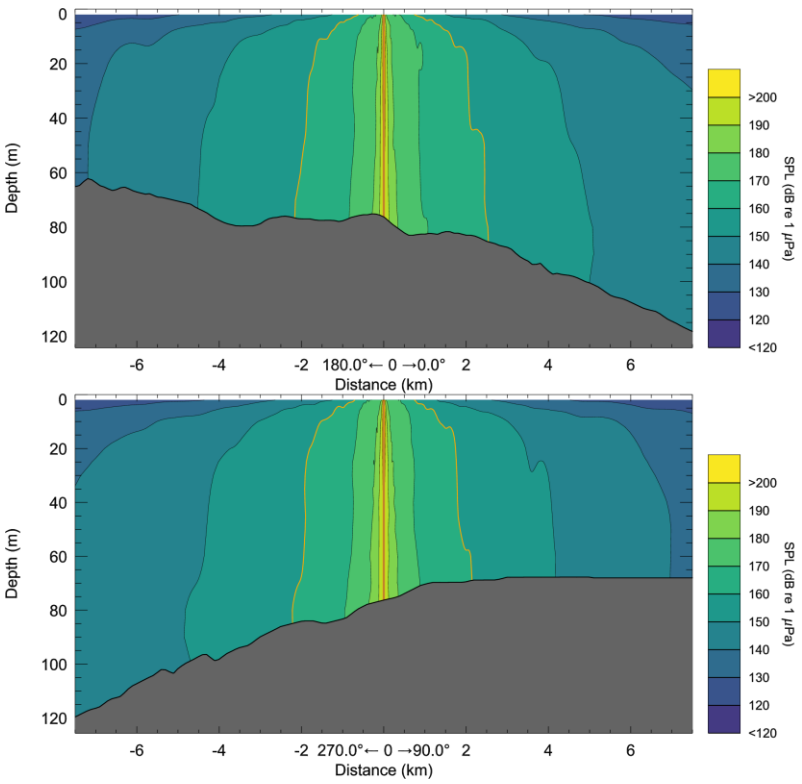


Figure 29. *Site 12, tow azimuth 0°, SPL vertical slice plot*: Sound level contours in vertical slice of the sound field, along (0/180°, broadside, top) and perpendicular to the tow direction (90/270°, endfire, bottom). The 160 dB re 1 µPa threshold for marine mammal behavioural response is shown in orange for reference.

4.3. Multiple Pulse Sound Fields

This section presents the sound fields in terms of SEL accumulated over 24 hours of survey, for the one modelled scenario (Section 1.1). Frequency-weighted SEL_{24h} sound fields were used to estimate the maximum distances (R_{max}) within which marine mammal and sea turtle TTS and PTS thresholds were exceeded (Table 20, which also includes the total ensonified area), and to estimate maximum distance and area within which injury and TTS guidelines for fish were exceeded (Table 21).

The SEL_{24h} sound fields are presented as contour maps in Section 4.3.2 for the modelled scenarios. The maps present the unweighted SEL_{24h} in 10 dB steps, as well as the isopleths corresponding to thresholds or guidelines for which R_{max} was greater than 20 m.

4.3.1. Tabulated Results

Table 20. Maximum-over-depth distances, and associated areas, to frequency-weighted 24 hour sound exposure level (SEL_{24h}) criteria for permanent threshold shift (PTS) and temporary threshold shift (TTS) for marine mammals (NMFS, 2024), and sea turtles (Accomando et al. 2025) using the 3147 in^3 array.

Hearing group	Threshold for SEL_{24h} ($L_{E,24h}$; dB re 1 $\mu Pa^2 \cdot s$)	Scenario 1	
		R_{max} (km)	Area (km^2)
PTS/AUD INJ			
Low-frequency cetaceans	183	0.80	72.4
High-frequency cetaceans	193	–	–
Very high-frequency cetaceans	159	–	–
Sea turtles	184	0.63	54.2
TTS			
Low-frequency cetaceans	168	48.0	2014
High-frequency cetaceans	178	–	–
Very high-frequency cetaceans	144	0.44	56.4
Sea turtles	169	46.1	1688

A dash indicates the threshold was not reached within the limits of the modelling resolution (20 m).

Table 21. Maximum-over-depth and seafloor distances, and associated areas, to 24-hour sound exposure level (SEL_{24h}) fish criteria for the 3147 in^3 array.

Hearing group	Threshold for SEL_{24h} ($L_{E,24h}$; dB re 1 $\mu Pa^2 \cdot s$)	Max-over-depth		Seafloor	
		R_{max} (km)	Area (km^2)	R_{max} (km)	Area (km^2)
Mortality and potential mortal injury					
I	219	–	–	–	–
II, fish eggs and fish larvae	210	–	–	–	–
III	207	–	–	–	–
Fish recoverable injury					
I	216	–	–	–	–
II, III	203	–	–	–	–
Fish temporary threshold shift (TTS)					
I, II, III	186	1.80	145	1.21	131

Fish I-No swim bladder;
Fish II-Swim bladder not involved with hearing;
Fish III-Swim bladder involved with hearing.
An asterisk indicates that the threshold was not reached.

4.3.2. Sound Level Contour Map

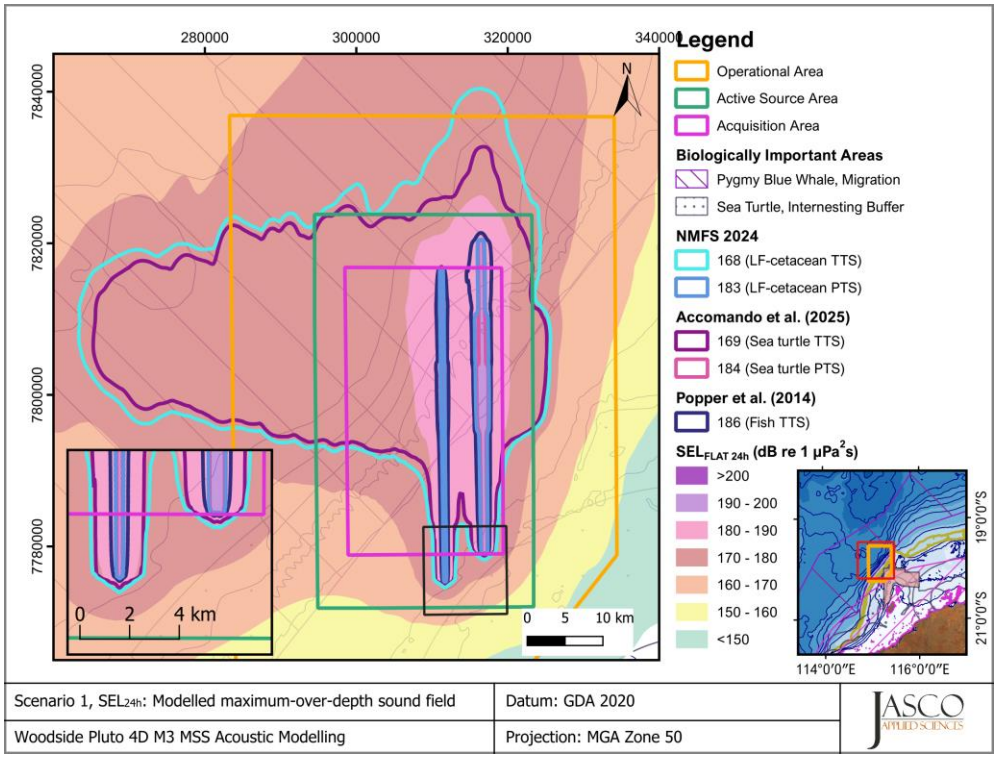


Figure 30. *Scenario 1, SEL$_{24h}$*: Sound level contour map of unweighted maximum-over-depth SEL$_{24h}$ results, along with isopleths for marine mammals, turtles, and fish. Thresholds omitted here were not reached or not large enough to display graphically. Refer to Tables 20 and 21 for threshold distances.

4.4. Animal Movement Exposure Ranges

A summary of radial distances to exposure thresholds for pygmy blue whales are included below, along with probability of exposure for each modelled scenario (as explained in Section 3.6.1).

Table 22 shows results for scenarios with unrestricted animat seeding, while Table 23 shows equivalent results for scenarios where animat seeding was restricted to the migration BIA. Results include ER$_{95\%}$ exposure ranges calculated for the 160 dB behavioural response threshold and SEL$_{24h}$ thresholds for both TTS and PTS, and the probability of an animat being exposed above the threshold within the ER$_{95\%}$.

Exposure ranges for PK thresholds were not included in the exposure analysis since acoustic modelling predicted PK exceedance ranges of less than 40 m for low-frequency cetaceans (see Table 16). Based on the acoustic modelling, maximum horizonal distances to exceedances of the PK criteria are small and close enough to the source such that only minor differences are expected between acoustic and animat exposure predictions.

Section 4.4.1 includes histograms of CPA ranges to SEL$_{24h}$ PTS, SEL$_{24h}$ TTS, and the behavioural response thresholds for pygmy blue whales with BIA-restricted and unrestricted animat seeding where exposures above threshold occurred.

Table 22. Summary of animat simulation results for south-bound migrating pygmy blue whales with animats with unrestricted seeding. The 95th percentile exposures ranges ($ER_{95\%}$) in km and probability of animats being exposed above threshold within the $ER_{95\%}$ (P_{exp} (%)) are provided. Dashes indicate no animats were exposed above threshold.

Noise Effect Criteria Description	Pygmy blue whale, south-bound migration, unrestricted	
	Scenario 1	
	$ER_{95\%}$ (km)	P_{exp} (%)
PTS (SEL_{24h})[1]	0.06	64.7%
TTS (SEL_{24h})[2]	4.00	47.6%
Behavioural response (SPL)[3]	4.60	64.5%

[1] LF-weighted SEL_{24h} (183 dB re 1 $\mu Pa^2 \cdot s$) (NMFS, 2024)
[2] LF-weighted SEL_{24h} (168 dB re 1 $\mu Pa^2 \cdot s$) (NMFS, 2024)
[3] SPL (160 dB re 1 µPa) (NOAA, 2024)

Table 23. Summary of animat simulation results for south-bound migrating pygmy blue whales with animat seeding restricted to the BIA. The 95th percentile exposures ranges ($ER_{95\%}$) in km and probability of animats being exposed above threshold within the $ER_{95\%}$ (P_{exp} (%)) are provided. Dashes indicate no animats were exposed above threshold.

Noise Effect Criteria Description	Pygmy blue whale, south-bound migration, restricted	
	Scenario 1	
	$ER_{95\%}$ (km)	P_{exp} (%)
PTS (SEL_{24h})[1]	0.05	70.6%
TTS (SEL_{24h})[2]	4.79	40.5%
Behavioural response (SPL)[3]	4.99	78.4%

[1] LF-weighted SEL_{24h} (183 dB re 1 $\mu Pa^2 \cdot s$) (NMFS, 2024)
[2] LF-weighted SEL_{24h} (168 dB re 1 $\mu Pa^2 \cdot s$) (NMFS, 2024)
[3] SPL (160 dB re 1 µPa) (NOAA, 2024)

4.4.1. Exposure Range Histograms

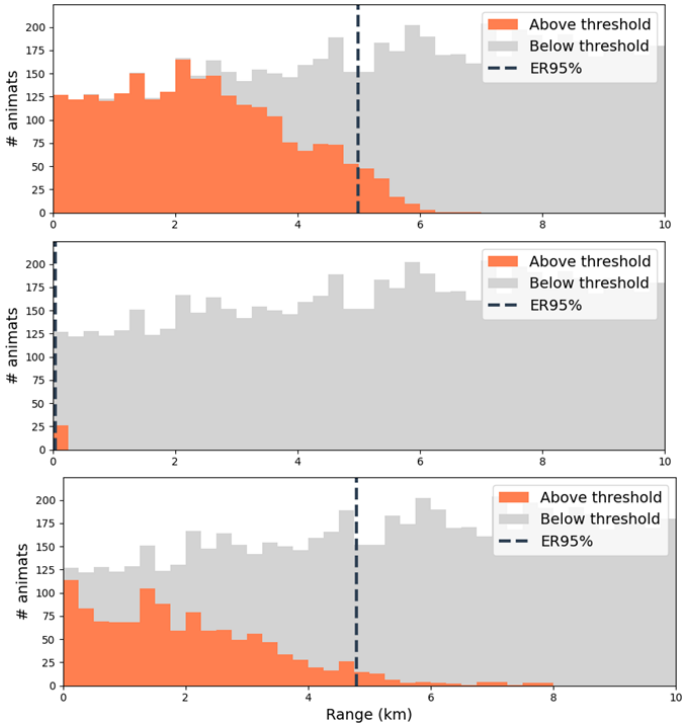


Figure 31. *Scenario 1, Pygmy Blue Whale, Southbound Migrating, restricted to the migratory BIA:* CPA range histogram for animats, SPL behavioural threshold (top panel), SEL_{24h} PTS threshold (middle panel), and SEL_{24h} TTS threshold (bottom panel). Bar colours indicate whether the animats exceeded the threshold.

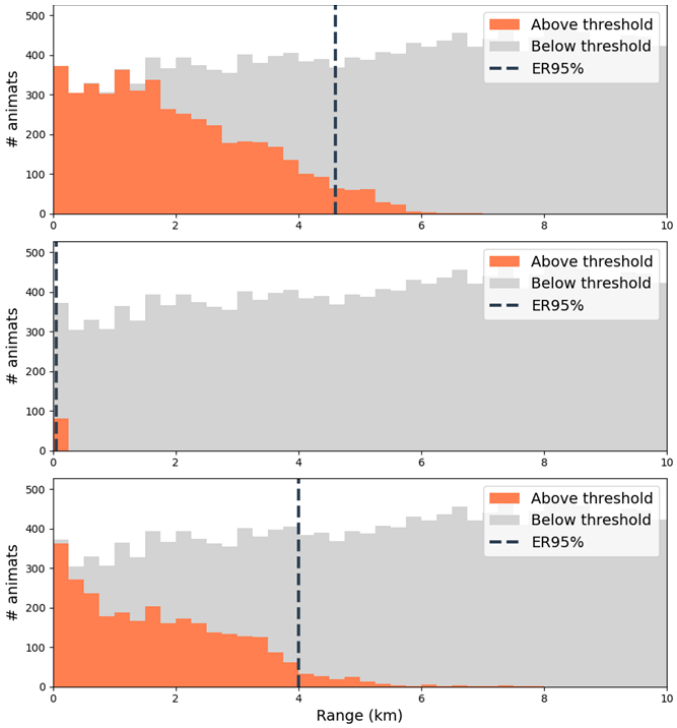


Figure 32. *Scenario 1, Pygmy Blue Whale, Southbound Migrating, no seeding restrictions:* CPA range histogram for animats, SPL behavioural threshold (top panel), SEL_{24h} PTS threshold (middle panel), and SEL_{24h} TTS threshold (bottom panel). Bar colours indicate whether the animats exceeded the threshold.

5. Discussion

This modelling study updates predicted underwater sound levels associated with the planned Pluto 4D M3 Marine Seismic Survey with the latest noise effect criteria (Section 2). The underwater sound field was modelled for a 3147 in^3 seismic source using JASCO's airgun array source model (Appendix B) in 2.5° radials out to 100 km from the source. The source model was coupled with propagation loss modelling to find the metrics relevant for the noise effect criteria including: SEL, SPL, PK, PK-PK, and SEL_{24h}.

Sound propagation is influenced by the environment with the main factors including sound speed profile, bathymetry, and the geology of the seabed. A sensitivity study of seasonal sound speed profiles indicated that December was the month most conducive to sound propagation; as such it was selected to ensure a conservative estimation of distances to received sound level thresholds (Appendix D.1.2). Modelling accounts for site specific bathymetric variations (Appendix D.1.1) and local geoacoustic properties (Appendix D.1.3).

Most acoustic energy from the seismic source was output at lower frequencies, in the tens to hundreds of hertz. The directivity plots (Appendix B.3) show a bias towards the endfire direction for decidecade bands between 40–125 Hz and a pronounced broadside directivity above this to 400 Hz where the directivity becomes more isotropic as the frequency increases further.

The overall broadband (10–25000 Hz) unweighted per-pulse SEL source level of the 3147 in^3 seismic source operation at a 5 m tow depth was 224.8 dB re 1 μPa^2m^2s in the broadside direction and 226.1 dB re 1 μPa^2m^2s in the endfire direction. The peak pressure levels in the same directions were 247.6 and 249.5 dB re 1 µPa m, respectively (Table 11).

5.1. Per-Pulse Sound Fields

The modelled sites encompassed water depths from 76 to 959 m across three defined geological areas. The distances to isopleths were greater in the endfire and broadside directions due to the array directionality, an effect shown in the sound footprint maps in Section 4.2.2.1. The array directionality and frequency content coupled with the bathymetry had a considerable effect on propagation at longer distances, with generally larger lobes of sound energy extending into the deeper waters at all modelled sites. The vertical slice plots (Section 4.2.2.2) assist in demonstrating the influence of the bathymetry, source location, and sound speed profile on the sound field. Furthermore, sources located in deeper water have a lower "cut-off frequency (f_c)" than sources in shallower water. The cut-off frequency is a single number that describes how much acoustic energy can propagate with minimal loss between the sea-surface and seafloor interfaces. For a given acoustic signal, frequencies below f_c are subject to higher loss compared to frequencies above the f_c (Jensen et al. 2011). For sources in waters greater than 150 m deep (Sites 4–10), the cut off frequency was approximately 10 Hz, and for these sources a large amount of low-frequency energy can propagate in the water column compared to sources in shallow water below 150 m (Sites 1–3, 11–12).

The sound speed profile for December was primarily downward refracting until the deep sound channel axis ~1000 m aside from a 20 m slight upward refracting surface duct. For source locations above the continental shelf break and continental slope, significant amounts of energy reflected from the seabed can be trapped in the deep sound channel and propagate for large distances within the ocean interior. This phenomenon resulted in larger ranges to isopleths in the offshore direction. The surface duct will only effectively trap frequencies above ~2100 Hz (Jensen et al. 2011). The surface duct therefore can only trap the higher frequencies of the array which contribute less to the broadband source level than the lower frequencies (Figure B-1 and Figure B-2). However, when trapped, high frequencies can propagate with little loss and can produce higher levels near the sea-surface than scenarios where no surface duct is present.

5.2. Multiple Pulse Sound Fields

The accumulated SEL over 24 hours of seismic source operation was modelled considering a realistic acquisition pattern, representative of the Pluto 4D M3 MSS. The modelling predicted the accumulation of sound energy, considering the change in location and the azimuth of the source at each pulse point, which was used to assess possible impairment in marine mammals and SEL_{24h} based fish criteria. The results were presented as maps of the accumulated exposure levels and tabulated values of ranges to threshold levels and exposure areas for the given noise effect criteria (Section 4.3).

The footprint and range maxima for all accumulated SEL thresholds are influenced by the seabed compositions along acquisition lines. The discussion above regarding ranges to isopleths also applies to the accumulated SEL calculations. The furthest ranges to thresholds for PTS/AUD INJ and TTS were in the broadside direction towards deeper water.

5.3. Acoustic Results Summary

This section presents summary of the distances to the noise effect criteria applied in this study (Section 3). The effect criteria for impairment of marine mammals, fish, and sea turtles use dual metrics (PK and SEL_{24h}), and the longest distance associated with either metric is required to be applied and thus is presented in this summary.

The SEL24h is a cumulative metric that reflects the dosimetric effect of noise levels within 24 h based on the assumption that an animal is consistently exposed to such noise levels at a fixed position. Where the corresponding SEL_{24h} radii are larger than those for peak pressure criteria, they often represent an unlikely worst-case scenario. More realistically, marine mammals, fish, and sea turtles would not stay in the same location for 24 h, but rather a shorter period, depending upon their behaviour, the proximity, and movements of the source. Therefore, a reported radius for the SEL_{24h} criteria does not mean that marine fauna travelling within this radius of the source will be impaired, but rather that an animal could be exposed to the sound level associated with impairment if it remained within the ensonified area for 24 hours. A more realistic approach of the potential exposures was undertaken using animal movement modelling ('animat modelling'), with the results summarised separately below in Section 5.4.

A summary of predicted distances to criteria from acoustic modelling are presented in Table 24.

Table 24. Summary of ranges (R_{max} in km) to acoustic thresholds for marine fauna from a 3147 in^3 seismic source with 5 m tow depth. A dash (–) indicates that the acoustic threshold was not reached within the 20 m modelling resolution.

Hearing Group	Threshold	Metric	Threshold	Distance (km)
				R_{max}
Low-frequency (LF) cetaceans	PTS [a]	$L_{E,24h}$	183	0.80
	TTS [a]	$L_{E,24h}$	168	48.0
High-frequency (HF) cetaceans	PTS [a]	$L_{E,24h}$	193	–
	TTS [a]	$L_{E,24h}$	178	–
Very High-frequency (VHF) cetaceans	PTS [a]	$L_{E,24h}$	159	–
	TTS [a]	$L_{E,24h}$	144	0.44
All marine mammal groups	Behavioural Response [b]	L_p	160	8.43
Fish without swim bladder	Mortality and Potential mortal injury [c]	$L_{E,24h}$	219	–

Hearing Group	Threshold	Metric	Threshold	Distance (km)
				R_{max}
	Recoverable injury [c]	$L_{E,24h}$	216	–
	TTS [c]	$L_{E,24h}$	186	1.80
	Recoverable injury [c]	L_{pk}	213	0.07
Fish with swim bladder not involved in hearing	Mortality and Potential mortal injury [c]	$L_{E,24h}$	210	–
	Recoverable injury [c]	$L_{E,24h}$	203	–
	TTS [c]	$L_{E,24h}$	186	1.80
	Recoverable injury [c]	L_{pk}	207	0.17
Fish with swim bladder involved in hearing	Mortality and Potential mortal injury [c]	$L_{E,24h}$	207	–
	Recoverable injury [c]	$L_{E,24h}$	203	–
	TTS [c]	$L_{E,24h}$	186	1.80
	Recoverable injury [c]	L_{pk}	207	0.17
Sea turtles	PTS [d]	$L_{E,24h}$	184	0.63
	TTS [d]	$L_{E,24h}$	169	46.1
	Behavioural response [e]	L_p	175	1.12
	Behavioural disturbance [e]	L_p	166	3.30
N/A	Low power zone assessment criteria DEWHA (2008)	L_E	160	2.28

L_{pk}= unweighted peak sound pressure level (dB re 1 µPa).
L_p= unweighted sound pressure level (dB re 1 µPa).
L_E= sound exposure level for single strike (dB re 1 µPa^2 s).
$L_{E,24h}$= sound exposure level over 24 hours (dB re 1 µPa^2 s), unweighted for fish and frequency weighted for all other groups.
[a] NMFS (2024) criteria for marine fauna.
[b] NOAA (2024) recommended unweighted behavioural threshold for marine mammals.
[c] Popper et al. (2014).
[d] Accomando et al. (2025).
[e] McCauley et al. (2000).

5.4. Animal Movement Modelling

The estimated sound fields produced by source and propagation models for the proposed Woodside Pluto 4D MSS were incorporated into an animat sound exposure model for south-bound migrating pygmy blue whales. The model estimated the radial distances within which 95% of exceedances above noise effect criteria occurred ($ER_{95\%}$), along with the probability that an animat with the closest point of approach within that distance would be exposed above the relevant threshold (P_{exp}).

Survey lines from the nominal modelled 24 h acquisition scenario overlapped with the migrating BIA for pygmy blue whales. For the exposure analysis, the 24 h acquisition scenario was run with two different animat seeding approaches; animats were restricted to the migrating BIA, or unrestricted.

Section 5.4.1 and 5.4.2 discuss the PTS, TTS, and behavioural exposure range results. A summary of exposure range results is presented in Table 25.

Table 25. Summary of animat simulation results for migrating pygmy blue whales. The 95th percentile exposures ranges ($ER_{95\%}$) in km and probability of animats being exposed above threshold within the $ER_{95\%}$ (P_{exp} (%)) are provided.

Threshold		Scenario 1	
Description	Threshold level (dB)	$ER_{95\%}$ (km)	P_{exp} (%)
Unrestricted seeding			
PTS (SEL_{24h})	183 [a]	0.06	64.7%
TTS (SEL_{24h})	168 [a]	4.00	47.6%
Behavioural response (SPL)	160 [b]	4.60	64.5%
Restricted seeding			
PTS (SEL_{24h})	183 [a]	0.05	70.6%
TTS (SEL_{24h})	168 [a]	4.79	40.5%
Behavioural response (SPL)	160 [b]	4.99	78.4%

[a] LF-weighted SEL_{24h} ($L_{E,24h}$; dB re 1 $\mu Pa^2 \cdot s$), NMFS (2024).
[b] SPL (L_p; dB re 1 µPa), NOAA (2024).

5.4.1. PTS and TTS

Exposure ranges from animat movement modelling for PTS and TTS criteria are typically shorter than those predicted using acoustic propagation modelling (which considers static receivers) because of the generally shorter time ('dwell time') moving animats spend in ensonified areas. In this study, animat modelling, for both restricted and unrestricted seeding, resulted in exposures above the PTS and TTS thresholds, and therefore resulted in exposure ranges. PTS and TTS exposure ranges were notably shorter than acoustic ranges to thresholds.

The TTS $ER_{95\%}$ for unrestricted and restricted seeding was 4.00 km (48%) and 4.79 km (41%), respectively. For PTS, $ER_{95\%}$ was 0.06 km (65%) and 0.05 km (71%) for unrestricted and restricted seeding. These probabilities indicated that some, but not all, animats that travelled with the 95th percentile range were exposed above threshold. This is because animats can move in and out of the ensonified regions as they change their vertical and horizontal positions in the water column, thereby influencing their accumulated sound energy over time. For example, an animat might travel within the predicted exposure range, but if they are travelling more quickly on average than other animats, they may not accumulate as much sound exposure, or they may spend a greater proportion of time at depths with lower sound levels.

Exposure range results for PTS and TTS were less than one-tenth of the equivalent R_{max} acoustic ranges. This is explained by the short dwell time the migrating animats spend near the seismic array, and thus only animats that pass closely will accumulate enough sound energy to be exposed above threshold.

Range to the TTS threshold is longer for the restricted seeding scenario as any animats passing nearby the seismic array are restricted to the side of the array where sound propagation is much more favourable. See the lobe in the sound field expanding well into the pygmy blue whale migration BIA in Figure 30.

5.4.2. Behavioural Effects

Maximum acoustic ranges (e.g., R_{max}) are conservatively calculated using the maximum-over-depth sound fields and assuming static receivers, while animat exposure ranges account for animats sampling the sound field vertically and horizontally based on species-specific diving parameters. Exposure ranges ($ER_{95\%}$) are therefore generally slightly shorter than the R_{max} acoustic ranges for single exposure metrics, such as the SPL behavioural response criteria. In this case, the behavioural

response threshold was exceeded for both unrestricted and restricted animats, with an $ER_{95\%}$ of 4.60 km (65%) and 4.99 km (78%), respectively. This is approximately 60% of the longest acoustic R_{max} range.

Similarly to the TTS ranges, the range to the behavioural threshold for restricted animats is longer than that for unrestricted animats. Again, this is the result of a greater proportion of animats passing the seismic source on the side with significantly longer propagation.

Glossary

Unless otherwise stated in an entry, these definitions are consistent with ISO 18405 (2017).

Light blue text indicates related terms that might be in this glossary. Dark blue text indicates clickable links to related terms in this glossary

1/3-octave

One third of an octave. A 1/3-octave is approximately equal to one decidecade (1/3 oct ≈ 1.003 ddec).

1/3-octave-band

Frequency band whose bandwidth is one 1/3 octave. The bandwidth of a 1/3-octave-band increases with increasing centre frequency.

90 % energy time window

The time interval over which the cumulative energy rises from 5 to 95 % of the total pulse energy. This interval contains 90 % of the total pulse energy. Used to compute the 90 % sound pressure level. Unit: second (s). Symbol: T_{90}.

90 % sound pressure level (90 % SPL)

The sound pressure level calculated over the 90 % energy time window of a pulse. Unit: decibel (dB).

absorption

The conversion of sound energy to heat energy. Specifically, the reduction of sound pressure amplitude due to particle motion energy converting to heat in the propagation medium.

acoustic impedance

The ratio of the sound pressure in a medium to the volume flow rate of the medium through a specified surface due to the sound wave. It is a measure of how well sound propagates through a particular medium.

acoustic noise

Sound that interferes with an acoustic process.

acoustic self-noise

Sound at a receiver caused by the deployment, operation, or recovery of a specified receiver and its associated platform (ISO 18405:2017).

agent-based modelling

A computer simulation of autonomous agents (sometimes called animats) acting in an environment, used to assess the agents' experience of the environment and/or their effect on the environment. See also animal movement modelling.

ambient sound

Sound that would be present in the absence of a specified activity (ISO 18405:2017). It is usually a composite of sound from many sources near and far, e.g., shipping vessels, seismic activity, precipitation, sea ice movement, wave action, and biological activity.

animal movement modelling

Simulation of animal movement based on behavioural rules for the purpose of predicting an animal's experience of an environment. A type of agent-based modelling.

attenuation

The gradual loss of acoustic energy from absorption and scattering as sound propagates through a medium. Attenuation depends on frequency—higher frequency sounds are attenuated faster than lower frequency sounds.

auditory frequency weighting

The process of applying an auditory frequency-weighting function. An example for marine mammals are the auditory frequency-weighting functions published by Southall et al. (2007a).

auditory frequency-weighting function

Frequency-weighting function describing a compensatory approach accounting for a species' (or functional hearing group's) frequency-specific hearing sensitivity.

automated detection

The output of an automated detector.

automated detector

An algorithm that includes both the automated detection of a sound of interest (e.g., vessel noise, marine mammal call) based on how it stands out from the background noise, and its automated classification based on similarities to templates in a library of reference signals.

azimuth

A horizontal angle relative to a reference direction, which is often magnetic north or the direction of travel. In navigation it is also known as bearing.

bandwidth

A range within a continuous band of frequencies. Unit: hertz (Hz).

boxcar averaging

A signal smoothing technique that returns the averages of consecutive segments of a specified width.

broadband level

The total level measured over a specified frequency range. If the frequency range is unspecified, the term refers to the entire measured frequency range.

broadside direction

Perpendicular to the travel direction of a source. Compare with endfire direction.

cavitation

A rapid formation and collapse of vapor cavities (i.e., bubbles or voids) in water, most often caused by a rapid change in pressure. Fast-spinning vessel propellers typically cause cavitation, which creates a lot of noise.

cetacean

Member of the order Cetacea. Cetaceans are aquatic mammals and include whales, dolphins, and porpoises.

compressional wave

A mechanical vibration wave in which the direction of particle motion is parallel to the direction of propagation. Also called a longitudinal wave. In seismology/geophysics, it's called a primary wave or

P-wave. Shear waves in the seabed can be converted to compressional waves in water at the water-seabed interface.

conductivity-temperature-depth (CTD)

Measurement data of the ocean's conductivity, temperature, and depth; used to compute sound speed profiles and salinity.

continuous sound

A sound whose sound pressure level remains above the background noise during the observation period and may gradually vary in intensity with time, e.g., sound from a marine vessel.

critical band

The auditory bandwidth within which background noise strongly contributes to masking of a single tone. Unit: hertz (Hz).

critical ratio level

The difference between the sound pressure level of a masked tone, which is barely audible, and the spectral density level of the background noise at similar frequencies, referenced to 1 Hz.
Unit: decibel (dB).

decade

Logarithmic frequency interval whose upper bound is ten times larger than its lower bound (ISO 80000-3:2006). For example, one decade up from 1000 Hz is 10,000 Hz, and one decade down is 100 Hz.

decibel (dB)

Unit of level used to express the ratio of one value of a power quantity to another on a logarithmic scale. Especially suited to quantify variables with a large dynamic range.

decidecade

One tenth of a decade. Approximately equal to one third of an octave (1 ddec ≈ 0.3322 oct), and for this reason sometimes referred to as a 1/3 octave.

decidecade band

Frequency band whose bandwidth is one decidecade. The bandwidth of a decidecade band increases with increasing centre frequency.

delphinid

Member of the family of oceanic dolphins (Delphinidae), composed of approximately 35 extant species, including dolphins, porpoises, and killer whales.

duty cycle

The percentage of time during which an intermittently activated acoustic monitoring system is recording sound. For example, recording 30 min of every hour is a 50 % duty cycle.

endfire direction

Aligned with the travel direction of a source. Compare with broadside direction.

energy source level

A property of a sound source equal to the sound exposure level measured in the far field plus the propagation loss from the acoustic centre of the source to the receiver position. Unit: decibel (dB). Reference value: 1 $\mu Pa^2\,m^2\,s$.

energy spectral density

Ratio of energy (time-integrated square of a specified field variable) to bandwidth in a specified frequency band from f_1 to f_2. In equation form, the energy spectral density E_f is given by: $E_f = 2\int_{f_1}^{f_2} |X(f)|^2\,\mathrm{d}f/(f_2 - f_1)$ where $X(f)$ is the Fourier transform of the field variable $x(t)$: $X(f) = \int_{-\infty}^{+\infty} x(t)\exp(-2\pi i f t)\,\mathrm{d}t$.

The field variable $x(t)$ is a scalar quantity, such as sound pressure. It can also be the magnitude or a specified component of a vector quantity such as sound particle displacement, velocity, or acceleration. The unit of energy spectral density depends on the nature of x, as follows:

- If x = sound pressure: $Pa^2\,s/Hz$
- If x = sound particle displacement: $m^2\,s/Hz$
- If x = sound particle velocity: $(m/s)^2\,s/Hz$
- If x = sound particle acceleration: $(m/s^2)^2\,s/Hz$

The factor of two on the right side of the equation for E_f is needed to express a spectrum that is symmetric about $f = 0$, in terms of positive frequencies only. See entry 3.1.3.9 of ISO 18405 (2017).

energy spectral density level

The level ($L_{E,f}$) of the energy spectral density (E_f) in a stated frequency band and time window. Defined as: $L_{E,f} = 10\log_{10}(E_f/E_{f,0})$. Unit: decibel (dB). As with energy spectral density, energy spectral density level can be expressed in terms of various field variables (e.g., sound pressure, sound particle displacement). The reference value ($E_{f,0}$) for energy spectral density level depends on the nature of the field variable.

energy spectral density source level

A property of a sound source equal to the energy spectral density level of the sound pressure measured in the far field plus the propagation loss from the acoustic centre of the source to the receiver position. Unit: decibel (dB). Reference value: 1 $\mu Pa^2\,m^2\,s/Hz$.

ensonified

Exposed to sound.

equal-loudness-level contour

Curve that shows, as a function of frequency, the sound pressure level required to produce a given loudness for a listener having normal hearing, listening to a specified kind of sound in a specified manner (ANSI S1.1-2013).

far field

The zone where, to an observer, sound originating from an array of sources (or a spatially distributed source) appears to radiate from a single point.

Fourier transform, Fourier synthesis

A mathematical technique which, although it has varied applications, is referenced in a physical data acquisition context as a method used in the process of deriving a spectrum estimate from time-series

data (or the reverse process, termed the inverse Fourier transform). A computationally efficient numerical algorithm for computing the Fourier transform is known as the fast Fourier transform (FFT).

frequency

The rate of oscillation of a periodic function measured in cycles per unit time. The reciprocal of the period. Unit: hertz (Hz). Symbol: f. 1 Hz is equal to 1 cycle per second.

frequency weighting

The process of applying a frequency-weighting function.

frequency-weighting function

The squared magnitude of the sound pressure transfer function (ISO 18405:2017). For sound of a given frequency, the frequency-weighting function is the ratio of output power to input power of a specified filter, sometimes expressed in decibels. Examples include the following:

- *Auditory frequency-weighting function*: compensatory frequency-weighting function accounting for a species' (or functional hearing group's) frequency-specific hearing sensitivity.
- *System frequency-weighting function*: frequency-weighting function describing the sensitivity of an acoustic recording system, which typically consists of a hydrophone, one or more amplifiers, and an analog-to-digital converter.

functional hearing group

Category of animal species when classified according to their hearing sensitivity, hearing anatomy, and susceptibility to sound. For marine mammals, initial groupings were proposed by Southall et al. (2007a), and revised groupings are developed as new research/data becomes available. Revised groupings proposed by Southall et al. (2019) include low-frequency cetaceans, high-frequency cetaceans, very high-frequency cetaceans, phocid carnivores in water, other carnivores in water, and sirenians. Example hearing groups for fish include species for which the swim bladder is involved in hearing, species for which the swim bladder is not involved in hearing, and species without a swim bladder (Popper et al. 2014). See also auditory frequency-weighting functions, which are often applied to these groups.

geoacoustic

Relating to the acoustic properties of the seabed.

harmonic

A sinusoidal sound component that has a frequency that is an integer multiple of the frequency of a sound to which it is related. For a sound with a fundamental frequency of f, the harmonics have frequencies of $2f$, $3f$, $4f$, etc.

hearing threshold

For a given species or functional hearing group, the sound level for a given signal that is barely audible (i.e., that would be barely audible for a given individual in the presence of specified background noise during a specific percentage of experimental trials).

hertz (Hz)

Unit of frequency defined as one cycle per second. Often expressed in multiples such as kilohertz (1 kHz = 1000 Hz).

high-frequency (HF) cetaceans

See functional hearing group. The mid- and high-frequency cetaceans groups proposed by Southall et al. (2007a) were renamed high- and very-high-frequency cetaceans, respectively, by Southall et al. (2019).

hydrostatic pressure

The pressure at any given depth in a static liquid that is the result of the weight of the liquid acting on a unit area at that depth, plus any pressure acting on the surface of the liquid. Unit: pascal (Pa).

intermittent sound

A sound whose level abruptly drops below the background noise level multiple times during an observation period.

impulsive sound

Qualitative term meaning sounds that are typically transient, brief (less than 1 s), broadband, with rapid rise time and rapid decay. They can occur in repetition or as a single event. Sources of impulsive sound include, among others, explosives, seismic airguns, and impact pile drivers.

isopleth

A line drawn on a map through all points having the same value of some specified quantity (e.g., sound pressure level isopleth).

knot (kn)

Unit of vessel speed equal to 1 nautical mile per hour.

level

A measure of a quantity expressed as the logarithm of the ratio of the quantity to a specified reference value of that quantity. For example, a value of sound pressure level with reference to 1 μPa^2 can be written in the form *x* dB re 1 μPa^2.

low-frequency (LF) cetaceans

See functional hearing group.

median

The 50th percentile of a statistical distribution.

mid-frequency (MF) cetaceans

See functional hearing group. The mid-frequency cetaceans group proposed by Southall et al. (2007a) was renamed high-frequency cetaceans by Southall et al. (2019).

monopole source level (MSL)

A source level that has been calculated using an acoustic model that accounts for the effect of the sea-surface and seabed on sound propagation, assuming a point source (monopole). Often used to quantify source levels of vessels or industrial operations from measurements. See also radiated noise level.

Monte Carlo simulation

A method of investigating the distribution of a non-linear multi-variate function by random sampling of its input variable distributions.

multiple linear regression

A statistical method that seeks to explain the response of a dependent variable using multiple explanatory variables.

M-weighting

A set of auditory frequency-weighting functions proposed by Southall et al. (2007a).

mysticete

Member of the Mysticeti, a suborder of cetaceans. Also known as baleen whales, mysticetes have baleen plates (rather than teeth) that they use to filter food from water (or from sediment as for grey whales). This group includes rorquals (Balaenopteridae, such as blue, fin, humpback, and minke whales), right and bowhead whales (Balaenidae), and grey whales (*Eschrichtius robustus*).

***N* percent exceedance level**

The sound level exceeded *N* % of the time during a specified time interval. See also percentile level.

non-impulsive sound

Sound that is not an impulsive sound. Not necessarily a continuous sound.

octave

The interval between a sound and another sound with double or half the frequency. For example, one octave above 200 Hz is 400 Hz, and one octave below 200 Hz is 100 Hz.

odontocete

Member of Odontoceti, a suborder of cetaceans. These whales, dolphins, and porpoises have teeth (rather than baleen plates). Their skulls are mostly asymmetric, an adaptation for their echolocation. This group includes sperm whales, killer whales, belugas, narwhals, dolphins, and porpoises.

otariid

Member of the family Otariidae, one of the three groupings of pinnipeds (along with phocids and walrus). These eared seals, commonly called fur seals and sea lions, are adapted to semi-aquatic life; they use their large fore flippers for propulsion underwater and can walk on all four limbs on land.

otariid pinnipeds underwater (OW)

See functional hearing group.

other marine carnivores in water (OCW)

See functional hearing group.

parabolic equation method

A computationally efficient solution to the acoustic wave equation that is used to model propagation loss. The parabolic equation approximation omits effects of backscattered sound (which are negligible for most ocean-acoustic propagation problems), simplifying the computation of propagation loss.

particle acceleration, particle displacement, particle motion, particle velocity

See sound particle acceleration, sound particle displacement, sound particle motion, and sound particle velocity.

peak sound pressure level (PK), zero-to-peak sound pressure level

The level (L_{pk}) of the squared maximum magnitude of the sound pressure (p_{pk}^2) in a stated frequency band and time window. Defined as $L_{pk} = 10\log_{10}(p_{pk}^2/p_0^2) = 20\log_{10}(p_{pk}/p_0)$. Unit: decibel (dB). Reference value (p_0^2) for sound in water: 1 µPa^2.

peak-to-peak sound pressure

The difference between the maximum and minimum sound pressure over a specified frequency band and time window. Unit: pascal (Pa).

percentile level

The sound level not exceeded *N* % of the time during a specified time interval. The *N*th percentile level is equal to the (100−*N*) % exceedance level. See also N percent exceedance level.

permanent threshold shift (PTS)

An irreversible loss of hearing sensitivity caused by excessive noise exposure. Considered auditory injury. Compare with temporary threshold shift.

phocid

Member of the family Phocidae, one of the three groupings of pinnipeds (along with otariids and walrus). These true/earless seals are more adapted to in-water life than are otariids, which have more terrestrial adaptations. Phocids use their hind flippers to propel themselves underwater.

phocid pinnipeds underwater (PW), phocid carnivores in water (PCW)

See functional hearing group.

pinniped

Member of the superfamily Pinnipedia, which is composed of phocids (true seals or earless seals), otariids (eared seals or fur seals and sea lions), and walrus.

point source

A source that radiates sound as if from a single point.

power spectral density

Generic term, formally defined as power in a unit frequency band. Unit: watt per hertz (W/Hz). The term is sometimes loosely used to refer to the spectral density of other parameters such as squared sound pressure. Ratio of energy spectral density, E_f, to time duration, Δt, in a specified temporal observation window. In equation form, the power spectral density P_f is given by $P_f = E_f/\Delta t$. Power spectral density can be expressed in terms of various field variables (e.g., sound pressure, sound particle displacement).

power spectral density level

The level ($L_{P,f}$) of the power spectral density (P_f) in a stated frequency band and time window. Defined as: $L_{P,f} = 10\log_{10}(P_f/P_{f,0})$. Unit: decibel (dB).

As with power spectral density, power spectral density level can be expressed in terms of various field variables (e.g., sound pressure, sound particle displacement). The reference value ($P_{f,0}$) for power spectral density level depends on the nature of the field variable.

power spectral density source level

A property of a sound source equal to the power spectral density level of the sound pressure measured in the far field plus the propagation loss from the acoustic centre of the source to the receiver position. Unit: decibel (dB). Reference value: 1 $\mu Pa^2\,m^2/Hz$.

propagation loss (PL)

Difference between a source level (SL) and the level at a specified location, $PL(x) = SL - L(x)$. Unit: decibel (dB). See also transmission loss.

radiated noise level (RNL)

A source level that has been calculated assuming sound pressure decays geometrically with distance from the source, with no influence of the sea-surface or seabed. Often used to quantify source levels of vessels or industrial operations from measurements. See also monopole source level.

received level

The level of a given field variable measured (or that would be measured) at a given location.

reference value

Standard value of a quantity used for calculating underwater sound level. The reference value depends on the quantity for which the level is being calculated:

Quantity	Reference value
Sound pressure	p_0^2 = 1 μPa^2 or p_0 = 1 μPa
Sound exposure	E_0 = 1 $\mu Pa^2\,s$
Sound particle displacement	δ_0^2 = 1 pm^2
Sound particle velocity	u_0^2 = 1 nm^2/s^2
Sound particle acceleration	a_0^2 = 1 $\mu m^2/s^4$

sensation level

Difference between the sound pressure level and hearing threshold at a specified frequency. Unit: decibel (dB).

shear wave

A mechanical vibration wave in which the direction of particle motion is perpendicular to the direction of propagation. Also called a secondary wave or S-wave. Shear waves propagate only in solid media, such as sediments or rock. Shear waves in the seabed can be converted to compressional waves in water at the water-seabed interface.

sirenians (SI)

Members of the order Sirenia, which includes several manatee species and the dugong. See also functional hearing group.

sound

A time-varying disturbance in the pressure, stress, or material displacement of a medium propagated by local compression and expansion of the medium. In common meaning, a form of energy that propagates through media (e.g., water, air, ground) as pressure waves.

sound exposure

Time integral of squared sound pressure over a stated time interval in a stated frequency band. The time interval can be a specified time duration (e.g., 24 h) or from start to end of a specified event (e.g.,

a pile strike, an airgun pulse, a construction operation). Unit: pascal squared second (Pa^2 s). Symbol: E.

sound exposure level (SEL)

The level (L_E) of the sound exposure (E) in a stated frequency band and time window: $L_E = 10\log_{10}(E/E_0)$ (ISO 18405:2017). Unit: decibel (dB). Reference value (E_0) for sound in water: 1 μPa^2 s.

sound exposure spectral density

Distribution as a function of frequency of the time-integrated squared sound pressure per unit bandwidth of a sound having a continuous spectrum (ISO 18405:2017). Unit: pascal squared second per hertz (Pa^2 s/Hz).

sound field

Region containing sound waves.

sound intensity

Product of the sound pressure and the sound particle velocity (ISO 18405:2017). The magnitude of the sound intensity is the sound energy flowing through a unit area perpendicular to the direction of propagation per unit time. Unit: watt per meter squared (W/m^2). Symbol: I.

sound particle acceleration

The rate of change of sound particle velocity. Unit: meter per second squared (m/s^2). Symbol: a.

sound particle motion

Movement caused by the action of sound of the smallest volume of a medium that represents its mean physical properties. Important for determining effects of underwater noise on fishes and invertebrates because their hearing organs sense particle motion rather than sound pressure.

sound particle displacement

Displacement of a material element caused by the action of sound, where a material element is the smallest element of the medium that represents the medium's mean density (ISO 18405:2017). Unit: meter (m). Symbol: δ.

sound particle velocity

The velocity of a particle in a material moving back and forth in the direction of the pressure wave. Unit: meter per second (m/s). Symbol: u.

sound pressure

The contribution to total pressure caused by the action of sound (ISO 18405:2017). Unit: pascal (Pa). Symbol: p.

sound pressure level (SPL), rms sound pressure level

The level (L_p) of the time-mean-square sound pressure (p^2_{rms}) in a stated frequency band and time window: $L_p = 10\log_{10}(p^2_{\mathrm{rms}}/p^2_0) = 20\log_{10}(p_{\mathrm{rms}}/p_0)$, where rms is the abbreviation for root-mean-square. Unit: decibel (dB). Reference value (p^2_0) for sound in water: 1 μPa^2. SPL can also be expressed in terms of the root-mean-square (rms) with a reference value of p_0 = 1 µPa. The two definitions are equivalent.

sound speed profile

The speed of sound in the water column as a function of depth below the water surface.

soundscape

The characterization of the ambient sound in terms of its spatial, temporal, and frequency attributes, and the types of sources contributing to the sound field (ISO 18405:2017).

source level (SL)

A property of a sound source equal to the sound pressure level measured in the far field plus the propagation loss from the acoustic centre of the source to the receiver position. Unit: decibel (dB). Reference value: 1 $\mu Pa^2\,m^2$.

spectrogram

A visual representation of acoustic amplitude over time and frequency. A spectrogram's resolution in the time and frequency domains should generally be stated as it determines the information content of the representation.

spectrum

Distribution of acoustic signal content over frequency, where the signal's content is represented by its power, energy, mean-square sound pressure, or sound exposure.

surface duct

The upper portion of a water column within which the gradient of the sound speed profile causes sound to refract upward and therefore reflect repeatedly off the surface resulting in relatively long-range sound propagation with little loss.

temporary threshold shift (TTS)

Reversible loss of hearing sensitivity caused by noise exposure. Compare with permanent threshold shift.

thermocline

A depth interval near the ocean surface that experiences larger temperature gradients than the layers above and below it due to warming or cooling by heat conduction from the atmosphere and by warming from the sun.

transmission loss (TL)

The difference between a specified level at one location and that at a different location: $TL(x_1,x_2) = L(x_1) - L(x_2)$ (ISO 18405:2017). Unit: decibel (dB). See also propagation loss.

unweighted

Term indicating that no frequency-weighting function is applied.

validated detection

The output of an automated detector that has been subsequently validated by a human during manual analysis.

very high-frequency (VHF) cetaceans

See functional hearing group.

wavelength

Distance over which a wave completes one cycle of oscillation. Unit: meter (m). Symbol: λ.

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Appendix A. Acoustic Metrics

This section describes in detail the acoustic metrics, impact criteria, and frequency weighting relevant to the modelling study.

A.1. Pressure Related Acoustic Metrics

Underwater sound pressure amplitude is measured in decibels (dB) relative to a fixed reference pressure of p_0 = 1 µPa. Because the perceived loudness of sound, especially pulsed sound such as from seismic airguns, pile driving, and sonar, is not generally proportional to the instantaneous acoustic pressure, several sound level metrics are commonly used to evaluate sound and its effects on marine life. Here we provide specific definitions of relevant metrics used in the accompanying report. Where possible, we follow International Organization for Standardization definitions and symbols for sound metrics (e.g., ISO 2017, ANSI S1.1-2013).

The zero-to-peak sound pressure, or peak sound pressure (PK or $L_{p,pk}$; dB re 1 µPa), is the decibel level of the maximum instantaneous acoustic pressure in a stated frequency band attained by an acoustic pressure signal, $\mathrm{p(t)}$:

$$L_{p,\mathrm{pk}} = 10\log_{10}\frac{\max|p^2(t)|}{p_0^2} = 20\log_{10}\frac{\max|p(t)|}{p_0} \tag{A-1}$$

PK is often included as a criterion for assessing whether a sound is potentially injurious; however, because it does not account for the duration of an acoustic event, it is generally a poor indicator of perceived loudness.

The peak-to-peak sound pressure (PK-PK or $L_{p,pk\text{-}pk}$; dB re 1 µPa) is the difference between the maximum and minimum instantaneous sound pressure, possibly filtered in a stated frequency band, attained by an impulsive sound, $\mathrm{p(t)}$:

$$L_{p,\mathrm{pk\text{-}pk}} = 10\log_{10}\frac{[\max(p(t)) - \min(p(t))]^2}{p_0^2} \tag{A-2}$$

The sound pressure level (SPL or L_p; dB re 1 µPa) is the root-mean-square (rms) pressure level in a stated frequency band over a specified time window (T; s). It is important to note that SPL always refers to an rms pressure level and therefore not instantaneous pressure:

$$L_p = 10\log_{10}\left(\frac{1}{T}\int_T g(t)\,p^2(t)\,dt \Big/ p_0^2\right) \tag{A-3}$$

where $\mathrm{g(t)}$ is an optional time weighting function. In many cases, the start time of the integration is marched forward in small time steps to produce a time-varying SPL function. For short acoustic events, such as sonar pulses and marine mammal vocalizations, it is important to choose an appropriate time window that matches the duration of the signal. For in-air studies, when evaluating the perceived loudness of sounds with rapid amplitude variations in time, the time weighting function $\mathrm{g(t)}$ is often set to a decaying exponential function that emphasizes more recent pressure signals. This function mimics the leaky integration nature of mammalian hearing. For example, human-based fast time-weighted SPL ($L_{p,fast}$) applies an exponential function with time constant 125 ms. A related simpler approach used in underwater acoustics sets $\mathrm{g(t)}$ to a boxcar (unity amplitude) function of width 125 ms; the results can be referred to as $L_{p,boxcar\ 125ms}$. Another approach, historically used to evaluate SPL of impulsive signals underwater, defines $\mathrm{g(t)}$ as a boxcar function with edges set to the times corresponding to 5% and 95% of the cumulative square pressure function encompassing the

duration of an impulsive acoustic event. This calculation is applied individually to each impulse signal, and the results are referred to as 90% SPL ($L_{p,90\%}$).

The sound exposure level (SEL or L_E; dB re 1 µPa²·s) is the time-integral of the squared acoustic pressure over a duration (T):

$$L_E = 10 \log_{10} \left(\int_T p^2(t)\, dt \Big/ T_0 p_0^2 \right) \tag{A-4}$$

where T_0 is a reference time interval of 1 s. SEL continues to increase with time when non-zero pressure signals are present. It is a dose-type measurement, so the integration time applied must be carefully considered for its relevance to impact to the exposed recipients.

SEL can be calculated over a fixed duration, such as the time of a single event or a period with multiple acoustic events. When applied to pulsed sounds, SEL can be calculated by summing the SEL of the N individual pulses. For a fixed duration, the square pressure is integrated over the duration of interest. For multiple events, the SEL can be computed by summing (in linear units) the SEL of the N individual events:

$$L_{E,N} = 10 \log_{10} \sum_{i=1}^{N} 10^{\frac{L_{E,i}}{10}} \tag{A-5}$$

If applied, the frequency weighting of an acoustic event should be specified, as in the case of weighted SEL (e.g., $L_{E,LF,24h}$; see Appendix A.4) or auditory-weighted SPL ($L_{p,ht}$). The use of fast, slow, or impulse exponential-time-averaging or other time-related characteristics should also be specified.

A.2. Decidecade Band Analysis

The distribution of a sound's power with frequency is described by the sound's spectrum. The sound spectrum can be split into a series of adjacent frequency bands. Splitting a spectrum into 1 Hz wide bands, called passbands, yields the power spectral density of the sound. This splitting of the spectrum into passbands of a constant width of 1 Hz, however, does not represent how animals perceive sound.

Because animals perceive exponential increases in frequency rather than linear increases, analysing a sound spectrum with passbands that increase exponentially in size better approximates real-world scenarios. In underwater acoustics, a spectrum is commonly split into decidecade bands, which are one tenth of a decade wide. A decidecade is sometimes referred to as a "1/3 octave" because one tenth of a decade is approximately equal to one third of an octave. Each decade represents a factor 10 in sound frequency. Each octave represents a factor 2 in sound frequency. The centre frequency of the ith band, $f_c(i)$, is defined as:

$$f_c(i) = 10^{\frac{i}{10}} \text{ kHz} \tag{A-6}$$

and the low (f_{lo}) and high (f_{hi}) frequency limits of the ith decade band are defined as:

$$f_{lo,i} = 10^{\frac{-1}{20}} f_c(i) \quad \text{and} \quad f_{hi,i} = 10^{\frac{1}{20}} f_c(i) \tag{A-7}$$

The decidecade bands become wider with increasing frequency, and on a logarithmic scale the bands appear equally spaced (Figure A-1). The acoustic modelling spans from band 10 (f_c (10) = 10 Hz) to band 44 ($f_c(44)$ = 25 kHz).

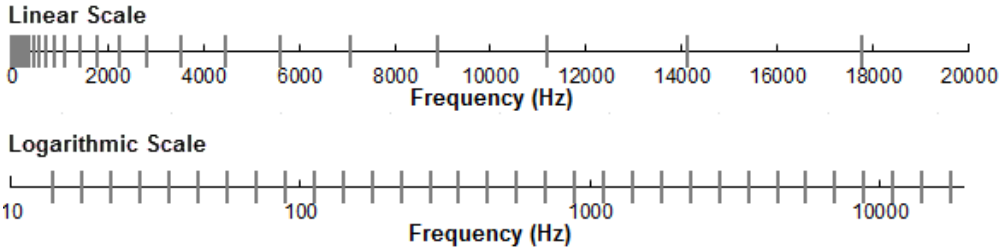


Figure A-1. Decidecade frequency bands (vertical lines) shown on a linear frequency scale and a logarithmic scale.

The sound pressure level in the ith band ($L_{p,i}$) is computed from the spectrum $S(f)$ between $f_{\mathrm{lo},i}$ and $f_{\mathrm{hi},i}$:

$$L_{p,i} = 10\,log_{10} \int_{f_{\mathrm{lo},i}}^{f_{\mathrm{hi},i}} S(f)\,\mathrm{d}f \ \ \mathrm{dB} \tag{A-8}$$

Summing the sound pressure level of all the bands yields the broadband sound pressure level:

$$\text{Broadband SPL} = 10\log_{10} \sum_{i} 10^{\frac{L_{p,i}}{10}} \ \mathrm{dB} \tag{A-9}$$

Figure A-2 shows an example of how the decidecade band sound pressure levels compare to the sound pressure spectral density levels of an ambient sound signal. Because the decidecade bands are wider than 1 Hz, the decidecade band SPL is higher than the spectral levels at higher frequencies. Acoustic modelling of decidecade bands requires less computation time than 1 Hz bands and still resolves the frequency-dependence of the sound source and the propagation environment.

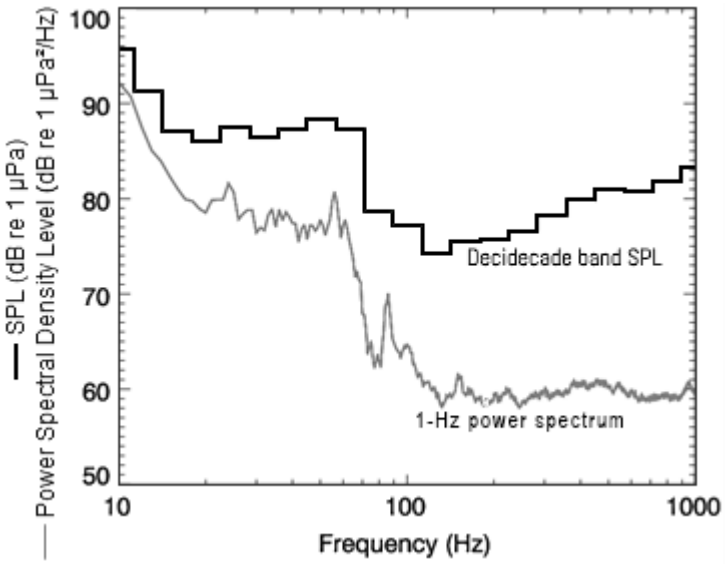


Figure A-2. Sound pressure spectral density levels and the corresponding decidecade band sound pressure levels of example ambient noise shown on a logarithmic frequency scale.Because the decidecade bands are wider with increasing frequency, the decidecade band SPL is higher than the power spectrum.

A.3. Marine Mammal Noise Effect Criteria

It has been long recognised that marine mammals can be adversely affected by underwater anthropogenic noise. For example, Payne and Webb (1971) suggested that communication distances of fin whales are reduced by shipping sounds. Subsequently, similar concerns arose regarding effects of other underwater noise sources and the possibility that impulsive sources—primarily airguns used in seismic surveys—could cause auditory injury. This led to a series of workshops held in the late 1990s, conducted to address acoustic mitigation requirements for seismic surveys and other underwater noise sources (NMFS 1998, ONR 1998, Nedwell and Turnpenny 1998, HESS 1999, Ellison and Stein 1999). In the years since these early workshops, a variety of thresholds have been proposed for both injury and disturbance. The following sections summarize the recent development of thresholds; however, this field remains an active research topic.

A.3.1. Injury

In recognition of shortcomings of the SPL-only based injury criteria, in 2005 NMFS sponsored the Noise Criteria Group to review literature on marine mammal hearing to propose new noise exposure criteria. Some members of this expert group published a landmark paper (Southall et al. 2007a) that suggested assessment methods similar to those applied for humans. The resulting recommendations introduced dual acoustic injury criteria for impulsive sounds that included peak pressure level thresholds and SEL_{24h} thresholds, where the subscripted 24h refers to the accumulation period for calculating SEL. The peak pressure level criterion is not frequency weighted whereas the SEL_{24h} is frequency weighted according to one of four marine mammal species hearing groups: low-, mid- and high-frequency cetaceans (LF, MF, and HF cetaceans, respectively) and Pinnipeds in Water (PINN). These weighting functions are referred to as M-weighting filters (analogous to the A-weighting filter for humans; Appendix A.3). The SEL_{24h} thresholds were obtained by extrapolating measurements of onset levels of Temporary Threshold Shift (TTS) in belugas by the amount of TTS required to produce Permanent Threshold Shift (PTS) in chinchillas. The Southall et al. (2007a) recommendations do not specify an exchange rate, which suggests that the thresholds are the same regardless of the duration of exposure (i.e., it implies a 3 dB exchange rate).

Wood et al. (2012) refined Southall et al.'s (2007a) thresholds, suggesting lower injury values for LF and HF cetaceans while retaining the filter shapes. Their revised thresholds were based on TTS-onset levels in harbour porpoises from Lucke et al. (2009), which led to a revised impulsive sound PTS threshold for HF cetaceans of 179 dB re 1 $\mu Pa^2 \cdot s$. Because there were no data available for baleen whales, Wood et al. (2012) based their recommendations for LF cetaceans on results obtained from MF cetacean studies. In particular they referenced Finneran and Schlundt (2010) research, which found mid-frequency cetaceans are more sensitive to non-impulsive sound exposure than Southall et al. (2007a) assumed. Wood et al. (2012) thus recommended a more conservative TTS-onset level for LF cetaceans of 192 dB re 1 $\mu Pa^2 \cdot s$.

As of present, an optimal approach is not apparent. There is consensus in the research community that an SEL-based method is preferable either separately or in addition to an SPL-based approach to assess the potential for injuries. In August 2016, after substantial public and expert input into three draft versions and based largely on the above-mentioned literature (NOAA 2013, 2015, 2016), NMFS finalised technical guidance for assessing the effect of anthropogenic sound on marine mammal hearing (NMFS 2016). The guidance describes injury criteria with new thresholds and frequency weighting functions for the five hearing groups described by Finneran and Jenkins (2012). Further revisions were published by NMFS in 2018 (NMFS, 2018). Southall et al. (2019) revisited the interim criteria published in 2007. All noise exposure criteria in NMFS (2018) and Southall et al. (2019) are identical (for impulsive and non-impulsive sounds); however, the mid- and high-frequency cetaceans groups from NMFS (2018) were renamed high- and very high-frequency cetaceans, respectively, in Southall et al. (2019).

The latest revision to noise exposure criteria was published by NMFS in 2024 (NMFS 2024), with revised sirenian criteria presented in Accomando et al. (2025), and these criteria are applied in the current report. In both of these publications, the term auditory injury (represented by either AUD INJ or AINJ) is used to encompass auditory injury with and without PTS, however for consistency with historic assessments the term PTS is used within this report.

A.3.2. Behavioural response

Numerous studies on marine mammal behavioural responses to sound exposure have not resulted in consensus in the scientific community regarding the appropriate metric for assessing behavioural reactions. However, it is recognised that the context in which the sound is received affects the nature and extent of responses to a stimulus (Southall et al. 2007a, Ellison and Frankel 2012, Southall et al. 2016).

For impulsive noise, NMFS currently uses a step function threshold of 160 dB re 1 µPa SPL (unweighted) to assess and regulate noise-induced behavioural impacts for marine mammals (NOAA 2018, NOAA 2024). The threshold for impulsive sound is derived from the High-Energy Seismic Survey (HESS) panel (HESS 1999) report that, in turn, is based on the responses of migrating mysticete whales to airgun sounds (Malme et al. 1984). The HESS team recognised that behavioural responses to sound may occur at lower levels, but significant responses were only likely to occur above a SPL of 140 dB re 1 µPa. Southall et al. (2007a) found varying responses for most marine mammals between a SPL of 140 and 180 dB re 1 µPa, consistent with the HESS (1999) report, but lack of convergence in the data prevented them from suggesting explicit step functions.

A.4. Marine Mammal Frequency Weighting

The potential for noise to affect animals depends on how well the animals can hear it. Noises are less likely to disturb or injure an animal if they are at frequencies that the animal cannot hear well. An exception occurs when the sound pressure is so high that it can physically injure an animal by non-auditory means (i.e., barotrauma). For sound levels below such extremes, the importance of sound components at particular frequencies can be scaled by frequency weighting relevant to an animal's sensitivity to those frequencies (Nedwell and Turnpenny 1998, Nedwell et al. 2007).

A.4.1. Marine Mammal Frequency Weighting Functions

In 2015, a US Navy technical report by Finneran (2015) recommended new auditory weighting functions. The overall shape of the auditory weighting functions is similar to human A-weighting functions, which follows the sensitivity of the human ear at low sound levels. The new frequency-weighting function is expressed as:

$$G(f) = K + 10\log_{10}\left[\left(\frac{(f/f_{lo})^{2a}}{\left[1+(f/f_{lo})^{2}\right]^{a}\left[1+(f/f_{hi})^{2}\right]^{b}}\right)\right] \quad \text{(A-10)}$$

Finneran (2015) proposed five functional hearing groups for marine mammals in water: low-, mid- and high-frequency cetaceans (LF, MF, and HF cetaceans, respectively), phocid pinnipeds, and otariid pinnipeds. The parameters for these frequency-weighting functions were further modified the following year (Finneran 2016) and were adopted in NOAA's technical guidance that assesses acoustic impacts on marine mammals (NMFS 2018), and in the latest guidance by NMFS (2024). The updates did not affect the content related to either the definitions of frequency-weighting functions or the threshold values, however, the terminology for mid- and high-frequency cetaceans was changed

to high- and very high-frequency cetaceans, respectively. Table A-1 lists the frequency-weighting parameters for each hearing group relevant to this assessment, and Figure A-3 shows the resulting frequency-weighting curves.

Table A-1. Parameters for the auditory weighting functions used in this project as recommended by NMFS (2024). The 'flo' and 'fhi' parameters used by Finneran (2015) are now referred to as 'f1' and 'f2' in the latest guidance.

Hearing group	a	b	flo (Hz)	fhi (Hz)	C (dB) *
Low-frequency cetaceans (baleen whales)	0.99	5	0.168	26.6	0.12
High-frequency cetaceans (most dolphins, plus sperm, beaked, and bottlenose whales)	1.55	5	1.73	129	0.32
Very high-frequency cetaceans (true porpoises, *Kogia*, river dolphins, *Cephalorhynchus* spp.)	2.23	5	5.93	186	0.91

* The 'C' parameter in NMFS (2024) is equivalent to the 'K' parameter in Finneran (2015).

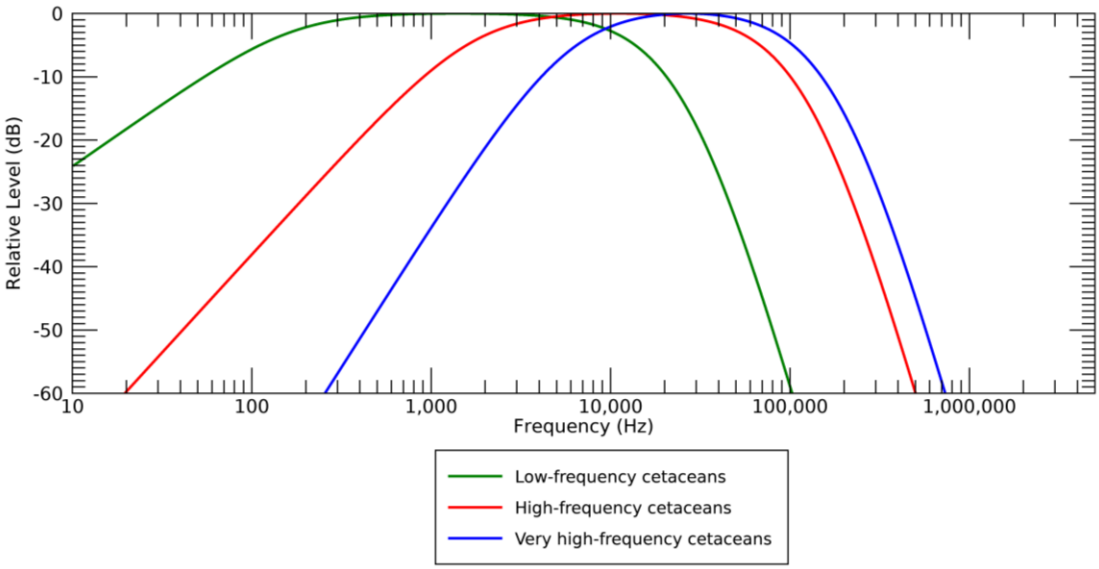


Figure A-3. Auditory weighting functions for functional marine mammal hearing groups used in this project as recommended by NMFS (2024).

Appendix B. Acoustic Source Model

B.1. Airgun Array Source Model

The source levels and directivity of the seismic source were predicted with JASCO's Airgun Array Source Model (AASM). AASM includes low- and high-frequency modules for predicting different components of the seismic source spectrum. The low-frequency module is based on the physics of oscillation and radiation of airgun bubbles, as originally described by Ziolkowski (1970), that solves the set of parallel differential equations that govern bubble oscillations. Physical effects accounted for in the simulation include pressure interactions between airguns, port throttling, bubble damping, and generator-injector (GI) gun behaviour discussed by Dragoset (1984), Laws et al. (1990), and Landrø (1992). A global optimisation algorithm tunes free parameters in the model to a large library of airgun source signatures.

While airgun signatures are highly repeatable at the low frequencies, which are used for seismic imaging, their sound emissions have a large random component at higher frequencies that cannot be predicted using a deterministic model. Therefore, AASM uses a stochastic simulation to predict the high-frequency (800-25,000 Hz) sound emissions of individual airguns, using a data-driven multiple-regression model. The multiple-regression model is based on a statistical analysis of a large collection of high quality seismic source signature data recently obtained from the Joint Industry Program (JIP) on Sound and Marine Life (Mattsson and Jenkerson 2008). The stochastic model uses a Monte-Carlo simulation to simulate the random component of the high-frequency spectrum of each airgun in an array. The mean high-frequency spectra from the stochastic model augment the low-frequency signatures from the physical model, allowing AASM to predict airgun source levels at frequencies up to 25,000 Hz.

AASM produces a set of "notional" signatures for each array element based on:

- Array layout
- Volume, tow depth, and firing pressure of each airgun
- Interactions between different airguns in the array

These notional signatures are the pressure waveforms of the individual airguns at a standard reference distance of 1 m; they account for the interactions with the other airguns in the array. The signatures are summed with the appropriate phase delays to obtain the far-field source signature of the entire array in all directions. This far-field array signature is filtered into decidecade-bands to compute the source levels of the array as a function of frequency band and azimuthal angle in the horizontal plane (at the source depth), after which it is considered a directional point source in the far field.

A seismic array consists of many sources and the point source assumption is invalid in the near field where the array elements add incoherently. The maximum extent of the near field of an array (R_{nf}) is:

$$R_{\mathrm{nf}} < \frac{l^2}{4\lambda} \tag{B-1}$$

where λ is the sound wavelength and l is the longest dimension of the array (Lurton 2002, §5.2.4). For example, a seismic source length of l = 21 m yields a near-field range of 147 m at 2 kHz and 7 m at 100 Hz. Beyond this R_{nf} range, the array is assumed to radiate like a directional point source and is treated as such for propagation modelling.

The interactions between individual elements of the array create directionality in the overall acoustic emission. Generally, this directionality is prominent mainly at frequencies in the mid-range between

tens of hertz to several hundred hertz. At lower frequencies, with acoustic wavelengths much larger than the inter-airgun separation distances, the directionality is small. At higher frequencies, the pattern of lobes is too finely spaced to be resolved and the effective directivity is less.

B.2. Seismic Source

Figure B-1 shows the layout of the 3147 in^3 seismic source used for modelling in this study. Table B-1 provides details of the airgun parameters.

For the modelled array, the layout is presented in a nominal cartesian coordinate system. In this coordinate system the direction of vessel travel determines the relative position of the array elements as plotted and tabulated. The layout used for acoustic modelling was produced by transforming the coordinates of client supplied layouts such that the resultant layouts correspond to a vessel travel direction along the positive X-axis and the array is centred on the X-Y origin. When used with an acoustic model the positive X-axis in this nominal coordinate system aligns with the vessel tow direction or survey line azimuth.

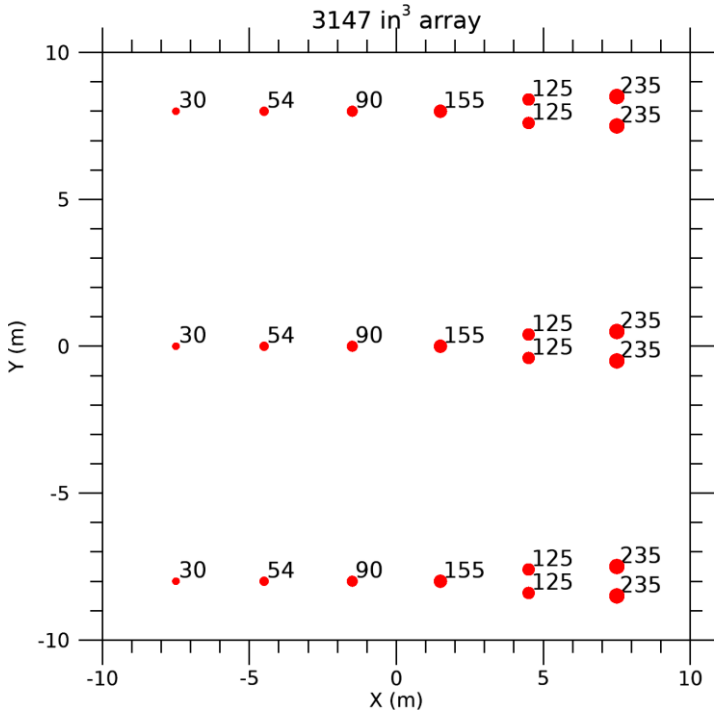


Figure B-1. Layout of the modelled 3147 in^3 seismic source. Tow depth is 5 m. The labels indicate the firing volume (in cubic inches) for each airgun. Also see Table B-1.

Table B-1. Layout of the modelled 3147 in^3 seismic source. Tow depth is 5 m. Firing pressure for all guns was 2000 psi. Greyed out values indicate spares. Also see Figure B-1.

String	Gun	x(m)	y(m)	z(m)	Vol(in^3)	String	Gun	x(m)	y(m)	z(m)	Vol(in^3)	String	Gun	x(m)	y(m)	z(m)	Vol(in^3)
1	1	0	-8.5	5	235	2	9	0	-0.5	5	235	3	17	0	7.5		235
	2	0	-7.5		235		10	0	0.5		235		18	0	8.5		235
	3	3	-8.4		125		11	3	-0.4		125		19	3	7.6		125
	4	3	-7.6		125		12	3	0.4		125		20	3	8.4		125
	5	6	-8		155		13	6	0		155		21	6	8		155
	6	9	-8		90		14	9	0		90		22	9	8		90
	7	12	-8		54		15	12	0		54		23	12	8		54
	8	15	-8		30		16	15	0		30		24	15	8		30

B.3. Array Source Levels and Directivity

Figure B-2 shows the broadside (perpendicular to the tow direction), endfire (parallel to the tow direction) and vertical overpressure signature and corresponding power spectrum levels for the 1347 in^3 array (Appendix B.2). Horizontal decidecade-band source levels are shown as a function of band centre frequency and azimuth in Figure B-3.

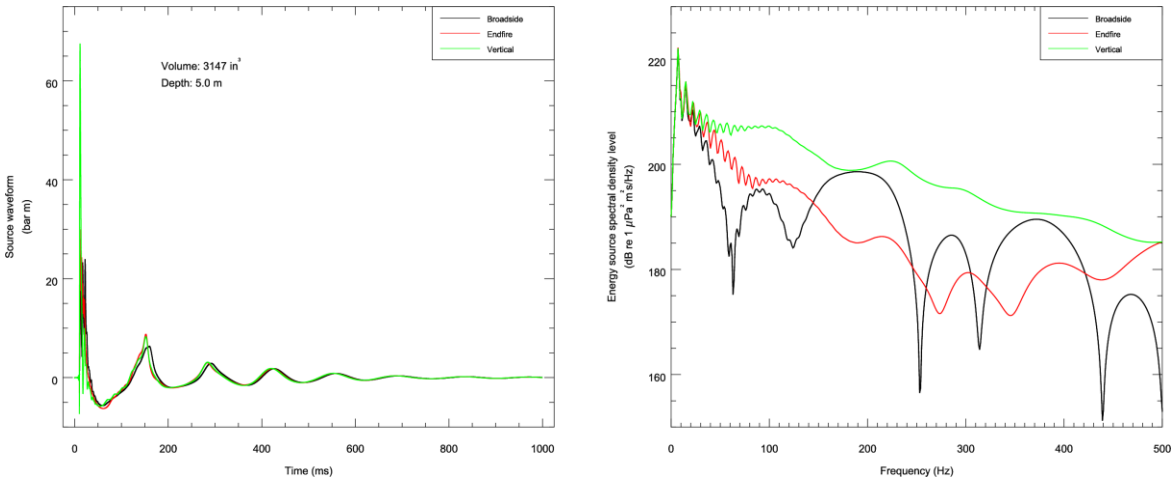


Figure B-2. Predicted source level details for the 3147 in^3 array at 5 m towed depth. (Left) the overpressure signature and (right) the power spectrum for in-plane horizontal (broadside), perpendicular (endfire), and vertical directions (no surface ghost).

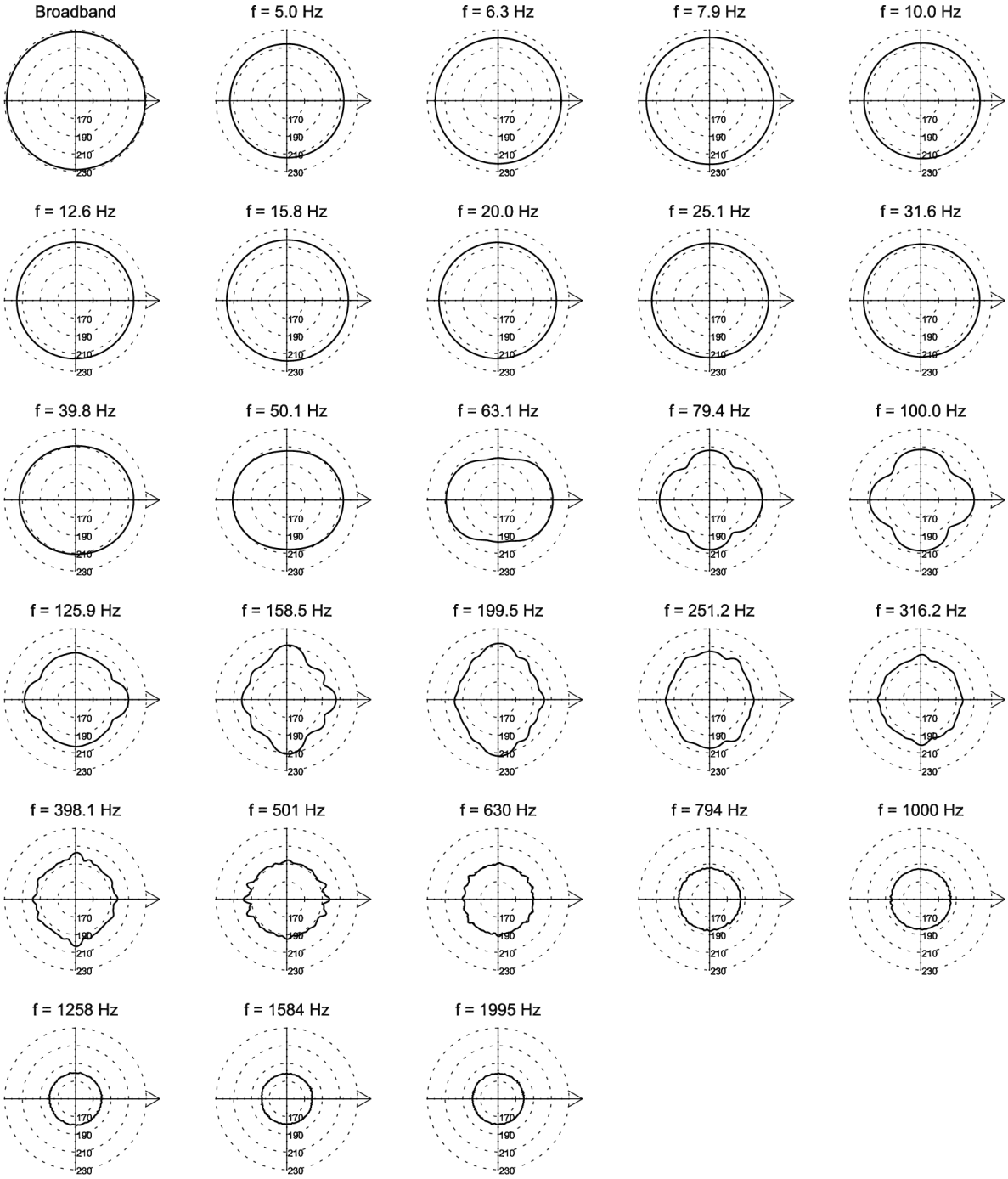


Figure B-3. Directionality of the predicted horizontal source levels for the 3147 in^3 seismic source, 5 Hz to 2 kHz. Source levels (in dB re 1 $\mu Pa^2 \cdot s\ m^2$) are shown as a function of azimuth for the centre frequencies of the decidecade bands modelled; frequencies are shown above the plots. Tow depth is 5 m (see Figure B-2).

Appendix C. Sound Propagation Models

C.1. MONM-BELLHOP

Long-range sound fields were computed using JASCO's Marine Operations Noise Model (MONM). This model computes sound propagation at frequencies of 5 Hz to 1 kHz via a wide-angle parabolic equation solution to the acoustic wave equation (Collins 1993) based on a version of the US Naval Research Laboratory's Range-dependent Acoustic Model (RAM), which has been modified to account for a solid seabed (Zhang and Tindle 1995). MONM computes sound propagation at frequencies >1 kHz via the BELLHOP Gaussian beam acoustic ray-trace model (Porter and Liu 1994).

The parabolic equation method has been extensively benchmarked and is widely employed in the underwater acoustics community (Collins et al. 1996). MONM accounts for the additional reflection loss at the seabed, which results from partial conversion of incident compressional waves to shear waves at the seabed and sub-bottom interfaces, and it includes wave attenuations in all layers. MONM incorporates the following site-specific environmental properties: a bathymetric grid of the modelled area, underwater sound speed as a function of depth, and a geoacoustic profile based on the overall stratified composition of the seafloor.

This version of MONM accounts for sound attenuation due to energy absorption through ion relaxation and viscosity of water in addition to acoustic attenuation due to reflection at the medium boundaries and internal layers (Fisher and Simmons 1977). The former type of sound attenuation is significant for frequencies higher than 5 kHz and cannot be neglected without noticeably affecting the model results.

MONM computes acoustic fields in three dimensions by modelling transmission loss within two-dimensional (2-D) vertical planes aligned along radials covering a 360° swath from the source, an approach commonly referred to as N×2-D. These vertical radial planes are separated by an angular step size of $\Delta\theta$, yielding N = 360°/$\Delta\theta$ number of planes (Figure C-1).

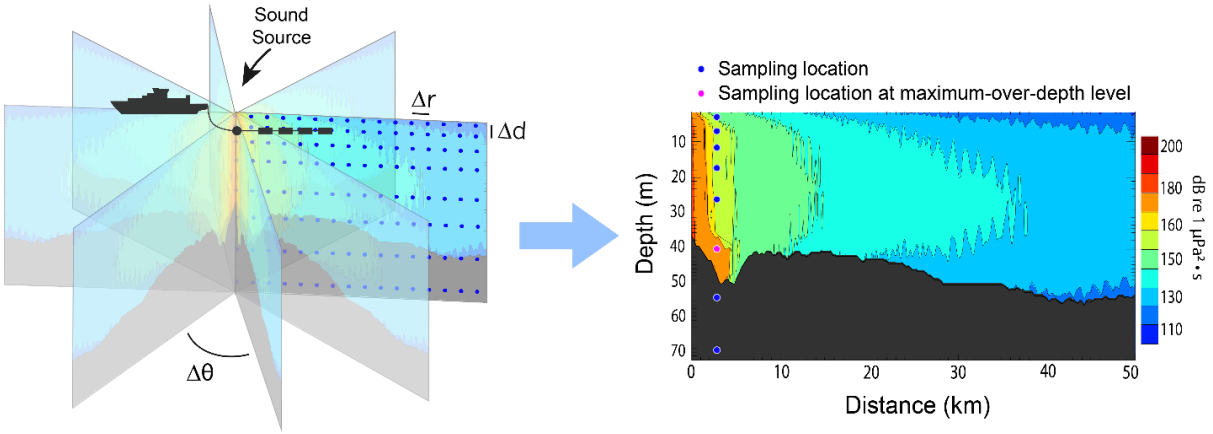


Figure C-1. The N×2-D and maximum-over-depth modelling approach used by MONM.

MONM treats frequency dependence by computing acoustic transmission loss at the centre frequencies of decidecade bands. Sufficiently many decidecade bands, starting at 5 Hz, are modelled to include most of the acoustic energy emitted by the source. At each centre frequency, the transmission loss is modelled within each of the N vertical planes as a function of depth and range from the source. The decidecade band received per-pulse SEL are computed by subtracting the band transmission loss values from the directional source level in that frequency band. Composite broadband received per-pulse SEL are then computed by summing the received decidecade band levels.

The received per-pulse SEL sound field within each vertical radial plane is sampled at various ranges from the source, generally with a fixed radial step size. At each sampling range along the surface, the sound field is sampled at various depths, with the step size between samples increasing with depth below the surface. The step sizes are chosen to provide increased coverage near the depth of the source and at depths of interest in terms of the sound speed profile. The maximum received per-pulse SEL at many sampling depths are taken over all samples within the water column, i.e., the maximum-over-depth received per-pulse SEL. These maximum-over-depth per-pulse SEL are presented as contours around the source.

C.2. Full Waveform Range-dependent Acoustic Model: FWRAM

For impulsive sounds from the seismic source, time-domain representations of the pressure waves generated in the water are required to calculate SPL and PK. Furthermore, the seismic source must be represented as a distributed source to accurately characterise vertical directivity effects in the near-field zone. For this study, synthetic pressure waveforms were computed using FWRAM, which is a time-domain acoustic model based on the same wide-angle parabolic equation (PE) algorithm as MONM. FWRAM computes synthetic pressure waveforms versus range and depth for range-varying marine acoustic environments, and it takes the same environmental inputs as MONM (bathymetry, water sound speed profile, and seafloor geoacoustic profile). Unlike MONM, FWRAM computes pressure waveforms via Fourier synthesis of the modelled acoustic transfer function in closely spaced frequency bands. FWRAM employs the array starter method to accurately model sound propagation from a spatially distributed source (MacGillivray and Chapman 2012).

Besides providing direct calculations of the PK and SPL, the synthetic waveforms from FWRAM can also be used to convert the SEL values from MONM to SPL.

C.3. Wavenumber Integration Model

Sound pressure levels near the seismic source were modelled using JASCO's VSTACK wavenumber integration model. VSTACK computes synthetic pressure waveforms versus depth and range for arbitrarily layered, range-independent acoustic environments using the wavenumber integration approach to solve the exact (range-independent) acoustic wave equation. This model is valid over the full angular range of the wave equation and can fully account for the elasto-acoustic properties of the sub-bottom. Wavenumber integration methods are extensively used in the field of underwater acoustics and seismology where they are often referred to as reflectivity methods or discrete wavenumber methods. VSTACK computes sound propagation in arbitrarily stratified water and seabed layers by decomposing the outgoing field into a continuum of outward-propagating plane cylindrical waves. Seabed reflectivity in the model is dependent on the seabed layer properties: compressional and shear wave speeds, attenuation coefficients, and layer densities. The output of the model can be post-processed to yield estimates of the SEL, SPL, and PK.

VSTACK accurately predicts steep-angle propagation in the proximity of the source, but it is computationally slow at predicting sound pressures at large distances due to the need for smaller wavenumber steps with increasing distance. Additionally, VSTACK assumes range-invariant bathymetry with a horizontally stratified medium (i.e., a range-independent environment) which is azimuthally symmetric about the source. VSTACK is thus best suited to modelling the sound field near the source.

Appendix D. Methods and Parameters

D.1. Environmental Parameters

D.1.1. Bathymetry

Bathymetry throughout the modelled area was extracted from the Australian Bathymetry and Topography Grid, a 9 arc-second grid rendered for Australian waters (Whiteway 2009). Bathymetry data were re-gridded and combined onto a Map Grid of Australia (MGA) coordinate projection (Zone 50) with a regular grid spacing of 250 × 250 m (Figure D-1).

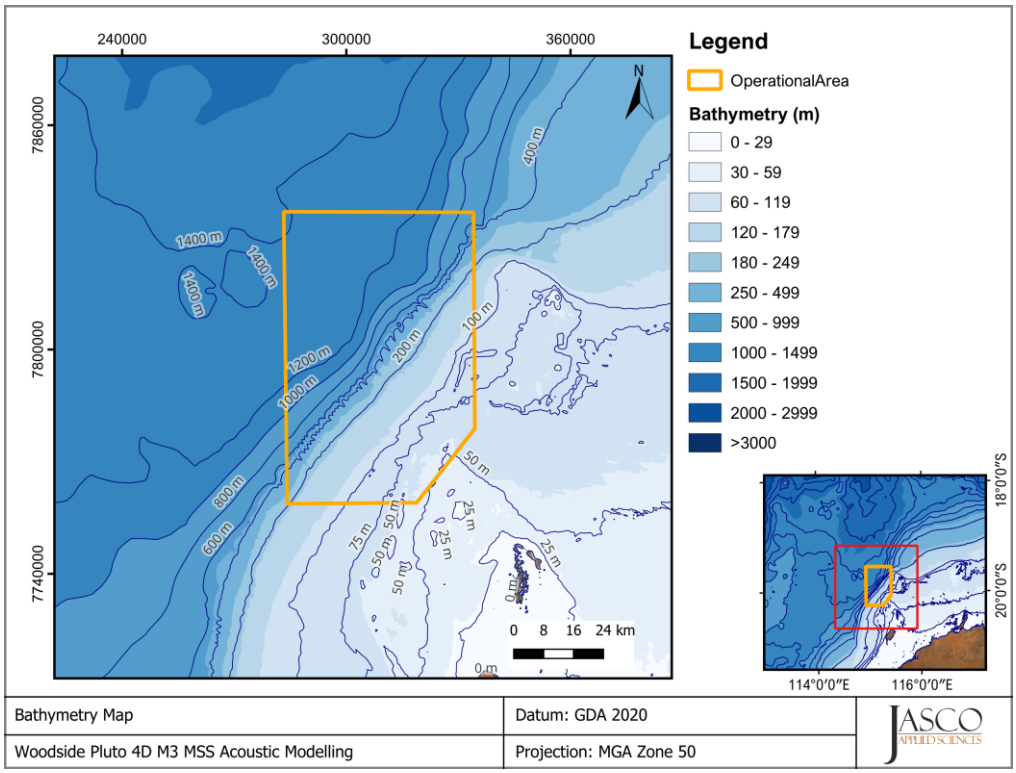


Figure D-1. Bathymetry in the modelled area.

D.1.2. Sound Speed Profile

The sound speed profile in the modelled area was derived from temperature and salinity profiles from the U.S. Naval Oceanographic Office's Generalized Digital Environmental Model V 3.0 (GDEM; Teague et al. 1990, Carnes 2009). GDEM provides an ocean climatology of temperature and salinity for the world's oceans on a latitude-longitude grid with 0.25° resolution, with a temporal resolution of one month, based on global historical observations from the U.S. Navy's Master Oceanographic Observational Data Set (MOODS). The climatology profiles include 78 fixed depth points to a maximum depth of 6800 m (where the ocean is that deep). The GDEM temperature-salinity profiles were converted to sound speed profiles according to Coppens (1981).

Mean monthly sound speed profiles were derived from the GDEM profiles in the locality of the modelled sites. Following a sensitivity analysis, the December sound speed profile was found to be most favourable to longer-range sound propagation. As such, December was selected for sound propagation modelling to ensure precautionary estimates of distances to received sound level

thresholds. Figure D-2 shows the resulting profile, which was used as input to the sound propagation modelling.

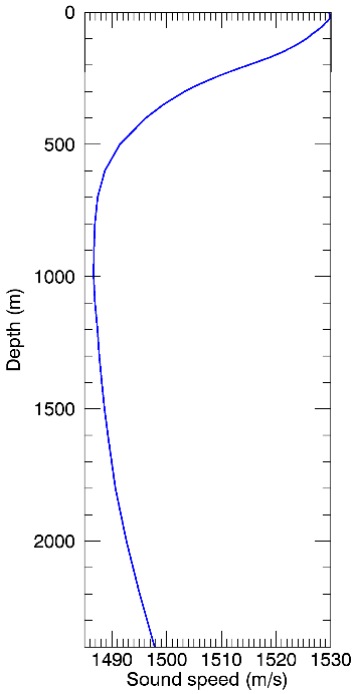


Figure D-2. The final sound speed profile (December) used for all modelling sites in the Pluto survey area Profiles are calculated from temperature and salinity profiles from Generalized Digital Environmental Model V 3.0 (GDEM; Teague et al. 1990, Carnes 2009).

D.1.3. Geoacoustics

Acoustic propagation loss modelling requires the geoacoustic properties of the seabed and sub-bottom to be as representative of the modelling area as possible. The study area is located in the Northern Carnarvon Basin. Three geoacoustic profiles were compiled for the modelling areas defined by the water depth at each modelling site and based on available data for the depositional environment and lithology for the region. Because the modelled area is large and geoacoustic information is limited, simplified geoacoustic profiles were constructed to represent the major features of the sediment column at the modelled sites.

D.1.3.1. Shallow water modelling sites

For modelling sites in shallow water (<200 m), relevant data was extracted from the Marine Sediments (MARS) Database (Heap 2009) within the modelling area, and using available shallow core information the surficial sediment was determined to be appropriately represented as fine sand. Additionally, deeper core samples (Gallagher et al. 2017a) indicate the presence of increasingly cemented packstone layers with depth below this surface sediment layer. Based on this layer information and generic properties for carbonate sediments and calcarenite from Hamilton (1980) and Duncan et al. (2013), the geoacoustic profile in Table D-1 was derived.

Table D-1. Shallow water sites: Estimated geoacoustic profile. Within each depth range, each parameter varies linearly within the stated range. For modelling using MONM-BELLHOP and FWRAM, only the surficial S-wave properties are considered. The compressional wave is the primary wave and the shear wave is the secondary wave.

Depth below seafloor (m)	Predicted lithology	Density (g/cm³)	Compressional wave		Shear wave	
			Speed (m/s)	Attenuation (dB/λ)	Speed (m/s)	Attenuation (dB/λ)
0–10	Fine sand	1.94–1.96	1531–1548	0.77	300.0–366.4	3.65–4.54
10–20		1.96–1.98	1548–1565	0.77	366.4–404.3	4.54–5.05
20–50		1.98–2.03	1565–1616	0.77	404.3–461.8	5.05–5.82
50–250	Slightly to semi-cemented sand/calcarenite	1.90	2100	0.12	550	0.25
250–600	Semi-cemented sand/calcarenite	1.90	2200	0.12	650	0.25
600–850	Well-cemented sand/calcarenite	2.20	2600	0.20	1200	0.4

D.1.3.2. Mid-depth water modelling sites

For mid-depth water sites (200 to ~600 m), information on the surficial sediment was determined from Baker et al. (2008), and core information from Gallagher et al. (2017b) was used to determine the deeper stratigraphy. The geoacoustic profile shown in Table D-2 was subsequently determined from properties for carbonate sediments and calcarenite from Hamilton (1980) and Duncan et al. (2013).

Table D-2. Mid-depth water sites: Estimated geoacoustic profile. Within each depth range, each parameter varies linearly within the stated range. For modelling using MONM-BELLHOP and FWRAM, only the surficial S-wave properties are considered. The compressional wave is the primary wave and the shear wave is the secondary wave.

Depth below seafloor (m)	Material	Density (g/cm3)	Compressional wave		Shear wave	
			Speed (m/s)	Attenuation (dB/λ)	Speed (m/s)	Attenuation (dB/λ)
0–10	Silty Sand	1.70–1.72	1619–1636	0.59–0.69	200.0–219.4	3.65–3.91
10–50	Increasingly consolidated sand-silt-clay	1.62–1.69	1636–1660	0.20–0.55	219.4–275.1	3.91–4.66
50–100		1.69–1.76	1660–1743	0.55–0.96	275.1–313.4	4.66–5.17
100–300		1.76–1.95	1743–2055	0.96–1.03	313.4–516.3	5.17–7.89
300–850	Semi-cemented sand/calcarenite	1.95–2.20	2100–2600	0.12–0.20	650–1200	0.25–0.40
>850	Well-cemented sand/calcarenite	2.20	2600	0.20	1200	0.40

D.1.3.3. Deep water modelling sites

Deep core samples (Exon and Willcox 1980) show the presence of a thick package of pelagic sediments below the seafloor that is bounded by sedimentary bedrock at a depth of ~2000 m. Table D-3 shows the derived geoacoustic profile that was based on geologic information and

descriptions from core samples, generic properties for carbonate sediments and calcarenite from Hamilton (1980) and Duncan et al. (2013).

Table D-3. Deep water sites: Estimated geoacoustic profile. Within each depth range, each parameter varies linearly within the stated range. For modelling using MONM-BELLHOP and FWRAM, only the surficial S-wave properties are considered. The compressional wave is the primary wave and the shear wave is the secondary wave.

Depth below seafloor (m)	Material	Density (g/cm^3)	Compressional wave		Shear wave	
			Speed (m/s)	Attenuation (dB/λ)	Speed (m/s)	Attenuation (dB/λ)
0–30	Foraminifera/nannofossil ooze, calcisiltit	1.52–1.56	1560–1600	0.12–0.13	250	3.65
30–100		1.56–1.65	1600–1700	0.13–0.15		
100–2000	Calcarenite/calcisiltit	1.90–2.20	2100–2600	0.25–0.52		
>2000	Sedimentary bedrock	2.54	3500	0.11		

D.2. Estimating Range to Thresholds Levels

Sound level contours were calculated based on the underwater sound fields predicted by the propagation models, sampled by taking the maximum value over all modelled depths above the sea floor for each location in the modelled region. The predicted distances to specific levels were computed from these contours. Two distances relative to the source are reported for each sound level: 1) R_{max}, the maximum range to the given sound level over all azimuths, and 2) $R_{95\%}$, the range to the given sound level after the 5% farthest points were excluded (see examples in Figure D-3).

The $R_{95\%}$ is used because sound field footprints are often irregular in shape. In some cases, a sound level contour might have small protrusions or anomalous isolated fringes. This is demonstrated in the image in Figure D-3(a). In cases such as this, where relatively few points are excluded in any given direction, R_{max} can misrepresent the area of the region exposed to such effects, and $R_{95\%}$ is considered more representative. In strongly asymmetric cases such as shown in Figure D-3(b), on the other hand, $R_{95\%}$ neglects to account for significant protrusions in the footprint. In such cases R_{max} might better represent the region of effect in specific directions. Cases such as this are usually associated with bathymetric features affecting propagation. The difference between R_{max} and $R_{95\%}$ depends on the source directivity and the non-uniformity of the acoustic environment.

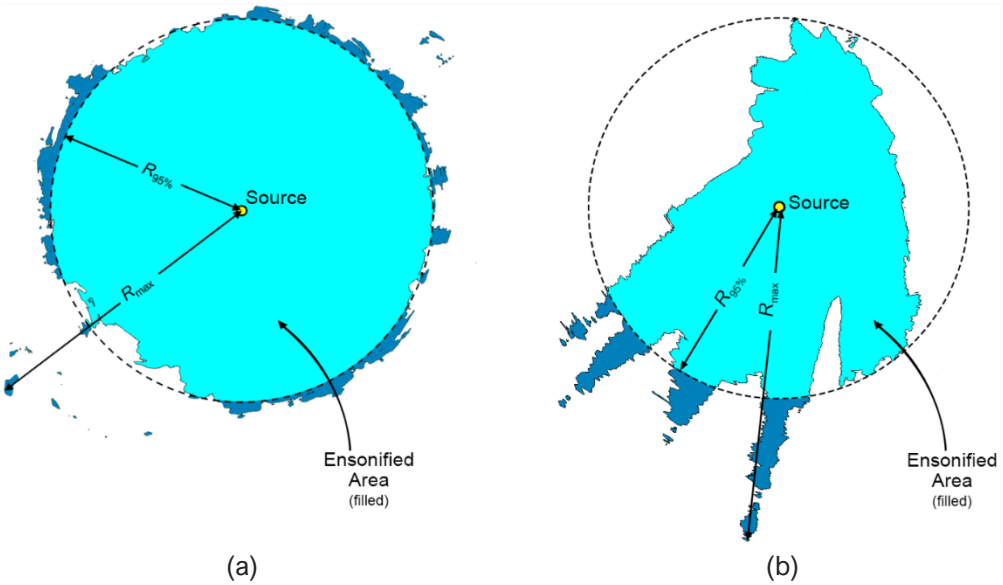


Figure D-3. Sample areas ensonified to an arbitrary sound level with R_{max} and $R_{95\%}$ ranges shown for two different scenarios. (a) Largely symmetric sound level contour with small protrusions. (b) Strongly asymmetric sound level contour with long protrusions. Light blue indicates the ensonified areas bounded by $R_{95\%}$; darker blue indicates the areas outside this boundary which determine R_{max}.

D.3. Estimating SPL from Modelled SEL Results

The per-pulse SEL of sound pulses is an energy-like metric related to the dose of sound received over a pulse's entire duration. The pulse SPL on the other hand, is related to its intensity over a specified time interval. Seismic pulses typically lengthen in duration as they propagate away from their source, due to seafloor and surface reflections, and other waveguide dispersion effects. The changes in pulse length, and therefore the time window considered, affect the numeric relationship between SPL and SEL. This study has applied a fixed window duration to calculate SPL (T_{fix} = 125 ms; see Appendix A.1), as implemented in Martin et al. (2017b). Full-waveform modelling was used to estimate SPL, but this type of modelling is computationally intensive, and can be prohibitively time consuming when run at high spatial resolution over large areas.

For the current study, FWRAM (Appendix C.2) was used to model synthetic seismic pulses over the frequency range 10-1024 Hz. This was performed along all broadside and endfire radials at three sites. FWRAM uses Fourier synthesis to recreate the signal in the time domain so that both the SEL and SPL from the source can be calculated. The differences between the SEL and SPL were extracted for all ranges and depths that corresponded to those generated from the high spatial-resolution results from MONM. A 125 ms fixed time window positioned to maximize the SPL over the pulse duration was applied. The resulting SEL-to-SPL offsets were averaged in 0.02 km range bins along each modelled radial and depth, and the 90th percentile was selected at each range to generate a generalised range-dependent conversion function for each site. The range-dependent conversion function was applied to predicted per-pulse SEL results from MONM to model SPL values. Figure D-4 and Figure D-5 show the conversion offsets for the three sites for the 3147 in^3 array; the spatial variation is caused by changes in the received airgun pulse as it propagates from the source. The conversion to SPL from SEL was conducted considering the water depth and seabed geology at a given modelled site.

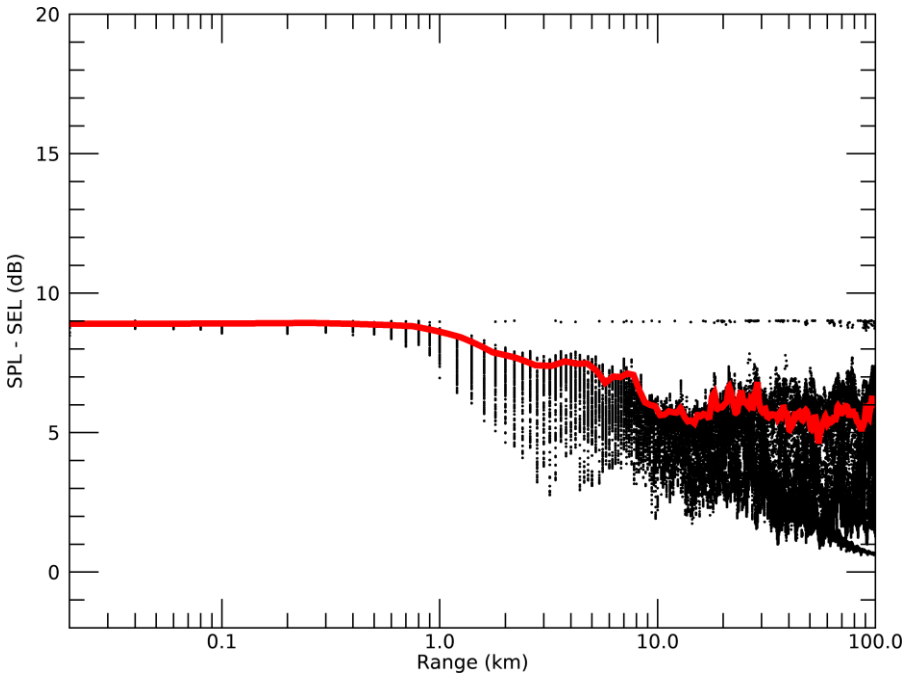


Figure D-4. *Site 1, 3147 in^3 seismic source*: Range-and-depth-dependent conversion offsets for converting sound exposure level (SEL) to sound pressure level (SPL) for seismic pulses. Black lines are the modelled differences between SEL and SPL across different radials and receiver depths; the solid red line is the 90th percentile of the modelled differences at each range.

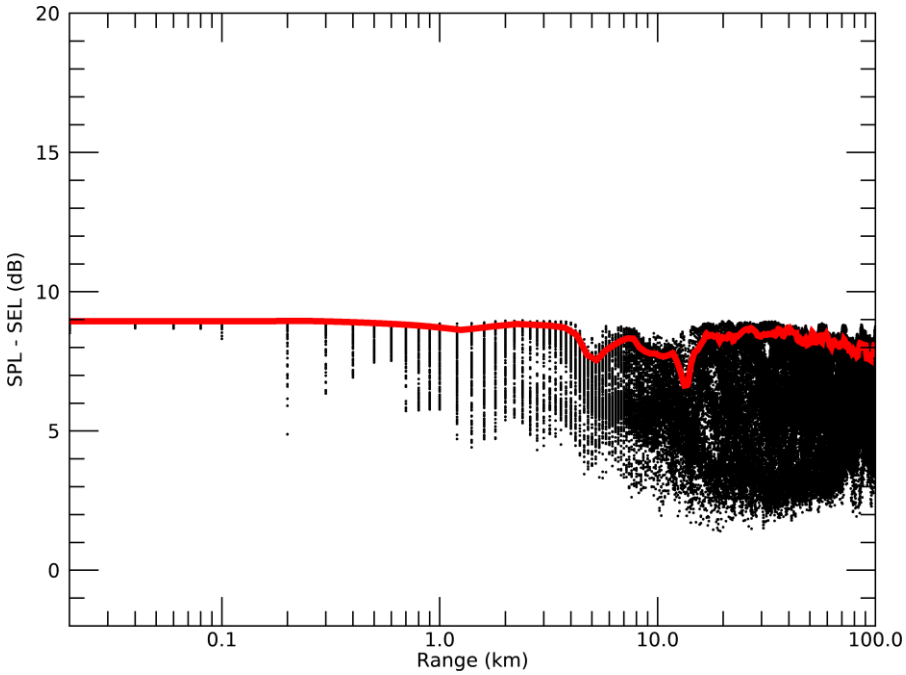


Figure D-5. *Site 7, 3147 in³ seismic source*: Range-and-depth-dependent conversion offsets for converting sound exposure level (SEL) to sound pressure level (SPL) for seismic pulses. Black lines are the modelled differences between SEL and SPL across different radials and receiver depths; the solid red line is the 90th percentile of the modelled differences at each range.

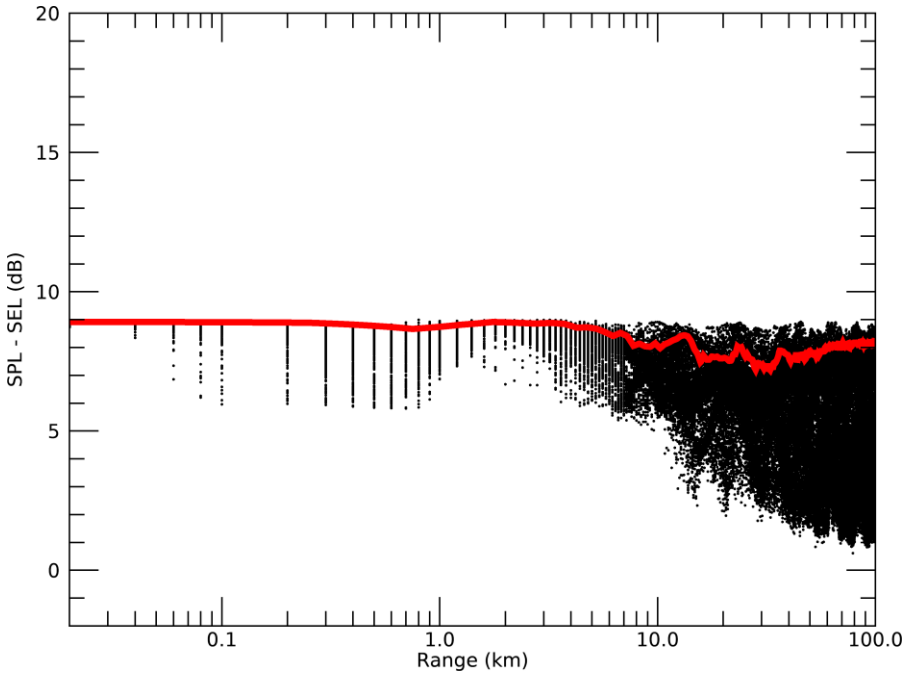


Figure D-6. *Site 9, 3147 in³ seismic source*: Range-and-depth-dependent conversion offsets for converting sound exposure level (SEL) to sound pressure level (SPL) for seismic pulses. Black lines are the modelled differences between SEL and SPL across different radials and receiver depths; the solid red line is the 90th percentile of the modelled differences at each range.

D.4. Model Validation Information

Predictions from JASCO's Airgun Array Source Model (AASM) and propagation models (MONM, FWRAM, and VSTACK) have been validated against experimental data from a number of underwater acoustic measurement programs conducted by JASCO globally, including programs in the United States and Canadian Arctic, Canadian and southern United States waters, Greenland, Russia and Australia (Hannay and Racca 2005, Aerts et al. 2008, Funk et al. 2008, Ireland et al. 2009, O'Neill et al. 2010, Warner et al. 2010, Racca et al. 2012a, Racca et al. 2012b, Matthews and MacGillivray 2013, Martin et al. 2015, Racca et al. 2015, Martin et al. 2017a, Martin et al. 2017b, Warner et al. 2017, MacGillivray 2018, McPherson et al. 2018, McPherson and Martin 2018).

In addition, JASCO has conducted measurement programs associated with a significant number of anthropogenic activities that have included internal validation of the modelling (including McCrodan et al. 2011, Austin and Warner 2012, McPherson and Warner 2012, Austin and Bailey 2013, Austin et al. 2013, Zykov and MacDonnell 2013, Austin 2014, Austin et al. 2015, Austin and Li 2016, Martin and Popper 2016, Austin et al. 2018, Beach Energy Limited 2020).

Appendix E. Animal Movement and Exposure Modelling

Animal movement and exposure modelling considers the movement of both sound sources and animals over time. Acoustic source and propagation modelling are used to generate 3-D sound fields that vary as a function of distance to source, depth, and azimuth. Sound sources are modelled at representative sites and the resulting sound fields are assigned to source locations using the minimum Euclidean distance. The sound received by an animal at any given time depends on its location relative to the source. Because the true locations of the animals within the sound fields are unknown, realistic animal movements are simulated using repeated random sampling of various behavioural parameters. The Monte Carlo method of simulating many animals within the operations area is used to estimate the sound exposure history of the population of simulated animals (animats).

Monte Carlo methods provide a heuristic approach for determining the probability distribution function (PDF) of complex situations, such as animals moving in a sound field. The probability of an event's occurrence is determined by the frequency with which it occurs in the simulation. The greater the number of random samples, in this case the more simulated animats, the better the approximation of the PDF. Animats are randomly placed, or seeded, within the simulation boundary at a specified density (animats/km^2). Higher densities provide a finer PDF estimate resolution but require more computational resources. To ensure good representation of the PDF, the animat density is set as high as practical allowing for computation time. Typically, the animat density is much higher than the real-world density to ensure good representation of the PDF. The resulting PDF can be scaled using the real-world density if it is available.

Several models for marine mammal movement have been developed (Ellison et al. 1987, Frankel et al. 2002, Houser 2006). These models use an underlying Markov chain to transition from one state to another based on probabilities determined from measured swimming behaviour. The parameters may represent simple states, such as the speed or heading of the animal, or complex states, such as likelihood of participating in foraging, play, rest, or travel. Attractions and aversions to variables like anthropogenic sounds and different depth ranges can be included in the models.

The JASCO Animal Simulation Model Including Noise Exposure (JASMINE) was based on the open-source marine mammal movement and behaviour model (3MB, Houser 2006) and used to predict the exposure of animats to sound arising from the anthropogenic activities. Animats are programmed to behave like the species likely to be present in the survey area. The parameters used for forecasting realistic behaviours (e.g., diving, foraging, aversion, surface times, etc.) are determined and interpreted from marine species studies (e.g., tagging studies) where available, or reasonably extrapolated from related species. An individual animat's modelled sound exposure levels are summed over the total simulation duration to determine its total received energy, and then compared to the assumed threshold criteria.

JASMINE uses the same animal movement algorithms as 3MB (Houser, 2006), but has been extended to be directly compatible with JASCO's Marine Operations Noise Model (MONM) and Full Waveform Range-dependent Acoustic Model (FWRAM) acoustic field predictions, for inclusion of source tracks, and importantly for animats to change behavioural states based on time and space dependent modelled variables such as received levels for aversion behaviour, although aversion was not considered in this study.

E.1. Animal Movement Parameters

JASMINE uses previously measured behaviour to forecast behaviour in new situations and locations. The parameters used for forecasting realistic behaviour are determined (and interpreted) from marine species studies (e.g., tagging studies). Each parameter in the model is described as a probability distribution. When limited or no information is available for a species parameter, a Gaussian or uniform distribution may be chosen for that parameter. For the Gaussian distribution, the user determines the mean and standard deviation of the distribution from which parameter values are drawn. For the uniform distribution, the user determines the maximum and minimum distribution from which parameter values are drawn. When detailed information about the movement and behaviour of a species are available, a user-created distribution vector, including cumulative transition probabilities, may be used (referred to here as a vector model; Houser 2006). Different sets of parameters can be defined for different behaviour states. The probability of an animat starting out in or transitioning into a given behaviour state can in turn be defined in terms of the animat's current behavioural state, depth, and the time of day. In addition, each travel parameter and behavioural state has a termination function that governs how long the parameter value or overall behavioural state persists in simulation.

The parameters used in JASMINE describe animal movement in both the vertical and horizontal planes. The parameters relating to travel in these two planes are briefly described below.

Travel sub-models

- **Direction**– determines an animat's choice of direction in the horizontal plane. Sub-models are available for determining the heading of animats, allowing for movement to range from strongly biased to undirected. A random walk model can be used for behaviours with no directional preference, such as feeding and playing. In a random walk, all bearings are equally likely at each parameter transition time step. A correlated random walk can be used to smooth the changes in bearing by using the current heading as the mean of the distribution from which to draw the next heading. An additional variant of the correlated random walk is available that includes a directional bias for use in situations where animals have a preferred absolute direction, such as migration. A user-defined vector of directional probabilities can also be input to control animat heading. For more detailed discussion of these parameters, see Houser (2006) and Houser and Cross (1999).
- **Travel rate**–defines an animat's rate of travel in the horizontal plane. When combined with vertical speed and dive depth, the dive profile of the animat is produced.

Dive sub-models

- **Ascent rate**–defines an animat's rate of travel in the vertical plane during the ascent portion of a dive.
- **Descent rate**–defines an animat's rate of travel in the vertical plane during the descent portion of a dive.
- **Depth**–defines an animat's maximum dive depth.
- **Reversals**–determines whether multiple vertical excursions occur once an animat reaches the maximum dive depth. This behaviour is used to emulate the foraging behaviour of some marine mammal species at depth. Reversal-specific ascent and descent rates may be specified.
- **Surface interval**–determines the duration an animat spends at, or near, the surface before diving again.

E.2. Exposure Integration Time

The interval over which acoustic exposure (L_E) should be integrated and maximal exposure (L_p) determined is not well defined. NMFS (2024) recommend a 24 hour baseline accumulation period, but state that there may be situations where this is not appropriate. Resetting the integration after 24 hours can lead to overestimating the number of individual animals exposed because individuals can be counted multiple times during an operation. The type of animal movement engine used in this study simulates realistic movement using swimming behaviour collected over relatively short periods (hours to days) and does not include large-scale movement such as migratory circulation patterns. For this study, a representative 24-hour period was simulated.

Ideally, a simulation area is large enough to encompass the entire range of a population so that any animal that could approach the source during an operation is included. However, there are limits to the simulation area, and computational overhead increases with area. For practical reasons, the simulation area is limited. In the simulation, every animat that reaches a border is replaced by another animat entering at the opposing border—e.g., an animat crossing the northern border of the simulation is replaced by one entering the southern border at the same longitude. When this action places the animat in an inappropriate water depth, the animat is randomly placed on the map at a depth suited to its species definition. The exposures of all animats (including those leaving the simulation and those entering) are kept for analysis. This approach maintains a consistent animat density and allows for longer integration periods with finite simulation areas.

E.3. Seeding Density and Scaling

Seeding density refers to the spatial sample rate, in units of animats/km^2, used in the simulation. It is not related to the real-world animal density, but rather is a model parameter that controls the how samples are drawn from the model space. The minimum required seeding density for any given project depends on several factors such as bathymetry, source characteristics, and the behavioural profile of the animats, with the main constraint being computation time and resources. Seeding density is adjusted as needed based on model conditions specific to a project or project area.

In the present study, the exposure criteria for impulsive sounds were used to determine the number of animats exceeding exposure thresholds. To generate statistically reliable probability density functions, all simulations were seeded with an animat density of 4 animat/km^2 over the entire simulation area. Due to insufficient density data availability, the modelling results are not related to real-world density estimates for pygmy blue whales within the BIA.

APPENDIX F STAKEHOLDER CONSULTATION

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Appendix F: Pluto 4D M3 Marine Seismic Survey Environment Plan

March 2026

Revision 1

Document No. X0000AH1500001177

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1. CONSULTATION APPROACH

Consultation under regulation 25 of the OPGGS(E) Regulations provides that a titleholder must consult each relevant person (regulation 25(1)), must give each relevant person sufficient information to allow the relevant person to make an informed assessment of the possible consequences of the activity on the functions, interests or activities of the relevant person (regulation 25(2)), and must allow a relevant person a reasonable period for consultation (regulation 25(3)).

A titleholder must also give a relevant person a reasonable opportunity to consult – this means that a titleholder will need to demonstrate that what it did constituted consultation appropriate and adapted to the nature of the interests of the relevant person (see Tipakalippa Full Court paragraph 104). The EP must contain a report that contains an assessment of the merits of any objection or claim about the adverse impact of each activity to which the EP relates, and a statement of the titleholder's response, or proposed response, if any, to each objection or claim (regulation 24(b)).

The criteria for acceptance of an EP includes that the EP demonstrates that the measures (if any) that the titleholder has adopted, or proposes to adopt, because of the consultations are appropriate (regulation 34(g)).

For the Pluto 4D M3 Marine Seismic Survey Environment Plan (EP), Woodside has taken a broad and proactive tiered consultation approach over a period of four months.

This approach was aimed at raising public awareness of the consultation opportunity and to enable self-identification. It included a social media campaign and advertising in national, state, regional and Indigenous newspapers.

The tiered consultation approach discharges regulation 25 of the Environment Regulations' requirements. The approach is proactive, extended, has enabled self-identification, and has raised broad awareness of Woodside's activities related to this EP.

1.1 Tiered consultation approach

Regulation 25	Woodside's consultation approach assessed and identified relevant persons, enabled two-way dialogue and engagement, and included email and phone call follow-up. The approach taken comfortably satisfies the requirements of regulation 25: to give relevant persons sufficient information and allow a reasonable period of time for consultation (see Section 5 of the EP).
Proactive	To raise awareness of the consultation process, and to enable grass-roots consultation, Woodside undertook advertised regional consultation roadshows and facilitated consultation at regional community events.
Extended	A reasonable consultation period was provided to enable an informed assessment of possible consequences on functions, interests or activities and associated supportive communication activities. The consultation timeframe was also extended at the request of some relevant and non-relevant persons.
Self-Identification	Broad communication activities were undertaken to build awareness of consultation and enable self-identification, supported by targeted education materials.
Broad Understanding	Broad proactive communication activities were undertaken with the public to raise awareness of Woodside's activities.

1.2 Building on the existing consultation approach

For this EP, Woodside has built on its consultation methodology and undertaken additional consultation activities throughout the consultation period to ensure a reasonable period of time and sufficient information has been provided to relevant persons so that they can make an informed assessment of the possible consequences of the activity on their functions, interests or activities.

The approach for this included:

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- a consultation period of up to six months.
- undertaking proactive consultation activities to provide sufficient information to relevant persons
- raising awareness of the consultation process and opportunity to provide feedback
- driving participation in the consultation process.

An overview of this approach is shown below:

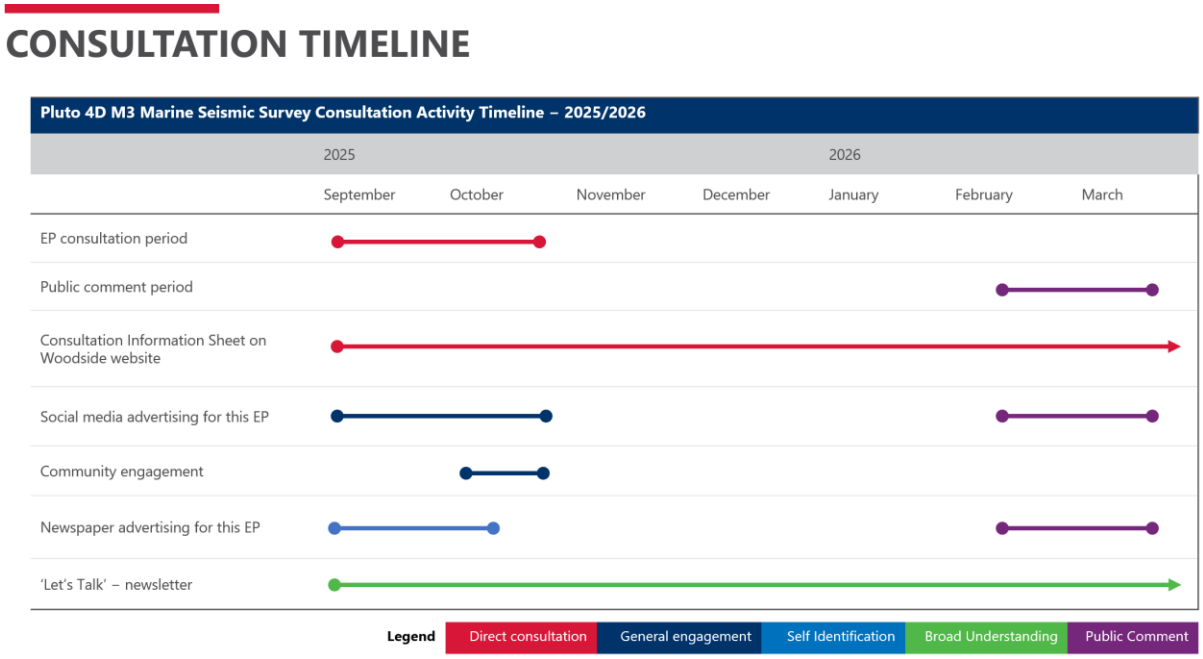


Figure 1-1: Pluto 4D M3 Marine Seismic Survey EP consultation activity

1.3 Traditional Custodian consultation approach

Woodside has meaningful long-term relationships with relevant Traditional Custodians specifically tailored to provide for effective engagement which is continuous and is not confined to individual EPs, instead covering all EPs and other issues that are relevant at the time of engagement.

To this end, consultation on any particular EP, including the Pluto 4D M3 Marine Seismic Survey EP, happens before, during and after the designated consultation period in a more holistic manner allowing for an understanding of the bigger picture and accommodating cultural requirements. Ongoing consultation remains an important part of consulting with Traditional Custodians based on availability, cultural protocols and the preferred method of consultation for each relevant person.

1.4 NGO consultation approach

Woodside has an established history of consulting with environmental non-government organisations (NGOs) as part of its EP consultation. In its methodology (Section 5.3.4, Table 5-2 of the EP), NGOs are considered “Other non-government groups or organisations” and “Research institutes and local conservation groups or organisations”. Relevant person identification for these categories is based on registered non-government groups or organisations with current targeted public website material specific to the proposed activity at the time of developing the EP and who have demonstrated functions, interests or activities relevant to the potential risks and impacts associated with planned activities in accordance with the intended outcome of consultation.

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So that NGOs were given sufficient information and a reasonable period of time to consult, Woodside:

- advertised the consultation period (social and traditional media)
- directly consulted NGOs
- participated in regional community events in the Pilbara and Gascoyne which could be attended by any NGOs including local groups. During an event in Exmouth on 5 October 2025 (Record of Consultation, reference 6.7.2.1) a member of The Wilderness Society identified themselves and took a copy of the Consultation Information Sheet for this EP.

1.5 NGO response

Two responses have been received from NGOs during preparation of this EP. One of the responses was submitted via the public comment process and not provided directly to Woodside.

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2. RELEVANCY ASSESSMENT

2.1 Assessment of relevant persons for the proposed activity

The result of Woodside's assessment of relevant persons in accordance with regulation 25(1) of the Environment Regulations is outlined below at Table 1 and Table 2.

Persons or organisations that Woodside assessed as not relevant but nonetheless chose to contact at its discretion in accordance with Section 5.3.7 of the EP or self-identified and Woodside assessed as not relevant are summarised below at Table 1 and Table 3.

As per Woodside's methodology (Section 5 of the EP), assessment of relevant persons is informed by the EMBA, shown in Figure 2-1.

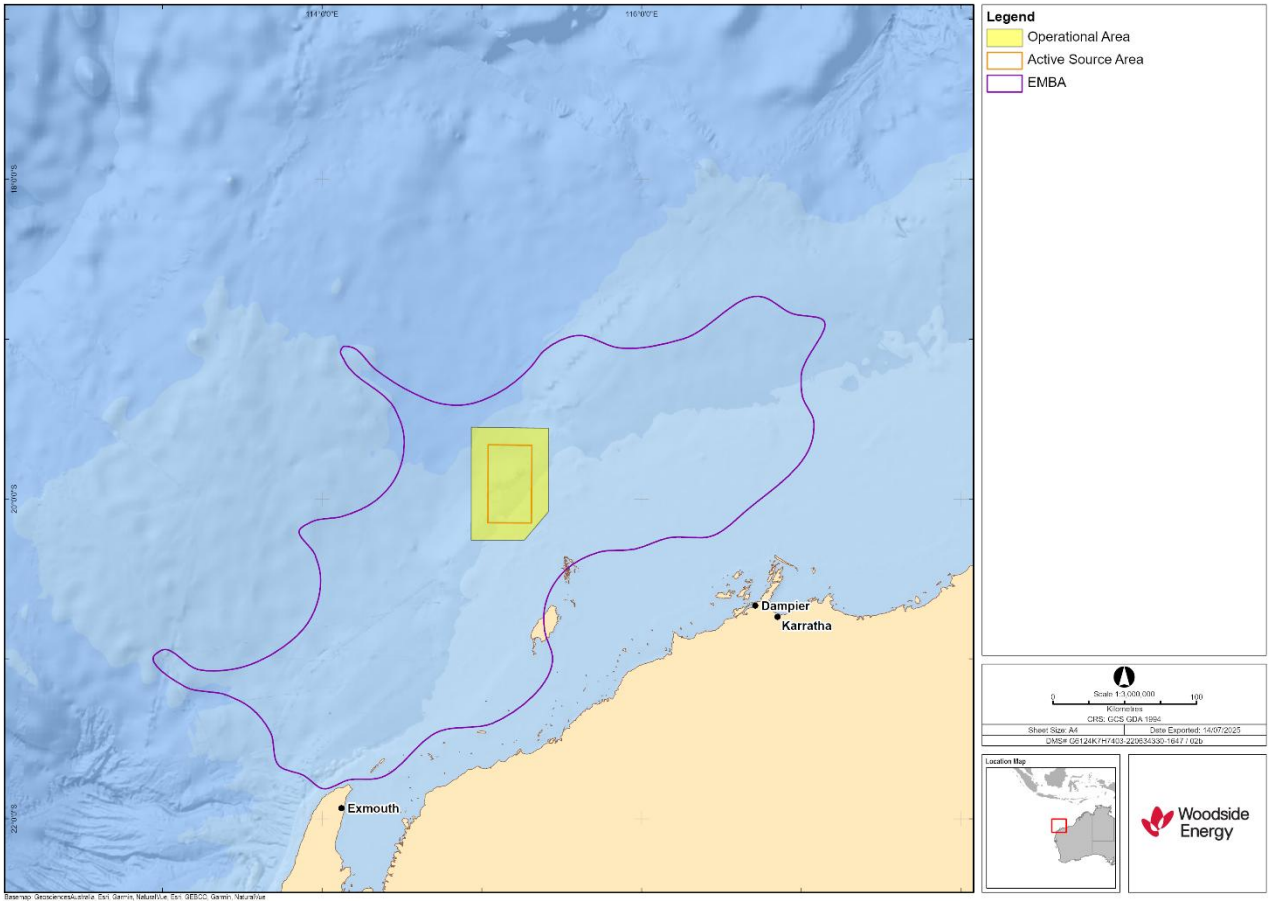


Figure 2-1: Active Source Area, Operational Area and EMBA for the Pluto 4D M3 Marine Seismic Survey EP.

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2.2 Table 1: Assessment of relevance

Person or Organisation	Summary of responsibilities and/or functions, interests or activities	Assessment of relevance	Relevant person
Commonwealth and WA State Government Departments or Agencies – Marine			
Australian Border Force (ABF)	Responsible for coordinating maritime security.	Woodside has applied its methodology for 'Government departments / agencies – marine' under regulation 25(1)(a) of the Environment Regulations. ABF's responsibilities may be relevant to the activity as there are proposed vessel activities.	Yes
Australian Communications and Media Authority (ACMA)	Regulator for communications and media.	Woodside has applied its methodology for 'Government departments / agencies – marine' under regulation 25(1)(a) of the Environment Regulations. ACMA's responsibilities may be relevant to the activity as there may be telecommunications lines that intersect the Operational Area.	Yes
Australian Fisheries Management Authority (AFMA)	Responsible for managing Commonwealth fisheries.	Woodside has applied its methodology for 'Government departments / agencies – marine' under regulation 25(1)(a) of the Environment Regulations. The North West Slope Trawl Fishery is active in the Operational Area. The North West Slope Trawl Fishery and Western Deepwater Trawl Fishery are active in the EMBA. AFMA's responsibilities may be relevant to the activity as the North West Slope Trawl Fishery and Western Deepwater Trawl Fishery are active in the EMBA.	Yes
Australian Hydrographic Office (AHO)	Responsible for maritime safety and Notices to Mariners.	Woodside has applied its methodology for 'Government departments / agencies – marine' under regulation 25(1)(a) of the Environment Regulations. AHO's responsibilities may be relevant to the activity as there are proposed vessel activities.	Yes

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Person or Organisation	Summary of responsibilities and/or functions, interests or activities	Assessment of relevance	Relevant person
Australian Maritime Safety Authority (AMSA) – Marine Pollution	Legislated responsibility for oil pollution response in Commonwealth waters.	Woodside has applied its methodology for 'Government departments / agencies – marine' under regulation 25(1)(a) of the Environment Regulations. AMSA – Marine Pollution's responsibilities may be relevant to the activity as the proposed activity has a hydrocarbon spill risk which may require AMSA response in Commonwealth waters.	Yes
Australian Maritime Safety Authority (AMSA) – Marine Safety	Statutory agency for vessel safety and navigation.	Woodside has applied its methodology for 'Government departments / agencies – marine' under regulation 25(1)(a) of the Environment Regulations. AMSA – Marine Safety's responsibilities may be relevant to the activity as there are proposed vessel activities.	Yes
Department of Agriculture, Fisheries and Forestry (DAFF) – Fisheries	Responsible for implementing Commonwealth policies and programs to support agriculture, fishery, food and forestry industries.	Woodside has applied its methodology for 'Government departments / agencies – marine' under regulation 25(1)(a) of the Environment Regulations. The North West Slope Trawl Fishery is active in the Operational Area. The North West Slope Trawl Fishery and Western Deepwater Trawl Fishery are active in the EMBA. DAFF – Fisheries responsibilities may be relevant to the activity as the North West Slope Trawl Fishery and Western Deepwater Trawl Fishery are active in the EMBA.	Yes
Department of Defence (DoD)	Responsible for defending Australia and its national interests.	Woodside has applied its methodology for 'Government departments / agencies – marine' under regulation 25(1)(a) of the Environment Regulations. DoD's responsibilities may be relevant to the activity as defence training areas lie within the EMBA.	Yes
Department of Planning, Lands and Heritage (DPLH)	Responsible for state level land use planning and management, and oversight of Aboriginal cultural heritage and built heritage matters.	Woodside has applied its methodology for 'Government departments / agencies – marine' under regulation 25(1)(b) of the Environment Regulations. DPLH's responsibilities may be relevant to the activity as there is known Maritime Cultural Heritage overlapping the EMBA.	Yes

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Person or Organisation	Summary of responsibilities and/or functions, interests or activities	Assessment of relevance	Relevant person
Department of Primary Industries and Regional Development (DPIRD)	Responsible for managing State fisheries.	Woodside has applied its methodology for 'Government departments / agencies – marine' under regulation 25(1)(b) of the Environment Regulations. The Mackerel Managed Fishery, Marine Aquarium Fish Managed Fishery, Onslow Prawn Managed Fishery, Pilbara Trap Managed Fishery, Pilbara Line Fishery, West Coast Deep Sea Crustacean Managed Fishery are active in the Operational Area. The West Australian Sea Cucumber Fishery, Exmouth Gulf Prawn Managed Fishery, Mackerel Managed Fishery, 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 Trap Managed Fishery, Pilbara Line Fishery (Condition), Specimen Shell Managed Fishery and West Coast Deep Sea Crustacean Managed Fishery have been active in the EMBA within the past 5 years. DPIRD's responsibilities may be relevant to the activity as the government department responsible for State fisheries.	Yes
Department of Transport and Major Infrastructure (DTMI)	Legislated responsibility for oil pollution response in State waters.	Woodside has applied its methodology for 'Government departments / agencies – marine' under regulation 25(1)(b) of the Environment Regulations. The proposed activity has a hydrocarbon spill risk, which may require DTMI response in State waters.	Yes
Pilbara Ports	Pilbara Ports encompasses the Ports of Ashburton, Dampier, Port Hedland and Varanus Island. Pilbara Ports oversees the operation of the greenfield ports of Anketell, Balla Balla, Cape Preston East, Cape Preston West and Urala. Pilbara Ports oversees the Shipping and Pilotage Act 1967 (SPA) ports of Barrow Island, Cape Preston, Onslow and Port Walcott.	Woodside has applied its methodology for 'Government departments / agencies – marine' under regulation 25(1)(b) of the Environment Regulations. The proposed activity has the potential to impact Pilbara Ports' responsibilities as the EMBA overlaps the Pilbara Ports' area of responsibility.	Yes

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Person or Organisation	Summary of responsibilities and/or functions, interests or activities	Assessment of relevance	Relevant person
Western Australian Museum (WAM)	Manages 200 shipwreck sites of the 1,500 known to be located off the Western Australian coast.	Woodside has applied its methodology for 'Historical cultural heritage groups or organisations' under regulation 25(1)(d) of the Environment Regulations. There are known shipwrecks overlapping the EMBA which the Western Australian Museum may be responsible for.	Yes
Commonwealth and WA State Government Departments or Agencies – Environment			
Clean Energy Regulator (CER)	The Clean Energy Regulator administers schemes legislated by the Australian Government for measuring, managing, reducing or offsetting Australia's carbon emissions.	Woodside has applied its methodology for 'Government departments / agencies – environment' under regulation 25(1)(a) of the Environment Regulations. CER's responsibilities are not relevant to non-operational EPs.	No
Department of Agriculture, Fisheries and Forestry (DAFF) – Biosecurity (marine pests, vessels, aircraft and personnel)	DAFF administers, implements and enforces the Biosecurity Act 2015. DAFF requests to be consulted where an activity has the potential to transfer marine pests. DAFF also has inspection and reporting requirements to ensure that all conveyances (vessels, installations and aircraft) arriving in Australian territory comply with international health regulations and that any biosecurity risk is managed. DAFF 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.	Woodside has applied its methodology for 'Government departments / agencies – environment' under regulation 25(1)(a) of the Environment Regulations. DAFF – Biosecurity's responsibilities may be relevant to the proposed activities in the EMBA in the prevention of introduced marine species.	Yes
Department of Biodiversity, Conservation and Attractions (DBCA)	Responsible for managing WA's parks, forests and reserves to achieve wildlife conservation and provide sustainable recreation and tourism opportunities.	Woodside has applied its methodology for 'Government departments / agencies – environment' under regulation 25(1)(b) of the Environment Regulations. The DBCA's responsibilities may be relevant to the activity as the EMBA overlaps WA parks, forests or reserves. Activities have the potential to impact marine tourism in the EMBA.	Yes

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Person or Organisation	Summary of responsibilities and/or functions, interests or activities	Assessment of relevance	Relevant person
Department of Climate Change, Energy, the Environment and Water (DCCEEW)	Responsible for implementing Commonwealth policies and programs to support climate change, sustainable energy use, water resources, the environment and our heritage. Administers the Underwater 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.	Woodside has applied its methodology for 'Government departments / agencies – environment' under regulation 25(1)(a) of the Environment Regulations. DCCEEW's responsibilities may be relevant to the proposed activities in the EMBA as there are potential environmental impacts from the proposed activity. There is known Maritime Cultural Heritage overlapping the EMBA.	Yes
Director of National Parks (DNP)	Responsible for the management of Commonwealth parks and conservation zones.	Woodside has applied its methodology for 'Government departments / agencies – environment' under regulation 25(1)(a) of the Environment Regulations. DNP's responsibilities may be relevant to the activity as DNP requires an awareness of activities that occur within Australian Marine Parks (AMPs), and an understanding of potential impacts and risks to the values of parks (NOPSEMA guidance note: N-04750-GN1785 A620236, June 2020). Titleholders are required to consult DNP on offshore petroleum and greenhouse gas exploration activities if they occur in, or may impact on, the values of marine parks, including where potential spill response activities may occur in the event of a spill (i.e. scientific monitoring).	Yes
Ningaloo Coast World Heritage Advisory Committee (NCWHAC)	Supports the DBCA to manage the Ningaloo Coast World Heritage Area.	Woodside has applied its methodology for 'Government departments / agencies – environment' under regulation 25(1)(a) of the Environment Regulations. The NCWHAC's responsibilities may be relevant to the activity as the EMBA overlaps the Ningaloo Marine Park.	Yes
Commonwealth and State Government Departments or Agencies – Industry			
Department of Mines, Petroleum and Exploration (DMPE)	Department of relevant State Minister.	Required to be consulted under regulation 25(1)(c) of the Environment Regulations.	Yes

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Department of Industry, Science and Resources (DISR)	Department of relevant Commonwealth Minister.	Required to be consulted under regulation 25(1)(a) of the Environment Regulations.	Yes
Commonwealth commercial fisheries and peak representative bodies			
Australian Southern Bluefin Tuna Industry Association (ASBTIA)	Represents the interests of the Southern Bluefin Tuna Fishery and Western Skipjack Fishery.	Woodside has applied its methodology for 'Commercial fisheries (Commonwealth and State) and peak representative bodies' under regulation 25(1)(d) of the Environment Regulations. The Southern Bluefin Tuna Fishery overlaps the Operational Area and EMBA but has not been active in the Operational Area or EMBA within the past five years. ASBTIA's functions may be relevant to the activity as the Southern Bluefin Tuna Fishery overlaps the Operational Area and EMBA.	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 25(1)(d) of the Environment Regulations. The North West Slope Trawl Fishery overlaps the Operational Area and EMBA and has been active in the Operational Area and EMBA within the past five years. The Western Deepwater Trawl Fishery overlaps the EMBA and has been active in the EMBA within the past five years. CFA's functions may be relevant to the activity as the North West Slope Trawl Fishery and Western Deepwater Trawl Fishery overlap the EMBA.	Yes
North West Slope Trawl Fishery	Commonwealth commercial fishery.	Woodside has applied its methodology for 'Commercial fisheries (Commonwealth and State) and peak representative bodies' under regulation 25(1)(d) of the Environment Regulations. The fishery overlaps the Operational Area and EMBA and has been active in the Operational Area and EMBA within the past 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 25(1)(d) of the Environment Regulations.	No

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		Although the fishery overlaps the Operational Area and EMBA, it has not been active in the Operational Area or EMBA within the past 5 years. Woodside does not consider that the proposed activity will present a risk to licence holders, given since 1992, the majority of Australian catch has concentrated in south-eastern Australia. (Patterson et al., 2022). In addition, given fishing methods by licence holders for species fished in this fishery (Australia has a 35% share of total global allowable catch of Southern Bluefin Tuna, which is value-added through tuna ranching near Port Lincoln (South Australia), or fishing effort in New South Wales (Australian Southern Bluefin Tuna Industry Association). Woodside chose to contact Southern Bluefin Tuna Fishery at its discretion in line with Section 5.3.7 of the EP.	
Tuna Australia	Represents the interests of the Western Tuna and Billfish Fishery and Western Skipjack Fishery.	Woodside has applied its methodology for 'Commercial fisheries (Commonwealth and State) and peak representative bodies' under regulation 25(1)(d) of the Environment Regulations. The Western Tuna and Billfish Fishery overlaps the Operational Area and EMBA and has been active in the EMBA within the past five years. The Western Skipjack Fishery overlaps the Operational Area and EMBA however it has not been active with the Operational Area or EMBA within the past five years. Tuna Australia's functions may be relevant to the activity as the Western Tuna and Billfish Fishery and Western Skipjack Fishery overlap the EMBA.	Yes
Western Deepwater Trawl Fishery	Commonwealth commercial fishery.	Woodside has applied its methodology for 'Commercial fisheries (Commonwealth and State) and peak representative bodies' under regulation 25(1)(d) of the Environment Regulations. Although the fishery overlaps the Operational Area, it has not been active in the Operational Area within the past 5 years. The fishery overlaps the EMBA and has been active in the EMBA within the past 5 years.	Yes

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Western Skipjack Fishery	Commonwealth commercial fishery.	Woodside has applied its methodology for 'Commercial fisheries (Commonwealth and State) and peak representative bodies' under regulation 25(1)(d) of the Environment Regulations. Although the fishery overlaps the Operational Area and EMBA, it has not been active in the Operational Area or EMBA within the past 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. Woodside chose to contact Western Skipjack Fishery at its discretion in line with Section 5.3.7 of the EP.	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 25(1)(d) of the Environment Regulations. Although the fishery overlaps the Operational Area and EMBA, it has not been active in the Operational Area or EMBA within the past 5 years. Woodside chose to contact Western Tuna and Billfish Fishery at its discretion in line with Section 5.3.7 of the EP.	No
State commercial fisheries and peak representative bodies			
Aquaculture Council of Western Australia (ACWA)	State peak body for WA's aquaculture industry.	Woodside has applied its methodology for 'Commercial fisheries (Commonwealth and State) and peak representative bodies' under regulation 25(1)(d) of the Environment Regulations. ACWA's members are active within the EMBA. As the peak body for WA's aquaculture industry, ACWA's functions may be relevant to the activity as ACWA members are active in the EMBA.	Yes

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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 25(1)(d) of the Environment Regulations. The Mackerel Managed Fishery, Marine Aquarium Fish Managed Fishery, Onslow Prawn Managed Fishery, Pilbara Trap Managed Fishery, Pilbara Line Fishery, West Coast Deep Sea Crustacean Managed Fishery are active in the Operational Area. The West Australian Sea Cucumber Fishery, Exmouth Gulf Prawn Managed Fishery, Mackerel Managed Fishery, 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 Trap Managed Fishery, Pilbara Line Fishery (Condition), Specimen Shell Managed Fishery and West Coast Deep Sea Crustacean Managed Fishery have been active in the EMBA within the past 5 years. WAFIC's functions may be relevant to the activity as the peak representative body for State fisheries. Under an agreement WAFIC issued consultation materials to relevant commercial fisheries licence holders. Woodside acknowledges WAFIC's consultation guidance and has applied this by consulting, via WAFIC, fisheries that are assessed as having a potential for interaction in the Operational Area. As per WAFIC's Commercial Fishing Consultation Framework for the Offshore Oil and Gas Sector and Consultation Approach for Unplanned Events, consultation with State fisheries relevant to the EMBA of the proposed activity would be undertaken only in the event of an unplanned emergency scenario.	Yes
Abalone Managed Fishery	State commercial fishery.	Woodside has applied its methodology for 'Commercial fisheries (Commonwealth and State) and peak representative bodies' under regulation 25(1)(d) of the Environment Regulations. Although the fishery overlaps the Operational Area and EMBA, it has not been active in the Operational Area or EMBA within the past 5 years.	No

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Exmouth Gulf Prawn Managed Fishery	State commercial fishery.	Woodside has applied its methodology for 'Commercial fisheries (Commonwealth and State) and peak representative bodies' under regulation 25(1)(d) of the Environment Regulations. The fishery does not overlap the Operational Area but overlaps the EMBA and has been active in the EMBA within the past 5 years, however, based on WAFIC's advice, Woodside does not need to consult fisheries in the EMBA. As per WAFIC's Commercial Fishing Consultation Framework for the Offshore Oil and Gas Sector and Consultation Approach for Unplanned Events, consultation with State fisheries relevant to the EMBA of the proposed activity would however be undertaken only in the event of an unplanned emergency scenario.	No
Mackerel Managed Fishery (Area 2)	State commercial fishery.	Woodside has applied its methodology for 'Commercial fisheries (Commonwealth and State) and peak representative bodies' under regulation 25(1)(d) of the Environment Regulations. Area 2 of the fishery overlaps the Operational Area and EMBA and has been active in the Operational Area and EMBA within the past 5 years. Woodside acknowledges WAFIC's consultation guidance and has applied this by consulting fisheries that are assessed as having a potential for interaction in the Operational Area via WAFIC.	Yes
Marine Aquarium Managed Fishery	State commercial fishery.	Woodside has applied its methodology for 'Commercial fisheries (Commonwealth and State) and peak representative bodies' under regulation 25(1)(d) of the Environment Regulations. The fishery overlaps the Operational Area and EMBA and has been active in the Operational Area and EMBA within the past 5 years. Woodside acknowledges WAFIC's consultation guidance and has applied this by consulting fisheries that are assessed as having a potential for interaction in the Operational Area via WAFIC.	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 25(1)(d) of the Environment Regulations. The fishery does not overlap the Operational Area but overlaps the EMBA and has been active in the EMBA within the past 5 years,	No

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		however, based on WAFIC's advice, Woodside does not need to consult fisheries in the EMBA. As per WAFIC's Commercial Fishing Consultation Framework for the Offshore Oil and Gas Sector and Consultation Approach for Unplanned Events, consultation with State fisheries relevant to the EMBA of the proposed activity would however be undertaken only in the event of an unplanned emergency scenario.	
Onslow Prawn Managed Fishery (Area 1 and 2)	State commercial fishery.	Woodside has applied its methodology for 'Commercial fisheries (Commonwealth and State) and peak representative bodies' under regulation 25(1)(d) of the Environment Regulations. The fishery overlaps the Operational Area and EMBA and has been active in the Operational Area and EMBA within the past 5 years. Based on WAFIC's consultation guidance, Woodside consulted, via WAFIC, Onslow Prawn Managed Fishery based on Operational Area overlap and recent catch effort. However, subsequent to consultation commencing, DPIRD issued advice that fishing was banned in Onslow Prawn waters from 30 October – 1 April 2025 – 2030. Therefore, Woodside considers there is no potential for interaction with Onslow Prawn Managed Fishery in the Operational Area during the survey timing. Therefore, Woodside considers Onslow Prawn Managed Fishery was contacted at Woodside's discretion in line with Section 5.3.7 of the EP and the summary of consultation is included in Table 3.	No
Pearl Oyster Managed Fishery	State commercial fishery.	Woodside has applied its methodology for 'Commercial fisheries (Commonwealth and State) and peak representative bodies' under regulation 25(1)(d) of the Environment Regulations. Although the fishery overlaps the Operational Area and EMBA, it has not been active in the Operational Area or EMBA within the past 5 years.	No
Pilbara Crab Managed Fishery	State commercial fishery.	Woodside has applied its methodology for 'Commercial fisheries (Commonwealth and State) and peak representative bodies' under regulation 25(1)(d) of the Environment Regulations. Woodside has applied its methodology for 'Commercial fisheries (Commonwealth and State) and peak representative bodies' under regulation 25(1)(d) of the Environment Regulations.	No

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		The fishery does not overlap the Operational Area but overlaps the EMBA and has been active in the EMBA within the past 5 years, however, based on WAFIC's advice, Woodside does not need to consult fisheries in the EMBA. As per WAFIC's Commercial Fishing Consultation Framework for the Offshore Oil and Gas Sector and Consultation Approach for Unplanned Events, consultation with State fisheries relevant to the EMBA of the proposed activity would however be undertaken only in the event of an unplanned emergency scenario.	
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 25(1)(d) of the Environment Regulations. The fishery does not overlap the Operational Area but overlaps the EMBA and has been active in the EMBA within the past 5 years, however, based on WAFIC's advice, Woodside does not need to consult fisheries in the EMBA. As per WAFIC's Commercial Fishing Consultation Framework for the Offshore Oil and Gas Sector and Consultation Approach for Unplanned Events, consultation with State fisheries relevant to the EMBA of the proposed activity would however be undertaken only in the event of an unplanned emergency scenario.	No
Demersal Scalefish Fishery: Pilbara Trap Fishery	State commercial fishery.	Woodside has applied its methodology for 'Commercial fisheries (Commonwealth and State) and peak representative bodies' under regulation 25(1)(d) of the Environment Regulations. The fishery overlaps the Operational Area and EMBA and has been active in the Operational Area and EMBA within the past 5 years. Woodside acknowledges WAFIC's consultation guidance and has applied this by consulting fisheries that are assessed as having a potential for interaction in the Operational Area via WAFIC.	Yes
Demersal Scalefish Fishery: Pilbara Line Fishery	State commercial fishery.	Woodside has applied its methodology for 'Commercial fisheries (Commonwealth and State) and peak representative bodies' under regulation 25(1)(d) of the Environment Regulations. The fishery overlaps the Operational Area and EMBA and has been active in the Operational Area and EMBA within the past 5 years.	Yes

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		Woodside acknowledges WAFIC's consultation guidance and has applied this by consulting fisheries that are assessed as having a potential for interaction in the Operational Area via WAFIC.	
South West Coast Salmon Managed Fishery	State commercial fishery.	Woodside has applied its methodology for 'Commercial fisheries (Commonwealth and State) and peak representative bodies' under regulation 25(1)(d) of the Environment Regulations. Although the fishery overlaps the Operational Area and EMBA, it has not been active in the Operational Area or EMBA within the past 5 years.	No
Specimen Shell Managed Fishery	State commercial fishery.	Woodside has applied its methodology for 'Commercial fisheries (Commonwealth and State) and peak representative bodies' under regulation 25(1)(d) of the Environment Regulations. The fishery does not overlap the Operational Area but overlaps the EMBA and has been active in the EMBA within the past 5 years, however, based on WAFIC's advice, Woodside does not need to consult fisheries in the EMBA. As per WAFIC's Commercial Fishing Consultation Framework for the Offshore Oil and Gas Sector and Consultation Approach for Unplanned Events, consultation with State fisheries relevant to the EMBA of the proposed activity would however be undertaken only in the event of an unplanned emergency scenario.	No
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 25(1)(d) of the Environment Regulations. Although the fishery overlaps the Operational Area and EMBA, it has not been active in the Operational Area or EMBA within the past 5 years.	No
West Coast Deep Sea Crustacean Managed Fishery	State commercial fishery.	Woodside has applied its methodology for 'Commercial fisheries (Commonwealth and State) and peak representative bodies' under regulation 25(1)(d) of the Environment Regulations. The fishery overlaps the Operational Area and EMBA and has been active in the Operational Area and EMBA within the past 5 years.	Yes

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West Coast Rock Lobster Fishery	State commercial fishery.	Woodside has applied its methodology for 'Commercial fisheries (Commonwealth and State) and peak representative bodies' under regulation 25(1)(d) of the Environment Regulations. The fishery does not overlap the Operational Area. Although the fishery overlaps the EMBA, it has not been active in the EMBA within the past 5 years.	No
Western Australian Sea Cucumber Fishery	State commercial fishery.	Woodside has applied its methodology for 'Commercial fisheries (Commonwealth and State) and peak representative bodies' under regulation 25(1)(d) of the Environment Regulations. The fishery does not overlap the Operational Area but overlaps the EMBA and has been active in the EMBA within the past 5 years, however, based on WAFIC's advice, Woodside does not need to consult fisheries in the EMBA. As per WAFIC's Commercial Fishing Consultation Framework for the Offshore Oil and Gas Sector and Consultation Approach for Unplanned Events, consultation with State fisheries relevant to the EMBA of the proposed activity would however be undertaken only in the event of an unplanned emergency scenario.	No
Western Rock Lobster Council	Represents the interests of the Western Rock Lobster Managed Fishery.	Woodside has applied its methodology for 'Commercial fisheries (Commonwealth and State) and peak representative bodies' under regulation 25(1)(d) of the Environment Regulations. The West Coast Rock Lobster Managed Fishery has been assessed as not relevant to the proposed activity. As the peak representative body for the West Coast Rock Lobster Managed Fishery, the Western Rock Lobster Council has also been assessed as not relevant.	No
Pearl Producers Association (PPA)	Peak representative organisation of The Australian South Sea Pearling Industry, with members in Western Australia and the Northern Territory.	Woodside has applied its methodology for 'Commercial fisheries (Commonwealth and State) and peak representative bodies' under regulation 25(1)(d) of the Environment Regulations. The Pearl Oyster Managed Fishery has been assessed as not relevant to the proposed activity. As the peak representative body for the Pearl Oyster Managed Fishery, the PPA has also been assessed as not relevant.	No
Recreational marine users and peak representative bodies			

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Gascoyne Recreational Marine Users	Gascoyne-based dive, tourism and charter operators.	Woodside has applied its methodology for 'Recreational marine users and representative bodies' under regulation 25(1)(d) of the Environment Regulations. Andro Maritime Services Australia, AOA International Pty. Ltd, Aquatic Adventure Exmouth, ATGNI Super Pty Ltd, Austanley Pty Ltd, Birds Eye View, Bluecity Enterprises Pty Ltd & Alltric Pty Ltd, Blue Horizon Charters, Blue Juice Tours Pty Ltd, Blue Lightning Charters, Bondall Pty Ltd, Brefjen Nominees Pty Ltd, Cape Immersion Tours, Chapel Nominees Pty Ltd, Coastal Adventure Tours, Coral Bay Ecotours, Dive Ningaloo, D & N Nominees Pty Ltd, Eco-Abrolhos Pty Ltd, Evolution Fishing Charters, Exmouth Adventure Co., Exmouth Dive Centre, Fawesome Expeditions Pty Ltd, Fire Tiger Pty Ltd, Innkeeper Sport Fishing, Kings Ningaloo Reef Tours, KM Charters Pty Ltd, KW Marine Pty Ltd, Live Ningaloo, Lulamanzi Investments Pty Ltd, Makalee Pty Ltd, Maritime Engineering Services Pty Ltd, Melkit Pty Ltd, Millennial Charters Pty Ltd, Monkey Mia Yacht Charters Pty Ltd, Monster Sportfishing Adventures Pty Ltd, Montebello Island Safaris, Ningaloo Aviation, Ningaloo Blue, Ningaloo Coral Bay Boats, Ningaloo Discovery, Ningaloo Fly Fishing, Ningaloo Marine Interaction, Ningaloo Reef Dive, Ningaloo Reef to Range Tours, Ningaloo Safari Tours, Ningaloo Sportfishing Charters, Ningaloo Whaleshark n Dive, Ningaloo Whaleshark Swim, North Star Cruises Australia Pty Ltd, Ocean Eco Adventures, On Strike Charters (WA) Pty Ltd, Peak Sportfishing Charters, Pelican Charters, Reel Force Charters Pty Ltd, Seaforce Charters, Seafresh Holdings Pty Ltd, Set the Hook, Sharkbay Charters Pty Ltd, The Great Escape Charter Company Pty Ltd, Three Islands, Top Gun Charters, Ultimate WaterSports, View Ningaloo, W.A Maritime Investments Pty Ltd, Yardi Creek Boat Tours. 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
Marine Tourism WA	Represents the interests of marine tourism in WA.	Woodside has applied its methodology for 'Recreational marine users and representative bodies' under regulation 25(1)(d) of the Environment Regulations.	Yes

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		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.	
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 25(1)(d) of the Environment Regulations. AOA International Pty Ltd, Archipelago Adventures, Australian Port and Marine Services Pty Ltd, Bloor Street Investments Pty Ltd, Blue Juice Tours Pty Ltd, Bondall Pty Ltd, Brefjen Nominees Pty Ltd, Broome Chiropractic Pty Ltd, Broome Tours Pty Ltd, Capricorn Mist Pty Ltd, Chapel Nominees Pty Ltd, Charter Express Pty Ltd, CM Marine Pty Ltd, Coastway Investments Pty Ltd, Compagnie Du Ponant Pty Ltd, Coral Princess Cruises (NQ) Pty Ltd, Discovery Holiday Parks Pty Limited, Diversity Charter Company WA Pty Ltd, Eco-Abrolhos Pty Ltd, Fawesome Expeditions Pty Ltd, Hampton Harbour Boat & Sailing Club, Hartley Motorcycles Pty Ltd, Hotel and Resort Investments Pty Ltd, Humbug Fishing Pty Ltd, KCC Group Pty Ltd, Kimberley Getaway Cruises Pty Ltd, Kimberley Marine Pty Ltd, Kimberly Pearl Tours Pty Ltd, Kingfisher Island Resort Pty Ltd, King Sound Resort Hotel Pty Ltd, KW Marine Pty Ltd, Lake Argyle Cruises Pty Ltd, Lombadina Aboriginal Corporation, Lugger Enterprises Pty Ltd, Lulamanzi Investments Pty Ltd, Mackerel Islands Pty Ltd, Mal Miles Adventures Pty Ltd, Marine Agents Australia Pty Ltd, Marine Rescue Dampier, Maritime Engineering Services Pty Ltd, Melkit Pty Ltd, Millennial Charters Pty Ltd, Monster Sportfishing Adventures Pty Ltd, Nickol Bay Sport Fishing Club, North Star Cruises Australia Pty Ltd, Ocean Charters Pty Ltd, Port Walcott Volunteer Marine Rescue, Port Walcott Yacht Club, Reef Seeker Charters, RSTG Pty Limited, Sea 2 Pty Ltd, Sealife Charters Pty Ltd, Split Tide Pty Ltd, Super Yachts Perth Pty Ltd, The Great Escape Charter Company Pty Ltd, W.A Maritime Investments Pty Ltd, West Pilbara Volunteer Sea Search and Rescue Group, Willie Creek Pearl Farm Pty Ltd. 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

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Recfishwest	Represents the interests of recreational fishers in WA.	Woodside has applied its methodology for 'Recreational marine users and representative bodies' under regulation 25(1)(d) of the Environment Regulations. Activities have the potential to impact recreational fishers' functions, interests or activities due to the location offshore and there has been recorded charter effort in the EMBA in the past 5 years.	Yes
WA Game Fishing Association	Represents the interests of game fishers in WA.	Woodside has applied its methodology for 'Recreational marine users and representative bodies' under regulation 25(1)(d) of the Environment Regulations. Activities have the potential to impact game fishers' functions, interests or activities due to the location offshore and there has been recorded charter effort in the EMBA in the past 5 years.	Yes
Titleholders and Operators			
Beagle No 1	Titleholder or Operator.	Woodside has applied its methodology for 'Titleholders and Operators' under regulation 25(1)(d) of the Environment Regulations. Titleholder or Operator's permit area/s overlap/s the EMBA.	Yes
Carbon CQ	Titleholder or Operator.	Woodside has applied its methodology for 'Titleholders and Operators' under regulation 25(1)(d) of the Environment Regulations. Titleholder or Operator's permit area/s overlap/s the EMBA.	Yes
Chevron Australia	Titleholder or Operator.	Woodside has applied its methodology for 'Titleholders and Operators' under regulation 25(1)(d) of the Environment Regulations. Titleholder or Operator's permit area/s overlap/s the Operational Area and EMBA.	Yes
Exxon Mobil Australia Resources Company	Titleholder or Operator.	Woodside has applied its methodology for 'Titleholders and Operators' under regulation 25(1)(d) of the Environment Regulations. Titleholder or Operator's permit area/s overlap/s the Operational Area and EMBA.	Yes

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Finder Energy (Finder No 16))	Titleholder or Operator.	Woodside has applied its methodology for 'Titleholders and Operators' under regulation 25(1)(d) of the Environment Regulations. Titleholder or Operator's permit area/s overlap/s the EMBA.	Yes
InCapture	Titleholder or Operator.	Woodside has applied its methodology for 'Titleholders and Operators' under regulation 25(1)(d) of the Environment Regulations. Titleholder or Operator's permit area/s overlap/s the EMBA.	Yes
INPEX Alpha	Titleholder or Operator.	Woodside has applied its methodology for 'Titleholders and Operators' under regulation 25(1)(d) of the Environment Regulations. Titleholder or Operator's permit area/s overlap/s the EMBA.	Yes
JERA Gorgon (part of Chevron)	Titleholder or Operator.	Woodside has applied its methodology for 'Titleholders and Operators' under regulation 25(1)(d) of the Environment Regulations. Titleholder or Operator's permit area/s overlap/s the Operational Area and EMBA.	Yes
JX Nippon O&G Exploration (Australia)	Titleholder or Operator.	Woodside has applied its methodology for 'Titleholders and Operators' under regulation 25(1)(d) of the Environment Regulations. Titleholder or Operator's permit area/s overlap/s the EMBA.	Yes
KATO Energy / KATO Corowa / KATO NWS / KATO Amulet	Titleholder or Operator.	Woodside has applied its methodology for 'Titleholders and Operators' under regulation 25(1)(d) of the Environment Regulations. Titleholder or Operator's permit area/s overlap/s the EMBA.	Yes
KUFPEC	Titleholder or Operator.	Woodside has applied its methodology for 'Titleholders and Operators' under regulation 25(1)(d) of the Environment Regulations. Titleholder or Operator's permit area/s overlap/s the Operational Area and EMBA.	Yes

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Kyushu Electric Wheatstone	Titleholder or Operator.	Woodside has applied its methodology for 'Titleholders and Operators' under regulation 25(1)(d) of the Environment Regulations. Titleholder or Operator's permit area/s overlap/s the Operational Area and EMBA.	Yes
Longreach Capital Investments	Titleholder or Operator.	Woodside has applied its methodology for 'Titleholders and Operators' under regulation 25(1)(d) of the Environment Regulations. Titleholder or Operator's permit area/s overlap/s the EMBA.	Yes
Melbana Exploration	Titleholder or Operator.	Woodside has applied its methodology for 'Titleholders and Operators' under regulation 25(1)(d) of the Environment Regulations. Titleholder or Operator's permit area/s overlap/s the EMBA.	Yes
MidOcean Gorgon (part of Chevron, replaces Tokyo Gas Gorgon)	Titleholder or Operator.	Woodside has applied its methodology for 'Titleholders and Operators' under regulation 25(1)(d) of the Environment Regulations. Titleholder or Operator's permit area/s overlap/s the Operational Area and EMBA.	Yes
Osaka Gas Gorgon (part of Chevron)	Titleholder or Operator.	Woodside has applied its methodology for 'Titleholders and Operators' under regulation 25(1)(d) of the Environment Regulations. Titleholder or Operator's permit area/s overlap/s the Operational Area and EMBA.	Yes
Pelsart Resources	Titleholder or Operator.	Woodside has applied its methodology for 'Titleholders and Operators' under regulation 25(1)(d) of the Environment Regulations. Titleholder or Operator's permit area/s overlap/s the EMBA.	Yes
PE Wheatstone	Titleholder or Operator.	Woodside has applied its methodology for 'Titleholders and Operators' under regulation 25(1)(d) of the Environment Regulations. Titleholder or Operator's permit area/s overlap/s the Operational Area and EMBA.	Yes

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Santos NA Energy Holdings / Santos Ltd / Santos WA Northwest / Santos Offshore / Santos WA Southwest / Santos (BOL) / Santos WA PVG	Titleholder or Operator.	Woodside has applied its methodology for 'Titleholders and Operators' under regulation 25(1)(d) of the Environment Regulations. Titleholder or Operator's permit area/s overlap/s the EMBA.	Yes
Shell Australia	Titleholder or Operator.	Woodside has applied its methodology for 'Titleholders and Operators' under regulation 25(1)(d) of the Environment Regulations. Titleholder or Operator's permit area/s overlap/s the Operational Area and EMBA.	Yes
SK Earthon Australia	Titleholder or Operator.	Woodside has applied its methodology for 'Titleholders and Operators' under regulation 25(1)(d) of the Environment Regulations. Titleholder or Operator's permit area/s overlap/s the EMBA.	Yes
Skye Napoleon / Resources	Titleholder or Operator.	Woodside has applied its methodology for 'Titleholders and Operators' under regulation 25(1)(d) of the Environment Regulations. Titleholder or Operator's permit area/s overlap/s the EMBA.	Yes
Tanami Energy	Titleholder or Operator.	Woodside has applied its methodology for 'Titleholders and Operators' under regulation 25(1)(d) of the Environment Regulations. Titleholder or Operator's permit area/s overlap/s the EMBA.	Yes
Vermilion Energy	Titleholder or Operator.	Woodside has applied its methodology for 'Titleholders and Operators' under regulation 25(1)(d). of the Environment Regulations Titleholder or Operator's permit area/s overlap/s the EMBA.	Yes
Western Gas	Titleholder or Operator.	Woodside has applied its methodology for 'Titleholders and Operators' under regulation 25(1)(d) of the Environment Regulations. Titleholder or Operator's permit area/s overlap/s the EMBA.	Yes

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Peak Industry Representative bodies			
Australian Energy Producers (AEP)	Represents the interests of oil and gas explorers and producers in Australia.	Woodside has applied its methodology for 'Peak Industry Representative bodies' under regulation 25(1)(d) of the Environment Regulations. AEP's responsibilities are identified as having an intersect with Woodside's planned activities in the EMBA.	Yes
Local government and elected Parliamentary representatives, community groups or organisations			
Exmouth Chamber of Commerce and Industry (CCI)	Independent not-for-profit organisation responsible for promoting the interests of its members in the business community in the town of Exmouth and surrounding areas.	Woodside has applied its methodology for 'Local government and elected Parliamentary representatives, community groups or organisations' under regulation 25(1)(d) of the Environment Regulations. The Exmouth CCI's interests have the potential to be impacted by the proposed activities.	Yes
Karratha & Districts Chamber of Commerce and Industry (CCI)	Independent not-for-profit organisation responsible for promoting the interests of its members in the business community in the City of Karratha and surrounding areas.	Woodside has applied its methodology for 'Local government and elected Parliamentary representatives, community representative groups or organisations' under regulation 25(1)(d) of the Environment Regulations. The Karratha and Districts CCI's interests have the potential to be impacted by the proposed activities.	Yes
Onslow Chamber of Commerce and Industry (CCI)	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 elected Parliamentary representatives, community groups or organisations' under regulation 25(1)(d) of the Environment Regulations. The Onslow CCI's interests have the potential to be impacted by the proposed activities.	Yes
Exmouth Community Liaison Group (CLG)	The Exmouth CLG represents the interests of a range of local government, industry and community organisations in relation to oil and gas matters in the Exmouth region.	Woodside has applied its methodology for 'Local government and elected Parliamentary representatives, community groups or organisations' under regulation 25(1)(d) of the Environment Regulations. Base Marine, Bhagwan Marine, Cape Conservation Group Inc, Cape Range Riders, DBCA, Department of Defence, Department of Transport and Major Infrastructure, Exmouth Bus Charter, Exmouth Chamber of Commerce and Industry, Exmouth District High School, Exmouth Escape Resort, Exmouth Freight and Logistics,	Yes

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		Exmouth Game Fishing Club, Exmouth Tackle and Camping Supplies, Exmouth Visitors Centre, Exmouth Volunteer Marine Rescue, Fat Marine, Gascoyne Development Commission, Gun Marine Services, Ningaloo Centre, Ningaloo Lodge, Ningaloo Coast World Heritage Advisory Council, PHI Aviation, Offshore Unlimited, Shire of Exmouth, Santos, Terrafirma Offshore, WA Country Health Service. The Exmouth CLG's area of responsibility under its terms of reference overlaps the EMBA.	
Karratha Community Liaison Group (CLG)	The Karratha CLG is the recognised community group that represents the interests of a range of local government, industry and community organisations in relation to oil and gas matters in the Pilbara region.	Woodside has applied its methodology for 'Local government and elected Parliamentary representatives, community groups or organisations' under regulation 25(1)(d) of the Environment Regulations. The Karratha CLG's area of responsibility under its terms of reference does not overlap the EMBA. WA Police, Karratha Health Care, Development WA, Ngarluma Yindjibarndi Foundation Ltd (NYFL)*, Department of Education, Pilbara Ports, Regional Development Australia, Pilbara Development Commission, Dampier Community Association, City of Karratha, Karratha & Districts Chamber of Commerce and Industry, Horizon Power, Murujuga Aboriginal Corporation (MAC)*. *NFYL and MAC were consulted directly as described below. Under regulation 25(1)(e), Woodside, at its discretion, chose to assess Karratha CLG as a relevant person.	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 elected Parliamentary representatives, community groups or organisations' under regulation 25(1)(d) of the Environment Regulations. 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 elected Parliamentary representatives, community groups or organisations' under regulation 25(1)(d) of the Environment Regulations.	Yes

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		The Shire of Ashburton's area of responsibility overlaps the EMBA.	
Shire of Exmouth	Local government governed by the Local Government Act 1995 representing the suburbs and localities of Exmouth, Learmonth and North West Cape.	Woodside has applied its methodology for 'Local government and elected Parliamentary representatives, community groups or organisations' under regulation 25(1)(d) of the Environment Regulations. The Shire of Exmouth's area of responsibility overlaps the EMBA.	Yes
Other non-government groups or organisations (NGOs) or individuals			
Australian Conservation Foundation (ACF)	Non-government organisation.	Woodside has assessed that ACF does not have a publicly available statement (or purpose), website or social media material that demonstrates its functions, interests or activities are relevant to the potential risks and impacts associated with planned activities in accordance with the intended outcome of consultation (as set out in Section 5.3.4 of the EP). Woodside chose to contact ACF at its discretion in line with Section 5.3.7 of the EP.	No
Australian Marine Conservation Society (AMCS)	Non-government organisation.	Woodside has assessed that AMCS has a publicly available statement (or purpose), website or social media material that demonstrates that its functions, interests or activities may be relevant to the potential risks and impacts associated with planned activities in accordance with the intended outcome of consultation (as set out in Section 5.3.4 of the EP).	Yes
Conservation Council of Western Australia (CCWA)	Non-government organisation.	Woodside has assessed that CCWA has provided feedback and/or has a publicly available statement (or purpose), website or social media material that demonstrates its functions, interests or activities are relevant to the potential risks and impacts associated with planned activities in accordance with the intended outcome of consultation (as set out in Section 5.3.4 of the EP).	Yes
Greenpeace Australia Pacific (GAP)	Non-government organisation.	Woodside has assessed that GAP has provided previous feedback and/or has a publicly available statement (or purpose), website or social media material that demonstrates that its functions, interests or activities may be relevant to the potential risks and impacts associated with planned activities in accordance with the intended outcome of consultation (as set out in Section 5.3.4 of the EP).	Yes

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International Fund for Animal Welfare (IFAW)	Non-government organisation.	Woodside has assessed that IFAW does not have a publicly available statement (or purpose), website or social media material that demonstrates its functions, interests or activities are relevant to the potential risks and impacts associated with planned activities in accordance with the intended outcome of consultation (as set out in Section 5.3.4 of the EP). Woodside chose to contact IFAW at its discretion in line with Section 5.3.7 of the EP.	No
Minderoo Foundation	Non-government organisation.	Woodside has assessed that Minderoo Foundation does not have a publicly available statement (or purpose), website or social media material that demonstrates its functions, interests or activities are relevant to the potential risks and impacts associated with planned activities in accordance with the intended outcome of consultation (as set out in Section 5.3.4 of the EP). Woodside chose to contact Minderoo Foundation at its discretion in line with Section 5.3.7 of the EP.	No
Sea Shepherd Australia (SSA)	Non-government organisation.	Woodside has assessed that SSA does not have a publicly available statement (or purpose), website or social media material that demonstrates its functions, interests or activities are relevant to the potential risks and impacts associated with planned activities in accordance with the intended outcome of consultation (as set out in Section 5.3.4 of the EP). Woodside chose to contact SSA at its discretion in line with Section 5.3.7 of the EP.	No
The Wilderness Society (TWS)	Non-government organisation.	Woodside has assessed that TWS does not have a publicly available statement (or purpose), website or social media material that demonstrates its functions, interests or activities are relevant to the potential risks and impacts associated with planned activities in accordance with the intended outcome of consultation (as set out in Section 5.3.4 of the EP). Woodside chose to contact TWS at its discretion in line with Section 5.3.7 of the EP.	No
World Wildlife Fund (WWF) Australia	Non-government organisation.	Woodside has assessed that WWF does not have a publicly available statement (or purpose), website or social media material	No

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		that demonstrates its functions, interests or activities are relevant to the potential risks and impacts associated with planned activities in accordance with the intended outcome of consultation (as set out in Section 5.3.4 of the EP). Woodside chose to contact WWF at its discretion in line with Section 5.3.7 of the EP.	
Telstra	Non-government organisation.	Woodside has applied its methodology for 'Other non-government groups or organisations' under regulation 25(1)(d) of the Environment Regulations to determine Telstra's relevance for the proposed activity. There are known Telstra communication cables that intersect within the Operational Area.	Yes
Vocus	Non-government organisation.	Woodside has applied its methodology for 'Other non-government groups or organisations' under regulation 25(1)(d) of the Environment Regulations to determine Vocus' relevance for the proposed activity. There are known Vocus communication cables that intersect within the Operational Area.	Yes
Research institutes and local conservation groups or organisations			
Australian Institute of Marine Science (AIMS)	Research institute.	Woodside has applied its methodology for 'Research institutes and local conservation groups or organisations' under regulation 25(1)(d) of the Environment Regulations. There may be research being undertaken by AIMS that intersects within the EMBA. Woodside chose to contact AIMS at its discretion in line with Section 5.3.7 of the EP.	No
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 25(1)(d) of the Environment Regulations. There may be research being undertaken by CSIRO that intersects within the EMBA. Woodside chose to contact CSIRO at its discretion in line with Section 5.3.7 of the EP.	No

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Western Australian Marine Science Institution (WAMSI)	Research institute.	Woodside has applied its methodology for 'Research institutes and local conservation groups or organisations' under regulation 25(1)(d) of the Environment Regulations. There may be research being undertaken by WAMSI that intersects within the EMBA. Woodside chose to contact WAMSI at its discretion in line with Section 5.3.7 of the EP.	No
Curtin University	Research institute.	Woodside has applied its methodology for 'Research institutes and local conservation groups or organisations' under regulation 25(1)(d) of the Environment Regulations. There may be research being undertaken by Curtin University that intersects within the EMBA. Woodside chose to contact Curtain University at its discretion in line with Section 5.3.7 of the EP.	No
Edith Cowan University (ECU)	Research institute.	Woodside has applied its methodology for 'Research institutes and local conservation groups or organisations' under regulation 25(1)(d) of the Environment Regulations. There may be research being undertaken by ECU that intersects within the EMBA. Woodside chose to contact ECU at its discretion in line with Section 5.3.7 of the EP.	No
Murdoch University	Research institute.	Woodside has applied its methodology for 'Research institutes and local conservation groups or organisations' under regulation 25(1)(d) of the Environment Regulations. There may be research being undertaken by Murdoch University that intersects within the EMBA. Woodside chose to contact Murdoch University at its discretion in line with Section 5.3.7 of the EP.	No
University of Western Australia (UWA)	Research institute.	Woodside has applied its methodology for 'Research institutes and local conservation groups or organisations' under regulation 25(1)(d) of the Environment Regulations. There may be research being undertaken by UWA that intersects within the EMBA.	No

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		Woodside chose to contact UWA at its discretion in line with Section 5.3.7 of the EP.	
Cape Conservation Group (CCG)	Local conservation group focused on protecting the terrestrial and marine environment of the North West Cape.	Woodside has applied its methodology for 'Research institutes and local conservation groups or organisations' under regulation 25(1)(d) of the Environment Regulations. CCG's conservation activities have the potential to intersect with the EMBA as the EMBA overlaps the North West Cape region.	Yes
Protect Ningaloo	Local conservation group focused on protecting the Exmouth Gulf and Ningaloo Reef and Cape Range.	Woodside has applied its methodology for 'Research institutes and local conservation groups or organisations' under regulation 25(1)(d) of the Environment Regulations. Protect Ningaloo's conservation activities have the potential to intersect with the EMBA as the EMBA overlaps the North West Cape region or Ningaloo Reef.	Yes

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Traditional Custodians and nominated representative corporations			
Buurabalayji Thalanyji Aboriginal Corporation (BTAC)	Representative Aboriginal Corporation.	Woodside has applied its methodology for 'Traditional Custodians and Nominated Representative Corporations' under regulation 25(1)(d) of the Environment Regulations. The Thalanyji Native Title claim does not overlap the EMBA. The claim is coastally adjacent to the EMBA, for which BTAC is the Registered Native Title Body Corporate. BTAC is also party to the Macedon ILUA, which is coastally adjacent to the EMBA.	Yes
Kariyarra Aboriginal Corporation (KAC)	Representative Aboriginal Corporation.	Woodside has applied its methodology for 'Traditional Custodians and Nominated Representative Corporations' under regulation 25(1)(d) of the Environment Regulations. The Kariyarra Native Title claim does not overlap the EMBA. The claim is coastally adjacent to the EMBA, for which KAC is the Registered Native Title Body Corporate. KAC is also party to the Kariyarra and State ILUA, which is coastally adjacent to the EMBA.	Yes
Murujuga Aboriginal Corporation (MAC)	Representative Aboriginal Corporation.	Woodside has applied its methodology for 'Traditional Custodians and Nominated Representative Corporations' under regulation 25(1)(d) of the Environment Regulations. MAC is the Nominated Representative Corporation under the Burrup and Maitland Industrial Estates Agreement (BMIEA). The EMBA does not overlap the Murujuga National Park. MAC was established to represent the members of competing Native Title claims over Murujuga, collectively known as the Ngarda Ngarli and comprising Mardudhunera, Ngarluma, Yaburara, Yindjibarndi and Wong-Goo-Tt-Oo people. The determination of the competing Native Title claims resulted in no native title being found over the lands subject to the BMIEA or below the low water mark. MAC also owns and co-manages the Murujuga National Park, is responsible for the Dampier Archipelago National Heritage Place and is progressing the World Heritage nomination of the Murujuga Cultural Landscape.	Yes

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Nganhurra Thanardi Garrbu Aboriginal Corporation (NTGAC)	Representative Aboriginal Corporation	Woodside has applied its methodology for 'Traditional Custodians and Nominated Representative Corporations' under regulation 25(1)(d) of the Environment Regulations. The Gnulli, Gnulli #2 and Gnulli #3 - Yinggarda, Baiyungu and Thalanyji People Native Title claim, which the Baiyungu, Thalanyji and Yinggarda people are party to, overlaps the EMBA. The NTGAC and YAC are the Registered Native Title Body Corporates holding native title on behalf of the Baiyungu, Thalanyji and Yinggarda people. NTGAC is also party to the Estate ILUA, which is coastally adjacent to the EMBA. The NTGAC's nominated representative is the Yamatji Marlpa Aboriginal Corporation (YMAC) and the NTGAC executive officer and contact officer pursuant to the *Corporations (Aboriginal and Torres Strait Islander) Act 2006* is employed by YMAC. Woodside has therefore consulted the NTGAC, via YMAC.	Yes
Ngarluma Aboriginal Corporation (NAC)	Representative Aboriginal Corporation	Woodside has applied its methodology for 'Traditional Custodians and Nominated Representative Corporations' under regulation 25(1)(d) of the Environment Regulations. The Ngarluma People Native Title claim does not overlap the EMBA. The claim is coastally adjacent to the EMBA, for which NAC is the Registered Native Title Body Corporate. The Ngarluma/Yindjibarndi People Native Title claim does not overlap the EMBA. The claim is coastally adjacent to the EMBA, for which NAC and the Yindjibarndi Aboriginal Corporation are the Registered Native Title Body Corporates. NAC is also party to the Anketell Port, Infrastructure Corridor and Industrial Estates Agreement and RTIO Ngarluma Indigenous Land Use Agreement (Body Corporate Agreement), which are coastally adjacent to the EMBA.	Yes
Nhuwala Claim Group	Native Title Claim Group	Woodside has applied its methodology for 'Traditional Custodians and Nominated Representative Corporations' under regulation 25(1)(d) of the Environment Regulations. The Nhuwala Claim Group Native Title claim is coastally adjacent to the EMBA.	Yes

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		All communications with the group are via YMAC.	
Robe River Kuruma Aboriginal Corporation (RRKAC)	Representative Aboriginal Corporation	Woodside has applied its methodology for 'Traditional Custodians and Nominated Representative Corporations' under regulation 25(1)(d) of the Environment Regulations. RRKAC is party to the KM & YM Indigenous Land Use Agreement 2018, and RTIO Kuruma Marthudunera People ILUA, which are coastally adjacent to the EMBA.	Yes
Thalanyji / Nhuwala People	Native Title Claim Group	Woodside has applied its methodology for 'Traditional Custodians and Nominated Representative Corporations' under regulation 25(1)(d) of the Environment Regulations. The Thalanyji/Nhuwala Peoples Native Title claim is coastally adjacent to the EMBA. All notices, other than in relation to the claim application, are via BTAC.	Yes
Wirrawandi Aboriginal Corporation (WAC)	Representative Aboriginal Corporation	Woodside has applied its methodology for 'Traditional Custodians and Nominated Representative Corporations' under regulation 25(1)(d) of the Environment Regulations. The Yaburara & Mardudhunera People Native Title claim does not overlap the EMBA. The claim is coastally adjacent to the EMBA, for which WAC is the Registered Native Title Body Corporate. WAC is party to the Cape Preston Project Deed (YM Mardie ILUA), Cape Preston West Export Facility and KM & YM Indigenous Land Use Agreement 2018, which are coastally adjacent to the EMBA.	Yes
Yindjibarndi Aboriginal Corporation	Representative Aboriginal Corporation	Woodside has applied its methodology for 'Traditional Custodians and Nominated Representative Corporations' under regulation 25(1)(d) of the Environment Regulations. The Ngarluma/ Yindjibarndi People Native Title claim does not overlap the EMBA. The claim is coastally adjacent to the EMBA, for which NAC and the Yindjibarndi Aboriginal Corporation are the Registered Native Title Body Corporates. The Yindjibarndi Aboriginal Corporation has formally identified NYFL as its delegated representative for consultation.	Yes

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Yinggarda Aboriginal Corporation (YAC)	Representative Aboriginal Corporation	Woodside has applied its methodology for 'Traditional Custodians and Nominated Representative Corporations' under regulation 25(1)(d). The Gnulli, Gnulli #2 and Gnulli #3 - Yinggarda, Baiyungu and Thalanyji People native title claim, which the Baiyungu, Thalanyji and Yinggarda people are party to, overlaps the EMBA. The NTGAC and YAC are the Registered Native Title Body Corporates holding Native Title on behalf of the Baiyungu, Thalanyji and Yinggarda people. YAC's nominated representative is Gumala Aboriginal Corporation.	Yes
Native Title Representative Bodies			
Kimberley Land Council (KLC)	Native Title Representative Body	Woodside has applied its methodology for 'Native Title Representative Bodies' under regulation 25(1)(d) of the Environment Regulations. KLC is the Native Title Representative Body for the Kimberley region of Western Australia. As such, they are not a Prescribed or Registered Native Title Body Corporate but exist to assist native title claimants and holders. KLC's functions may be relevant to the proposed activity in relation to its facilitation and coordination function as a Native Title Representative Body under applicable federal legislation.	Yes
Yamatji Marlpa Aboriginal Corporation (YMAC)	Native Title Representative Body	Woodside has applied its methodology for 'Native Title Representative Bodies' under regulation 25(1)(d) of the Environment Regulations. YMAC is the Native Title Representative Body for the Yamatji and Pilbara regions of Western Australia. As such, they are not a Prescribed or Registered Native Title Body Corporate but exist to assist native title claimants and holders. Woodside contacted YMAC to seek guidance with respect to the appropriate Traditional Custodian group(s) to engage with respect to the proposed activity where this was not clear. YMAC's functions may be relevant to the proposed activity in relation to its facilitation and coordination function as a Native Title Representative Body under applicable federal legislation.	Yes

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		YMAC is identified as cultural authority regarding the Commonwealth marine parks of Gascoyne, Montebello and Ningaloo; as well as the Muiron Islands Marine Management Area, which is in State waters.	
Self-identified First Nations groups			
Ngarluma Yindjibarndi Foundation Ltd (NYFL)	Representative Aboriginal Corporation	Woodside has applied its methodology for 'Traditional Custodians and Nominated Representative Corporations' @under regulation 25(1)(d) of the Environment Regulations. The Ngarluma and Yindjibarndi People, the NWS JVs and Woodside entered into an agreement on 22 December 1998 (Agreement). NYFL was subsequently incorporated under the terms of the Agreement to act as trustee for the trust established to benefit the Ngarluma and Yindjibarndi People and the Roebourne Aboriginal Community. Subsequent to that, the Ngarluma people settled their Native Title claim and established their nominated representative corporation, the Ngarluma Aboriginal Corporation (PBC); and the Yindjibarndi people settled their Native Title claim and established their nominated representative corporation, the Yindjibarndi Aboriginal Corporation (PBC). The Ngarluma Aboriginal Corporation and the Yindjibarndi Aboriginal Corporation are the appropriate representative bodies for consultation in relation to cultural interests. NYFL's functions may be relevant to the proposed activity in relation to its functions under the Agreement.	Yes
Other First Nations Groups			
Save Our Songlines (SOS) and/or [Individual 1]	Representatives of Non-Government Organisation SOS and/or [Individual 1]	Woodside has applied its methodology for 'Traditional Custodians and nominated representative corporations' and 'Other non-government groups or organisations' under regulation 25(1)(d) of the Environment Regulations to determine SOS and/or [Individual 1] relevance for the proposed activity. SOS and/or [Individual 1] stated interest is to stop or pause Scarborough gas and to stop new industry on the Burrup; and oppose planned expansion of the Burrup Hub industry by	Yes

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		Woodside, Perdaman and Yara. In addition, their stated interests also include the protection of Murujuga rock art. As SOS have raised concerns relating to the processing of greenhouse gases on Murujuga, Woodside considers that SOS and/or [Individual 1] are relevant for this activity.	

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3. CONSULTATION ACTIVITIES

3.1 Pluto 4D M3 Marine Seismic Survey EP consultation activities

Woodside has been conducting extensive consultation with relevant persons and other parties for this EP since September 2025 when consultation commenced with interested and affected stakeholders as part of a planned, integrated and consistent approach to stakeholder engagement for Woodside's proposed opportunities.

A broad consultation process has been undertaken with relevant persons for the Pluto 4D M3 Marine Seismic Survey EP. Consultation aims to be inclusive, transparent, voluntary, respectful and two-way. Consultation was undertaken by email, letter, phone call and/or meetings and through advertising.

3.2 Discharging Regulation 25 of the Environment Regulations

Woodside advertised the planned activities proposed for this EP in national, state and relevant local newspapers as per the table below (also see Record of Consultation, reference 6.3.1). Regional newspapers do not require subscription and are available directly to households. All communities within or adjacent to the EMBA had access to this information via this information.

No direct comments or feedback were received from the advertisements.

Newspaper	Coverage	Readership	Publication dates
The Australian	National	Weekly – 453,000	8 September 2025
The West Australian	Regional (WA)	Daily – 364,000	8 September 2025
Pilbara News	Local (WA)	Weekly – 17,611	10 September 2025
Midwest Times	Local (WA)	Weekly – 50,534	10 September 2025
Koori Mail	Indigenous	Monthly – 80,000	10 September 2025
National Indigenous Times	Indigenous	Monthly – 1,484,340	24 September 2025

A Consultation Information Sheet was provided to relevant persons and persons Woodside chose to contact (see Section 5.3.4 and 5.3.7 of the EP), which included details such as an activity overview, maps, a summary of key risks and/or impacts and management measures (Record of Consultation, reference 6.1.1).

Since the commencement of the initial consultation period (September 2025), the stakeholder Consultation Information Sheet has been available on Woodside's website. Consultation Information Sheets include a toll-free 1800 phone number and Woodside's feedback email address consultation@feedback.woodside.com

The Woodside Consultation Activities webpage (accessible on the Consultation Information Sheet via a link, banners at community events via a QR code, and via social media content and advertisements) includes Consultation Information Sheets for the EPs on which Woodside is currently consulting, including this EP. The website page also features a subscribe field for EP-focussed communications from Woodside.

Additional targeted information was provided to select relevant persons based on their roles and responsibilities such as a defence zone map (Record of Consultation, reference 6.1.3), a shipping lanes map (Record of Consultation, reference 6.1.4), GIS shape files, shipwreck information (Record of Consultation, references 6.1.5 and 6.1.6), and a submarine communication cable map (Record of Consultation, reference 6.1.7).

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.

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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 of the EP).

Consultation activities undertaken with relevant persons are summarised at Appendix F, Table 2.

Engagement undertaken with persons or organisations Woodside assessed as not relevant but chose to contact (see Section 5.3.7 of the EP) or self-identified and Woodside assessed as not relevant are summarised at Appendix F, Table 3.

From September 2025, Woodside commenced a geotargeted sponsored social media campaign (Record of Consultation, reference 6.6) covering various local government authorities 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.

Platforms	Geotargeted reach	Post dates	Impact
Meta – Facebook and Instagram	Karratha, Dampier, Onslow, Roebourne, Exmouth	22/09/2025 06/10/2025 20/10/2025	Reach: 66,897 Impressions: 119,705 Link Clicks: 339 Click Through Rate: 0.28%

Below is a summary of comments and reactions to the social media campaign. Please note comments and reactions are not available for Instagram.

Platform	Number of reactions	Number of comments	Comments relevant to EP
Meta – Facebook and Instagram	66 👍 4 😡 1 😆 1 share	7 comments	0 relevant

3.3 Public comment period

The public was invited by NOPSEMA to comment on the Pluto 4D M3 Marine Seismic Survey EP, in accordance with Regulation 30(1)(a) of the Environment Regulations, from 3 February 2026 until 5 March 2026. The public comment process provided an opportunity for any person to give NOPSEMA, written comments on the matters described in Division 2 (Contents of an environment plan) in relation to the EP.

Woodside published notices informing community members of the designated public comment period (see Record of Consultation, reference 6.3.2) in the following newspapers:

Newspaper	Coverage	Readership	Publication dates
The Australian	National	Weekly – 453,000	6 February 2026
The West Australian	Regional (WA)	Daily – 364,000	6 February 2026
Pilbara News	Local (WA)	Weekly – 17,611	11 February 2026
Midwest Times	Local (WA)	Weekly – 50,534	11 February 2026
Koori Mail	Indigenous	Monthly – 80,000	11 February 2026

From 5 February 2026, Woodside commenced a geotargeted sponsored social media campaign (see Record of Consultation, reference 6.4.2) advising local government areas adjacent to the activity of the public comment period.

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Platforms	Geotargeted reach	Post dates	Impact
Meta – Facebook and Instagram	Karratha, Dampier, Onslow, Roebourne, Exmouth	05/02/2026 16/02/2026 27/02/2026	Reach: 62,024 Impressions: 113,816 Link Clicks: 463 Click Through Rate: 0.41%

In addition, Woodside hosted an alert banner on its website, advising the public of the opportunity to provide a comment (see Record of Consultation, reference 6.4.3).

Further detail on public comment submissions and their assessment is provided in the supplementary Titleholder Report on Public Comment.

3.4 Proactive consultation

3.4.1 Community engagement

The Community Information Sessions or community events that Woodside has conducted or attended are outlined below (and captured in more detail in Record of Consultation, reference 6.7). To support attendance, Woodside published advertisements ahead of these sessions and events in relevant local newspapers and/or on social media.

Date	Location	Event (if applicable)
5 October 2025	Exmouth	Exmouth Community Markets
18 October 2025	Dampier	Dampier Beachside Markets

3.4.2 Community Liaison Group engagement

The Exmouth and Karratha Community Liaison Groups (CLGs) represent the interests of a range of local government, industry and community organisations in relation to oil and gas matters in the Exmouth and Karratha region. Woodside regularly meets with these two CLGs to discuss a range of issues including consultation of specific EPs. For this EP, see reference 4.9.4 for consultation with Exmouth CLG and 4.9.5 for Karratha CLG.

3.4.3 Newsletters

Woodside's EP focussed newsletter *Let's Talk* is designed to reach existing and potential stakeholders and encourage self-identification about Woodside's EP-related activities. The newsletter provides updates about EP consultation activities, case studies on effective consultation with relevant persons and other EP related information such as forthcoming events where Woodside personnel will be consulting with the local community. *Let's Talk* is distributed in a variety of locations as well as across digital platforms including Woodside's website and social media channels. People can also subscribe to receive it on Woodside's website. (Record of Consultation, reference 6.8.1).

Woodside also publishes the *Karratha Community Update* newsletter quarterly which includes a QR code and encourages people to go to the Consultation Activities page on Woodside's website to subscribe and find information on EPs. (Record of Consultation, reference 6.8.2).

3.5 Traditional Custodian specific consultation

In addition to the approaches outlined above including community information sessions, additional activities were undertaken with relevant Traditional Custodians, which were specifically designed to provide for effective engagement with Traditional Custodians and so that information was provided in a form that was readily accessible and appropriate (see Section 5.5.4 of the EP).

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Consultation undertaken specifically with Traditional Custodians for this EP includes direct engagement with nominated representative bodies via the contact listed on the Office of the Registrar of Indigenous Corporations (ORIC) website, requesting advice on how they would like to be engaged and asking whether other members and/or individuals should be consulted. This has resulted in:

- the EP's Summary Information Sheet, being provided to relevant Traditional Custodian groups (Record of Consultation, reference 6.3.2). The resource is developed and reviewed by subject matter experts with knowledge and experience in Indigenous affairs, in collaboration with technical experts to ensure content is appropriate to the intended recipients
- meetings with directors, Elders and any nominated representatives, at a time and location nominated by them
- the exchange of written feedback and correspondence
- telephoning relevant persons to provide context, if requested and/or required
- invitations to and/or attendance at community monthly luncheons for Traditional Custodians.

Ongoing efforts were made to engage and develop relationships with these bodies via a variety of means such as email, phone calls, alternative contacts, texts, social media and, in some cases, physical visits.

Consultation meetings with attendees decided by Traditional Custodian groups and supported by senior Woodside representatives, subject matter experts and First Nations advisers with skills and experience in community engagement. Meetings are developed through a two-way consultation process to ensure effective information sharing via:

- mutually agreed agenda avoiding time pressure
- encouraging Traditional Custodian attendees to control the pace of the meeting and pause at any time to ask questions, seek clarification or provide feedback
- visual aids such as posters, presentations, maps, simplified technical videos and real-world pictures and footage
- emphasis on potential planned and unplanned risks and impacts of the activity
- ample opportunity for questions and feedback
- discussion about ongoing relationship development and opportunities
- distribution of hard-copy Consultation Information Sheets (Record of Consultation, reference 6.1.1) and Summary Consultation Information Sheets (Record of Consultation, reference 6.1.2) are available face-to-face consultation
- meeting costs such as sitting fees, travel, legal support and executive support and other support required
- advertising in Indigenous publications such as the Koori Mail (10 September 2025) and National Indigenous Times (24 September 2025) (Record of Consultation, reference 6.5.5 and reference 6.5.6).

Newspaper	Coverage	Publication dates
Koori Mail	Indigenous	10 September 2025
National Indigenous Times	Indigenous	24 September 2025

Woodside also ran a geotargeted sponsored social media campaign (Record of Consultation, reference 6.6) to various communities that are coastally adjacent to the EMBA for the proposed activities.

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Social media is a highly effective means to engage Indigenous audiences as outlined in Indigenous Digital Life: The Practice and Politics of Being Indigenous on Social Media (Bronwyn Carlson and Ryan Frazer, 2021).

The campaign brought the proposed activity to the attention of persons who may be interested and advised persons or organisations how they can learn more about Woodside's proposed activities by visiting Woodside's website. The advertisements linked to Woodside's website, which details the intent of consultation with relevant persons under the *Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2023 (Cth)*.

Woodside uses a diverse range of techniques to reach relevant persons and build awareness of the proposed activity and how it may affect their functions, activities or interests, and to understand how to provide feedback. The combination of Prescribed Bodies Corporate (PBC) engagement meetings, traditional print media, social media and face-to face community interaction provides a wide-ranging opportunity to consult.

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4. TABLE 2: CONSULTATION REPORT WITH RELEVANT PERSONS OR ORGANISATIONS

The black numbering **(N)** in the 'Summary of information provided and record of consultation for this EP' in Table 2 denotes an item raised by a stakeholder. The green numbering **(N)** in this section denotes Woodside's response to that issue.

4.1 Commonwealth and WA State Government departments or agencies – marine

4.1.1 Australian Border Force (ABF)

Summary of information provided and record of consultation for this EP:

- On 8 September 2025, Woodside emailed ABF advising of the proposed activity (Record of Consultation, reference 6.1.9), provided a Consultation Information Sheet, and a link to NOPSEMA's brochure '*Consultation on offshore petroleum environment plans: Information for the community'*.
- On 8 October 2025, as no response had been received, Woodside proactively sent a follow-up email (Record of Consultation, reference 6.2.1).

Summary of Feedback, Objection or Claim	Woodside's Assessment of Merits of Feedback, Objection or Claim	Woodside's Statement of Response	Inclusion in Environment Plan
No feedback, objections or claims about the adverse impact of the activity received despite follow-up.		Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.7.1 of the EP).	No additional measures or controls are required.

Summary Report – Consultation Complete

Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and considers consultation with ABF for the purpose of regulation 25 complete. Sufficient information, a reasonable period and a reasonable opportunity have been provided, as described in Section 5.4 of the EP and further summarised in the Consultation Approach above. Specifically:

Sufficient Information

Woodside has given ABF sufficient information to allow ABF to make an informed assessment of the possible consequences of the activity on its functions, interests or activities because:

- The Consultation Information Sheet for this EP has been publicly available on the Woodside website since September 2025. Woodside gave this information to ABF on 8 September 2025, marking the commencement of consultation on this EP. The Consultation Information Sheet included:
  - The purpose of consultation and set out what was being sought through consultation.

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- A summary of the activity description, location of the activity, timing of the activity, receiving environment, impacts and risks associated with the Petroleum Activity, and proposed mitigation and management measures.
- A timeframe for consultation and the provision of feedback.
- A link to NOPSEMA's brochure '*Consultation on offshore petroleum environment plans: Information for the community'.*
- Advice that relevant persons can request that particular information provided during consultation not be published (to align with 25(4) of the Environment Regulations).

Reasonable Period

Woodside allowed ABF a reasonable period for consultation in the preparation of the EP because:

- A consultation period was stated in the initial correspondence to ABF advising of consultation as well as when consultation closed for the purposes of the preparation of the EP. This enabled Woodside to assess feedback before EP submission.
- Woodside's methodology allows a 45-day consultation period for MSS EPs and Woodside allowed ABF 45 days for consultation.
- Consultation for this EP commenced 6 months ago.
- In this context, Woodside allowed ABF a reasonable period for consultation in preparation of the EP.

Reasonable Opportunity

A reasonable opportunity to provide feedback has been provided because Woodside's approach to consultation with ABF is appropriate and adapted to the nature of interests of ABF:

- Woodside published advertisements in 6 national, state, and relevant local newspapers (see Consultation Activities). This allowed for broad awareness of the activity under the EP and also of consultation.
- Woodside ran a targeted social media campaign (see Consultation Activities). This allowed for broad awareness of the activity under the EP and also of consultation.
- In the absence of feedback, Woodside sent a follow-up consultation email on 8 October 2025, reminding ABF of the opportunity to provide feedback.

Outcomes of Consultation

Woodside has assessed the merits of each objection or claim (if any) about the adverse impact of the activity to which the EP relates, as required under Regulation 24. The measures (if any) that Woodside has adopted or proposes to adopt because of the consultation are appropriate because:

- No additional measures were considered as a result of consultation as ABF did not provide feedback for this EP.
- Woodside will continue to accept and assess feedback throughout the life of the EP and apply its Management of Change and Revision process when applicable.
- The measures and controls described in this EP address the potential impact from the proposed activity on ABF's functions, interests or activities.

4.1.2 Australian Communications and Media Authority (ACMA)

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Summary of information provided and record of consultation for this EP:

- On 8 September 2025, Woodside emailed ACMA advising of the proposed activity (Record of Consultation, reference 6.1.11), provided a Consultation Information Sheet, and a link to NOPSEMA's brochure '*Consultation on offshore petroleum environment plans: Information for the community*'.
- On 8 October 2025, as no response had been received, Woodside proactively sent a follow-up email (Record of Consultation, reference 6.2.1).

Summary of Feedback, Objection or Claim	Woodside's Assessment of Merits of Feedback, Objection or Claim	Woodside's Statement of Response	Inclusion in Environment Plan
No feedback, objections or claims about the adverse impact of the activity received despite follow-up.		Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.7.1 of the EP).	No additional measures or controls are required.

Summary Report – Consultation Complete

Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and considers consultation with ACMA for the purpose of regulation 25 complete. Sufficient information, a reasonable period and a reasonable opportunity have been provided, as described in Section 5.4 of the EP and further summarised in the Consultation Approach above. Specifically:

Sufficient Information

Woodside has given ACMA sufficient information to allow ACMA to make an informed assessment of the possible consequences of the activity on its functions, interests or activities because:

- The Consultation Information Sheet for this EP has been publicly available on the Woodside website since September 2025. Woodside gave this information to ACMA on 8 September 2025, marking the commencement of consultation on this EP. The Consultation Information Sheet included:
  - The purpose of consultation and set out what was being sought through consultation.
  - A summary of the activity description, location of the activity, timing of the activity, receiving environment, impacts and risks associated with the Petroleum Activity, and proposed mitigation and management measures.
  - A timeframe for consultation and the provision of feedback.
  - A link to NOPSEMA's brochure '*Consultation on offshore petroleum environment plans: Information for the community*'.
  - Advice that relevant persons can request that particular information provided during consultation not be published (to align with 25(4) of the Environment Regulations).
- Woodside provided additional tailored information to AMCA including a map of submarine telecommunications cables relevant to the activity.

Reasonable Period

Woodside allowed ACMA a reasonable period for consultation in the preparation of the EP because:

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- A consultation period was stated in the initial correspondence to ACMA advising of consultation as well as when consultation closed for the purposes of the preparation of the EP. This enabled Woodside to assess feedback before EP submission.
- Woodside's methodology allows a 45-day consultation period for MSS EPs and Woodside allowed ACMA 45 days for consultation.
- Consultation for this EP commenced 6 months ago.
- In this context, Woodside allowed ACMA a reasonable period for consultation in preparation of the EP.

Reasonable Opportunity

A reasonable opportunity to provide feedback has been provided because Woodside's approach to consultation with ACMA is appropriate and adapted to the nature of interests of ACMA:

- Woodside published advertisements in 6 national, state, and relevant local newspapers (see Consultation Activities). This allowed for broad awareness of the activity under the EP and also of consultation.
- Woodside ran a targeted social media campaign (see Consultation Activities). This allowed for broad awareness of the activity under the EP and also of consultation.
- In the absence of feedback, Woodside sent a follow-up consultation email on 8 October 2025, reminding ACMA of the opportunity to provide feedback.

Outcomes of Consultation

Woodside has assessed the merits of each objection or claim (if any) about the adverse impact of the activity to which the EP relates, as required under Regulation 24. The measures (if any) that Woodside has adopted or proposes to adopt because of the consultation are appropriate because:

- No additional measures were considered as a result of consultation as ACMA did not provide feedback for this EP.
- Woodside will continue to accept and assess feedback throughout the life of the EP and apply its Management of Change and Revision process when applicable.
- The measures and controls described in this EP address the potential impact from the proposed activity on ACMA's functions, interests or activities.

4.1.3 Australian Fisheries Management Authority (AFMA)

Summary of information provided and record of consultation for this EP:

- On 8 September 2025, Woodside emailed AFMA advising of the proposed activity (Record of Consultation, reference 6.1.29), provided a Consultation Information Sheet, information on potential impacts to fisheries, and a link to NOPSEMA's brochure '*Consultation on offshore petroleum environment plans: Information for the community'*. In addition to providing the consultation information for this EP, Woodside proposed a meeting with AFMA to discuss EPs and consultation.
- On 12 September 2025, AFMA responded thanking Woodside for the email and the opportunity to comment (SI Report A, reference 1.1). AFMA also:
  - **(1)** Confirmed it had no direct comments on the EP but requested to be included on future consultation regarding the EP.
  - **(2)** Confirmed the Commonwealth fisheries identified in the consultation information were relevant and encouraged continued engagement with these stakeholders.
  - Advised it would like to accept Woodside's offer to meet to discuss Woodside EPs.
  - Noted its interest in Woodside's environmental data collection, in particular whether Woodside could share a copy of its Seabird Management Plan.

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- On 17 October 2025, Woodside thanked AFMA for its feedback (SI Report A, reference 1.2) and:
  - **(1)** Noted AFMA had no direct comments on this EP and confirmed Woodside would include AFMA on any future consultation related to the EP, and would also notify AFMA before activities commenced.
  - **(2)** Thanked AFMA for its confirmation that Woodside had consulted relevant Commonwealth fisheries.
  - Confirmed Woodside would reach out separately to arrange a meeting with AFMA to discuss Woodside EP consultation as well as AFMA's interest in environmental data collection and Woodside's Seabird Management Plan.
- On 9 February 2026, Woodside emailed AFMA to follow up on discussions regarding a consultation meeting (SI Report A, reference 1.3). Woodside proposed some potential times for a meeting.
- On 13 February 2026, AFMA emailed to confirm it was available to meet the following week (SI Report A, reference 1.4).
- On 13 February 2026, Woodside thanked AFMA for confirming its availability and included an online calendar invite (SI Report A, reference 1.5).
- On 16 February 2026, Woodside and AFMA held an online meeting (SI Report A, reference 1.6) to discuss general consultation matters. During the meeting:
  - Woodside provided an update on its EP consultation process and likely schedule.
  - Woodside outlined its current approach for assessing relevancy of Commonwealth fisheries and representative bodies.
    - **(3)** Woodside noted AFMA's general advice that fishery management areas may be used for other purposes even if there had been low or no activity over a certain period, and that it was proposing to amend its relevancy methodology to assess fishery representative bodies based on management area overlap. This approach was aimed at streamlining consultation to ensure representative bodies were consistently consulted and had an opportunity to identify fishing industry issues.
      - Woodside further noted that, depending on the nature and scale of the activity, individual licence holders would continue to be assessed as relevant only where there had been recent catch effort, to reduce consultation fatigue.
    - **(3)** AFMA endorsed Woodside's proposed approach and noted that where a representative body considered broader consultation with licence holders to be warranted for a particular activity, this should inform Woodside's consultation approach.

Summary of Feedback, Objection or Claim	Woodside's Assessment of Merits of Feedback, Objection or Claim	Woodside's Statement of Response	Inclusion in Environment Plan
(1) No direct comments on the EP but requested to be included in future consultation on the EP.	**(1)** Woodside accepts AFMA has no direct comments regarding the proposed activity at this time but will keep AFMA informed of future consultation opportunities and has committed to notifying AFMA prior to the commencement of activities.	**(1)** Woodside thanked AFMA for confirming it had no comments and advised it would notify AFMA prior to the commencement of activities.	**(1)** No changes or additional controls or measures required. As per Woodside's standard notifications, AFMA will be notified 10 days prior to the commencement of activities and following completion of activities, as referenced as C 1.6 and set out in Section 7.9 of the EP.
(2) Confirmed relevant fisheries had been consulted.	**(2)** Woodside considers all necessary Commonwealth fishery stakeholders have been consulted on this EP.	**(2)** Woodside thanked AFMA for confirming the relevant Commonwealth fishery stakeholders had been consulted.	**(2)** No changes or additional controls or measure required. Woodside's assessment of relevant Commonwealth

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			fisheries is set out in Appendix F, Table 1.
(3) Endorsed Woodside's approach to relevancy for Commonwealth fishery representative bodies.	**(3)** Woodside has amended its relevancy methodology to assess Commonwealth fishery representative bodies based on management area overlap, in acknowledgement of advice from AFMA.	**(3)** Woodside confirmed it would consult Commonwealth representative bodies as relevant based on management area overlap.	**(3)** Woodside has updated its relevancy methodology in Section 5 and its relevancy assessment for Commonwealth fishery representative bodies in Appendix F, Table 1.
While feedback has been received, there were no objections or claims.	Woodside has assessed the merits of each objection or claim (if any) about the adverse impact of the activity to which the EP relates, as required under Regulation 24.	Woodside engages in ongoing consultation throughout the life of an EP. Woodside notes that further feedback may be received as part of ongoing consultation. Should further feedback be received, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.7.1 of the EP).	No additional controls or measures are required.

Summary Report – Consultation Complete

Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and considers consultation with AFMA for the purpose of regulation 25 complete. Sufficient information, a reasonable period and a reasonable opportunity have been provided, as described in Section 5.4 of the EP and further summarised in the Consultation Approach above. Specifically:

Sufficient Information

Woodside has given AFMA sufficient information to allow AFMA to make an informed assessment of the possible consequences of the activity on its functions, interests or activities because:

- The Consultation Information Sheet for this EP has been publicly available on the Woodside website since September 2025. Woodside gave this information to AFMA on 8 September 2025, marking the commencement of consultation on this EP. The Consultation Information Sheet included:
  - The purpose of consultation and set out what was being sought through consultation.
  - A summary of the activity description, location of the activity, timing of the activity, receiving environment, impacts and risks associated with the Petroleum Activity, and proposed mitigation and management measures.
  - A timeframe for consultation and the provision of feedback.
  - A link to NOPSEMA's brochure '*Consultation on offshore petroleum environment plans: Information for the community'*.
  - Advice that relevant persons can request that particular information provided during consultation not be published (to align with 25(4) of the Environment Regulations).
- Woodside also provided additional tailored information to AFMA on potential impacts to fisheries.
- On 12 September 2025, AFMA shared its feedback regarding this activity, indicating the information provided was sufficient to enable AFMA to make an informed assessment of the possible consequences of the activity on its functions, interests or activities.

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Reasonable Period

Woodside allowed AFMA a reasonable period for consultation in the preparation of the EP because:

- A consultation period was stated in the initial correspondence to AFMA advising of consultation as well as when consultation closed for the purposes of the preparation of the EP. This enabled Woodside to assess feedback before EP submission.
- Woodside's methodology allows a 45-day consultation period for MSS EPs and Woodside allowed AFMA 45 days for consultation.
- Consultation for this EP commenced 6 months ago.
- In this context, Woodside allowed AFMA a reasonable period for consultation in preparation of the EP, as evidenced by AFMA's response on 12 September 2025.

Reasonable Opportunity

A reasonable opportunity to provide feedback has been provided because Woodside's approach to consultation with AFMA is appropriate and adapted to the nature of interests of AFMA:

- Woodside published advertisements in 6 national, state, and relevant local newspapers (see Consultation Activities). This allowed for broad awareness of the activity under the EP and also of consultation.
- Woodside ran a targeted social media campaign (see Consultation Activities). This allowed for broad awareness of the activity under the EP and also of consultation.

Outcomes of Consultation

Woodside has assessed the merits of each objection or claim (if any) about the adverse impact of the activity to which the EP relates, as required under Regulation 24. The measures (if any) that Woodside has adopted or proposes to adopt because of the consultation are appropriate because:

- AFMA provided feedback but no objections or claims. In line with the intended outcome of consultation as set out in Section 5.2 and Regulations 24 and 34(g), Woodside has:
  - Responded to feedback from AFMA.
  - Based on AFMA's feedback, updated its methodology for assessing relevance of peak Commonwealth representative fishing bodies. No additional measures or controls were required as a result of the amended methodology.
- Woodside will continue to accept and assess feedback throughout the life of the EP and apply its Management of Change and Revision process when applicable.

4.1.4 Australian Hydrographic Office (AHO)

Summary of information provided and record of consultation for this EP:

- On 8 September 2025, Woodside emailed AHO advising of the proposed activity (Record of Consultation, reference 6.1.12), provided a Consultation Information Sheet, and a link to NOPSEMA's brochure '*Consultation on offshore petroleum environment plans: Information for the community*'.
- On 9 September 2025, AHO emailed thanking Woodside for the invitation to comment (SI Report A, reference 2.1). AHO also:
  - **(1)** Advised it had no concerns with the proposed activities.
  - **(2)** Confirmed it only required further updates once the activity was due to begin.

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- On 10 September 2025, Woodside responded thanking AHO for the feedback (SI Report A, reference 2.2). Woodside:
  - **(1)** Noted AHO had no concerns with the proposed activities.
  - **(2)** Confirmed it would notify AHO prior to the commencement of activities.

Summary of Feedback, Objection or Claim	Woodside's Assessment of Merits of Feedback, Objection or Claim	Woodside's Statement of Response	Inclusion in Environment Plan
(1) No concerns with the activities.	**(1)** Woodside accepts AHO has no concerns regarding the activities.	**(1)** Woodside acknowledged AHO had no concerns and thanked AHO for its feedback.	**(1)** Not required.
(2) No further updates required until activity beginning.	**(2)** Woodside will notify AHO prior to activity commencement and notes the importance of this notification as a means to inform marine users of the survey start.	**(2)** Woodside confirmed it would notify AHO prior to the commencement of the activities.	**(2)** No additional controls or measures are required. As per Woodside's standard notifications, AHO will be notified no less than four working weeks prior to activity commencement, as referenced as C 1.4 and set out in Section 7.9 of the EP.
While feedback has been received, there were no objections or claims.	Woodside has assessed the merits of each objection or claim (if any) about the adverse impact of the activity to which the EP relates, as required under Regulation 24.	Woodside engages in ongoing consultation throughout the life of an EP. Woodside notes that further feedback may be received as part of ongoing consultation. Should further feedback be received, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.7.1 of the EP).	No additional controls or measures are required.

Summary Report – Consultation Complete

Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and considers consultation with AHO for the purpose of regulation 25 complete. Sufficient information, a reasonable period and a reasonable opportunity have been provided, as described in Section 5.4 of the EP and further summarised in the Consultation Approach above. Specifically:

Sufficient Information

Woodside has given AHO sufficient information to allow AHO to make an informed assessment of the possible consequences of the activity on its functions, interests or activities because:

- The Consultation Information Sheet for this EP has been publicly available on the Woodside website since September 2025. Woodside gave this information to AHO on 8 September 2025, marking the commencement of consultation on this EP. The Consultation Information Sheet included:

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  - The purpose of consultation and set out what was being sought through consultation.
  - A summary of the activity description, location of the activity, timing of the activity, receiving environment, impacts and risks associated with the Petroleum Activity, and proposed mitigation and management measures.
  - A timeframe for consultation and the provision of feedback.
  - A link to NOPSEMA's brochure '*Consultation on offshore petroleum environment plans: Information for the community'*.
  - Advice that relevant persons can request that particular information provided during consultation not be published (to align with 25(4) of the Environment Regulations).
- On 9 September 2025, AHO shared its feedback regarding this activity, indicating the information provided was sufficient to enable AHO to make an informed assessment of the possible consequences of the activity on its functions, interests or activities.

Reasonable Period

Woodside allowed AHO a reasonable period for consultation in the preparation of the EP because:

- A consultation period was stated in the initial correspondence to AHO advising of consultation as well as when consultation closed for the purposes of the preparation of the EP. This enabled Woodside to assess feedback before EP submission.
- Woodside's methodology allows a 45-day consultation period for MSS EPs and Woodside allowed AHO 45 days for consultation.
- Consultation for this EP commenced 6 months ago.
- In this context, Woodside allowed AHO a reasonable period for consultation in preparation of the EP, as evidenced by AHO's response on 9 September 2025.

Reasonable Opportunity

A reasonable opportunity to provide feedback has been provided because Woodside's approach to consultation with AHO is appropriate and adapted to the nature of interests of AHO:

- Woodside published advertisements in 6 national, state, and relevant local newspapers (see Consultation Activities). This allowed for broad awareness of the activity under the EP and also of consultation.
- Woodside ran a targeted social media campaign (see Consultation Activities). This allowed for broad awareness of the activity under the EP and also of consultation.

Outcomes of Consultation

Woodside has assessed the merits of each objection or claim (if any) about the adverse impact of the activity to which the EP relates, as required under Regulation 24. The measures (if any) that Woodside has adopted or proposes to adopt because of the consultation are appropriate because:

- AHO provided feedback but no objections or claims. In line with the intended outcome of consultation as set out in Section 5.2 and Regulations 24 and 34(g), Woodside has:
  - Responded to feedback from AHO.
  - Made no changes or inclusions to the EP as a result of consultation with AHO because appropriate measures are already included in the EP.
- Woodside will continue to accept and assess feedback throughout the life of the EP and apply its Management of Change and Revision process when applicable.

4.1.5 Australian Maritime Safety Authority (AMSA) – Marine Pollution

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Summary of information provided and record of consultation for this EP:

- On 8 September 2025, Woodside emailed AMSA – Marine Pollution advising of the proposed activity (Record of Consultation, reference 6.1.9), provided a Consultation Information Sheet, and a link to NOPSEMA's brochure '*Consultation on offshore petroleum environment plans: Information for the community*'.
- On 8 October 2025, as no response had been received, Woodside proactively sent a follow-up email (Record of Consultation, reference 6.2.1).

Summary of Feedback, Objection or Claim	Woodside's Assessment of Merits of Feedback, Objection or Claim	Woodside's Statement of Response	Inclusion in Environment Plan
No feedback, objections or claims about the adverse impact of the activity received despite follow-up.		Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.7.1 of the EP).	Woodside has addressed oil pollution planning and response at Appendix G. No additional measures or controls are required.

Summary Report – Consultation Complete

Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and considers consultation with AMSA – Marine Pollution for the purpose of regulation 25 complete. Sufficient information, a reasonable period and a reasonable opportunity have been provided, as described in Section 5.4 of the EP and further summarised in the Consultation Approach above. Specifically:

Sufficient Information

Woodside has given AMSA – Marine Pollution sufficient information to allow AMSA – Marine Pollution to make an informed assessment of the possible consequences of the activity on its functions, interests or activities because:

- The Consultation Information Sheet for this EP has been publicly available on the Woodside website since September 2025. Woodside gave this information to AMSA – Marine Pollution on 8 September 2025, marking the commencement of consultation on this EP. The Consultation Information Sheet included:
  - The purpose of consultation and set out what was being sought through consultation.
  - A summary of the activity description, location of the activity, timing of the activity, receiving environment, impacts and risks associated with the Petroleum Activity, and proposed mitigation and management measures.
  - A timeframe for consultation and the provision of feedback.
  - A link to NOPSEMA's brochure '*Consultation on offshore petroleum environment plans: Information for the community*'.
  - Advice that relevant persons can request that particular information provided during consultation not be published (to align with 25(4) of the Environment Regulations).

Reasonable Period

Woodside allowed AMSA – Marine Pollution a reasonable period for consultation in the preparation of the EP because:

- A consultation period was stated in the initial correspondence to AMSA – Marine Pollution advising of consultation as well as when consultation closed for the purposes of the preparation of the EP. This enabled Woodside to assess feedback before EP submission.
- Woodside's methodology allows a 45-day consultation period for MSS EPs and Woodside allowed AMSA – Marine Pollution 45 days for consultation.

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- Consultation for this EP commenced 6 months ago.
- In this context, Woodside allowed AMSA – Marine Pollution a reasonable period for consultation in preparation of the EP.

Reasonable Opportunity

A reasonable opportunity to provide feedback has been provided because Woodside's approach to consultation with AMSA – Marine Pollution is appropriate and adapted to the nature of interests of AMSA – Marine Pollution:

- Woodside published advertisements in 6 national, state, and relevant local newspapers (see Consultation Activities). This allowed for broad awareness of the activity under the EP and also of consultation.
- Woodside ran a targeted social media campaign (see Consultation Activities). This allowed for broad awareness of the activity under the EP and also of consultation.
- In the absence of feedback, Woodside sent a follow-up consultation email on 8 October 2025, reminding AMSA – Marine Pollution of the opportunity to provide feedback.

Outcomes of Consultation

Woodside has assessed the merits of each objection or claim (if any) about the adverse impact of the activity to which the EP relates, as required under Regulation 24. The measures (if any) that Woodside has adopted or proposes to adopt because of the consultation are appropriate because:

- No additional measures were considered as a result of consultation as AMSA – Marine Pollution did not provide feedback for this EP.
- Woodside will continue to accept and assess feedback throughout the life of the EP and apply its Management of Change and Revision process when applicable.
- The measures and controls described in this EP address the potential impact from the proposed activity on AMSA – Marine Pollution's functions, interests or activities.

4.1.6 Australian Maritime Safety Authority (AMSA) – Marine Safety

Summary of information provided and record of consultation for this EP:

- On 8 September 2025, Woodside emailed AMSA – Marine Safety advising of the proposed activity (Record of Consultation, reference 6.1.13), provided a Consultation Information Sheet, and a link to NOPSEMA's brochure '*Consultation on offshore petroleum environment plans: Information for the community*'.
- On 10 September 2025, AMSA – Marine Safety thanked Woodside for the information (SI Report A, reference 3.1). AMSA:
  - **(1)** Noted the size of the EMBA and that heavy vessels, support craft and local traffic would be encountered, as well as support traffic to and from Barrow Island and ports and their surrounds.
  - **(2)** Attached a chartlet showing the EMBA, shipping fairways and NOPTA titles and advised heavy traffic would be encountered using the shipping fairways, and passenger, pleasure craft and sailing vessels would be travelling around Ningaloo Reef zones.
  - **(3)** Requested that Woodside notify AMSA's Response Centre (ARC) 24-48 hours before activities commence and provide the information required as part of the notification.
  - **(4)** Reminded Woodside to contact the AHO no less than four working weeks before activities commence for the promulgation of notices to mariners.
  - **(5)** Advised vessels should exhibit appropriate lights and shapes to reflect the nature of operations and comply with the COLREGS.
  - **(6)** Advised that Woodside should evaluate and implement adequate anti-collision measures and gave three examples of measures.

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- **(7)** Noted digital data sets, traffic plots and customised information could be obtained via AMSA's spatial data gateway.

- On 7 October 2025, Woodside responded thanking AMSA – Marine Safety for its feedback (SI Report A, reference 3.2). Woodside:
  - **(1)** Noted AMSA's advice regarding the EMBA and the traffic that would be encountered.
  - **(2)** Thanked AMSA for providing the chartlet which shows shipping fairways and NOPTA titles.
  - **(3)** Confirmed it would notify the ARC 24-48 hours prior to activity commencement and provide the requested information.
  - **(4)** Confirmed it would notify the AHO no less than four working weeks prior to activity commencement.
  - **(5)** Advised vessels would exhibit appropriate lights and shapes to reflect the nature of operations and comply with the COLREGS.
  - **(6)** Confirmed Woodside would evaluate and implement anti-collision measures including additional warnings and/or lights, offshore chase vessels, and the installation of AIS units. Streamer tail buoys would also be fitted to mark the end of streamers.
    - Woodside advised it would also establish a 3NM Safe Navigation Area (SNA) around the seismic vessel and towed array, have one dedicated vessel available to assist the seismic vessel in implementing the SNA, and would not undertake bunkering in the marine fairway that intersects the Operational Area.
  - **(7)** Noted shipping data was available via AMSA's spatial data gateway.

Summary of Feedback, Objection or Claim	Woodside's Assessment of Merits of Feedback, Objection or Claim	Woodside's Statement of Response	Inclusion in Environment Plan
(1) Heavy vessels, support craft and local traffic will be present in the EMBA.	**(1)** Woodside notes AMSA's advice regarding the range of vessels present in the EMBA.	**(1)** Woodside acknowledged AMSA's advice that heavy vessels, support craft and local traffic would be present in the EMBA.	**(1)** No additional controls or measures are required. As referenced as C 1.1 of the EP, vessels will comply with Marine Orders for safe vessel operations, specifically Marine Orders 21, 27 and 30. A 3NM SNA will also be established, as referenced as C 1.2 of the EP.
(2) Provided a chart of shipping fairways and NOPTA titles.	**(2)** Woodside notes the chart provided by AMSA.	**(2)** Woodside thanked AMSA for the chart showing shipping fairways and NOPTA titles.	**(2)** No additional controls or measures are required. A description of commercial shipping relevant to this activity is set out in Section 4.9.5 of the EP.
(3) Notify ARC 24-48 hours before activities commence.	**(3)** Woodside commits to notifying the ARC 24-48 hours before activities commence.	**(3)** Woodside confirmed it would notify the ARC 24-48 hours before activities commence and provide the requested information.	**(3)** No additional controls or measures are required as a notification to the ARC 24-48 hours before activities commence has been included in the EP as standard, as referenced as C 1.5 and set out in Section 7.9.

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(4) Notify AHO at least four weeks before activities commence.	**(4)** Woodside commits to notifying AHO at least four weeks before activities commence.	**(4)** Woodside confirmed it would notify AHO at least four weeks before activities commence.	**(4)** No additional controls or measures are required as a notification to AHO has been included in the EP as standard, as referenced as C 1.4 and set out in Section 7.9.
(5) Ensure vessels exhibit appropriate lights and shapes and comply with the COLREGS.	**(5)** Vessels will exhibit appropriate lights and comply with the COLREGS.	**(5)** Woodside confirmed vessels would exhibit appropriate lights and shapes and comply with the COLREGS.	**(5)** No additional controls or measures are required. As referenced as C 1.1 of the EP, vessels will comply with Marine Orders for safe vessel operations, specifically Marine Orders 21, 27 and 30.
(6) Evaluate and implement adequate anti-collision measures.	**(6)** Woodside has evaluated and will implement adequate anti-collision measures.	**(6)** Woodside confirmed it would evaluate and implement anti-collision measures including additional warnings and/or lights, offshore chase vessels, the installation of AIS units, streamer tail buoys, a 3nm SNA, support vessel, and no bunkering in the marine fairway.	**(6)** No additional controls or measures are required. Controls relating to anti-collision measures are set out in Section 6.7.1 of the EP.
(7) Shipping data available via AMSA's spatial data gateway.	**(7)** Woodside notes the availability of shipping data.	**(7)** Woodside noted shipping data was available from AMSA's spatial gateway.	**(7)** No additional controls or measures are required. A description of commercial shipping relevant to this activity is set out in Section 4.9.5 of the EP.
While feedback has been received, there were no objections or claims.	Woodside has assessed the merits of each objection or claim (if any) about the adverse impact of the activity to which the EP relates, as required under Regulation 24.	Woodside engages in ongoing consultation throughout the life of an EP. Woodside notes that further feedback may be received as part of ongoing consultation. Should further feedback be received, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.7.1 of the EP).	No additional controls or measures are required.
Summary Report – Consultation Complete			

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Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and considers consultation with AMSA – Marine Safety for the purpose of regulation 25 complete. Sufficient information, a reasonable period and a reasonable opportunity have been provided, as described in Section 5.4 of the EP and further summarised in the Consultation Approach above. Specifically:

Sufficient Information

Woodside has given AMSA – Marine Safety sufficient information to allow AMSA – Marine Safety to make an informed assessment of the possible consequences of the activity on its functions, interests or activities because:

- The Consultation Information Sheet for this EP has been publicly available on the Woodside website since September 2025. Woodside gave this information to AMSA – Marine Safety on 8 September 2025, marking the commencement of consultation on this EP. The Consultation Information Sheet included:
  - The purpose of consultation and set out what was being sought through consultation.
  - A summary of the activity description, location of the activity, timing of the activity, receiving environment, impacts and risks associated with the Petroleum Activity, and proposed mitigation and management measures.
  - A timeframe for consultation and the provision of feedback.
  - A link to NOPSEMA's brochure '*Consultation on offshore petroleum environment plans: Information for the community'*.
  - Advice that relevant persons can request that particular information provided during consultation not be published (to align with 25(4) of the Environment Regulations).
- Woodside provided additional tailored information to AMSA – Marine Safety including a map of shipping channels in proximity to the activity.
- On 10 September 2025, AMSA – Marine Safety shared its feedback regarding this activity, indicating the information provided was sufficient to enable AMSA – Marine Safety to make an informed assessment of the possible consequences of the activity on its functions, interests or activities.
- In addition to the information in the Consultation Information Sheet, Woodside provided additional information to AMSA – Marine Safety in response to AMSA – Marine Safety's feedback (Woodside's email of 7 October 2025).

Reasonable Period

Woodside allowed AMSA – Marine Safety a reasonable period for consultation in the preparation of the EP because:

- A consultation period was stated in the initial correspondence to AMSA – Marine Safety advising of consultation as well as when consultation closed for the purposes of the preparation of the EP. This enabled Woodside to assess feedback before EP submission.
- Woodside's methodology allows a 45-day consultation period for MSS EPs and Woodside allowed AMSA – Marine Safety 45 days for consultation. AMSA – Marine Safety provided feedback during this period.
- Consultation for this EP commenced 6 months ago.
- In this context, Woodside allowed AMSA – Marine Safety a reasonable period for consultation in preparation of the EP, as evidenced by AMSA – Marine Safety's response on 10 September 2025.

Reasonable Opportunity

A reasonable opportunity to provide feedback has been provided because Woodside's approach to consultation with AMSA – Marine Safety is appropriate and adapted to the nature of interests of AMSA – Marine Safety:

- Woodside published advertisements in 6 national, state, and relevant local newspapers (see Consultation Activities). This allowed for broad awareness of the activity under the EP and also of consultation.
- Woodside ran a targeted social media campaign (see Consultation Activities). This allowed for broad awareness of the activity under the EP and also of consultation.

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Outcomes of Consultation

Woodside has assessed the merits of each objection or claim (if any) about the adverse impact of the activity to which the EP relates, as required under Regulation 24. The measures (if any) that Woodside has adopted or proposes to adopt because of the consultation are appropriate because:

- AMSA – Marine Safety provided feedback but no objections or claims. In line with the intended outcome of consultation as set out in Section 5.2 and Regulations 24 and 34(g), Woodside has:
  - Responded to feedback from AMSA – Marine Safety.
  - Made no changes or inclusions to the EP as a result of consultation with AMSA – Marine Safety because appropriate measures are already included in the EP.
- Woodside will continue to accept and assess feedback throughout the life of the EP and apply its Management of Change and Revision process when applicable.

4.1.7 Department of Agriculture, Fisheries and Forestry (DAFF) – Fisheries

Summary of information provided and record of consultation for this EP:

- On 8 September 2025, Woodside emailed DAFF - Fisheries advising of the proposed activity (Record of Consultation, reference 6.1.15), provided a Consultation Information Sheet, information on potential impacts to fisheries, and a link to NOPSEMA's brochure '*Consultation on offshore petroleum environment plans: Information for the community*'.
- On 8 October 2025, as no response had been received, Woodside proactively sent a follow-up email (Record of Consultation, reference 6.2.1).

Summary of Feedback, Objection or Claim	Woodside's Assessment of Merits of Feedback, Objection or Claim	Woodside's Statement of Response	Inclusion in Environment Plan
No feedback, objections or claims about the adverse impact of the activity received despite follow-up.		Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.7.1 of the EP).	No additional measures or controls are required.
Summary Report – Consultation Complete			
Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and considers consultation with DAFF - Fisheries for the purpose of regulation 25 complete. Sufficient information, a reasonable period and a reasonable opportunity have been provided, as described in Section 5.4 of the EP and further summarised in the Consultation Approach above. Specifically:			

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Sufficient Information

Woodside has given DAFF - Fisheries sufficient information to allow DAFF - Fisheries to make an informed assessment of the possible consequences of the activity on its functions, interests or activities because:

- The Consultation Information Sheet for this EP has been publicly available on the Woodside website since September 2025. Woodside gave this information to DAFF - Fisheries on 8 September 2025, marking the commencement of consultation on this EP. The Consultation Information Sheet included:
  - The purpose of consultation and set out what was being sought through consultation.
  - A summary of the activity description, location of the activity, timing of the activity, receiving environment, impacts and risks associated with the Petroleum Activity, and proposed mitigation and management measures.
  - A timeframe for consultation and the provision of feedback.
  - A link to NOPSEMA's brochure '*Consultation on offshore petroleum environment plans: Information for the community'.*
  - Advice that relevant persons can request that particular information provided during consultation not be published (to align with 25(4) of the Environment Regulations).
- Woodside also provided additional tailored information to DAFF – Fisheries on potential impacts to fisheries.

Reasonable Period

Woodside allowed DAFF - Fisheries a reasonable period for consultation in the preparation of the EP because:

- A consultation period was stated in the initial correspondence to DAFF - Fisheries advising of consultation as well as when consultation closed for the purposes of the preparation of the EP. This enabled Woodside to assess feedback before EP submission.
- Woodside's methodology allows a 45-day consultation period for MSS EPs and Woodside allowed DAFF - Fisheries 45 days for consultation.
- Consultation for this EP commenced 6 months ago.
- In this context, Woodside allowed DAFF - Fisheries a reasonable period for consultation in preparation of the EP.

Reasonable Opportunity

A reasonable opportunity to provide feedback has been provided because Woodside's approach to consultation with DAFF - Fisheries is appropriate and adapted to the nature of interests of DAFF - Fisheries:

- Woodside published advertisements in 6 national, state, and relevant local newspapers (see Consultation Activities). This allowed for broad awareness of the activity under the EP and also of consultation.
- Woodside ran a targeted social media campaign (see Consultation Activities). This allowed for broad awareness of the activity under the EP and also of consultation.
- In the absence of feedback, Woodside sent a follow-up consultation email on 8 October 2025, reminding DAFF - Fisheries of the opportunity to provide feedback.

Outcomes of Consultation

Woodside has assessed the merits of each objection or claim (if any) about the adverse impact of the activity to which the EP relates, as required under Regulation 24. The measures (if any) that Woodside has adopted or proposes to adopt because of the consultation are appropriate because:

- No additional measures were considered as a result of consultation as DAFF - Fisheries did not provide feedback for this EP.
- Woodside will continue to accept and assess feedback throughout the life of the EP and apply its Management of Change and Revision process when applicable.
- The measures and controls described in this EP address the potential impact from the proposed activity on DAFF - Fisheries' functions, interests or activities.

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4.1.8 Department of Defence (DoD)

Summary of information provided and record of consultation for this EP:

- On 8 September 2025, Woodside emailed DoD advising of the proposed activity (Record of Consultation, reference 6.1.10), provided a Consultation Information Sheet, and a link to NOPSEMA's brochure '*Consultation on offshore petroleum environment plans: Information for the community'*. Woodside also provided a map of defence zones in relation to the activity (Record of Consultation, reference 6.1.3).
- On 8 October 2025, as no response had been received, Woodside proactively sent a follow-up email (Record of Consultation, reference 6.2.1).

Summary of Feedback, Objection or Claim	Woodside's Assessment of Merits of Feedback, Objection or Claim	Woodside's Statement of Response	Inclusion in Environment Plan
No feedback, objections or claims about the adverse impact of the activity received despite follow-up.		Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.7.1 of the EP).	Woodside will notify DoD no less than 5 weeks before activities commence, as referenced as C 1.12 and set out in Section 7.9 of the EP. No additional measures or controls are required.

Summary Report – Consultation Complete

Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and considers consultation with DoD for the purpose of regulation 25 complete. Sufficient information, a reasonable period and a reasonable opportunity have been provided, as described in Section 5.4 of the EP and further summarised in the Consultation Approach above. Specifically:

Sufficient Information

Woodside has given DoD sufficient information to allow DoD to make an informed assessment of the possible consequences of the activity on its functions, interests or activities because:

- The Consultation Information Sheet for this EP has been publicly available on the Woodside website since September 2025. Woodside gave this information to DoD on 8 September 2025, marking the commencement of consultation on this EP. The Consultation Information Sheet included:
  - The purpose of consultation and set out what was being sought through consultation.
  - A summary of the activity description, location of the activity, timing of the activity, receiving environment, impacts and risks associated with the Petroleum Activity, and proposed mitigation and management measures.
  - A timeframe for consultation and the provision of feedback.
  - A link to NOPSEMA's brochure '*Consultation on offshore petroleum environment plans: Information for the community'*.
  - Advice that relevant persons can request that particular information provided during consultation not be published (to align with 25(4) of the Environment Regulations).
- Woodside provided additional tailored information to DoD, including a map of the defence zones in relation to the EMBA and Operational Area.

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Reasonable Period

Woodside allowed DoD a reasonable period for consultation in the preparation of the EP because:

- A consultation period was stated in the initial correspondence to DoD advising of consultation as well as when consultation closed for the purposes of the preparation of the EP. This enabled Woodside to assess feedback before EP submission.
- Woodside's methodology allows a 45-day consultation period for MSS EPs and Woodside allowed DoD 45 days for consultation.
- Consultation for this EP commenced 6 months ago.
- In this context, Woodside allowed DoD a reasonable period for consultation in preparation of the EP.

Reasonable Opportunity

A reasonable opportunity to provide feedback has been provided because Woodside's approach to consultation with DoD is appropriate and adapted to the nature of interests of DoD:

- Woodside published advertisements in 6 national, state, and relevant local newspapers (see Consultation Activities). This allowed for broad awareness of the activity under the EP and also of consultation.
- Woodside ran a targeted social media campaign (see Consultation Activities). This allowed for broad awareness of the activity under the EP and also of consultation.
- In the absence of feedback, Woodside sent a follow-up consultation email on 8 October 2025, reminding DoD of the opportunity to provide feedback.

Outcomes of Consultation

Woodside has assessed the merits of each objection or claim (if any) about the adverse impact of the activity to which the EP relates, as required under Regulation 24. The measures (if any) that Woodside has adopted or proposes to adopt because of the consultation are appropriate because:

- No additional measures were considered as a result of consultation as DoD did not provide feedback for this EP.
- Woodside will continue to accept and assess feedback throughout the life of the EP and apply its Management of Change and Revision process when applicable.
- The measures and controls described in this EP address the potential impact from the proposed activity on DoD's functions, interests or activities.

4.1.9 Department of Planning, Lands and Heritage (DPLH)

Summary of information provided and record of consultation for this EP:

- On 8 September 2025, Woodside emailed DPLH advising of the proposed activity (Record of Consultation, reference 6.1.22), provided a Consultation Information Sheet, and a link to NOPSEMA's brochure '*Consultation on offshore petroleum environment plans: Information for the community*'.
- On 8 October 2025, as no response had been received, Woodside proactively sent a follow-up email (Record of Consultation, reference 6.2.1).
- On 14 October 2025, DPLH responded thanking Woodside for the opportunity to provide comment (SI Report A, reference 4.1). DPLH:
  - **(1)** Confirmed its understanding of the EP and advised that as the proposed activities were located in Commonwealth waters, it had no comment on the EP.

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- **(2)** Noted that as the EMBA intersected State waters, Woodside should consult DBCA for this EP, as well as contact the Western Australian Museum as the delegated authority for management of Commonwealth historic shipwrecks and relics in Western Australia.
- **(3)** Advised that EPBC approvals were required where activities had the potential to significantly impact the national heritage values of a listed place and that consultation with DCCEEW was recommended.

- On 24 October 2025, Woodside responded thanking DPLH for its feedback (SI Report A, reference 4.2). Woodside:
  - **(1)** Thanked DPLH for confirming it had no comments on the proposed activity.
  - **(2)** Confirmed Woodside had consulted DBCA and the Western Australian Museum for this EP.
  - **(3)** Confirmed it had consulted relevant DCCEEW departments for this EP.

Summary of Feedback, Objection or Claim	Woodside's Assessment of Merits of Feedback, Objection or Claim	Woodside's Statement of Response	Inclusion in Environment Plan
(1) No comments on the proposed activity.	**(1)** Woodside accepts that due to the activity's location in Commonwealth waters, DPLH has no comment.	**(1)** Woodside thanked DPLH for confirming it had no comments regarding the activity.	**(1)** Not required.
(2) Recommended Woodside consult DBCA and WAM.	**(2)** Woodside has assessed DBCA and WAM as relevant persons for this EP and consulted them in accordance with Regulation 25 of the Environment Regulations.	**(2)** Woodside confirmed it had consulted DBCA and WAM for this EP.	**(2)** No changes required. Woodside's assessment of relevant persons is set out in Appendix F, Table 1.
(3) Provided advice about EPBC approvals and recommended Woodside consult DCCEEW.	**(3)** Woodside is aware of its obligations regarding EPBC approvals and has sought feedback from DCCEEW departments relevant to consultation for this EP.	**(3)** Woodside thanked DPLH for its advice and confirmed it had consulted relevant DCCEEW departments for this EP.	**(3)** No changes required. Woodside's assessment of relevant persons is set out in Appendix F, Table 1.
While feedback has been received, there were no objections or claims.	Woodside has assessed the merits of each objection or claim (if any) about the adverse impact of the activity to which the EP relates, as required under Regulation 24.	Woodside engages in ongoing consultation throughout the life of an EP. Woodside notes that further feedback may be received as part of ongoing consultation. Should further feedback be received, it will be assessed and, where appropriate, Woodside will apply its	The EP demonstrates there is one shipwreck site within the Operational Area of the Petroleum Activity and identifies that, due to no planned interaction with the seabed as part of this activity, there are no credible impacts to the values of any underwater

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		Management of Change and Revision process (see Section 7.7.1 of the EP).	heritage or shipwrecks as a result of planned activities or in the event of an unplanned hydrocarbon release (Sections 4.9 and 6.8.2 of the EP). No additional measures or controls are required.

Summary Report – Consultation Complete

Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and considers consultation with DPLH for the purpose of regulation 25 complete. Sufficient information, a reasonable period and a reasonable opportunity have been provided, as described in Section 5.4 of the EP and further summarised in the Consultation Approach above. Specifically:

Sufficient Information

Woodside has given DPLH sufficient information to allow DPLH to make an informed assessment of the possible consequences of the activity on its functions, interests or activities because:

- The Consultation Information Sheet for this EP has been publicly available on the Woodside website since September 2025. Woodside gave this information to DPLH on 8 September 2025, marking the commencement of consultation on this EP. The Consultation Information Sheet included:
  - The purpose of consultation and set out what was being sought through consultation.
  - A summary of the activity description, location of the activity, timing of the activity, receiving environment, impacts and risks associated with the Petroleum Activity, and proposed mitigation and management measures.
  - A timeframe for consultation and the provision of feedback.
  - A link to NOPSEMA's brochure '*Consultation on offshore petroleum environment plans: Information for the community'*.
  - Advice that relevant persons can request that particular information provided during consultation not be published (to align with 25(4) of the Environment Regulations).
- Woodside provided additional tailored information to DPLH including a list of State shipwrecks relevant to the activity.
- On 14 October 2025, DPLH shared its feedback regarding this activity, indicating the information provided was sufficient to enable DPLH to make an informed assessment of the possible consequences of the activity on its functions, interests or activities.
- In addition to the information in the Consultation Information Sheet, Woodside provided additional information to DPLH in response to DPLH's feedback (Woodside's email of 24 October 2025).

Reasonable Period

Woodside allowed DPLH a reasonable period for consultation in the preparation of the EP because:

- A consultation period was stated in the initial correspondence to DPLH advising of consultation as well as when consultation closed for the purposes of the preparation of the EP. This enabled Woodside to assess feedback before EP submission.
- Woodside's methodology allows a 45-day consultation period for MSS EPs and Woodside allowed DPLH 45 days for consultation. DPLH provided feedback during this period.
- Consultation for this EP commenced 6 months ago.
- In this context, Woodside allowed DPLH a reasonable period for consultation in preparation of the EP as evidenced by DPLH's response on 14 October 2025.

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Reasonable Opportunity

A reasonable opportunity to provide feedback has been provided because Woodside's approach to consultation with DPLH is appropriate and adapted to the nature of interests of DPLH:

- Woodside published advertisements in 6 national, state, and relevant local newspapers (see Consultation Activities). This allowed for broad awareness of the activity under the EP and also of consultation.
- Woodside ran a targeted social media campaign (see Consultation Activities). This allowed for broad awareness of the activity under the EP and also of consultation.
- In the absence of feedback, Woodside sent a follow-up consultation email on 8 October 2025, reminding DPLH of the opportunity to provide feedback.

Outcomes of Consultation

Woodside has assessed the merits of each objection or claim (if any) about the adverse impact of the activity to which the EP relates, as required under Regulation 24. The measures (if any) that Woodside has adopted or proposes to adopt because of the consultation are appropriate because:

- DPLH provided feedback but no objections or claims. In line with the intended outcome of consultation as set out in Section 5.2 and Regulations 24 and 34(g), Woodside has:
  - Responded to feedback from DPLH.
  - Made no changes or inclusions to the EP as a result of consultation with DPLH because appropriate measures are already included in the EP.
- Woodside will continue to accept and assess feedback throughout the life of the EP and apply its Management of Change and Revision process when applicable.

4.1.10 Department of Primary Industries and Regional Development (DPIRD)

Summary of information provided and record of consultation for this EP:

- On 8 September 2025, Woodside emailed DPIRD advising of the proposed activity (Record of Consultation, reference 6.1.18), provided a Consultation Information Sheet, information on potential impacts to fisheries, and a link to NOPSEMA's brochure 'Consultation on offshore petroleum environment plans: Information for the community'.
- On 8 October 2025, as no response had been received, Woodside proactively sent a follow-up email (Record of Consultation, reference 6.2.1).
- On 20 October 2025, DPIRD responded thanking Woodside for the emails and request for advice (SI Report A, reference 5.1). DPIRD:
  - **(1)** Noted that spawning grounds and nursery areas for key fish species were highly sensitive to disturbances, including noise and oil spills, and that many demersal species spawned at a range of locations across the continental shelf.
  - **(2)** Advised that data suggested three key fish species may be spawning within the area and time of the proposed activities, including:
    - Goldband snapper (November – May)
    - Rankin cod (June – December)
    - Red emperor (September – May)
  - **(3)** Advised the latest DPIRD stock assessment for Pilbara demersal species identified red emperor as being depleted and at severe risk, while goldband snapper was identified as depleting and at high risk.

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- **(4)** Stated the impacts of marine seismic surveys were not well understood and the potential impacts may have a more significant impact on those species.
- **(5)** Recommended further research be undertaken to better understand consequences of seismic surveys, including consideration of a collaboration between the survey team and DPIRD scientists to facilitate a before, after, control, impact (BACI) research study.

- On 12 December 2025, Woodside thanked DPIRD for its feedback (SI Report A, reference 5.2). Woodside:
  - **(1)** Confirmed it had incorporated available studies and research into its impact assessment and had taken into account the peak spawning periods for commercially valuable species.
  - **(2, 3, 4)** Advised the survey did not overlap with the Rankin cod spawning period or red emperor peak spawning period, however Woodside noted the timing of the goldband snapper spawning and the potential for impact. Woodside advised a spatial temporal assessment had been undertaken for goldband snapper which demonstrated that no significant impacts were expected as a result of this survey.
  - **(5)** Advised it was open to investing in collaborative research, had contributed to research into the impacts of marine seismic surveys in the past, was interested in discussing potential research opportunities and would contact DPIRD separately in regard to this with Woodside's science and biodiversity team.
  - Noted it would be willing to meet with DPIRD to further discuss this EP.

Summary of Feedback, Objection or Claim	Woodside's Assessment of Merits of Feedback, Objection or Claim	Woodside's Statement of Response	Inclusion in Environment Plan
(1) Noted demersal spawning grounds were sensitive to disturbances.	**(1)** Woodside acknowledges DPIRD's concerns about demersal spawning grounds.	**(1)** Woodside confirmed it had incorporated available studies and research into its impact assessment and had taken into account the peak spawning periods for commercially valuable species.	**(1)** No additional controls or measures are required. Woodside has assessed potential impacts to fish species and spawning periods in Section 4.9.2 of the EP.
(2) Identified three key species which may spawn in the area during the proposed activity – goldband snapper, Rankin cod and red emperor.	**(2)** Woodside has assessed impacts to fish species and the survey does not overlap with the Rankin cod spawning period or red emperor peak spawning period. Woodside has further assessed goldband snapper based on its spawning period, however, a spatial temporal assessment demonstrates that no significant impacts are expected as a result of this survey.	**(2)** Woodside advised the survey did not overlap with the Rankin cod spawning period or red emperor peak spawning period, however it noted the timing of the goldband snapper spawning and the potential for impact. A spatial temporal assessment had been undertaken which demonstrated that no significant impacts were expected as a result of this survey.	**(2)** No additional controls or measures are required. Woodside has assessed potential impacts to fish species and spawning periods in Section 4.9.2 of the EP.
(3) Advised the latest Pilbara demersal stock report showed red emperor as depleted and at severe risk, and goldband snapper depleting and at high risk.	**(3)** Woodside acknowledges the Pilbara demersal stock report which indicates some species are depleted and/or at severe risk. While the timing of goldband	**(3)** Woodside advised the survey did not overlap with the red emperor peak spawning period. Woodside had noted the timing of the goldband snapper	**(3)** No additional controls or measures are required. Woodside has assessed potential impacts to fish species and

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	snapper spawning overlaps the survey, spatial temporal assessments demonstrate that no significant impacts are expected as a result of this survey.	spawning and the potential for impact but a spatial temporal assessment had been undertaken which demonstrated that no significant impacts were expected as a result of this survey	spawning periods in Section 4.9.2 of the EP.
(4) Concerns impacts of marine seismic surveys were not well understood and potential impacts may have a more significant impact on Rankin cod, red emperor and goldband snapper.	**(4)** Woodside acknowledges DPIRD's concerns over impacts of marine seismic surveys however in regard to these species, the survey does not overlap with Rankin cod spawning period or red emperor peak spawning period. Woodside has further assessed goldband snapper based on its spawning period but a spatial temporal assessment demonstrates that no significant impacts are expected as a result of this survey.	**(4)** Woodside advised the survey did not overlap with the Rankin cod spawning period or red emperor peak spawning period, however it noted the timing of the goldband snapper spawning and the potential for impact. A spatial temporal assessment had been undertaken which demonstrated that no significant impacts were expected as a result of this survey	**(4)** No additional controls or measures are required. Woodside has assessed potential impacts to fish species and spawning periods in Section 4.9.2 of the EP.
(5) Recommended further research be undertaken to better understand seismic surveys, including a collaborative BACI study.	**(5)** Woodside is open to investing in collaborative research and has contributed to research into the impacts of marine seismic surveys in the past. Woodside will contact DPIRD separately for further discussion with DPIRD and Woodside's science and biodiversity team.	**(5)** Woodside advised it was open to investing in collaborative research and would contact DPIRD separately for further discussion together with Woodside's science and biodiversity team.	**(5)** Not required. Reference materials and studies referred to in this EP are listed at Section 8 of the EP.
While feedback has been received, there were no objections or claims.	Woodside has assessed the merits of each objection or claim (if any) about the adverse impact of the activity to which the EP relates, as required under Regulation 24.	Woodside engages in ongoing consultation throughout the life of an EP. Woodside notes that further feedback may be received as part of ongoing consultation. Should further feedback be received, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.7.1 of the EP).	No additional controls or measures are required.
Summary Report – Consultation Complete			

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Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and considers consultation with DPIRD for the purpose of regulation 25 complete. Sufficient information, a reasonable period and a reasonable opportunity have been provided, as described in Section 5.4 of the EP and further summarised in the Consultation Approach above. Specifically:

Sufficient Information

Woodside has given DPIRD sufficient information to allow DPIRD to make an informed assessment of the possible consequences of the activity on its functions, interests or activities because:

- The Consultation Information Sheet for this EP has been publicly available on the Woodside website since September 2025. Woodside gave this information to DPIRD on 8 September 2025, marking the commencement of consultation on this EP. The Consultation Information Sheet included:
  - The purpose of consultation and set out what was being sought through consultation.
  - A summary of the activity description, location of the activity, timing of the activity, receiving environment, impacts and risks associated with the Petroleum Activity, and proposed mitigation and management measures.
  - A timeframe for consultation and the provision of feedback.
  - A link to NOPSEMA's brochure '*Consultation on offshore petroleum environment plans: Information for the community'.*
  - Advice that relevant persons can request that particular information provided during consultation not be published (to align with 25(4) of the Environment Regulations).
- Woodside also provided additional tailored information to DPIRD on potential impacts to fisheries.
- On 20 October 2025, DPIRD shared its feedback regarding this activity, indicating the information provided was sufficient to enable DPIRD to make an informed assessment of the possible consequences of the activity on its functions, interests or activities.
- In addition to the information in the Consultation Information Sheet, Woodside provided additional information to DPIRD in response to DPIRD's feedback (Woodside's email of 12 December 2025).

Reasonable Period

Woodside allowed DPIRD a reasonable period for consultation in the preparation of the EP because:

- A consultation period was stated in the initial correspondence to DPIRD advising of consultation as well as when consultation closed for the purposes of the preparation of the EP. This enabled Woodside to assess feedback before EP submission.
- Woodside's methodology allows a 45-day consultation period for MSS EPs and Woodside allowed DPIRD 45 days for consultation.
- Consultation for this EP commenced 6 months ago.
- In this context, Woodside allowed DPIRD a reasonable period for consultation in preparation of the EP as evidenced by DPIRD's response on 20 October 2025.

Reasonable Opportunity

A reasonable opportunity to provide feedback has been provided because Woodside's approach to consultation with DPIRD is appropriate and adapted to the nature of interests of DPIRD:

- Woodside published advertisements in 6 national, state, and relevant local newspapers (see Consultation Activities). This allowed for broad awareness of the activity under the EP and also of consultation.
- Woodside ran a targeted social media campaign (see Consultation Activities). This allowed for broad awareness of the activity under the EP and also of consultation.
- In the absence of feedback, Woodside sent a follow-up consultation email on 8 October 2025, reminding DPIRD of the opportunity to provide feedback.

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Outcomes of Consultation

Woodside has assessed the merits of each objection or claim (if any) about the adverse impact of the activity to which the EP relates, as required under Regulation 24. The measures (if any) that Woodside has adopted or proposes to adopt because of the consultation are appropriate because:

- DPIRD provided feedback but no objections or claims. In line with the intended outcome of consultation as set out in Section 5.2 and Regulations 24 and 34(g), Woodside has:
  - Responded to feedback from DPIRD.
  - Made no changes or inclusions as a result of consultation with DPIRD because appropriate measures are already included in the EP.
- Woodside will continue to accept and assess feedback throughout the life of the EP and apply its Management of Change and Revision process when applicable.

4.1.11 Department of Transport and Major Infrastructure (DTMI)

Summary of information provided and record of consultation for this EP:

- On 8 September 2025, Woodside emailed DTMI advising of the proposed activity (Record of Consultation, reference 6.1.17), provided a Consultation Information Sheet, and a link to NOPSEMA's brochure '*Consultation on offshore petroleum environment plans: Information for the community*'.
- On 8 October 2025, as no response had been received, Woodside proactively sent a follow-up email (Record of Consultation, reference 6.2.1).
- On 10 November 2025, Woodside sent DTMI the Oil Pollution First Strike Plan for this EP for DTMI's review and comment (SI Report A, reference 6.1). Woodside also provided another copy of the Consultation Information Sheet. No comments were received from DTMI.

Summary of Feedback, Objection or Claim	Woodside's Assessment of Merits of Feedback, Objection or Claim	Woodside's Statement of Response	Inclusion in Environment Plan
No feedback, objections or claims about the adverse impact of the activity received despite follow-up.		Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.7.1 of the EP).	Woodside will consult DTMI if there is a spill impacting State waters from the proposed activity, as referenced in the Oil Pollution First Strike Plan (Appendix H). No additional measures or controls are required.

Summary Report – Consultation Complete

Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and considers consultation with DTMI for the purpose of regulation 25 complete. Sufficient information, a reasonable period and a reasonable opportunity have been provided, as described in Section 5.4 of the EP and further summarised in the Consultation Approach above. Specifically:

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Sufficient Information

Woodside has given DTMI sufficient information to allow DTMI to make an informed assessment of the possible consequences of the activity on its functions, interests or activities because:

- The Consultation Information Sheet for this EP has been publicly available on the Woodside website since September 2025. Woodside gave this information to DTMI on 8 September 2025, marking the commencement of consultation on this EP. The Consultation Information Sheet included:
  - The purpose of consultation and set out what was being sought through consultation.
  - A summary of the activity description, location of the activity, timing of the activity, receiving environment, impacts and risks associated with the Petroleum Activity, and proposed mitigation and management measures.
  - A timeframe for consultation and the provision of feedback.
  - A link to NOPSEMA's brochure '*Consultation on offshore petroleum environment plans: Information for the community'.*
  - Advice that relevant persons can request that particular information provided during consultation not be published (to align with 25(4) of the Environment Regulations).
- In addition, on 10 November 2025, Woodside provided DTMI with the Oil Pollution First Strike Plan for its review and comment.

Reasonable Period

Woodside allowed DTMI a reasonable period for consultation in the preparation of the EP because:

- A consultation period was stated in the initial correspondence to DTMI advising of consultation as well as when consultation closed for the purposes of the preparation of the EP. This enabled Woodside to assess feedback before EP submission.
- Woodside's methodology allows a 45-day consultation period for MSS EPs and Woodside allowed DTMI 45 days for consultation.
- Consultation for this EP commenced 6 months ago.
- In this context, Woodside allowed DTMI a reasonable period for consultation in preparation of the EP.

Reasonable Opportunity

A reasonable opportunity to provide feedback has been provided because Woodside's approach to consultation with DTMI is appropriate and adapted to the nature of interests of DTMI:

- Woodside published advertisements in 6 national, state, and relevant local newspapers (see Consultation Activities). This allowed for broad awareness of the activity under the EP and also of consultation.
- Woodside ran a targeted social media campaign (see Consultation Activities). This allowed for broad awareness of the activity under the EP and also of consultation.
- In the absence of feedback, Woodside sent a follow-up consultation email on 8 October 2025, reminding DTMI of the opportunity to provide feedback.
- On 10 November 2025, Woodside also provided DTMI with a copy of the Oil Pollution First Strike Plan, giving DTMI another opportunity to provide feedback on the activity.

Outcomes of Consultation

Woodside has assessed the merits of each objection or claim (if any) about the adverse impact of the activity to which the EP relates, as required under Regulation 24. The measures (if any) that Woodside has adopted or proposes to adopt because of the consultation are appropriate because:

- No additional measures were considered as a result of consultation as DTMI did not provide feedback for this EP.
- Woodside will continue to accept and assess feedback throughout the life of the EP and apply its Management of Change and Revision process when applicable.

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- The measures and controls described in this EP address the potential impact from the proposed activity on DTMI's functions, interests or activities.

4.1.12 Pilbara Ports

Summary of information provided and record of consultation for this EP:

- On 8 September 2025, Woodside emailed Pilbara Ports advising of the proposed activity (Record of Consultation, reference 6.1.9), provided a Consultation Information Sheet, and a link to NOPSEMA's brochure '*Consultation on offshore petroleum environment plans: Information for the community*'.
- On 8 October 2025, as no response had been received, Woodside proactively sent a follow-up email (Record of Consultation, reference 6.2.1).

Summary of Feedback, Objection or Claim	Woodside's Assessment of Merits of Feedback, Objection or Claim	Woodside's Statement of Response	Inclusion in Environment Plan
No feedback, objections or claims about the adverse impact of the activity received despite follow-up.		Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.7.1 of the EP).	No additional measures or controls are required.

Summary Report – Consultation Complete

Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and considers consultation with Pilbara Ports for the purpose of regulation 25 complete. Sufficient information, a reasonable period and a reasonable opportunity have been provided, as described in Section 5.4 of the EP and further summarised in the Consultation Approach above. Specifically:

Sufficient Information

Woodside has given Pilbara Ports sufficient information to allow Pilbara Ports to make an informed assessment of the possible consequences of the activity on its functions, interests or activities because:

- The Consultation Information Sheet for this EP has been publicly available on the Woodside website since September 2025. Woodside gave this information to Pilbara Ports on 8 September 2025, marking the commencement of consultation on this EP. The Consultation Information Sheet included:
  - The purpose of consultation and set out what was being sought through consultation.
  - A summary of the activity description, location of the activity, timing of the activity, receiving environment, impacts and risks associated with the Petroleum Activity, and proposed mitigation and management measures.
  - A timeframe for consultation and the provision of feedback.

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– A link to NOPSEMA's brochure '*Consultation on offshore petroleum environment plans: Information for the community*'.
– Advice that relevant persons can request that particular information provided during consultation not be published (to align with 25(4) of the Environment Regulations).

Reasonable Period

Woodside allowed Pilbara Ports a reasonable period for consultation in the preparation of the EP because:

- A consultation period was stated in the initial correspondence to Pilbara Ports advising of consultation as well as when consultation closed for the purposes of the preparation of the EP. This enabled Woodside to assess feedback before EP submission.
- Woodside's methodology allows a 45-day consultation period for MSS EPs and Woodside allowed Pilbara Ports 45 days for consultation.
- Consultation for this EP commenced 6 months ago.
- In this context, Woodside allowed Pilbara Ports a reasonable period for consultation in preparation of the EP.

Reasonable Opportunity

A reasonable opportunity to provide feedback has been provided because Woodside's approach to consultation with Pilbara Ports is appropriate and adapted to the nature of interests of Pilbara Ports:

- Woodside published advertisements in 6 national, state, and relevant local newspapers (see Consultation Activities). This allowed for broad awareness of the activity under the EP and also of consultation.
- Woodside ran a targeted social media campaign (see Consultation Activities). This allowed for broad awareness of the activity under the EP and also of consultation.
- Between 5 October 2025 and 18 October 2025, Woodside held, or hosted information stalls at, a number of community events and roadshows in regional areas including the Pilbara to raise awareness of the EP and provide another opportunity for feedback. These events were promoted in local newspapers and on social media.
- In the absence of feedback, Woodside sent a follow-up consultation email on 8 October 2025, reminding Pilbara Ports of the opportunity to provide feedback.

Outcomes of Consultation

Woodside has assessed the merits of each objection or claim (if any) about the adverse impact of the activity to which the EP relates, as required under Regulation 24. The measures (if any) that Woodside has adopted or proposes to adopt because of the consultation are appropriate because:

- No additional measures were considered as a result of consultation as Pilbara Ports did not provide feedback for this EP.
- Woodside will continue to accept and assess feedback throughout the life of the EP and apply its Management of Change and Revision process when applicable.
- The measures and controls described in this EP address the potential impact from the proposed activity on Pilbara Ports's functions, interests or activities.

4.1.13 Western Australian Museum (WAM)

Summary of information provided and record of consultation for this EP:

- On 8 September 2025, Woodside emailed WAM advising of the proposed activity (Record of Consultation, reference 6.1.23), provided a Consultation Information Sheet, and a link to NOPSEMA's brochure '*Consultation on offshore petroleum environment plans: Information for the community*'. Woodside also provided a list of relevant state historical shipwrecks (Record of Consultation, reference 6.1.5).

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- On 8 October 2025, as no response had been received, Woodside proactively sent a follow-up email (Record of Consultation, reference 6.2.1).

Summary of Feedback, Objection or Claim	Woodside's Assessment of Merits of Feedback, Objection or Claim	Woodside's Statement of Response	Inclusion in Environment Plan
No feedback, objections or claims about the adverse impact of the activity received despite follow-up.		Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.7.1 of the EP).	The EP demonstrates there is one shipwreck site within the Operational Area of the Petroleum Activity and identifies that, due to no planned interaction with the seabed as part of this activity, there are no credible impacts to the values of any underwater heritage or shipwrecks as a result of planned activities or in the event of an unplanned hydrocarbon release (Sections 4.9 and 6.8.2 of the EP). No additional measures or controls are required.

Summary Report – Consultation Complete

Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and considers consultation with WAM for the purpose of regulation 25 complete. Sufficient information, a reasonable period and a reasonable opportunity have been provided, as described in Section 5.4 of the EP and further summarised in the Consultation Approach above. Specifically:

Sufficient Information

Woodside has given WAM sufficient information to allow WAM to make an informed assessment of the possible consequences of the activity on its functions, interests or activities because:

- The Consultation Information Sheet for this EP has been publicly available on the Woodside website since September 2025. Woodside gave this information to WAM on 8 September 2025, marking the commencement of consultation on this EP. The Consultation Information Sheet included:
  - The purpose of consultation and set out what was being sought through consultation.
  - A summary of the activity description, location of the activity, timing of the activity, receiving environment, impacts and risks associated with the Petroleum Activity, and proposed mitigation and management measures.
  - A timeframe for consultation and the provision of feedback.
  - A link to NOPSEMA's brochure '*Consultation on offshore petroleum environment plans: Information for the community*'.
  - Advice that relevant persons can request that particular information provided during consultation not be published (to align with 25(4) of the Environment Regulations).
- Woodside provided additional tailored information to WAM, including a list of State shipwrecks relevant to the activity.

Reasonable Period

Woodside allowed WAM a reasonable period for consultation in the preparation of the EP because:

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- A consultation period was stated in the initial correspondence to WAM advising of consultation as well as when consultation closed for the purposes of the preparation of the EP. This enabled Woodside to assess feedback before EP submission.
- Woodside's methodology allows a 45-day consultation period for MSS EPs and Woodside allowed WAM 45 days for consultation.
- Consultation for this EP commenced 6 months ago.
- In this context, Woodside allowed WAM a reasonable period for consultation in preparation of the EP.

Reasonable Opportunity

A reasonable opportunity to provide feedback has been provided because Woodside's approach to consultation with WAM is appropriate and adapted to the nature of interests of WAM:

- Woodside published advertisements in 6 national, state, and relevant local newspapers (see Consultation Activities). This allowed for broad awareness of the activity under the EP and also of consultation.
- Woodside ran a targeted social media campaign (see Consultation Activities). This allowed for broad awareness of the activity under the EP and also of consultation.
- In the absence of feedback, Woodside sent a follow-up consultation email on 8 October 2025, reminding WAM of the opportunity to provide feedback.

Outcomes of Consultation

Woodside has assessed the merits of each objection or claim (if any) about the adverse impact of the activity to which the EP relates, as required under Regulation 24. The measures (if any) that Woodside has adopted or proposes to adopt because of the consultation are appropriate because:

- No additional measures were considered as a result of consultation as WAM did not provide feedback for this EP.
- Woodside will continue to accept and assess feedback throughout the life of the EP and apply its Management of Change and Revision process when applicable.
- The measures and controls described in this EP address the potential impact from the proposed activity on WAM's functions, interests or activities.

4.2 Commonwealth and WA State Government departments or agencies – environment

4.2.1 Department of Agriculture, Fisheries and Forestry (DAFF) – Biosecurity (marine pests, vessels, aircraft and personnel)

Summary of information provided and record of consultation for this EP:

- On 8 September 2025, Woodside emailed DAFF - Biosecurity advising of the proposed activity (Record of Consultation, reference 6.1.15), provided a Consultation Information Sheet, and a link to NOPSEMA's brochure '*Consultation on offshore petroleum environment plans: Information for the community*'.
- On 8 October 2025, as no response had been received, Woodside proactively sent a follow-up email (Record of Consultation, reference 6.2.1).

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Summary of Feedback, Objection or Claim	Woodside's Assessment of Merits of Feedback, Objection or Claim	Woodside's Statement of Response	Inclusion in Environment Plan
No feedback, objections or claims about the adverse impact of the activity received despite follow-up.		Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.7.1 of the EP).	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 6.8.8 of the EP). No additional measures or controls are required.

Summary Report – Consultation Complete

Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and considers consultation with DAFF - Biosecurity for the purpose of regulation 25 complete. Sufficient information, a reasonable period and a reasonable opportunity have been provided, as described in Section 5.4 of the EP and further summarised in the Consultation Approach above. Specifically:

Sufficient Information

Woodside has given DAFF - Biosecurity sufficient information to allow DAFF - Biosecurity to make an informed assessment of the possible consequences of the activity on its functions, interests or activities because:

- The Consultation Information Sheet for this EP has been publicly available on the Woodside website since September 2025. Woodside gave this information to DAFF - Biosecurity on 8 September 2025, marking the commencement of consultation on this EP. The Consultation Information Sheet included:
  - The purpose of consultation and set out what was being sought through consultation.
  - A summary of the activity description, location of the activity, timing of the activity, receiving environment, impacts and risks associated with the Petroleum Activity, and proposed mitigation and management measures.
  - A timeframe for consultation and the provision of feedback.
  - A link to NOPSEMA's brochure '*Consultation on offshore petroleum environment plans: Information for the community*'.
  - Advice that relevant persons can request that particular information provided during consultation not be published (to align with 25(4) of the Environment Regulations).

Reasonable Period

Woodside allowed DAFF - Biosecurity a reasonable period for consultation in the preparation of the EP because:

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- A consultation period was stated in the initial correspondence to DAFF - Biosecurity advising of consultation as well as when consultation closed for the purposes of the preparation of the EP. This enabled Woodside to assess feedback before EP submission.
- Woodside's methodology allows a 45-day consultation period for MSS EPs and Woodside allowed DAFF - Biosecurity 45 days for consultation.
- Consultation for this EP commenced 6 months ago.
- In this context, Woodside allowed DAFF - Biosecurity a reasonable period for consultation in preparation of the EP.

Reasonable Opportunity

A reasonable opportunity to provide feedback has been provided because Woodside's approach to consultation with DAFF - Biosecurity is appropriate and adapted to the nature of interests of DAFF - Biosecurity:

- Woodside published advertisements in 6 national, state, and relevant local newspapers (see Consultation Activities). This allowed for broad awareness of the activity under the EP and also of consultation.
- Woodside ran a targeted social media campaign (see Consultation Activities). This allowed for broad awareness of the activity under the EP and also of consultation.
- In the absence of feedback, Woodside sent a follow-up consultation email on 8 October 2025, reminding DAFF - Biosecurity of the opportunity to provide feedback.

Outcomes of Consultation

Woodside has assessed the merits of each objection or claim (if any) about the adverse impact of the activity to which the EP relates, as required under Regulation 24. The measures (if any) that Woodside has adopted or proposes to adopt because of the consultation are appropriate because:

- No additional measures were considered as a result of consultation as DAFF - Biosecurity did not provide feedback for this EP.
- Woodside will continue to accept and assess feedback throughout the life of the EP and apply its Management of Change and Revision process when applicable.
- The measures and controls described in this EP address the potential impact from the proposed activity on DAFF - Biosecurity's functions, interests or activities.

4.2.2 Department of Biodiversity, Conservation and Attractions (DBCA)

Summary of information provided and record of consultation for this EP:

- On 8 September 2025, Woodside emailed DBCA advising of the proposed activity (Record of Consultation, reference 6.1.28), provided a Consultation Information Sheet, and a link to NOPSEMA's brochure '*Consultation on offshore petroleum environment plans: Information for the community*'.
- On 8 October 2025, as no response had been received, Woodside proactively sent a follow-up email (Record of Consultation, reference 6.2.1).
- On 10 October 2025, DBCA emailed thanking Woodside for providing the consultation information (SI Report A, reference 7.1). DBCA:
  - **(1)** Advised that based on the documentation provided and other available information, DBCA had no comments in relation to its responsibilities under the *Conservation and Land Management Act 1984* and *Biodiversity Conservation Act 2016*.
  - **(2)** Asked Woodside to continue providing notifications to its nominated email address.
- On 13 October 2025, Woodside thanked DBCA for its response (SI Report A, reference 7.2) and:

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– **(1)** Noted DBCA had no comments on the proposed activity in relation to its responsibilities under the relevant Acts.
– **(2)** Confirmed Woodside would continue to provide information to DBCA via its nominated email address.

Summary of Feedback, Objection or Claim	Woodside's Assessment of Merits of Feedback, Objection or Claim	Woodside's Statement of Response	Inclusion in Environment Plan
(1) No comments on the proposed activity.	**(1)** Woodside accepts DBCA has no comments in relation to its responsibilities under the relevant Acts.	**(1)** Woodside thanked DBCA for its response and noted it had no comments.	**(1)** Not required.
(2) Asked Woodside to continue to provide notifications to DBCA.	**(2)** Woodside will continue to provide consultation information to DBCA in relation to relevant EPs.	**(2)** Woodside confirmed it would continue to provide information to DBCA via its nominated email address.	**(2)** Not required.
While feedback has been received, there were no objections or claims.	Woodside has assessed the merits of each objection or claim (if any) about the adverse impact of the activity to which the EP relates, as required under Regulation 24.	Woodside engages in ongoing consultation throughout the life of an EP. Woodside notes that further feedback may be received as part of ongoing consultation. Should further feedback be received, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.7.1 of the EP).	No additional controls or measures are required.

Summary Report – Consultation Complete

Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and considers consultation with DBCA for the purpose of regulation 25 complete. Sufficient information, a reasonable period and a reasonable opportunity have been provided, as described in Section 5.4 of the EP and further summarised in the Consultation Approach above. Specifically:

Sufficient Information

Woodside has given DBCA sufficient information to allow DBCA to make an informed assessment of the possible consequences of the activity on its functions, interests or activities because:

- The Consultation Information Sheet for this EP has been publicly available on the Woodside website since September 2025. Woodside gave this information to DBCA on 8 September 2025, marking the commencement of consultation on this EP. The Consultation Information Sheet included:
  – The purpose of consultation and set out what was being sought through consultation.

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  - A summary of the activity description, location of the activity, timing of the activity, receiving environment, impacts and risks associated with the Petroleum Activity, and proposed mitigation and management measures.
  - A timeframe for consultation and the provision of feedback.
  - A link to NOPSEMA's brochure '*Consultation on offshore petroleum environment plans: Information for the community'*.
  - Advice that relevant persons can request that particular information provided during consultation not be published (to align with 25(4) of the Environment Regulations).
- On 10 October 2025, DBCA shared its feedback regarding this activity, indicating the information provided was sufficient to enable DBCA to make an informed assessment of the possible consequences of the activity on its functions, interests or activities.

Reasonable Period

Woodside allowed DBCA a reasonable period for consultation in the preparation of the EP because:

- A consultation period was stated in the initial correspondence to DBCA advising of consultation as well as when consultation closed for the purposes of the preparation of the EP. This enabled Woodside to assess feedback before EP submission.
- Woodside's methodology allows a 45-day consultation period for MSS EPs and Woodside allowed DBCA 45 days for consultation.
- Consultation for this EP commenced 6 months ago.
- In this context, Woodside allowed DBCA a reasonable period for consultation in preparation of the EP as evidenced by DBCA's response on 10 October 2025.

Reasonable Opportunity

A reasonable opportunity to provide feedback has been provided because Woodside's approach to consultation with DBCA is appropriate and adapted to the nature of interests of DBCA:

- Woodside published advertisements in 6 national, state, and relevant local newspapers (see Consultation Activities). This allowed for broad awareness of the activity under the EP and also of consultation.
- Woodside ran a targeted social media campaign (see Consultation Activities). This allowed for broad awareness of the activity under the EP and also of consultation.
- In the absence of feedback, Woodside sent a follow-up consultation email on 8 October 2025, reminding DBCA of the opportunity to provide feedback.

Outcomes of Consultation

Woodside has assessed the merits of each objection or claim (if any) about the adverse impact of the activity to which the EP relates, as required under Regulation 24. The measures (if any) that Woodside has adopted or proposes to adopt because of the consultation are appropriate because:

- DBCA provided feedback but no objections or claims. In line with the intended outcome of consultation as set out in Section 5.2 and Regulations 24 and 34(g), Woodside has:
  - Responded to feedback from DBCA.
  - Made no changes or inclusions to the EP as a result of consultation with DBCA because appropriate measures are already included in the EP.
- Woodside will continue to accept and assess feedback throughout the life of the EP and apply its Management of Change and Revision process when applicable.

4.2.3 Department of Climate Change, Energy, the Environment and Water (DCCEEW)

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Summary of information provided and record of consultation for this EP:

- On 8 September 2025, Woodside emailed DCCEEW advising of the proposed activity (Record of Consultation, reference 6.1.21), provided a Consultation Information Sheet, and a link to NOPSEMA's brochure '*Consultation on offshore petroleum environment plans: Information for the community*'. Woodside also provided a list of relevant state and Commonwealth historical shipwrecks (Record of Consultation, references 6.1.5 and 6.1.6).
- On 8 October 2025, as no response had been received, Woodside proactively sent a follow-up email (Record of Consultation, reference 6.2.1).

Summary of Feedback, Objection or Claim	Woodside's Assessment of Merits of Feedback, Objection or Claim	Woodside's Statement of Response	Inclusion in Environment Plan
No feedback, objections or claims about the adverse impact of the activity received despite follow-up.		Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.7.1 of the EP).	The EP demonstrates there is one shipwreck site within the Operational Area of the Petroleum Activity and identifies that, due to no planned interaction with the seabed as part of this activity, there are no credible impacts to the values of any underwater heritage or shipwrecks as a result of planned activities or in the event of an unplanned hydrocarbon release (Sections 4.9 and 6.8.2 of the EP). No additional measures or controls are required.

Summary Report – Consultation Complete

Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and considers consultation with DCCEEW for the purpose of regulation 25 complete. Sufficient information, a reasonable period and a reasonable opportunity have been provided, as described in Section 5.4 of the EP and further summarised in the Consultation Approach above. Specifically:

Sufficient Information

Woodside has given DCCEEW sufficient information to allow DCCEEW to make an informed assessment of the possible consequences of the activity on its functions, interests or activities because:

- The Consultation Information Sheet for this EP has been publicly available on the Woodside website since September 2025. Woodside gave this information to DCCEEW on 8 September 2025, marking the commencement of consultation on this EP. The Consultation Information Sheet included:
  - The purpose of consultation and set out what was being sought through consultation.
  - A summary of the activity description, location of the activity, timing of the activity, receiving environment, impacts and risks associated with the Petroleum Activity, and proposed mitigation and management measures.
  - A timeframe for consultation and the provision of feedback.
  - A link to NOPSEMA's brochure '*Consultation on offshore petroleum environment plans: Information for the community'.*
  - Advice that relevant persons can request that particular information provided during consultation not be published (to align with 25(4) of the Environment Regulations).

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- Woodside provided additional tailored information to DCCEEW, including a list of Commonwealth and State shipwrecks relevant to the activity.

Reasonable Period

Woodside allowed DCCEEW a reasonable period for consultation in the preparation of the EP because:

- A consultation period was stated in the initial correspondence to DCCEEW advising of consultation as well as when consultation closed for the purposes of the preparation of the EP. This enabled Woodside to assess feedback before EP submission.
- Woodside's methodology allows a 45-day consultation period for MSS EPs and Woodside allowed DCCEEW 45 days for consultation.
- Consultation for this EP commenced 6 months ago.
- In this context, Woodside allowed DCCEEW a reasonable period for consultation in preparation of the EP.

Reasonable Opportunity

A reasonable opportunity to provide feedback has been provided because Woodside's approach to consultation with DCCEEW is appropriate and adapted to the nature of interests of DCCEEW:

- Woodside published advertisements in 6 national, state, and relevant local newspapers (see Consultation Activities). This allowed for broad awareness of the activity under the EP and also of consultation.
- Woodside ran a targeted social media campaign (see Consultation Activities). This allowed for broad awareness of the activity under the EP and also of consultation.
- In the absence of feedback, Woodside sent a follow-up consultation email on 8 October 2025, reminding DCCEEW of the opportunity to provide feedback.

Outcomes of Consultation

Woodside has assessed the merits of each objection or claim (if any) about the adverse impact of the activity to which the EP relates, as required under Regulation 24. The measures (if any) that Woodside has adopted or proposes to adopt because of the consultation are appropriate because:

- No additional measures were considered as a result of consultation as DCCEEW did not provide feedback for this EP.
- Woodside will continue to accept and assess feedback throughout the life of the EP and apply its Management of Change and Revision process when applicable.
- The measures and controls described in this EP address the potential impact from the proposed activity on DCCEEW's functions, interests or activities.

4.2.4 Director of National Parks (DNP)

Summary of information provided and record of consultation for this EP:

- On 8 September 2025, Woodside emailed DNP advising of the proposed activity (Record of Consultation, reference 6.1.16), provided a Consultation Information Sheet, and a link to NOPSEMA's brochure '*Consultation on offshore petroleum environment plans: Information for the community'*. Woodside also invited DNP to meet with Woodside to discuss this EP.
- On 10 September 2025, DNP responded thanking Woodside for getting in touch (SI Report A, reference 8.1) and:
  - Advised it would draft a response before the consultation close date.

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  - Confirmed DNP was happy to meet with Woodside to discuss this EP and other Woodside EPs.
- Between 2 October 2025 and 7 October 2025, Woodside and DNP exchanged three emails arranging and confirming an online meeting for 28 October 2025 (SI Report A, references 8.2 – 8.4).
- On 28 October 2025, Woodside and DNP held an online meeting (SI Report A, reference 8.5). During the meeting:
  - Woodside provided an overview of the Pluto 4D M3 Marine Seismic Survey EP, including location, timing, purpose, technical details and history of the Pluto field including previous Pluto monitor surveys.
    - **(1)** DNP asked about the frequency of monitor surveys.
      - **(1)** Woodside advised it aimed for a monitor survey every 5–6 years during the gas depletion stage, and noted the last survey was in 2020 so the gap this time would be about 7 years.
    - **(2)** DNP asked whether the streamers were made of plastic.
      - **(2)** Woodside confirmed the streamers were solid plastic with embedded hydrophones, and had an approximate footprint of 1.4 km wide and 8 km long.
    - **(3)** DNP asked about the risk of entanglement for marine fauna.
      - **(3)** Woodside advised entanglements were not expected due to the control measures that would be in place such as marine fauna observers, soft starts, pre-start observations and potential start delays if animals were sighted.
    - **(4)** DNP asked for further details regarding marine fauna observers.
      - **(4)** Woodside advised marine fauna observers would be employed, as well as Passive Acoustic Monitoring (PAM).
  - **(5)** With regard to potential risks and impacts of the activity that might impact marine parks, and the control measures that would be implemented, Woodside provided:
    - **(5)** Information about the Safe Navigation Area and other mitigations to avoid interaction with other marine users; information about acoustic emissions considerations, including turtle and marine mammal thresholds; details about the timing of the activity to avoid peak pygmy blue whale migration; and information on light emissions, noting the activity was more than 20km from any islands.
  - **(6)** DNP and Woodside discussed Biologically Important Areas (BIAs) and DNP asked about considerations for whale shark foraging overlap.
    - **(6)** Woodside noted standard controls would apply to avoid interaction with animals including whale sharks.
- On 27 November 2025, DNP emailed thanking Woodside for the opportunity to provide comment on the EP (SI Report A, reference 8.6). DNP:
  - **(7)** Noted the proposed activity overlapped the Multi-Use Zone of the Montebello Marine Park.
  - **(8)** Advised Woodside to be aware of obligations under the class approval and highlighted the North-west Marine Parks Network Management Plan 2018 that came into effect in 2018.
  - **(9)** Noted that the Operational Area was adjacent to and might intersect the Key Ecological Feature of the ancient coastline at the 125-m depth contour, which contained rocky escarpments providing biologically important habitat, and stated that the Operational Area overlapped BIAs including interesting, foraging, mating and nesting habitat for turtles; breeding habitat for seabirds; migratory pathway for humpback whales and pygmy blue whales; and foraging habitat for whale sharks.
  - **(5)** Acknowledged that as the activity was outside peak migration periods for humpback and pygmy blue whales, that trained marine fauna observers would be on board, and that lighting would be kept to the minimum necessary for safe operations, the DNP had no claims or objections to the proposed activity.
  - **(10)** Requested that DNP be notified as soon as possible of any oil or gas pollution incidents occurring within or likely to impact a marine park, and indicated that DNP might request daily or weekly Situation Reports depending on the scale and severity of a pollution incident.

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- **(11)** Requested notification to a provided email address if the EP was approved by NOPSEMA, and further requested notification at least 10 days prior to all activities occurring within the marine park (excluding transiting) and at the conclusion of the activity, with information consistent with the Petroleum activities and Australian Marine Parks guidance note.

- On 12 December 2025, Woodside responded thanking DNP for its email and for meeting with Woodside to discuss this EP (SI Report A, reference 8.7). Woodside:
  - **(7)** Noted DNP's information regarding the Montebello Marine Park and confirmed that Woodside was aware of its obligations under the class approval.
  - **(8)** Confirmed Woodside had referred to the North-west Marine Parks Network Management Plan 2018 during the development of the EP.
  - **(9)** Acknowledged DNP's summary of the Operational Area and overlapping biologically important areas.
  - **(5)** Acknowledged that, given the proposed activity's timing outside humpback whale and pygmy blue whale peak migration periods, and the planned use of trained marine fauna observers, lighting provisions, and appropriate streamer tail buoys, DNP had no claims or objections regarding the proposed activity.
  - **(10)** Advised that in the highly unlikely event of a hydrocarbon release, Woodside would notify DNP within 24 hours if the incident occurred within a marine park or was likely to impact a marine park.
  - **(11)** Confirmed that Woodside would provide notification to DNP upon acceptance by NOPSEMA, and at least 10 days prior to activities occurring within the marine park (excluding transiting) and again at the conclusion of activities.

Summary of Feedback, Objection or Claim	Woodside's Assessment of Merits of Feedback, Objection or Claim	Woodside's Statement of Response	Inclusion in Environment Plan
(1) Frequency of monitor surveys.	**(1)** Woodside aims to conduct a monitor survey every 5–6 years during the gas depletion stage. As the last survey took place in 2020 the gap will be about 7 years.	**(1)** Woodside advised it aimed for a monitor survey every 5–6 years during the gas depletion stage, and noted the last survey was in 2020 so the gap this time would be about 7 years.	**(1)** No additional controls or measures are required. Historical seismic surveys undertaken in the vicinity of the Operational Area are described in Section 4.9.6.1 of the EP.
(2) Asked whether streamers were made of plastic.	**(2)** The streamers are comprised of solid plastic.	**(2)** Woodside confirmed the streamers were solid plastic with embedded hydrophones and had an approximate footprint of 1.4km wide and 8km long.	**(2)** No additional controls or measures are required. Information about the streamer array is set out in Section 3.8.2 of the EP.
(3) Risk of entanglement for marine fauna.	**(3)** Woodside does not expect entanglements with marine fauna due to control measures including marine fauna observers, soft starts, pre-start observations and potential start delays if animals were sighted.	**(3)** Woodside advised entanglements were not expected due to control measures including marine fauna observers, soft starts, pre-start observations and potential start delays if animals were sighted.	**(3)** No additional controls or measures are required. As per Section 6.7 and 6.8 of the EP, Woodside has included control measures to address potential impacts on marine fauna.
(4)	**(4)**	**(4)**	**(4)**

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Requested details on marine fauna observers.	Woodside plans to engage marine fauna observers, as well as use PAM during the survey activities.	Woodside advised there would be marine fauna observers employed and that it would use PAM.	No additional controls or measures are required. Controls relating to MFOs and PAM are set out in Section 6.7.2 of the EP.
(5) No claims or objections, based on control measures for potential risks and impacts.	**(5)** Woodside has control measures in place that will be implemented to mitigate potential risks and impacts and, as the activity is outside peak migration periods for humpback and pygmy blue whales, trained marine fauna observers will be on board vessels, and lighting will be kept to a minimum, Woodside accepts DNP has no claims or objections regarding the proposed activity.	**(5)** Woodside provided information regarding mitigations for potential risks and impacts of the activity that might impact marine parks and acknowledged that as the proposed activity's timing was outside humpback whale and pygmy blue whale peak migration periods, and the planned use of trained marine fauna observers, lighting provisions, and appropriate streamer tail buoys, DNP had no claims or objections regarding the proposed activity	**(5)** No additional controls or measures are required. Impact assessments of potential risks for this activity and demonstration of ALARP are set out in Sections 6.7 and 6.8 of the EP.
(6) Consideration of whale shark foraging.	**(6)** Woodside has included standard controls for avoiding marine fauna in the EP.	**(6)** Woodside confirmed it had assessed BIAs and standard controls for avoiding interactions with cetaceans and whale sharks would be included in the EP.	**(6)** No additional controls or measures are required. Assessment of potential impacts to whale sharks is set out in Section 6.8.6 of the EP and vessels will comply with *Biodiversity Conservation Regulations WA (2018)* for whale shark speed control and separation distances, as set out in C 4.2 of the EP.
(7) Proposed activity overlaps the Multi Use Zone of the Montebello Marine Park.	**(7)** Woodside notes DNP's information regarding the Montebello Marine Park.	**(7)** Woodside advised it noted DNP's information regarding the Montebello Marine Park.	**(7)** No additional controls or measures are required.
(8) Woodside has obligations under class approval and the 2018 North-west Marine Parks Network Management Plan.	**(8)** Woodside understands its obligations under the class approval and has referred to the North-west Marine Parks Network Management Plan 2018 for this EP.	**(8)** Woodside confirmed it was aware of its obligations under the class approval and that it had referred to the North-west Marine Parks Network Management Plan 2018 during the development of this EP.	**(8)** No additional controls or measures are required.

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(9) Operational Area was adjacent to, and might intersect with, the Key Ecological Feature of the ancient coastline and overlapped BIAs.	**(9)** Woodside notes DNP's summary of the Operational Area and overlapping BIAs and understands that DNP has no claims or objections to the activity as appropriate measures are in place.	**(9)** Woodside acknowledged DNP's summary of the Operational Area and overlapping BIAs.	**(9)** No additional controls or measures are required. Key Ecological Features which overlap the Operational Area are described in Section 4.7 of the EP.
(10) Requested immediate notification of any oil or gas pollution incidents and potential situation reports.	**(10)** In the highly unlikely event of a hydrocarbon release, Woodside agrees to notify DNP within 24 hours if the incident occurs within a marine park or was likely to impact a marine park.	**(10)** Woodside confirmed that in the highly unlikely event of a hydrocarbon release, it would notify DNP within 24 hours if the incident occurred within a marine park or was likely to impact a marine park.	**(10)** As described in Section 7 of the EP, Woodside will notify DNP within 24 hours of a hydrocarbon release incident if the incident occurs within a marine park or was likely to impact a marine park.
(11) Requested email notification of EP approval, activity start and end dates.	**(11)** Woodside will notify DNP on acceptance of the EP and at start and end of activities occurring within the marine park (excluding transiting).	**(11)** Woodside confirmed it would provide notification to DNP upon acceptance of the EP, and at least 10 days prior to activities occurring within the marine park (excluding transiting) and at the conclusion of activities.	**(11)** As referenced as C 1.11 and described in Section 7 of the EP, Woodside will notify DNP upon acceptance of this EP by NOPSEMA, and at least 10 days prior to activities occurring within the marine park (excluding transiting) and at the conclusion of activities.
While feedback has been received, there were no objections or claims.	Woodside has assessed the merits of each objection or claim (if any) about the adverse impact of the activity to which the EP relates, as required under Regulation 24.	Woodside engages in ongoing consultation throughout the life of an EP. Woodside notes that further feedback may be received as part of ongoing consultation. Should further feedback be received, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.7.1 of the EP).	No additional controls or measures are required.
Summary Report – Consultation Complete			
Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and considers consultation with DNP for the purpose of regulation 25 complete. Sufficient information, a reasonable period and a reasonable opportunity have been provided, as described in Section 5.4 of the EP and further summarised in the Consultation Approach above. Specifically:			

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Sufficient Information

Woodside has given DNP sufficient information to allow DNP to make an informed assessment of the possible consequences of the activity on its functions, interests or activities because:

- The Consultation Information Sheet for this EP has been publicly available on the Woodside website since September 2025. Woodside gave this information to DNP on 8 September 2025, marking the commencement of consultation on this EP. The Consultation Information Sheet included:
  - The purpose of consultation and set out what was being sought through consultation.
  - A summary of the activity description, location of the activity, timing of the activity, receiving environment, impacts and risks associated with the Petroleum Activity, and proposed mitigation and management measures.
  - A timeframe for consultation and the provision of feedback.
  - A link to NOPSEMA's brochure '*Consultation on offshore petroleum environment plans: Information for the community'.*
  - Advice that relevant persons can request that particular information provided during consultation not be published (to align with 25(4) of the Environment Regulations).
- Woodside provided additional tailored information to DNP including distances to the nearest AMP and a list of AMPs that could potentially be impacted in the highly unlikely event of hydrocarbon release.
- On 28 October 2025, DNP shared feedback at an online meeting regarding this activity, and on 27 November 2025, DNP shared additional feedback via email regarding this activity, indicating the information provided was sufficient to enable DNP to make an informed assessment of the possible consequences of the activity on its functions, interests or activities.
- In addition to the information in the Consultation Information Sheet, Woodside provided additional information to DNP in response to DNP's feedback (during the meeting on 28 October 2025 and Woodside's email of 12 December 2025).

Reasonable Period

Woodside allowed DNP a reasonable period for consultation in the preparation of the EP because:

- A consultation period was stated in the initial correspondence to DNP advising of consultation as well as when consultation closed for the purposes of the preparation of the EP. This enabled Woodside to assess feedback before EP submission.
- Woodside's methodology allows a 45-day consultation period for MSS EPs and Woodside allowed DNP 45 days for consultation.
- Consultation for this EP commenced 6 months ago.
- In this context, Woodside allowed DNP a reasonable period for consultation in preparation of the EP, as evidenced by DNP's response on 10 September 2025.

Reasonable Opportunity

A reasonable opportunity to provide feedback has been provided because Woodside's approach to consultation with DNP is appropriate and adapted to the nature of interests of DNP:

- Woodside published advertisements in 6 national, state, and relevant local newspapers (see Consultation Activities). This allowed for broad awareness of the activity under the EP and also of consultation.
- Woodside ran a targeted social media campaign (see Consultation Activities). This allowed for broad awareness of the activity under the EP and also of consultation.

Outcomes of Consultation

Woodside has assessed the merits of each objection or claim (if any) about the adverse impact of the activity to which the EP relates, as required under Regulation 24. The measures (if any) that Woodside has adopted or proposes to adopt because of the consultation are appropriate because:

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- DNP provided feedback but no objections or claims. In line with the intended outcome of consultation as set out in Section 5.2 and Regulations 24 and 34(g), Woodside has:
  - Responded to feedback from DNP.
  - Based on DNP's feedback, updated C 1.11 to include notifications to DNP upon acceptance of the EP, at least 10 days prior to activities occurring within the marine park, and at the conclusion of activities.
- Woodside will continue to accept and assess feedback throughout the life of the EP and apply its Management of Change and Revision process when applicable.

4.2.5 Ningaloo Coast World Heritage Advisory Committee (NCWHAC)

Summary of information provided and record of consultation for this EP:

- On 8 September 2025, Woodside emailed NCWHAC advising of the proposed activity (Record of Consultation, reference 6.1.9), provided a Consultation Information Sheet, and a link to NOPSEMA's brochure '*Consultation on offshore petroleum environment plans: Information for the community*'.
- On 8 October 2025, as no response had been received, Woodside proactively sent a follow-up email (Record of Consultation, reference 6.2.1).

Summary of Feedback, Objection or Claim	Woodside's Assessment of Merits of Feedback, Objection or Claim	Woodside's Statement of Response	Inclusion in Environment Plan
No feedback, objections or claims about the adverse impact of the activity received despite follow-up.		Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.7.1 of the EP).	No additional measures or controls are required.

Summary Report – Consultation Complete

Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and considers consultation with NCWHAC for the purpose of regulation 25 complete. Sufficient information, a reasonable period and a reasonable opportunity have been provided, as described in Section 5.4 of the EP and further summarised in the Consultation Approach above. Specifically:

Sufficient Information

Woodside has given NCWHAC sufficient information to allow NCWHAC to make an informed assessment of the possible consequences of the activity on its functions, interests or activities because:

- The Consultation Information Sheet for this EP has been publicly available on the Woodside website since September 2025. Woodside gave this information to NCWHAC on 8 September 2025, marking the commencement of consultation on this EP. The Consultation Information Sheet included:

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- The purpose of consultation and set out what was being sought through consultation.
- A summary of the activity description, location of the activity, timing of the activity, receiving environment, impacts and risks associated with the Petroleum Activity, and proposed mitigation and management measures.
- A timeframe for consultation and the provision of feedback.
- A link to NOPSEMA's brochure '*Consultation on offshore petroleum environment plans: Information for the community'*.
- Advice that relevant persons can request that particular information provided during consultation not be published (to align with 25(4) of the Environment Regulations).

Reasonable Period

Woodside allowed NCWHAC a reasonable period for consultation in the preparation of the EP because:

- A consultation period was stated in the initial correspondence to NCWHAC advising of consultation as well as when consultation closed for the purposes of the preparation of the EP. This enabled Woodside to assess feedback before EP submission.
- Woodside's methodology allows a 45-day consultation period for MSS EPs and Woodside allowed NCWHAC 45 days for consultation.
- Consultation for this EP commenced 6 months ago.
- In this context, Woodside allowed NCWHAC a reasonable period for consultation in preparation of the EP.

Reasonable Opportunity

A reasonable opportunity to provide feedback has been provided because Woodside's approach to consultation with NCWHAC is appropriate and adapted to the nature of interests of NCWHAC:

- Woodside published advertisements in 6 national, state, and relevant local newspapers (see Consultation Activities). This allowed for broad awareness of the activity under the EP and also of consultation.
- Woodside ran a targeted social media campaign (see Consultation Activities). This allowed for broad awareness of the activity under the EP and also of consultation.
- From 5 October 2025 to 18 October 2025, Woodside held, or hosted information stalls at, a number of community events and roadshows in regional areas including the Pilbara to raise awareness of the EP and provide another opportunity for feedback. These events were promoted in local newspapers and on social media.
- In the absence of feedback, Woodside sent a follow-up consultation email on 8 October 2025, reminding NCWHAC of the opportunity to provide feedback.

Outcomes of Consultation

Woodside has assessed the merits of each objection or claim (if any) about the adverse impact of the activity to which the EP relates, as required under Regulation 24. The measures (if any) that Woodside has adopted or proposes to adopt because of the consultation are appropriate because:

- No additional measures were considered as a result of consultation as NCWHAC did not provide feedback for this EP.
- Woodside will continue to accept and assess feedback throughout the life of the EP and apply its Management of Change and Revision process when applicable.
- The measures and controls described in this EP address the potential impact from the proposed activity on NCWHAC's functions, interests or activities.

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4.3 Commonwealth and WA State Government departments or agencies – industry

4.3.1 Department of Mines, Petroleum and Exploration (DMPE)

Summary of information provided and record of consultation for this EP:

- On 8 September 2025, Woodside emailed DMPE advising of the proposed activity (Record of Consultation, reference 6.1.9), provided a Consultation Information Sheet, and a link to NOPSEMA's brochure '*Consultation on offshore petroleum environment plans: Information for the community'*.
- On 8 October 2025, as no response had been received, Woodside proactively sent a follow-up email (Record of Consultation, reference 6.2.1).

Summary of Feedback, Objection or Claim	Woodside's Assessment of Merits of Feedback, Objection or Claim	Woodside's Statement of Response	Inclusion in Environment Plan
No feedback, objections or claims about the adverse impact of the activity received despite follow-up.		Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.7.1 of the EP).	No additional measures or controls are required.

Summary Report – Consultation Complete

Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and considers consultation with DMPE for the purpose of regulation 25 complete. Sufficient information, a reasonable period and a reasonable opportunity have been provided, as described in Section 5.4 of the EP and further summarised in the Consultation Approach above. Specifically:

Sufficient Information

Woodside has given DMPE sufficient information to allow DMPE to make an informed assessment of the possible consequences of the activity on its functions, interests or activities because:

- The Consultation Information Sheet for this EP has been publicly available on the Woodside website since September 2025. Woodside gave this information to DMPE on 8 September 2025, marking the commencement of consultation on this EP. The Consultation Information Sheet included:
  - The purpose of consultation and set out what was being sought through consultation.
  - A summary of the activity description, location of the activity, timing of the activity, receiving environment, impacts and risks associated with the Petroleum Activity, and proposed mitigation and management measures.
  - A timeframe for consultation and the provision of feedback.
  - A link to NOPSEMA's brochure '*Consultation on offshore petroleum environment plans: Information for the community'*.
  - Advice that relevant persons can request that particular information provided during consultation not be published (to align with 25(4) of the Environment Regulations).

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Reasonable Period

Woodside allowed DMPE a reasonable period for consultation in the preparation of the EP because:

- A consultation period was stated in the initial correspondence to DMPE advising of consultation as well as when consultation closed for the purposes of the preparation of the EP. This enabled Woodside to assess feedback before EP submission.
- Woodside's methodology allows a 45-day consultation period for MSS EPs and Woodside allowed DMPE 45 days for consultation.
- Consultation for this EP commenced 6 months ago.
- In this context, Woodside allowed DMPE a reasonable period for consultation in preparation of the EP.

Reasonable Opportunity

A reasonable opportunity to provide feedback has been provided because Woodside's approach to consultation with DMPE is appropriate and adapted to the nature of interests of DMPE:

- Woodside published advertisements in 6 national, state, and relevant local newspapers (see Consultation Activities). This allowed for broad awareness of the activity under the EP and also of consultation.
- Woodside ran a targeted social media campaign (see Consultation Activities). This allowed for broad awareness of the activity under the EP and also of consultation.
- In the absence of feedback, Woodside sent a follow-up consultation email on 8 October 2025, reminding DMPE of the opportunity to provide feedback.

Outcomes of Consultation

Woodside has assessed the merits of each objection or claim (if any) about the adverse impact of the activity to which the EP relates, as required under Regulation 24. The measures (if any) that Woodside has adopted or proposes to adopt because of the consultation are appropriate because:

- No additional measures were considered as a result of consultation as DMPE did not provide feedback for this EP.
- Woodside will continue to accept and assess feedback throughout the life of the EP and apply its Management of Change and Revision process when applicable.
- The measures and controls described in this EP address the potential impact from the proposed activity on DMPE's functions, interests or activities.

4.3.2 Department of Industry, Science and Resources (DISR)

Summary of information provided and record of consultation for this EP:

- On 8 September 2025, Woodside emailed DISR advising of the proposed activity (Record of Consultation, reference 6.1.9), provided a Consultation Information Sheet, and a link to NOPSEMA's brochure '*Consultation on offshore petroleum environment plans: Information for the community*'.
- On 8 October 2025, as no response had been received, Woodside proactively sent a follow-up email (Record of Consultation, reference 6.2.1).

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Summary of Feedback, Objection or Claim	Woodside's Assessment of Merits of Feedback, Objection or Claim	Woodside's Statement of Response	Inclusion in Environment Plan
No feedback, objections or claims about the adverse impact of the activity received despite follow-up.		Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.7.1 of the EP).	No additional measures or controls are required.

Summary Report – Consultation Complete

Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and considers consultation with DISR for the purpose of regulation 25 complete. Sufficient information, a reasonable period and a reasonable opportunity have been provided, as described in Section 5.4 of the EP and further summarised in the Consultation Approach above. Specifically:

Sufficient Information

Woodside has given DISR sufficient information to allow DISR to make an informed assessment of the possible consequences of the activity on its functions, interests or activities because:

- The Consultation Information Sheet for this EP has been publicly available on the Woodside website since September 2025. Woodside gave this information to DISR on 8 September 2025, marking the commencement of consultation on this EP. The Consultation Information Sheet included:
  - The purpose of consultation and set out what was being sought through consultation.
  - A summary of the activity description, location of the activity, timing of the activity, receiving environment, impacts and risks associated with the Petroleum Activity, and proposed mitigation and management measures.
  - A timeframe for consultation and the provision of feedback.
  - A link to NOPSEMA's brochure '*Consultation on offshore petroleum environment plans: Information for the community'.*
  - Advice that relevant persons can request that particular information provided during consultation not be published (to align with 25(4) of the Environment Regulations).

Reasonable Period

Woodside allowed DISR a reasonable period for consultation in the preparation of the EP because:

- A consultation period was stated in the initial correspondence to DISR advising of consultation as well as when consultation closed for the purposes of the preparation of the EP. This enabled Woodside to assess feedback before EP submission.
- Woodside's methodology allows a 45-day consultation period for MSS EPs and Woodside allowed DISR 45 days for consultation.
- Consultation for this EP commenced 6 months ago.
- In this context, Woodside allowed DISR a reasonable period for consultation in preparation of the EP.

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Reasonable Opportunity

A reasonable opportunity to provide feedback has been provided because Woodside's approach to consultation with DISR is appropriate and adapted to the nature of interests of DISR:

- Woodside published advertisements in 6 national, state, and relevant local newspapers (see Consultation Activities). This allowed for broad awareness of the activity under the EP and also of consultation.
- Woodside ran a targeted social media campaign (see Consultation Activities). This allowed for broad awareness of the activity under the EP and also of consultation.
- In the absence of feedback, Woodside sent a follow-up consultation email on 8 October 2025, reminding DISR of the opportunity to provide feedback.

Outcomes of Consultation

Woodside has assessed the merits of each objection or claim (if any) about the adverse impact of the activity to which the EP relates, as required under Regulation 24. The measures (if any) that Woodside has adopted or proposes to adopt because of the consultation are appropriate because:

- No additional measures were considered as a result of consultation as DISR did not provide feedback for this EP.
- Woodside will continue to accept and assess feedback throughout the life of the EP and apply its Management of Change and Revision process when applicable.
- The measures and controls described in this EP address the potential impact from the proposed activity on DISR functions, interests or activities.

4.4 Commonwealth commercial fisheries and peak representative bodies

4.4.1 Australian Southern Bluefin Tuna Industry Association (ASBTIA)

Summary of information provided and record of consultation for this EP:

- On 8 September 2025, Woodside emailed ASBTIA advising of the proposed activity (Record of Consultation, reference 6.1.14), provided a Consultation Information Sheet, information on potential impacts to fisheries, and a link to NOPSEMA's brochure '*Consultation on offshore petroleum environment plans: Information for the community'*.
- On 8 October 2025, as no response had been received, Woodside proactively sent a follow-up email (Record of Consultation, reference 6.2.1).

Summary of Feedback, Objection or Claim	Woodside's Assessment of Merits of Feedback, Objection or Claim	Woodside's Statement of Response	Inclusion in Environment Plan
No feedback, objections or claims about the adverse impact of the activity received despite follow-up.		Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of	No additional measures or controls are required.

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		Change and Revision process (see Section 7.7.1 of the EP).	

Summary Report – Consultation Complete

Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and considers consultation with ASBTIA for the purpose of regulation 25 complete. Sufficient information, a reasonable period and a reasonable opportunity have been provided, as described in Section 5.4 of the EP and further summarised in the Consultation Approach above. Specifically:

Sufficient Information

Woodside has given ASBTIA sufficient information to allow ASBTIA to make an informed assessment of the possible consequences of the activity on its functions, interests or activities because:

- The Consultation Information Sheet for this EP has been publicly available on the Woodside website since September 2025. Woodside gave this information to ASBTIA on 8 September 2025, marking the commencement of consultation on this EP. The Consultation Information Sheet included:
  - The purpose of consultation and set out what was being sought through consultation.
  - A summary of the activity description, location of the activity, timing of the activity, receiving environment, impacts and risks associated with the Petroleum Activity, and proposed mitigation and management measures.
  - A timeframe for consultation and the provision of feedback.
  - A link to NOPSEMA's brochure '*Consultation on offshore petroleum environment plans: Information for the community'*.
  - Advice that relevant persons can request that particular information provided during consultation not be published (to align with 25(4) of the Environment Regulations).
- Woodside also provided additional tailored information to ASBTIA on potential impacts to fisheries.

Reasonable Period

Woodside allowed ASBTIA a reasonable period for consultation in the preparation of the EP because:

- A consultation period was stated in the initial correspondence to ASBTIA advising of consultation as well as when consultation closed for the purposes of the preparation of the EP. This enabled Woodside to assess feedback before EP submission.
- Woodside's methodology allows a 45-day consultation period for MSS EPs and Woodside allowed ASBTIA 45 days for consultation.
- Consultation for this EP commenced 6 months ago.
- In this context, Woodside allowed ASBTIA a reasonable period for consultation in preparation of the EP.

Reasonable Opportunity

A reasonable opportunity to provide feedback has been provided because Woodside's approach to consultation with ASBTIA is appropriate and adapted to the nature of interests of ASBTIA:

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- Woodside published advertisements in 6 national, state, and relevant local newspapers (see Consultation Activities). This allowed for broad awareness of the activity under the EP and also of consultation.
- Woodside ran a targeted social media campaign (see Consultation Activities). This allowed for broad awareness of the activity under the EP and also of consultation.
- In the absence of feedback, Woodside sent a follow-up consultation email on 8 October 2025, reminding ASBTIA of the opportunity to provide feedback.

Outcomes of Consultation

Woodside has assessed the merits of each objection or claim (if any) about the adverse impact of the activity to which the EP relates, as required under Regulation 24. The measures (if any) that Woodside has adopted or proposes to adopt because of the consultation are appropriate because:

- No additional measures were considered as a result of consultation as ASBTIA did not provide feedback for this EP.
- Woodside will continue to accept and assess feedback throughout the life of the EP and apply its Management of Change and Revision process when applicable.

The measures and controls described in this EP address the potential impact from the proposed activity on ASBTIA's functions, interests or activities.

4.4.2 Commonwealth Fisheries Association (CFA)

Summary of information provided and record of consultation for this EP:

- On 8 September 2025, Woodside emailed CFA advising of the proposed activity (Record of Consultation, reference 6.1.14), provided a Consultation Information Sheet, information on potential impacts to fisheries, and a link to NOPSEMA's brochure '*Consultation on offshore petroleum environment plans: Information for the community*'.
- On 8 October 2025, as no response had been received, Woodside proactively sent a follow-up email (Record of Consultation, reference 6.2.1).

Summary of Feedback, Objection or Claim	Woodside's Assessment of Merits of Feedback, Objection or Claim	Woodside's Statement of Response	Inclusion in Environment Plan
No feedback, objections or claims about the adverse impact of the activity received despite follow-up.		Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.7.1 of the EP).	Woodside has assessed the potential for interaction with Commonwealth managed commercial fisheries issues in Section 4.9.2 of the EP. No additional measures or controls are required.
Summary Report – Consultation Complete			
Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and considers consultation with CFA for the purpose of regulation 25 complete. Sufficient information, a reasonable period and a reasonable opportunity have been provided, as described in Section 5.4 of the EP and further summarised in the Consultation Approach above. Specifically:			

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Sufficient Information

Woodside has given CFA sufficient information to allow CFA to make an informed assessment of the possible consequences of the activity on its functions, interests or activities because:

- The Consultation Information Sheet for this EP has been publicly available on the Woodside website since September 2025. Woodside gave this information to CFA on 8 September 2025, marking the commencement of consultation on this EP. The Consultation Information Sheet included:
  - The purpose of consultation and set out what was being sought through consultation.
  - A summary of the activity description, location of the activity, timing of the activity, receiving environment, impacts and risks associated with the Petroleum Activity, and proposed mitigation and management measures.
  - A timeframe for consultation and the provision of feedback.
  - A link to NOPSEMA's brochure '*Consultation on offshore petroleum environment plans: Information for the community'.*
  - Advice that relevant persons can request that particular information provided during consultation not be published (to align with 25(4) of the Environment Regulations).
- Woodside also provided additional tailored information to CFA on potential impacts to fisheries.

Reasonable Period

Woodside allowed CFA a reasonable period for consultation in the preparation of the EP because:

- A consultation period was stated in the initial correspondence to CFA advising of consultation as well as when consultation closed for the purposes of the preparation of the EP. This enabled Woodside to assess feedback before EP submission.
- Woodside's methodology allows a 45-day consultation period for MSS EPs and Woodside allowed CFA 45 days for consultation.
- Consultation for this EP commenced 6 months ago.
- In this context, Woodside allowed CFA a reasonable period for consultation in preparation of the EP.

Reasonable Opportunity

A reasonable opportunity to provide feedback has been provided because Woodside's approach to consultation with CFA is appropriate and adapted to the nature of interests of CFA:

- Woodside published advertisements in 6 national, state, and relevant local newspapers (see Consultation Activities). This allowed for broad awareness of the activity under the EP and also of consultation.
- Woodside ran a targeted social media campaign (see Consultation Activities). This allowed for broad awareness of the activity under the EP and also of consultation.
- In the absence of feedback, Woodside sent a follow-up consultation email on 8 October 2025, reminding CFA of the opportunity to provide feedback.

Outcomes of Consultation

Woodside has assessed the merits of each objection or claim (if any) about the adverse impact of the activity to which the EP relates, as required under Regulation 24. The measures (if any) that Woodside has adopted or proposes to adopt because of the consultation are appropriate because:

- No additional measures were considered as a result of consultation as CFA did not provide feedback for this EP.
- Woodside will continue to accept and assess feedback throughout the life of the EP and apply its Management of Change and Revision process when applicable.
- The measures and controls described in this EP address the potential impact from the proposed activity on CFA's functions, interests or activities.

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4.4.3 North West Slope Trawl Fishery

Summary of information provided and record of consultation for this EP:

- On 8 September 2025, Woodside emailed North West Slope Trawl Fishery licence holders advising of the proposed activity (Record of Consultation, reference 6.1.14), provided a Consultation Information Sheet, information on potential impacts on fisheries, and a link to NOPSEMA's brochure '*Consultation on offshore petroleum environment plans: Information for the community*'.
- On 8 October 2025, as no response had been received, Woodside proactively sent a follow-up email (Record of Consultation, reference 6.2.1).

Summary of Feedback, Objection or Claim	Woodside's Assessment of Merits of Feedback, Objection or Claim	Woodside's Statement of Response	Inclusion in Environment Plan
No feedback, objections or claims about the adverse impact of the activity received despite follow-up.		Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.7.1 of the EP).	No additional measures or controls are required.

Summary Report – Consultation Complete

Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and considers consultation with North West Slope Trawl Fishery for the purpose of regulation 25 complete. Sufficient information, a reasonable period and a reasonable opportunity have been provided, as described in Section 5.4 of the EP and further summarised in the Consultation Approach above. Specifically:

Sufficient Information

Woodside has given North West Slope Trawl Fishery sufficient information to allow North West Slope Trawl Fishery to make an informed assessment of the possible consequences of the activity on its functions, interests or activities because:

- The Consultation Information Sheet for this EP has been publicly available on the Woodside website since September 2025. Woodside gave this information to North West Slope Trawl Fishery on 8 September 2025, marking the commencement of consultation on this EP. The Consultation Information Sheet included:
  - The purpose of consultation and set out what was being sought through consultation.
  - A summary of the activity description, location of the activity, timing of the activity, receiving environment, impacts and risks associated with the Petroleum Activity, and proposed mitigation and management measures.
  - A timeframe for consultation and the provision of feedback.
  - A link to NOPSEMA's brochure '*Consultation on offshore petroleum environment plans: Information for the community*'.
  - Advice that relevant persons can request that particular information provided during consultation not be published (to align with 25(4) of the Environment Regulations).
- Woodside also provided additional tailored information to North West Slope Trawl Fishery on potential impacts to fisheries.

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Reasonable Period

Woodside allowed North West Slope Trawl Fishery a reasonable period for consultation in the preparation of the EP because:

- A consultation period was stated in the initial correspondence to North West Slope Trawl Fishery advising of consultation as well as when consultation closed for the purposes of the preparation of the EP. This enabled Woodside to assess feedback before EP submission.
- Woodside's methodology allows a 45-day consultation period for MSS EPs and Woodside allowed North West Slope Trawl Fishery 45 days for consultation.
- Consultation for this EP commenced 6 months ago.
- In this context, Woodside allowed North West Slope Trawl Fishery a reasonable period for consultation in preparation of the EP.

Reasonable Opportunity

A reasonable opportunity to provide feedback has been provided because Woodside's approach to consultation with North West Slope Trawl Fishery is appropriate and adapted to the nature of interests of North West Slope Trawl Fishery:

- Woodside published advertisements in 6 national, state, and relevant local newspapers (see Consultation Activities). This allowed for broad awareness of the activity under the EP and also of consultation.
- Woodside ran a targeted social media campaign (see Consultation Activities). This allowed for broad awareness of the activity under the EP and also of consultation.
- In the absence of feedback, Woodside sent a follow-up consultation email on 8 October 2025, reminding North West Slope Trawl Fishery of the opportunity to provide feedback.

Outcomes of Consultation

Woodside has assessed the merits of each objection or claim (if any) about the adverse impact of the activity to which the EP relates, as required under Regulation 24. The measures (if any) that Woodside has adopted or proposes to adopt because of the consultation are appropriate because:

- No additional measures were considered as a result of consultation as North West Slope Trawl Fishery did not provide feedback for this EP.
- Woodside will continue to accept and assess feedback throughout the life of the EP and apply its Management of Change and Revision process when applicable.
- The measures and controls described in this EP address the potential impact from the proposed activity on North West Slope Trawl Fishery's functions, interests or activities.

4.4.4 Western Deepwater Trawl Fishery

Summary of information provided and record of consultation for this EP:

- On 8 September 2025, Woodside emailed Western Deepwater Trawl Fishery licence holders advising of the proposed activity (Record of Consultation, reference 6.1.14), provided a Consultation Information Sheet, information on potential impacts to fisheries, and a link to NOPSEMA's brochure '*Consultation on offshore petroleum environment plans: Information for the community*'.
- On 8 October 2025, as no response had been received, Woodside proactively sent a follow-up email (Record of Consultation, reference 6.2.1).

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Summary of Feedback, Objection or Claim	Woodside's Assessment of Merits of Feedback, Objection or Claim	Woodside's Statement of Response	Inclusion in Environment Plan
No feedback, objections or claims about the adverse impact of the activity received despite follow-up.		Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.7.1 of the EP).	No additional measures or controls are required.

Summary Report – Consultation Complete

Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and considers consultation with Western Deepwater Trawl Fishery for the purpose of regulation 25 complete. Sufficient information, a reasonable period and a reasonable opportunity have been provided, as described in Section 5.4 of the EP and further summarised in the Consultation Approach above. Specifically:

Sufficient Information

Woodside has given Western Deepwater Trawl Fishery sufficient information to allow Western Deepwater Trawl Fishery to make an informed assessment of the possible consequences of the activity on its functions, interests or activities because:

- The Consultation Information Sheet for this EP has been publicly available on the Woodside website since September 2025. Woodside gave this information to Western Deepwater Trawl Fishery on 8 September 2025, marking the commencement of consultation on this EP. The Consultation Information Sheet included:
  - The purpose of consultation and set out what was being sought through consultation.
  - A summary of the activity description, location of the activity, timing of the activity, receiving environment, impacts and risks associated with the Petroleum Activity, and proposed mitigation and management measures.
  - A timeframe for consultation and the provision of feedback.
  - A link to NOPSEMA's brochure '*Consultation on offshore petroleum environment plans: Information for the community'*.
  - Advice that relevant persons can request that particular information provided during consultation not be published (to align with 25(4) of the Environment Regulations).
- Woodside also provided additional tailored information to Western Deepwater Trawl Fishery on potential impacts to fisheries.

Reasonable Period

Woodside allowed Western Deepwater Trawl Fishery a reasonable period for consultation in the preparation of the EP because:

- A consultation period was stated in the initial correspondence to Western Deepwater Trawl Fishery advising of consultation as well as when consultation closed for the purposes of the preparation of the EP. This enabled Woodside to assess feedback before EP submission.
- Woodside's methodology allows a 45-day consultation period for MSS EPs and Woodside allowed Western Deepwater Trawl Fishery 45 days for consultation.
- Consultation for this EP commenced 6 months ago.
- In this context, Woodside allowed Western Deepwater Trawl Fishery a reasonable period for consultation in preparation of the EP.

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Reasonable Opportunity

A reasonable opportunity to provide feedback has been provided because Woodside's approach to consultation with Western Deepwater Trawl Fishery is appropriate and adapted to the nature of interests of Western Deepwater Trawl Fishery:

- Woodside published advertisements in 6 national, state, and relevant local newspapers (see Consultation Activities). This allowed for broad awareness of the activity under the EP and also of consultation.
- Woodside ran a targeted social media campaign (see Consultation Activities). This allowed for broad awareness of the activity under the EP and also of consultation.
- In the absence of feedback, Woodside sent a follow-up consultation email on 8 October 2025, reminding Western Deepwater Trawl Fishery of the opportunity to provide feedback.

Outcomes of Consultation

Woodside has assessed the merits of each objection or claim (if any) about the adverse impact of the activity to which the EP relates, as required under Regulation 24. The measures (if any) that Woodside has adopted or proposes to adopt because of the consultation are appropriate because:

- No additional measures were considered as a result of consultation as Western Deepwater Trawl Fishery did not provide feedback for this EP.
- Woodside will continue to accept and assess feedback throughout the life of the EP and apply its Management of Change and Revision process when applicable.
- The measures and controls described in this EP address the potential impact from the proposed activity on Western Deepwater Trawl Fishery's functions, interests or activities.

4.4.5 Tuna Australia

Summary of information provided and record of consultation for this EP:

- On 8 September 2025, Woodside emailed Tuna Australia advising of the proposed activity (Record of Consultation, reference 6.1.14), provided a Consultation Information Sheet, information on potential impacts to fisheries, and a link to NOPSEMA's brochure '*Consultation on offshore petroleum environment plans: Information for the community*'.
- On 8 October 2025, as no response had been received, Woodside proactively sent a follow-up email (Record of Consultation, reference 6.2.1).
- On 24 October 2025, Tuna Australia emailed Woodside a submission for this EP (SI Report A, reference 21.1). Tuna Australia:
  - **(1)** Stated that the proposed Operational Area was located within the boundaries of the Western Tuna and Billfish Fishery (WTBF), the Southern Bluefin Tuna Fishery (SBTF), and the Western Skipjack Fishery, noting that these were statutory management areas where concession holders retained full legal rights to operate at any time and therefore were relevant persons.
  - **(2)** Stated that the seismic vessel's 3-nautical-mile safe navigation zone would significantly restrict fishing vessel operations and that the EP:
    - Did not provide evidence on how exclusion zones or towing operations would be coordinated with commercial fishers.
    - Did not provide a formal communication protocol.
    - Did not provide assessment of potential displacement costs.

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  - **(3)** Stated that no data or modelling had been provided to demonstrate that acoustic exposure levels within the Survey Acquisition Area were below biologically relevant thresholds for tuna larvae, juvenile stages, or prey species.
  - **(4)** Claimed the cumulative impacts of sequential and overlapping activities were not addressed.
  - **(5)** Requested that a long-term monitoring program under a BACI design be incorporated into the EP.
  - **(6)** Noted that Tuna Australia has repeatedly offered Woodside a consultation agreement but Woodside had chosen to rely on fishery details provided by AFMA which Tuna Australia alleged may be outdated or shared unlawfully.
- On 24 November 2025, Woodside emailed Tuna Australia to arrange a meeting regarding consultation (SI Report A, reference 21.2). Woodside advised a response was being drafted to Tuna Australia's feedback for this EP.
- Between 28 November 2025 – 2 December 2025, Woodside and Tuna Australia exchanged four emails arranging and confirming a meeting for 10 December 2025 (SI Report A, references 21.3 – 21.6).
- On 10 December 2025, Woodside and Tuna Australia met to discuss stakeholder engagement (SI Report A, reference 21.7). During the meeting:
  - **(2)** Woodside outlined its grievance process for fishery stakeholders.
  - Tuna Australia:
    - Discussed improvements to outreach to members and the tuna community and provided a review of the industry including:
      - Migratory and unpredictable nature of stock.
      - Past consultation challenges.
    - **(6)** Claimed that the AFMA database was incomplete.
    - Stated it currently worked with 15 companies to support consultation with industry and collaborated with other tuna representative bodies.
    - Covered operational insights from its perspective including:
      - Tuna fishing is in Commonwealth waters and is migratory currently with two boats in WA.
      - There were multiple international commitments and agreements which added complexity to management.
    - Discussed its communications to stakeholders, including its approach for mailouts.
    - Noted that there were potential changes coming for marine parks.
  - **(6)** Woodside agreed to have Tuna Australia send its Service Agreement for review.
- On 22 January 2026, Woodside emailed Tuna Australia thanking it for its feedback (SI Report A, reference 21.8) and included a copy of its Co-existence Approach with Commercial Fishers in Australia (Appendix J). Woodside:
  - **(1)** Noted Woodside's methodology for assessing relevancy and advised that although the mentioned tuna fisheries had no recent activity in the EMBA or Operational Area, Woodside had still chosen to consult licence holders and representative bodies based on management overlap and the nature of the activity.
  - **(2)** Provided information on controls including AIS, real-time mapping, and lookaheads in place to support communication. Woodside also advised it had attached its Co-Existence Approach with Commercial Fishers in Australia (Appendix J).
  - **(3)** Confirmed it had taken into account the peak spawning periods for striped marlin, skipjack tuna and southern bluefin tuna and provided details of the spatial temporal assessment undertaken. Woodside advised that conservative thresholds were applied and impacts were considered negligible at a regional scale given natural variability.

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  - **(4)** Confirmed Woodside had undertaken a temporal and spatial assessment to understand cumulative impacts on commercially important species, and cumulative impacts were not expected.
  - **(5)** Noted that Woodside was open to investing in collaborative research and had contributed historically to research into the impacts of seismic surveys, but that Woodside had not identified any specific research programs required to support the development of this EP.
  - **(6)** Thanked Tuna Australia for meeting with Woodside to discuss consultation and noted those discussions were ongoing separate to the EP. Woodside noted the Environment Regulations did not require entry into a services agreement to meet Regulation 25, and that details obtained from AFMA were used in compliance with the terms of their provision.
- On 23 January 2026, Tuna Australia emailed to thank Woodside for its response (SI Report A, reference 21.9). Tuna Australia noted it would further consider the feedback and respond, however it noted resourcing constraints.
- On 23 January 2026, Woodside thanked Tuna Australia for its email (SI Report A, reference 21.10). Woodside acknowledged Tuna Australia's resourcing constraints and thanked it for already taking the time to review the EP information and provide feedback. Woodside advised that it considered the EP included appropriate measures to address the potential impacts raised by Tuna Australia. Woodside confirmed it would continue to accept and assess feedback throughout the life of the EP.
- On 26 February 2026, Woodside met with Tuna Australia regarding general consultation matters separate to this EP (SI Report A, reference 21.11).
- On 2 March 2026, Tuna Australia emailed Woodside to provide additional feedback regarding the EP (SI Report A, reference 21.12). Tuna Australia:
  - **(1)** Stated the absence of recent fishing activity was not an indication of a lack of fishing rights or future use as WTBF concession holders retained statutory access, fishing effort was highly dynamic, and management changes were increasing the likelihood of future activity and access interactions.
  - **(2)** Considered that Woodside's proposed measures for vessel operations placed the responsibility on fishing operators and did not clearly align with consultation expectations that communication would be proactive and two-way.
  - **(3)** Acknowledged references to literature and noted its views regarding the relevance of additional research perspectives and a broader scope encompassing key tuna and billfish species and their migratory pathways and life stages.
  - **(6)** Recognised that the regulations did not mandate a services agreement but noted that collaborative engagement arrangements could assist consultation and coexistence outcomes.
- On 18 March 2026, Woodside emailed Tuna Australia following up on general consultation matters discussed in the 26 February meeting (SI Report A, reference 21.13).
  - **(1)** With respect to this EP, Woodside confirmed it was evolving its relevancy assessment approach for peak Commonwealth representative bodies, including Tuna Australia, as part of its ongoing engagement with fishery stakeholders and statutory bodies.
- On 24 March 2026, Woodside emailed Tuna Australia and thanked Tuna Australia for its feedback (SI Report A, reference 21.14). Woodside:
  - **(1)** Confirmed that following discussions with AFMA, Woodside was updating its relevancy assessment for peak Commonwealth representative bodies, based on management area overlap. Woodside noted that although the Western Tuna and Billfish Fishery and Western Skipjack Fishery had not recorded recent fishing activity, Woodside had, at its discretion, contacted individual licence holders for this EP.
  - **(2)** Noted Tuna Australia's feedback regarding engagement with fishing operators and confirmed it had included an additional control in the EP for a communications protocol which would enable effective two-way communication through the survey period.
  - **(3)** Noted the continuing research into the impacts of seismic surveys and advised that it had included additional information on yellowfin, bigeye and albacore tuna, and broadbill swordfish, into Section 4 of the EP and provided the additional information.
  - **(6)** Referenced meetings with other correspondence with Tuna Australia relating to broader discussions on consultation approaches.

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Summary of Feedback, Objection or Claim	Woodside's Assessment of Merits of Feedback, Objection or Claim	Woodside's Statement of Response	Inclusion in Environment Plan
(1) Stated the proposed area overlapped tuna fisheries which had legal rights in the area, therefore they were relevant persons.	**(1)** Woodside's methodology requires management area overlap and recent catch effort for a fishery to be classified as relevant. While the specified tuna fisheries did not meet these criteria, based on the nature and scale of the activity Woodside, at its discretion, still contacted licence holders and provided consultation information. However, to enable fishing industry issues to be consistently represented, Woodside has updated its methodology for assessing the relevancy of peak Commonwealth representative bodies to reflect feedback received during engagement with fishing statutory bodies and representative bodies.	**(1)** Woodside confirmed that although tuna fisheries had not been recently active in the Operational Area or EMBA, Woodside had chosen to contact licence holders. Woodside noted that to reflect feedback received through engagement with fishery representatives and statutory bodies, it had updated its methodology for assessing the relevance of peak Commonwealth representative bodies.	**(1)** Woodside's methodology for the identification of relevant persons is set out in Section 5 of the EP and its assessment of relevant persons for this EP is set out in Appendix F, Table 1. Based on updates to Woodside's methodology for peak Commonwealth representative bodies, Tuna Australia has been assessed as relevant for this EP.
(2) Stated the safe navigation zone restricted fishing, the EP lacked communication and displacement information, and the responsibility of information sharing should not be placed on fishing operators.	**(2)** Woodside acknowledges Tuna Australia's position on navigation and communication associated with the activity and has included an additional control in the EP in response. Details of Woodside's co-existence approach have been provided to Tuna Australia.	**(2)** Woodside provided an overview of the control measures that were proposed as part of the EP and advised it was including an additional control relating to communication with fishing operators. Woodside also provided details on its Co-existence Approach with Commercial Fishers in Australia.	**(2)** Based on feedback, Woodside has added C 1.15 to the EP, relating to communication with fishing operations during seismic activities. Woodside's impact assessment and full range of controls for managing or avoiding disturbance to other marine users are set out in Section 6.7.1 of the EP. Woodside's Co-existence Approach with Commercial Fisheries in Australia is at Appendix J.
(3) Stated there was no data or modelling to show acoustic exposure was below biologically relevant thresholds, and noted	**(3)** Woodside has incorporated available studies and research into its assessments. Woodside identified striped marlin, skipjack tuna and	**(3)** Woodside confirmed it had used currently available studies and literature for its assessment and provided further details on the assessment and potential	**(3)** Woodside has updated Section 4.9.2 to incorporate additional information on

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its view that additional research and a broader assessment scope was needed.	southern bluefin tuna for further assessment due to spawning periods. Based on feedback, Woodside has also included information on yellowfin, bigeye and albacore tuna and broadbill swordfish in the EP.	for interaction with spawning for striped marlin, skipjack tuna and bluefin tuna. Woodside advised conservative thresholds were applied and impacts were considered negligible at a regional scale given natural variability. Woodside further advised that as a result of feedback, it had included additional information on yellowfin, bigeye and albacore tuna and broadbill swordfish in the EP.	tuna species. No additional controls or measures are required.
(4) Claimed cumulative impacts not addressed.	**(4)** Woodside has undertaken a temporal and spatial assessment to understand cumulative impacts on commercially important species.	**(4)** Woodside advised that based on assessments, cumulative impacts were not expected.	**(4)** No changes or additional controls or measures required. Woodside has assessed cumulative impacts in Section 6.4 of the EP.
(5) Requested inclusion of a long-term BACI monitoring program in the EP.	**(5)** Based on already available information, Woodside has not identified any specific studies or research required for this EP.	**(5)** Woodside advised it had historically supported research on seismic impacts and remained open to broader collaborative research discussions.	**(5)** No changes or additional controls or measures required.
(6) Repeated its offer of a consultation agreement.	**(6)** Woodside has consulted relevant fishery licence holders as well as, at its discretion, other fishery licence holders with entitlement to fish in the area. The Environment Regulations do not require entry into a services agreement to fulfil Regulation 25.	**(6)** Woodside noted the Environment Regulations did not require a services agreement and that details obtained from AFMA were used in compliance with the terms of their provision. Woodside noted broader discussions with Tuna Australia about consultation approaches were ongoing.	**(6)** No changes or additional controls or measures required.
Objections or claims have been addressed as noted above.	Woodside has assessed the merits of each objection or claim (if any) about the adverse impact of the activity to which the EP relates, as required under Regulation 24.	Woodside engages in ongoing consultation throughout the life of an EP. Woodside notes that further feedback may be received as part of ongoing consultation. Should further feedback be received, it will be assessed and, where appropriate, Woodside will apply its	No additional controls or measures are required.

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		Management of Change and Revision process (see Section 7.7.1 of the EP).	

Summary Report – Consultation Complete

Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and considers consultation with Tuna Australia for the purpose of regulation 25 complete. Sufficient information, a reasonable period and a reasonable opportunity have been provided, as described in Section 5.4 of the EP and further summarised in the Consultation Approach above. Specifically:

Sufficient Information

Woodside has given Tuna Australia sufficient information to allow Tuna Australia to make an informed assessment of the possible consequences of the activity on its functions, interests or activities because:

- The Consultation Information Sheet for this EP has been publicly available on the Woodside website since September 2025. Woodside gave this information to Tuna Australia on 8 September 2025, marking the commencement of consultation on this EP. The Consultation Information Sheet included:
  - The purpose of consultation and set out what was being sought through consultation.
  - A summary of the activity description, location of the activity, timing of the activity, receiving environment, impacts and risks associated with the Petroleum Activity, and proposed mitigation and management measures.
  - A timeframe for consultation and the provision of feedback.
  - A link to NOPSEMA's brochure '*Consultation on offshore petroleum environment plans: Information for the community'*.
  - Advice that relevant persons can request that particular information provided during consultation not be published (to align with 25(4) of the Environment Regulations).
- Woodside also provided additional tailored information to Tuna Australia on potential impacts to fisheries.
- On 24 October 2025 and 2 March 2026, Tuna Australia shared feedback via email regarding this activity, indicating the information provided was sufficient to enable Tuna Australia to make an informed assessment of the possible consequences of the activity on its functions, interests or activities.
- In addition to the information in the Consultation Information Sheet, Woodside provided additional information to Tuna Australia in response to Tuna Australia's feedback (Woodside's emails of 22 January 2026 and 24 March 2026).

Reasonable Period

Woodside allowed Tuna Australia a reasonable period for consultation in the preparation of the EP because:

- A consultation period was stated in the initial correspondence to Tuna Australia advising of consultation as well as when consultation closed for the purposes of the preparation of the EP. This enabled Woodside to assess feedback before EP submission.
- Woodside's methodology allows a 45-day consultation period for MSS EPs and Woodside allowed Tuna Australia 45 days for consultation.
- Consultation for this EP commenced 6 months ago.
- In this context, Woodside allowed Tuna Australia a reasonable period for consultation in preparation of the EP, as evidenced by Tuna Australia's response on 24 October 2025.

Reasonable Opportunity

A reasonable opportunity to provide feedback has been provided because Woodside's approach to consultation with Tuna Australia is appropriate and adapted to the nature of interests of Tuna Australia:

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- Woodside published advertisements in 6 national, state, and relevant local newspapers (see Consultation Activities). This allowed for broad awareness of the activity under the EP and also of consultation.
- Woodside ran a targeted social media campaign (see Consultation Activities). This allowed for broad awareness of the activity under the EP and also of consultation.
- In the absence of feedback, Woodside sent a follow-up consultation email on 8 October 2025, reminding Tuna Australia of the opportunity to provide feedback.

Outcomes of Consultation

Woodside has assessed the merits of each objection or claim (if any) about the adverse impact of the activity to which the EP relates, as required under Regulation 24. The measures (if any) that Woodside has adopted or proposes to adopt because of the consultation are appropriate because:

- Tuna Australia provided feedback or objections or claims about the adverse impact of the activity to which this EP relates. In line with the intended outcome of consultation as set out in Section 5.2 and Regulations 24 and 34(g), Woodside has:
  - Responded to feedback from Tuna Australia and has assessed the merits of any objection or claim about the adverse impact of activities to which this EP relates.
  - Made the following updates to the EP, based on Tuna Australia's feedback:
    - Included an additional control in the EP (C 1.15) regarding a communication protocol with fishing operators to further enable two-way communication.
    - Included additional information on yellowfin, bigeye and albacore tuna, and broadbill swordfish, in Section 4 of the EP. No new measures or controls were required as a result of the additional information.
- Woodside will continue to accept and assess feedback throughout the life of the EP and apply its Management of Change and Revision process when applicable.

4.5 State commercial fisheries and peak representative bodies

4.5.1 Aquaculture Council of Western Australia (ACWA)

Summary of information provided and record of consultation for this EP:

- On 8 September 2025, Woodside emailed ACWA advising of the proposed activity (Record of Consultation, reference 6.1.27), provided a Consultation Information Sheet, and a link to NOPSEMA's brochure '*Consultation on offshore petroleum environment plans: Information for the community*'.
- On 8 October 2025, as no response had been received, Woodside proactively sent a follow-up email (Record of Consultation, reference 6.2.1).

Summary of Feedback, Objection or Claim	Woodside's Assessment of Merits of Feedback, Objection or Claim	Woodside's Statement of Response	Inclusion in Environment Plan
No feedback, objections or claims about the adverse impact of the activity received despite follow-up.		Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate,	No additional measures or controls are required.

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		Woodside will apply its Management of Change and Revision process (see Section 7.7.1 of the EP).	

Summary Report – Consultation Complete

Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and considers consultation with ACWA for the purpose of regulation 25 complete. Sufficient information, a reasonable period and a reasonable opportunity have been provided, as described in Section 5.4 of the EP and further summarised in the Consultation Approach above. Specifically:

Sufficient Information

Woodside has given ACWA sufficient information to allow ACWA to make an informed assessment of the possible consequences of the activity on its functions, interests or activities because:

- The Consultation Information Sheet for this EP has been publicly available on the Woodside website since September 2025. Woodside gave this information to ACWA on 8 September 2025, marking the commencement of consultation on this EP. The Consultation Information Sheet included:
  - The purpose of consultation and set out what was being sought through consultation.
  - A summary of the activity description, location of the activity, timing of the activity, receiving environment, impacts and risks associated with the Petroleum Activity, and proposed mitigation and management measures.
  - A timeframe for consultation and the provision of feedback.
  - A link to NOPSEMA's brochure '*Consultation on offshore petroleum environment plans: Information for the community'.*
  - Advice that relevant persons can request that particular information provided during consultation not be published (to align with 25(4) of the Environment Regulations).

Reasonable Period

Woodside allowed ACWA a reasonable period for consultation in the preparation of the EP because:

- A consultation period was stated in the initial correspondence to ACWA advising of consultation as well as when consultation closed for the purposes of the preparation of the EP. This enabled Woodside to assess feedback before EP submission.
- Woodside's methodology allows a 45-day consultation period for MSS EPs and Woodside allowed ACWA 45 days for consultation.
- Consultation for this EP commenced 6 months ago.
- In this context, Woodside allowed ACWA a reasonable period for consultation in preparation of the EP.

Reasonable Opportunity

A reasonable opportunity to provide feedback has been provided because Woodside's approach to consultation with ACWA is appropriate and adapted to the nature of interests of ACWA:

- Woodside published advertisements in 6 national, state, and relevant local newspapers (see Consultation Activities). This allowed for broad awareness of the activity under the EP and also of consultation.
- Woodside ran a targeted social media campaign (see Consultation Activities). This allowed for broad awareness of the activity under the EP and also of consultation.
- In the absence of feedback, Woodside sent a follow-up consultation email on 8 October 2025, reminding ACWA of the opportunity to provide feedback.

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Outcomes of Consultation

Woodside has assessed the merits of each objection or claim (if any) about the adverse impact of the activity to which the EP relates, as required under Regulation 24. The measures (if any) that Woodside has adopted or proposes to adopt because of the consultation are appropriate because:

- No additional measures were considered as a result of consultation as ACWA did not provide feedback for this EP.
- Woodside will continue to accept and assess feedback throughout the life of the EP and apply its Management of Change and Revision process when applicable.
- The measures and controls described in this EP address the potential impact from the proposed activity on ACWA's functions, interests or activities.

4.5.2 Western Australian Fishing Industry Council (WAFIC)

Summary of information provided and record of consultation for this EP:

- On 8 September 2025, Woodside emailed WAFIC advising of the proposed activity (Record of Consultation, reference 6.1.25), provided a Consultation Information Sheet, information on potential impacts to fisheries, and a link to NOPSEMA's brochure '*Consultation on offshore petroleum environment plans: Information for the community'*. Woodside also asked WAFIC if it would like to meet to discuss the EP.
- On 10 September 2025, WAFIC emailed Woodside to confirm the consultation information had been distributed to the relevant state fisheries (SI Report A, reference 9.1). WAFIC advised it was happy to meet.
- On 17 September 2025, Woodside responded thanking WAFIC for the confirmation that the consultation information had been distributed (SI Report A, reference 9.2). Woodside advised it would reach out shortly to arrange a meeting once the availability of relevant staff had been confirmed.
- On 24 October 2025, WAFIC emailed Woodside to provide feedback on the EP (SI Report, reference 9.3). WAFIC:
  - **(1)** Confirmed it had not received any feedback from industry regarding this EP.
  - **(2)** Asked for the volume of the seismic source, noting WAFIC referred to DPIRD's risk assessment (No. 288) which required both source volume and depth to assess risk to marine life.
  - **(3)** Requested a summary of the airgun array source model and its potential impacts on species.
  - **(4)** Expressed concerns about disturbance to marine life within the active source area and sought details on Woodside's consideration of peak spawning periods for commercially valuable fish species, particularly in light of the recent stock assessment which indicated the Pilbara Demersal Scalefish Resource was at severe risk.
  - **(5)** Noted Woodside's information that noise emissions from the seismic source were likely to have localised and no lasting effects on commercial species and that impacts to recruitment of key commercial species were not predicted, and asked how Woodside had reached the conclusion and which studies had been used.
  - **(6)** Asked whether Woodside could provide a cumulative impact assessment accounting for the spatial footprint of previous and future surveys, and requested details on control measures to manage cumulative impacts.
  - **(7)** Asked how Woodside had addressed the non-interference provisions under sections 280 or 460 of the OPGGS Act, and what measures were in place to ensure compliance regarding fishing.
  - **(8)** Requested details of the compensation protocol Woodside proposed to implement for the EP.

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  - **(9)** Noted that although WAFIC had not received direct feedback from fishers on this EP, traditionally they had reported declines and changes in catch patterns coinciding with seismic surveys and had concerns about impacts on fish, spawning and the broader food chain.
  - **(10)** Requested that Woodside consider further collaborative research aimed at addressing knowledge gaps and investigate impacts on fish behaviour, development, reproduction and population, including non-lethal and cumulative effects.
- On 30 October 2025, Woodside responded thanking WAFIC for its feedback (SI Report A, reference 9.4). Woodside asked if WAFIC was available for a meeting on 18 November 2025 to discuss the EP and their feedback.
- Between 30 October 2025 and 11 November 2025, Woodside and WAFIC exchanged a further seven emails arranging and confirming a meeting for 11 November 2025 (SI Report A, references 9.5 to 9.11).
- On 11 November 2025, Woodside and WAFIC held an online meeting (SI Report A, reference 9.12). During the meeting:
  - Woodside provided an update on a project unrelated to this EP.
  - Woodside provided an overview of the Pluto 4D M3 Marine Seismic Survey EP, including activity location, water depth, timing, technical details and history of the Pluto field and previous Pluto surveys.
    - **(11)** WAFIC asked why the survey needed to be done over the same area.
      - **(11)** Woodside advised it was to detect changes such as pressure depletion and water movement, similar to an X-ray of the same body part to monitor changes.
    - WAFIC asked if there had been a lot of feedback from fishers on previous Pluto surveys.
      - Woodside noted that it did not recall receiving significant feedback but would review any prior comments. Woodside's review indicated that feedback previously raised by fishers in relation to Pluto surveys was broadly consistent with the feedback provided by WAFIC for this EP, including considerations on survey timing, interactions with other marine users, and fish spawning.
    - **(12)** WAFIC asked about the end of field life for the Pluto field.
      - **(12)** Woodside advised the estimated end of life for the Pluto field was in the 2030s though Woodside was looking for opportunities to potentially tie in other activities.
  - **(7)** Woodside gave an overview of control measures that would be in place to reduce the risk of interaction with other marine users, including notices to mariners, a safe navigation zone, an interactive public map, compliance with marine orders, and operating AIS and tail streamer buoys fitted with lights. Woodside further noted the survey would be a very short duration and based on historical fishing there was one Commonwealth and six state fisheries potentially using the Operational Area.
  - **(2)** Woodside provided details on the 3,150 in^3 seismic source.
  - **(4)** Woodside acknowledged WAFIC's concerns about demersal stocks and advised Woodside had identified four species of interest in the Operational Area – goldband snapper, ruby snapper, southern bluefin tuna and skipjack tuna. Woodside outlined how it had assessed potential impacts on these species.
  - **(13)** WAFIC asked whether DPIRD had provided feedback.
    - **(13)** Woodside confirmed DPIRD had provided feedback and identified concerns regarding three species – Rankin cod, red emperor and goldband snapper.
  - **(14)** WAFIC asked whether the marine aquarium fishery would potentially be impacted.
    - **(14)** Woodside advised no impacts were predicted as the sound levels didn't reach criteria for coral impacts at any depth.
  - **(3)** Woodside gave an overview of the airgun array source models and advised a specialised airgun array source model was used to predict the acoustic signature of the seismic source. Woodside confirmed it had also undertaken animal movement 'animat' modelling for pygmy blue whales.

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- **(5)** Woodside advised the impacts on demersal fish species were expected to be localised with no lasting effects. Woodside noted it had assessed fisheries, target species and spawning habit then completed temporal, spatial and cumulative analysis for those at-risk species.
- **(6)** Woodside confirmed cumulative assessments included previous seismic studies and noted Woodside was also looking at cumulative impacts in terms of noise for other activities that might be taking place in the area. Woodside advised the cumulative assessment did not take into account future seismic surveys, but assessments for future surveys would include this Pluto survey.
- **(7)** Woodside confirmed it was finalising details of an updated compensation protocol and would provide this to WAFIC.
- **(9)** Woodside acknowledged concerns from commercial fishers.
- **(10)** Woodside noted it had co-funded the Meekan study into the impact of seismic surveys on demersal species. Woodside provided an overview of some of the studies that had been used for the EP. Woodside noted it did look for other opportunities to co-fund research and would discuss this with DPIRD. However, Woodside was not intending to undertake monitoring for this survey as Woodside had not identified any risks where it was data deficient.
- **(15)** WAFIC asked if Woodside would flag the activity with relevant fisheries and recreational divers.
  - **(15)** Woodside confirmed it would notify relevant fisheries and recreational marine users.

- On 22 January 2026, Woodside sent an email to WAFIC (SI Report A, reference 9.13) in follow-up to the meeting and included a copy of its Co-Existence Approach with Commercial Fisheries in Australia document (Appendix J of the EP). Woodside:
  - **(2)** Provided further details on the volume of the seismic source and energy levels.
  - **(3)** Provided further details on the airgun array source model, animat modelling, and a summary of modelled impact extents for fish without a swim bladder, fish with a swim bladder, fish that use their swim bladder for hearing, and fish eggs and larvae.
  - **(4)** Confirmed it had taken into account the peak spawning periods for commercially valuable species and provided details of the spatial temporal assessment undertaken.
  - **(5)** Provided a list of studies that had been considered in Woodside's impact assessment for key commercial species.
  - **(6)** Confirmed cumulative impacts were not expected, based on Woodside's temporal and spatial assessment to understand cumulative impacts on commercially important species.
  - **(7)** Provided details of the control measures proposed for the EP regarding interaction with other marine users.
  - **(8)** Advised it had attached a copy of its updated Co-Existence Approach with Commercial Fisheries in Australia (Appendix J).
  - **(10)** Confirmed Woodside was open to collaborative research but had not identified specific research programs required for this EP.
  - **(15)** Advised it was aware of commercial diving operations and would provide relevant notifications to ensure divers were aware of the activity.

Summary of Feedback, Objection or Claim	Woodside's Assessment of Merits of Feedback, Objection or Claim	Woodside's Statement of Response	Inclusion in Environment Plan
(1) No industry feedback received on this EP.	**(1)** Woodside accepts licence holders had no feedback regarding this EP.	**(1)** Woodside thanked WAFIC for confirming there had been no industry feedback.	**(1)** No additional controls or measures are required.
(2)	**(2)**	**(2)**	**(2)**

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Requested seismic source volume and depth details for risk assessment.	Woodside notes WAFIC's interest in further details about seismic source volume and depth and has provided additional information.	Woodside provided details on the seismic source, including the ~3,150 in³ volume.	No additional controls or measures are required.
(3) Requested a summary of the airgun array source model and its findings.	**(3)** Woodside notes WAFIC's interest in the airgun array modelling and has provided additional information.	**(3)** Woodside outlined airgun array modelling, animat modelling, and fish impact extents.	**(3)** No additional controls or measures are required.
(4) Raised concerns about impacts on marine life and spawning periods for key fish species.	**(4)** Woodside acknowledges WAFIC's concerns about spawning periods and has taken a conservative approach to assessing impacts on relevant species.	**(4)** Woodside confirmed peak spawning periods were considered and described spatial-temporal assessment which found no significant impact on natural mortality rates.	**(4)** No additional controls or measures are required. Woodside has assessed potential impacts on fish in Section 4.9.2 of the EP.
(5) Sought explanation and supporting studies for Woodside's impact assessment.	**(5)** Woodside has considered a broad body of research for its impact assessments, which predict only localised impacts with no lasting effects.	**(5)** Woodside provided a list of studies considered as part of Woodside's assessments.	**(5)** No additional controls or measures are required.
(6) Requested cumulative impact assessment and details of control measures.	**(6)** Woodside has assessed the cumulative impacts in relation to other activities that could realistically result in overlapping temporal and spatial extents and no impacts are expected.	**(6)** Woodside confirmed cumulative impacts were not expected based on temporal and spatial assessment.	**(6)** No additional controls or measures are required. Potential cumulative impacts are assessed in Section 6.4 of the EP.
(7) Asked how non-interference provisions under the OPGGS Act were addressed.	**(7)** Woodside has assessed the potential risks and impacts regarding disturbance to marine users and proposed a number of controls to address these.	**(7)** Woodside provided proposed control measures for interaction with other marine users.	**(7)** No additional controls or measures are required. Potential impacts and risks related to other marine users are set out in Section 6.7.1 of the EP.

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(8) Requested details of the compensation model for this EP.	**(8)** Woodside acknowledges that fishery licence holders have sought additional details about compensation processes and has provided the latest version of its co-existence approach.	**(8)** Woodside provided a copy of its latest Co-Existence Approach with Commercial Fishers in Australia.	**(8)** Woodside's Co-Existence Approach with Commercial Fishers in Australia is at Appendix J of the EP.
(9) Noted fishers' historical concerns regarding catch declines and pattern changes.	**(9)** Woodside has assessed the potential impacts on commercially valuable species.	**(9)** Woodside acknowledged that the fishing community held concerns about potential impacts from seismic surveys.	**(9)** No additional controls or measures are required.
(10) Requested Woodside consider collaborative research on seismic impacts and cumulative stressors.	**(10)** Woodside is open to collaborative research but has not identified specific needs for this EP.	**(10)** Woodside noted its openness to collaborative research but advised no specific programs had been identified as necessary for this EP.	**(10)** No additional controls or measures are required.
(11) Queried why the survey needed to be done over the same area.	**(11)** Woodside carries out monitor surveys to obtain time-lapse data of the same area to observe subtle differences within and surrounding the reservoir.	**(11)** Woodside advised the survey was carried out over the same area to detect changes in the reservoir and was similar to x-raying the same body part to monitor changes.	**(11)** No additional controls or measures are required.
(12) Queried the end of life for the Pluto field.	**(12)** The current estimated end of field life for the Pluto field is the 2030s.	**(12)** Woodside advised the estimated end of life for the Pluto field was in the 2030s though Woodside was looking for opportunities to potentially tie in other activities.	**(12)** No additional controls or measures are required.
(13) Asked whether DPIRD had provided feedback.	**(13)** Woodside has consulted DPIRD for this EP and considered its feedback.	**(13)** Woodside confirmed DPIRD had provided feedback and highlighted three	**(13)** No additional controls or measures are required. Woodside's consultation with DPIRD is set out above in Table 2.

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		particular fish species of particular concern to it.	
(14) Asked if marine aquarium fisheries would be impacted.	**(14)** There are no expected impacts on coral as part of this EP.	**(14)** Woodside advised no impacts were predicted as the sound levels didn't reach criteria for coral impacts at any depth.	**(14)** No additional controls or measures are required.
(15) Asked if divers would be notified.	**(15)** Woodside will provide activity notifications to WAFIC on behalf of dive fisheries and will notify relevant recreational marine users.	**(15)** Woodside confirmed it would notify fishery and recreational divers of the activity.	**(15)** Woodside will provide start and end of activity notifications to relevant dive fisheries and recreational marine users as referenced as C 1.6 and set out in Section 7.9 of the EP and will develop a plan to manage interactions with divers within 30km of the seismic activity, as referenced as C 3.7 of the EP.
Woodside has addressed claims or objections as noted above.	Woodside has assessed the merits of each objection or claim (if any) about the adverse impact of the activity to which the EP relates, as required under Regulation 24.	Woodside engages in ongoing consultation throughout the life of an EP. Woodside notes that further feedback may be received as part of ongoing consultation. Should further feedback be received, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.7.1 of the EP).	As standard, Woodside will notify WAFIC at least 10 days prior to activities commencing, and following completion of activities, as referenced as C 1.6 and set out in Section 7.9 of the EP. No additional controls or measures are required.

Summary Report – Consultation Complete

Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and considers consultation with WAFIC for the purpose of regulation 25 complete. Sufficient information, a reasonable period and a reasonable opportunity have been provided, as described in Section 5.4 of the EP and further summarised in the Consultation Approach above. Specifically:

Sufficient Information

Woodside has given WAFIC sufficient information to allow WAFIC to make an informed assessment of the possible consequences of the activity on its functions, interests or activities because:

- The Consultation Information Sheet for this EP has been publicly available on the Woodside website since September 2025. Woodside gave this information to WAFIC on 8 September 2025, marking the commencement of consultation on this EP. The Consultation Information Sheet included:
  - The purpose of consultation and set out what was being sought through consultation.

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  - A summary of the activity description, location of the activity, timing of the activity, receiving environment, impacts and risks associated with the Petroleum Activity, and proposed mitigation and management measures.
  - A timeframe for consultation and the provision of feedback.
  - A link to NOPSEMA's brochure '*Consultation on offshore petroleum environment plans: Information for the community*'.
  - Advice that relevant persons can request that particular information provided during consultation not be published (to align with 25(4) of the Environment Regulations).
- Woodside also provided additional tailored information to WAFIC on potential impacts to fisheries.
- On 24 October 2025, WAFIC shared feedback via email regarding this activity, and on 11 November 2025, WAFIC shared additional feedback regarding this activity at an online meeting, indicating the information provided was sufficient to enable WAFIC to make an informed assessment of the possible consequences of the activity on its functions, interests or activities.
- In addition to the information in the Consultation Information Sheet, Woodside provided additional information to WAFIC in response to WAFIC's feedback (during the 11 November 2025 meeting, and Woodside's email of 22 January 2026).

Reasonable Period

Woodside allowed WAFIC a reasonable period for consultation in the preparation of the EP because:

- A consultation period was stated in the initial correspondence to WAFIC advising of consultation as well as when consultation closed for the purposes of the preparation of the EP. This enabled Woodside to assess feedback before EP submission.
- Woodside's methodology allows a 45-day consultation period for MSS EPs and Woodside allowed WAFIC 45 days for consultation.
- Consultation for this EP commenced 6 months ago.
- In this context, Woodside allowed WAFIC a reasonable period for consultation in preparation of the EP as evidenced by WAFIC's response on 24 October 2025.

Reasonable Opportunity

A reasonable opportunity to provide feedback has been provided because Woodside's approach to consultation with WAFIC is appropriate and adapted to the nature of interests of WAFIC:

- Woodside published advertisements in 6 national, state, and relevant local newspapers (see Consultation Activities). This allowed for broad awareness of the activity under the EP and also of consultation.
- Woodside ran a targeted social media campaign (see Consultation Activities). This allowed for broad awareness of the activity under the EP and also of consultation.

Outcomes of Consultation

Woodside has assessed the merits of each objection or claim (if any) about the adverse impact of the activity to which the EP relates, as required under Regulation 24. The measures (if any) that Woodside has adopted or proposes to adopt because of the consultation are appropriate because:

- WAFIC provided feedback or claims or objections regarding the adverse impact of the proposed activity to which this EP relates. In line with the intended outcome of consultation as set out in Section 5.2 and Regulations 24 and 34(g), Woodside has:
  - Responded to feedback from WAFIC and has assessed the merits of each objection or claim (if any) about the adverse impact of activities to which this EP relates.
  - Based on feedback from WAFIC, updated C 1.6 to include provision of Start and End of Activity notifications to relevant commercial and recreational divers.
- Woodside will continue to accept and assess feedback throughout the life of the EP and apply its Management of Change and Revision process when applicable.

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4.5.3 Mackerel Managed Fishery (Area 2), Marine Aquarium Managed Fishery, Pilbara Line Fishery, Pilbara Trap Fishery, West Coast Deep Sea Crustacean Managed Fishery

Summary of information provided and record of consultation for this EP:

- On 10 September 2025, WAFIC, on behalf of Woodside, emailed Mackerel Managed Fishery (Area 2), Marine Aquarium Managed Fishery, Pilbara Line Fishery, Pilbara Trap Fishery and West Coast Deep Sea Crustacean Managed Fishery licence holders advising of the proposed activity (Record of Consultation, reference 6.1.26), provided a Consultation Information Sheet, information on potential impacts to fisheries, and a link to NOPSEMA's brochure '*Consultation on offshore petroleum environment plans: Information for the community*'.
- As per advice from WAFIC regarding its consultation guidelines, no follow-up email was required for Mackerel Managed Fishery (Area 2), Marine Aquarium Managed Fishery, Pilbara Line Fishery, Pilbara Trap Fishery and West Coast Deep Sea Crustacean Managed Fishery.
- On 24 October 2025, WAFIC emailed Woodside confirming that no feedback had been received from licence holders in the Mackerel Managed Fishery (Area 2), Marine Aquarium Managed Fishery, Pilbara Line Fishery, Pilbara Trap Fishery or West Coast Deep Sea Crustacean Managed Fishery (SI Report A, reference 9.3).

Summary of Feedback, Objection or Claim	Woodside's Assessment of Merits of Feedback, Objection or Claim	Woodside's Statement of Response	Inclusion in Environment Plan
No feedback, objections or claims about the adverse impact of the activity received despite follow-up.		Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.7.1 of the EP).	No additional measures or controls are required.

Summary Report – Consultation Complete

Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and considers consultation with Mackerel Managed Fishery (Area 2), Marine Aquarium Managed Fishery, Pilbara Line Fishery, Pilbara Trap Fishery and West Coast Deep Sea Crustacean Managed Fishery for the purpose of regulation 25 complete. Sufficient information, a reasonable period and a reasonable opportunity have been provided, as described in Section 5.4 of the EP and further summarised in the Consultation Approach above. Specifically:

Sufficient Information

Woodside has given Mackerel Managed Fishery (Area 2), Marine Aquarium Managed Fishery, Pilbara Line Fishery, Pilbara Trap Fishery and West Coast Deep Sea Crustacean Managed Fishery licence holders sufficient information to allow Mackerel Managed Fishery (Area 2), Marine Aquarium Managed Fishery, Pilbara Line Fishery, Pilbara Trap Fishery and West Coast Deep Sea Crustacean Managed Fishery licence holders to make an informed assessment of the possible consequences of the activity on its functions, interests or activities because:

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- The Consultation Information Sheet for this EP has been publicly available on the Woodside website since September 2025. Woodside gave this information to Mackerel Managed Fishery (Area 2), Marine Aquarium Managed Fishery, Pilbara Line Fishery, Pilbara Trap Fishery and West Coast Deep Sea Crustacean Managed Fishery licence holders on 8 September 2025, marking the commencement of consultation on this EP. The Consultation Information Sheet included:
  - The purpose of consultation and set out what was being sought through consultation.
  - A summary of the activity description, location of the activity, timing of the activity, receiving environment, impacts and risks associated with the Petroleum Activity, and proposed mitigation and management measures.
  - A timeframe for consultation and the provision of feedback.
  - A link to NOPSEMA's brochure '*Consultation on offshore petroleum environment plans: Information for the community*'.
  - Advice that relevant persons can request that particular information provided during consultation not be published (to align with 25(4) of the Environment Regulations).
- Woodside also provided additional tailored information on potential impacts to fisheries.

Reasonable Period

Woodside allowed Mackerel Managed Fishery (Area 2), Marine Aquarium Managed Fishery, Pilbara Line Fishery, Pilbara Trap Fishery and West Coast Deep Sea Crustacean Managed Fishery licence holders a reasonable period for consultation in the preparation of the EP because:

- A consultation period was stated in the initial correspondence to Mackerel Managed Fishery (Area 2), Marine Aquarium Managed Fishery, Pilbara Line Fishery, Pilbara Trap Fishery and West Coast Deep Sea Crustacean Managed Fishery licence holders advising of consultation as well as when consultation closed for the purposes of the preparation of the EP. This enabled Woodside to assess feedback before EP submission.
- Woodside's methodology allows a 45-day consultation period for MSS EPs and Woodside allowed Mackerel Managed Fishery (Area 2), Marine Aquarium Managed Fishery, Pilbara Line Fishery, Pilbara Trap Fishery and West Coast Deep Sea Crustacean Managed Fishery licence holders 45 days for consultation.
- Consultation for this EP commenced 6 months ago.
- In this context, Woodside allowed Mackerel Managed Fishery (Area 2), Marine Aquarium Managed Fishery, Pilbara Line Fishery, Pilbara Trap Fishery and West Coast Deep Sea Crustacean Managed Fishery licence holders a reasonable period for consultation in preparation of the EP.

Reasonable Opportunity

A reasonable opportunity to provide feedback has been provided because Woodside's approach to consultation with Mackerel Managed Fishery (Area 2), Marine Aquarium Managed Fishery, Pilbara Line Fishery, Pilbara Trap Fishery and West Coast Deep Sea Crustacean Managed Fishery licence holders is appropriate and adapted to the nature of interests of Mackerel Managed Fishery (Area 2), Marine Aquarium Managed Fishery, Pilbara Line Fishery, Pilbara Trap Fishery and West Coast Deep Sea Crustacean Managed Fishery licence holders:

- Woodside published advertisements in 6 national, state, and relevant local newspapers (see Consultation Activities). This allowed for broad awareness of the activity under the EP and also of consultation.
- Woodside ran a targeted social media campaign (see Consultation Activities). This allowed for broad awareness of the activity under the EP and also of consultation.
- Between 5 October 2025 and 18 October 2025, Woodside held, or hosted information stalls at, a number of community events and roadshows in regional areas including the Pilbara to raise awareness of the EP and provide another opportunity for feedback. These events were promoted on social media.
- Woodside facilitated consultation with Mackerel Managed Fishery (Area 2), Marine Aquarium Managed Fishery, Pilbara Line Fishery, Pilbara Trap Fishery and West Coast Deep Sea Crustacean Managed Fishery via WAFIC.

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Outcomes of Consultation

Woodside has assessed the merits of each objection or claim (if any) about the adverse impact of the activity to which the EP relates, as required under Regulation 24. The measures (if any) that Woodside has adopted or proposes to adopt because of the consultation are appropriate because:

- No additional measures were considered as a result of consultation as Mackerel Managed Fishery (Area 2), Marine Aquarium Managed Fishery, Pilbara Line Fishery, Pilbara Trap Fishery and West Coast Deep Sea Crustacean Managed Fishery licence holders did not provide feedback for this EP.
- Woodside will continue to accept and assess feedback throughout the life of the EP and apply its Management of Change and Revision process when applicable.
- The measures and controls described in this EP address the potential impact from the proposed activity on Mackerel Managed Fishery (Area 2), Marine Aquarium Managed Fishery, Pilbara Line Fishery, Pilbara Trap Fishery and West Coast Deep Sea Crustacean Managed Fishery's functions, interests or activities.

4.6 Recreational marine users and peak representative bodies

4.6.1 Gascoyne Recreational Marine Users

Summary of information provided and record of consultation for this EP:

- On 8 September 2025, Woodside emailed or sent a letter to Gascoyne recreational marine users advising of the proposed activity (Record of Consultation, references 6.1.19 and 6.1.19.1), provided a Consultation Information Sheet, and a link to NOPSEMA's brochure '*Consultation on offshore petroleum environment plans: Information for the community*'.
- **(1)** On 4 October 2025, an individual recreational marine user emailed Woodside to ask for their email to be removed from Woodside's database (SI Report A, reference 10.1).
- **(1)** On 6 October 2025, Woodside responded thanking the recreational marine user for their reply and confirming their details had been removed (SI Report A, reference 10.2).
- On 8 October 2025, Woodside proactively sent a follow-up email or letter (Record of Consultation, references 6.2.1 and 6.2.2) to all Gascoyne recreational marine users who had not already responded to the consultation information.
- **(1)** On 8 October 2025, another individual recreational marine user emailed Woodside to ask for their details to be removed from Woodside's mailing list (SI Report A, reference 10.3).
- **(1)** On 8 October 2025, Woodside responded thanking the recreational marine user for their reply and confirming their details had been removed (SI Report A, reference 10.4).

Summary of Feedback, Objection or Claim	Woodside's Assessment of Merits of Feedback, Objection or Claim	Woodside's Statement of Response	Inclusion in Environment Plan
(1)	**(1)**	**(1)**	**(1)** Not required.

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Two individual recreational marine users requested to be removed from Woodside's mailing list.	Woodside accepts that participation in the consultation process is voluntary.	Woodside confirmed it had removed the recreational marine users from its mailing list.	
While feedback has been received, there were no objections or claims.	Woodside has assessed the merits of each objection or claim (if any) about the adverse impact of the activity to which the EP relates, as required under Regulation 24.	Woodside engages in ongoing consultation throughout the life of an EP. Woodside notes that further feedback may be received as part of ongoing consultation. Should further feedback be received, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.7.1 of the EP).	No additional controls or measures are required.

Summary Report – Consultation Complete

Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and considers consultation with Gascoyne Recreational Marine Users for the purpose of regulation 25 complete. Sufficient information, a reasonable period and a reasonable opportunity have been provided, as described in Section 5.4 of the EP and further summarised in the Consultation Approach above. Specifically:

Sufficient Information

Woodside has given Gascoyne Recreational Marine users sufficient information to allow Gascoyne Recreational Marine Users to make an informed assessment of the possible consequences of the activity on its functions, interests or activities because:

- The Consultation Information Sheet for this EP has been publicly available on the Woodside website since September 2025. Woodside gave this information to Gascoyne Recreational Marine Users on 8 September 2025, marking the commencement of consultation on this EP. The Consultation Information Sheet included:
  - The purpose of consultation and set out what was being sought through consultation.
  - A summary of the activity description, location of the activity, timing of the activity, receiving environment, impacts and risks associated with the Petroleum Activity, and proposed mitigation and management measures.
  - A timeframe for consultation and the provision of feedback.
  - A link to NOPSEMA's brochure '*Consultation on offshore petroleum environment plans: Information for the community'*.
  - Advice that relevant persons can request that particular information provided during consultation not be published (to align with 25(4) of the Environment Regulations).

Reasonable Period

Woodside allowed Gascoyne Recreational Marine Users a reasonable period for consultation in the preparation of the EP because:

- A consultation period was stated in the initial correspondence to Gascoyne Recreational Marine Users advising of consultation as well as when consultation closed for the purposes of the preparation of the EP. This enabled Woodside to assess feedback before EP submission.
- Woodside's methodology allows a 45-day consultation period for MSS EPs and Woodside allowed Gascoyne Recreational Marine Users 45 days for consultation.
- Consultation for this EP commenced 6 months ago.

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- In this context, Woodside allowed Gascoyne Recreational Marine Users a reasonable period for consultation in preparation of the EP.

Reasonable Opportunity

A reasonable opportunity to provide feedback has been provided because Woodside's approach to consultation with Gascoyne Recreational Marine Users is appropriate and adapted to the nature of interests of Gascoyne Recreational Marine Users:

- Woodside published advertisements in 6 national, state, and relevant local newspapers (see Consultation Activities). This allowed for broad awareness of the activity under the EP and also of consultation.
- Woodside ran a targeted social media campaign (see Consultation Activities). This allowed for broad awareness of the activity under the EP and also of consultation.
- Between 5 October 2025 and 18 October 2025, Woodside held, or hosted information stalls at, a number of community events and roadshows in regional areas including the Pilbara to raise awareness of the EP and provide another opportunity for feedback. These events were promoted with newspaper and/or social media advertising.
- In the absence of feedback, Woodside sent a follow-up consultation email or letter on 8 October 2025, reminding Gascoyne recreational marine users of the opportunity to provide feedback.

Outcomes of Consultation

Woodside has assessed the merits of each objection or claim (if any) about the adverse impact of the activity to which the EP relates, as required under Regulation 24. The measures (if any) that Woodside has adopted or proposes to adopt because of the consultation are appropriate because:

- Gascoyne recreational marine users provided feedback but no objections or claims. In line with the intended outcome of consultation as set out in Section 5.2 and Regulations 24 and 34(g), Woodside has:
  - Responded to feedback from Gascoyne recreational marine users.
  - Made no changes or inclusions to the EP as a result of consultation with Gascoyne recreational marine users because appropriate measures are already included in the EP.
- Woodside will continue to accept and assess feedback throughout the life of the EP and apply its Management of Change and Revision process when applicable.

4.6.2 Marine Tourism WA

Summary of information provided and record of consultation for this EP:

- On 8 September 2025, Woodside emailed Marine Tourism WA advising of the proposed activity (Record of Consultation, reference 6.1.19), provided a Consultation Information Sheet, and a link to NOPSEMA's brochure '*Consultation on offshore petroleum environment plans: Information for the community*'.
- On 8 October 2025, as no response had been received, Woodside proactively sent a follow-up email (Record of Consultation, reference 6.2.1).

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Summary of Feedback, Objection or Claim	Woodside's Assessment of Merits of Feedback, Objection or Claim	Woodside's Statement of Response	Inclusion in Environment Plan
No feedback, objections or claims about the adverse impact of the activity received despite follow-up.		Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.7.1 of the EP).	No additional measures or controls are required.

Summary Report – Consultation Complete

Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and considers consultation with Marine Tourism WA for the purpose of regulation 25 complete. Sufficient information, a reasonable period and a reasonable opportunity have been provided, as described in Section 5.4 of the EP and further summarised in the Consultation Approach above. Specifically:

Sufficient Information

Woodside has given Marine Tourism WA sufficient information to allow Marine Tourism WA to make an informed assessment of the possible consequences of the activity on its functions, interests or activities because:

- The Consultation Information Sheet for this EP has been publicly available on the Woodside website since September 2025. Woodside gave this information to Marine Tourism WA on 8 September 2025, marking the commencement of consultation on this EP. The Consultation Information Sheet included:
  - The purpose of consultation and set out what was being sought through consultation.
  - A summary of the activity description, location of the activity, timing of the activity, receiving environment, impacts and risks associated with the Petroleum Activity, and proposed mitigation and management measures.
  - A timeframe for consultation and the provision of feedback.
  - A link to NOPSEMA's brochure '*Consultation on offshore petroleum environment plans: Information for the community'*.
  - Advice that relevant persons can request that particular information provided during consultation not be published (to align with 25(4) of the Environment Regulations).

Reasonable Period

Woodside allowed Marine Tourism WA a reasonable period for consultation in the preparation of the EP because:

- A consultation period was stated in the initial correspondence to Marine Tourism WA advising of consultation as well as when consultation closed for the purposes of the preparation of the EP. This enabled Woodside to assess feedback before EP submission.
- Woodside's methodology allows a 45-day consultation period for MSS EPs and Woodside allowed Marine Tourism WA 45 days for consultation.
- Consultation for this EP commenced 6 months ago.
- In this context, Woodside allowed Marine Tourism WA a reasonable period for consultation in preparation of the EP.

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Reasonable Opportunity

A reasonable opportunity to provide feedback has been provided because Woodside's approach to consultation with Marine Tourism WA is appropriate and adapted to the nature of interests of Marine Tourism WA:

- Woodside published advertisements in 6 national, state, and relevant local newspapers (see Consultation Activities). This allowed for broad awareness of the activity under the EP and also of consultation.
- Woodside ran a targeted social media campaign (see Consultation Activities). This allowed for broad awareness of the activity under the EP and also of consultation.
- In the absence of feedback, Woodside sent a follow-up consultation email on 8 October 2025, reminding Marine Tourism WA of the opportunity to provide feedback.

Outcomes of Consultation

Woodside has assessed the merits of each objection or claim (if any) about the adverse impact of the activity to which the EP relates, as required under Regulation 24. The measures (if any) that Woodside has adopted or proposes to adopt because of the consultation are appropriate because:

- No additional measures were considered as a result of consultation as Marine Tourism WA did not provide feedback for this EP.
- Woodside will continue to accept and assess feedback throughout the life of the EP and apply its Management of Change and Revision process when applicable.
- The measures and controls described in this EP address the potential impact from the proposed activity on Marine Tourism WA's functions, interests or activities.

4.6.3 Pilbara/Kimberley Recreational Marine Users

Summary of information provided and record of consultation for this EP:

- On 8 September 2025, Woodside emailed or sent a letter to Pilbara/Kimberley recreational marine users advising of the proposed activity (Record of Consultation, references 6.1.19 and 6.1.19.1), provided a Consultation Information Sheet, and a link to NOPSEMA's brochure '*Consultation on offshore petroleum environment plans: Information for the community*'.
- On 8 October 2025, as no response had been received, Woodside proactively sent a follow-up email or letter to recreational marine users (Record of Consultation, references 6.2.1 and 6.2.2).
- **(1)** On 25 October 2025, an individual recreational marine user emailed Woodside noting they had been receiving consultation letters and asking to be removed from Woodside's mailing list unless consultation was mandatory (SI Report A, reference 11.1).
- **(1)** On 27 October 2025, Woodside thanked the recreational marine user for their response and confirmed they had been removed from the mailing list, though noted they might still receive some final letters which had already been dispatched (SI Report A, reference 11.2).

Summary of Feedback, Objection or Claim	Woodside's Assessment of Merits of Feedback, Objection or Claim	Woodside's Statement of Response	Inclusion in Environment Plan
(1) An individual recreational marine user requested to be removed from	**(1)** Woodside accepts that participation in the consultation process is voluntary.	**(1)**	**(1)** Not required.

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Woodside's mailing list if consultation was not mandatory.		Woodside confirmed it had removed the recreational marine user from its mailing list.	
While feedback has been received, there were no objections or claims.	Woodside has assessed the merits of each objection or claim (if any) about the adverse impact of the activity to which the EP relates, as required under Regulation 24.	Woodside engages in ongoing consultation throughout the life of an EP. Woodside notes that further feedback may be received as part of ongoing consultation. Should further feedback be received, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.7.1 of the EP).	No additional controls or measures are required.

Summary Report – Consultation Complete

Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and considers consultation with Pilbara/Kimberley recreational marine users for the purpose of regulation 25 complete. Sufficient information, a reasonable period and a reasonable opportunity have been provided, as described in Section 5.4 of the EP and further summarised in the Consultation Approach above. Specifically:

Sufficient Information

Woodside has given Pilbara/Kimberley recreational marine users sufficient information to allow Pilbara/Kimberley recreational marine users to make an informed assessment of the possible consequences of the activity on its functions, interests or activities because:

- The Consultation Information Sheet for this EP has been publicly available on the Woodside website since September 2025. Woodside gave this information to Pilbara/Kimberley recreational marine users on 8 September 2025, marking the commencement of consultation on this EP. The Consultation Information Sheet included:
  - The purpose of consultation and set out what was being sought through consultation.
  - A summary of the activity description, location of the activity, timing of the activity, receiving environment, impacts and risks associated with the Petroleum Activity, and proposed mitigation and management measures.
  - A timeframe for consultation and the provision of feedback.
  - A link to NOPSEMA's brochure '*Consultation on offshore petroleum environment plans: Information for the community*'.
  - Advice that relevant persons can request that particular information provided during consultation not be published (to align with 25(4) of the Environment Regulations).

Reasonable Period

Woodside allowed Pilbara/Kimberley recreational marine users a reasonable period for consultation in the preparation of the EP because:

- A consultation period was stated in the initial correspondence to Pilbara/Kimberley recreational marine users advising of consultation as well as when consultation closed for the purposes of the preparation of the EP. This enabled Woodside to assess feedback before EP submission.
- Woodside's methodology allows a 45-day consultation period for MSS EPs and Woodside allowed Pilbara/Kimberley recreational marine users 45 days for consultation.
- Consultation for this EP commenced 6 months ago.
- In this context, Woodside allowed Pilbara/Kimberley recreational marine users a reasonable period for consultation in preparation of the EP.

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Reasonable Opportunity

A reasonable opportunity to provide feedback has been provided because Woodside's approach to consultation with Pilbara/Kimberley recreational marine users is appropriate and adapted to the nature of interests of Pilbara/Kimberley recreational marine users:

- Woodside published advertisements in 6 national, state, and relevant local newspapers (see Consultation Activities). This allowed for broad awareness of the activity under the EP and also of consultation.
- Woodside ran a targeted social media campaign (see Consultation Activities). This allowed for broad awareness of the activity under the EP and also of consultation.
- Between 5 October 2025 and 18 October 2025, Woodside held, or hosted information stalls at, a number of community events and roadshows in regional areas including the Pilbara region to raise awareness of the EP and provide another opportunity for feedback. These events were promoted on social media.
- In the absence of feedback, Woodside sent a follow-up consultation email or letter on 8 October 2025, reminding Pilbara/Kimberley recreational marine users of the opportunity to provide feedback.

Outcomes of Consultation

Woodside has assessed the merits of each objection or claim (if any) about the adverse impact of the activity to which the EP relates, as required under Regulation 24. The measures (if any) that Woodside has adopted or proposes to adopt because of the consultation are appropriate because:

- A Pilbara/Kimberley recreational marine user provided feedback but not objections or claims. In line with the intended outcome of consultation as set out in Section 5.2 and Regulations 24 and 34(g), Woodside has:
  - Responded to feedback from Pilbara/Kimberley recreational marine users.
  - Made no changes or inclusions to the EP as a result of consultation with Pilbara/Kimberley recreational marine users because appropriate measures are already included in the EP.
- Woodside will continue to accept and assess feedback throughout the life of the EP and apply its Management of Change and Revision process when applicable.

4.6.4 Recfishwest

Summary of information provided and record of consultation for this EP:

- On 8 September 2025, Woodside emailed Recfishwest advising of the proposed activity (Record of Consultation, reference 6.1.30), provided a Consultation Information Sheet, and a link to NOPSEMA's brochure '*Consultation on offshore petroleum environment plans: Information for the community*'.
- On 15 September 2025, Recfishwest responded thanking Woodside for its email and confirming its understanding of the proposed activity (SI Report A, reference 12.1). Recfishwest further:
  - **(1)** Stated that due to the large operational area, it was important for Recfishwest to be kept informed as activities progressed to enable communication with the recreational fishing community.
  - **(2)** Expressed ongoing community concern regarding seismic survey activities, particularly that mitigation and management measures tended to focus on marine megafauna rather than fish and other organisms.
  - **(3)** Requested further information on Woodside's assessment of seismic impacts on fish behaviour and health, including spawning activities.

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  - **(4)** Asked whether any monitoring was planned to validate expected impacts on fish.
  - **(5)** Requested any additional information that could assist Recfishwest in responding to community questions.
- On 8 October 2025, Woodside thanked Recfishwest for its feedback and noted that, as discussed in previous consultation, Woodside would like to meet with Recfishwest to discuss this and other EPs (SI Report A, reference 12.2). Woodside suggested two potential times for a meeting.
- Between 17 October 2025 and 14 November 2025, Woodside and Recfishwest exchanged six emails arranging and confirming a meeting on 20 November 2025 (SI Report A, references 12.3 – 12.8).
- On 20 November 2025, Woodside met with Recfishwest (SI Report A, reference 12.9). During the meeting:
  - **(5)** Woodside provided an overview of the Pluto 4D M3 Marine Seismic Survey EP, including location, timing, history of the Pluto field and previous seismic surveys in the area. Woodside also discussed potential impacts that may be of relevance to recreational marine users, and the control measures Woodside was proposing.
  - **(1)** Woodside confirmed it would provide Recfishwest with start and end of activity notifications, and would advise Recfishwest of any significant changes to the proposed activity.
  - **(2, 3)** Woodside acknowledged DPIRD's Pilbara demersal stock report and advised that the four species that had been identified as potentially spawning in the Operational Area for this EP were goldband snapper, ruby snapper, skipjack tuna and southern bluefin tuna. Woodside provided details on the considerations that had been used when assessing potential impacts and that overall, there were no significant impacts to usual mortality rates.
    - Recfishwest noted red emperor, goldband snapper and ruby snapper were of particular interest to them.
  - **(4)** Woodside advised that it had previously co-funded studies including the Meekan study in 2021, which focused on red emperor and found seismic surveys had little impact on demersal species. Woodside noted that based on the studies available, it had not identified any specific studies or monitoring required for this EP, but that Woodside was open to future opportunities to invest in research partnerships.
  - Recfishwest provided information on potential recreational marine and charter traffic in the area during the survey timing, noting both were likely to be minimal given the location and timing.
- On 12 December 2025, Woodside emailed Recfishwest to follow-up from the meeting (SI Report A, reference 12.10). Woodside:
  - Thanked Recfishwest for the meeting and the opportunity to discuss the EP.
  - **(2, 3)** Recognised Recfishwest's interest in demersal species and recapped the considerations used for the impact assessment which demonstrated that the overall assessment found a negligible impact when compared to usual mortality rates.
  - **(4)** Confirmed that based on the currently available information and studies, Woodside had not identified any particular research programs or monitoring required to support this EP. However, Woodside was always open to investing in collaborative research and had historically contributed to research into the impacts of seismic surveys.
  - **(1)** Confirmed it would provide start and end of activity notifications to Recfishwest.
- On 12 January 2026, Recfishwest emailed thanking Woodside for the meeting and follow-up response (SI Report A, reference 12.11). Recfishwest also:
  - **(1)** Noted it looked forwarded to updates as activities progressed.
- On 13 January 2026, Woodside thanked Recfishwest for its email (SI Report A, reference 12.12). Woodside also:
  - **(1)** Confirmed it would continue to provide updates as the activity progressed.

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Summary of Feedback, Objection or Claim	Woodside's Assessment of Merits of Feedback, Objection or Claim	Woodside's Statement of Response	Inclusion in Environment Plan
(1) Requested to be kept informed as the activity progressed.	**(1)** Woodside recognises the importance of keeping the recreational fishing community informed and will provide activity notifications to Recfishwest.	**(1)** Woodside confirmed it would provide start and end of activity notifications to Recfishwest.	**(1)** Woodside will provide notifications to Recfishwest as referenced as C 1.6 and set out in Section 7.9 of the EP.
(2) Noted community concern regarding fish and other organisms as well as marine megafauna.	**(2)** Woodside recognises Recfishwest's interest in fish species and has assessed potential impacts to fish species in the EP.	**(2)** Woodside confirmed it had considered impacts to commercially valuable fish species in the EP.	**(2)** No additional controls or measures are required. Woodside's assessment of potential impacts to fish species is set out in Section 4.9.2 of the EP.
(3) Requested further information on Woodside's assessment of impacts on fish behaviour including spawning.	**(3)** Woodside identified four species for further assessment based on the potential for spawning in the Operational Area.	**(3)** Woodside confirmed impact assessments for key species identified as potentially spawning in the Operational Area showed no significant impacts to usual mortality rates.	**(3)** No additional controls or measures are required. Woodside's assessment of potential impacts to fish species is set out in Section 4.9.2 of the EP.
(4) Requested further information on planned monitoring.	**(4)** Woodside has not identified further specific studies required for this EP and has referred to available literature in the development of the EP.	**(4)** Woodside advised that while it had not identified specific studies needed for this EP, it was in general open to opportunities for research partnerships.	**(4)** No additional controls or measures are required.
(5) Requested additional information that would help Recfishwest respond to community fishers.	**(5)** Woodside has provided information on aspects of the activity of most relevance to Recfishwest and is happy to answer further questions from the fishing community.	**(5)** Woodside provided Recfishwest with an overview of the activity, potential impacts and how they would be mitigated, and consultation with recreational fishers.	**(5)** No additional controls or measures are required.
While feedback has been received, there were no objections or claims.	Woodside has assessed the merits of each objection or claim (if any) about the adverse impact of the activity to which	Woodside engages in ongoing consultation throughout the life of an EP. Woodside notes that further	No additional controls or measures are required.

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	the EP relates, as required under Regulation 24.	feedback may be received as part of ongoing consultation. Should further feedback be received, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.7.1 of the EP).	

Summary Report – Consultation Complete

Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and considers consultation with Recfishwest for the purpose of regulation 25 complete. Sufficient information, a reasonable period and a reasonable opportunity have been provided, as described in Section 5.4 of the EP and further summarised in the Consultation Approach above. Specifically:

Sufficient Information

Woodside has given Recfishwest sufficient information to allow Recfishwest to make an informed assessment of the possible consequences of the activity on its functions, interests or activities because:

- The Consultation Information Sheet for this EP has been publicly available on the Woodside website since September 2025. Woodside gave this information to Recfishwest on 8 September 2025, marking the commencement of consultation on this EP. The Consultation Information Sheet included:
  - The purpose of consultation and set out what was being sought through consultation.
  - A summary of the activity description, location of the activity, timing of the activity, receiving environment, impacts and risks associated with the Petroleum Activity, and proposed mitigation and management measures.
  - A timeframe for consultation and the provision of feedback.
  - A link to NOPSEMA's brochure '*Consultation on offshore petroleum environment plans: Information for the community'.*
  - Advice that relevant persons can request that particular information provided during consultation not be published (to align with 25(4) of the Environment Regulations).
- On 15 September 2025, Recfishwest shared feedback via email regarding this activity, and on 20 November 2025, Recfishwest shared additional feedback regarding this activity at an in-person meeting, indicating the information provided was sufficient to enable Recfishwest to make an informed assessment of the possible consequences of the activity on its functions, interests or activities
- In addition to the information in the Consultation Information Sheet, Woodside provided additional information to Recfishwest in response to Recfishwest's feedback (during the meeting on 20 November 2025 and Woodside's email of 12 December 2025).

Reasonable Period

Woodside allowed Recfishwest a reasonable period for consultation in the preparation of the EP because:

- A consultation period was stated in the initial correspondence to Recfishwest advising of consultation as well as when consultation closed for the purposes of the preparation of the EP. This enabled Woodside to assess feedback before EP submission.
- Woodside's methodology allows a 45-day consultation period for MSS EPs and Woodside allowed Recfishwest 45 days for consultation.
- Consultation for this EP commenced 6 months ago.
- In this context, Woodside allowed Recfishwest a reasonable period for consultation in preparation of the EP, as evidenced by Recfishwest's response on 15 September 2025.

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Reasonable Opportunity

A reasonable opportunity to provide feedback has been provided because Woodside's approach to consultation with Recfishwest is appropriate and adapted to the nature of interests of Recfishwest:

- Woodside published advertisements in 6 national, state, and relevant local newspapers (see Consultation Activities). This allowed for broad awareness of the activity under the EP and also of consultation.
- Woodside ran a targeted social media campaign (see Consultation Activities). This allowed for broad awareness of the activity under the EP and also of consultation.

Outcomes of Consultation

Woodside has assessed the merits of each objection or claim (if any) about the adverse impact of the activity to which the EP relates, as required under Regulation 24. The measures (if any) that Woodside has adopted or proposes to adopt because of the consultation are appropriate because:

- Recfishwest provided feedback but no objections or claims. In line with the intended outcome of consultation as set out in Section 5.2 and Regulations 24 and 34(g), Woodside has:
  - Responded to feedback from Recfishwest.
  - Based on Recfishwest's feedback, included Recfishwest in C 1.6 regarding provision of Start and End of Activity notifications.
- Woodside will continue to accept and assess feedback throughout the life of the EP and apply its Management of Change and Revision process when applicable.

4.6.5 WA Game Fishing Association

Summary of information provided and record of consultation for this EP:

- On 8 September 2025, Woodside emailed WA Game Fishing Association advising of the proposed activity (Record of Consultation, reference 6.1.19), provided a Consultation Information Sheet, and a link to NOPSEMA's brochure '*Consultation on offshore petroleum environment plans: Information for the community*'.
- On 8 October 2025, as no response had been received, Woodside proactively sent a follow-up email (Record of Consultation, reference 6.2.1).

Summary of Feedback, Objection or Claim	Woodside's Assessment of Merits of Feedback, Objection or Claim	Woodside's Statement of Response	Inclusion in Environment Plan
No feedback, objections or claims about the adverse impact of the activity received despite follow-up.		Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.7.1 of the EP).	No additional measures or controls are required.

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Summary Report – Consultation Complete

Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and considers consultation with WA Game Fishing Association for the purpose of regulation 25 complete. Sufficient information, a reasonable period and a reasonable opportunity have been provided, as described in Section 5.4 of the EP and further summarised in the Consultation Approach above. Specifically:

Sufficient Information

Woodside has given WA Game Fishing Association sufficient information to allow WA Game Fishing Association to make an informed assessment of the possible consequences of the activity on its functions, interests or activities because:

- The Consultation Information Sheet for this EP has been publicly available on the Woodside website since September 2025. Woodside gave this information to WA Game Fishing Association on 8 September 2025, marking the commencement of consultation on this EP. The Consultation Information Sheet included:
  - The purpose of consultation and set out what was being sought through consultation.
  - A summary of the activity description, location of the activity, timing of the activity, receiving environment, impacts and risks associated with the Petroleum Activity, and proposed mitigation and management measures.
  - A timeframe for consultation and the provision of feedback.
  - A link to NOPSEMA's brochure '*Consultation on offshore petroleum environment plans: Information for the community'*.
  - Advice that relevant persons can request that particular information provided during consultation not be published (to align with 25(4) of the Environment Regulations).

Reasonable Period

Woodside allowed WA Game Fishing Association a reasonable period for consultation in the preparation of the EP because:

- A consultation period was stated in the initial correspondence to WA Game Fishing Association advising of consultation as well as when consultation closed for the purposes of the preparation of the EP. This enabled Woodside to assess feedback before EP submission.
- Woodside's methodology allows a 45-day consultation period for MSS EPs and Woodside allowed WA Game Fishing Association 45 days for consultation.
- Consultation for this EP commenced 6 months ago.
- In this context, Woodside allowed WA Game Fishing Association a reasonable period for consultation in preparation of the EP.

Reasonable Opportunity

A reasonable opportunity to provide feedback has been provided because Woodside's approach to consultation with WA Game Fishing Association is appropriate and adapted to the nature of interests of WA Game Fishing Association:

- Woodside published advertisements in 6 national, state, and relevant local newspapers (see Consultation Activities). This allowed for broad awareness of the activity under the EP and also of consultation.
- Woodside ran a targeted social media campaign (see Consultation Activities). This allowed for broad awareness of the activity under the EP and also of consultation.
- Between 5 and 18 October 2025, Woodside held, or hosted information stalls at, a number of community events and roadshows in regional areas including the Pilbara and Gascoyne to raise awareness of the EP and provide another opportunity for feedback. These events were promoted on social media.
- In the absence of feedback, Woodside sent a follow-up consultation email on 8 October 2025, reminding WA Game Fishing Association of the opportunity to provide feedback.

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Outcomes of Consultation

Woodside has assessed the merits of each objection or claim (if any) about the adverse impact of the activity to which the EP relates, as required under Regulation 24. The measures (if any) that Woodside has adopted or proposes to adopt because of the consultation are appropriate because:

- No additional measures were considered as a result of consultation as WA Game Fishing Association did not provide feedback for this EP.
- Woodside will continue to accept and assess feedback throughout the life of the EP and apply its Management of Change and Revision process when applicable.
- The measures and controls described in this EP address the potential impact from the proposed activity on WA Game Fishing Association's functions, interests or activities.

4.7 Titleholders and operators

4.7.1 Beagle No 1, Carbon CQ, INPEX Alpha, JX Nippon, KATO Energy / KATO Corowa / KATO NWS / KATO Amulet, Longreach Capital Investments, Melbana Exploration, Pelsart Resources, OMV Australia / Sapura OMV Upstream, SK Earthon Australia, Skye Napoleon / Skye Resources, Tanami Energy, Vermilion Energy, Western Gas

Summary of information provided and record of consultation for this EP:

- On 8 September 2025, Woodside emailed Beagle No 1, Carbon CQ, INPEX Alpha, JX Nippon, KATO Energy / KATO Corowa / KATO NWS / KATO Amulet, Longreach Capital Investments, Melbana Exploration, Pelsart Resources, OMV Australia / Sapura OMV Upstream, SK Earthon Australia, Skye Napoleon / Skye Resources, Tanami Energy, Vermilion Energy and Western Gas advising of the proposed activity (Record of Consultation, reference 6.1.9), provided a Consultation Information Sheet, and a link to NOPSEMA's brochure '*Consultation on offshore petroleum environment plans: Information for the community*'.
- On 8 October 2025, as no response had been received, Woodside proactively sent a follow-up email (Record of Consultation, reference 6.2.1).

Summary of Feedback, Objection or Claim	Woodside's Assessment of Merits of Feedback, Objection or Claim	Woodside's Statement of Response	Inclusion in Environment Plan
No feedback, objections or claims about the adverse impact of the activity received despite follow-up.		Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.7.1 of the EP).	No additional measures or controls are required.
Summary Report – Consultation Complete			

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Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and considers consultation with non-adjacent titleholders Beagle No 1, Carbon CQ, INPEX Alpha, JX Nippon, KATO Energy / KATO Corowa / KATO NWS / KATO Amulet, Longreach Capital Investments, Melbana Exploration, Pelsart Resources, OMV Australia / Sapura OMV Upstream, SK Earthon Australia, Skye Napoleon / Skye Resources, Tanami Energy, Vermilion Energy and Western Gas, collectively named Titleholders in this section, for the purpose of regulation 25 complete. Sufficient information, a reasonable period and a reasonable opportunity have been provided, as described in Section 5.4 of the EP and further summarised in the Consultation Approach above. Specifically:

Sufficient Information

Woodside has given Titleholders sufficient information to allow Titleholders to make an informed assessment of the possible consequences of the activity on its functions, interests or activities because:

- The Consultation Information Sheet for this EP has been publicly available on the Woodside website since September 2025. Woodside gave this information to Titleholders on 8 September 2025, marking the commencement of consultation on this EP. The Consultation Information Sheet included:
  - The purpose of consultation and set out what was being sought through consultation.
  - A summary of the activity description, location of the activity, timing of the activity, receiving environment, impacts and risks associated with the Petroleum Activity, and proposed mitigation and management measures.
  - A timeframe for consultation and the provision of feedback.
  - A link to NOPSEMA's brochure '*Consultation on offshore petroleum environment plans: Information for the community'*.
  - Advice that relevant persons can request that particular information provided during consultation not be published (to align with 25(4) of the Environment Regulations).

Reasonable Period

Woodside allowed Titleholders a reasonable period for consultation in the preparation of the EP because:

- A consultation period was stated in the initial correspondence to Titleholders advising of consultation as well as when consultation closed for the purposes of the preparation of the EP. This enabled Woodside to assess feedback before EP submission.
- Woodside's methodology allows a 45-day consultation period for MSS EPs and Woodside allowed Titleholders 45 days for consultation.
- Consultation for this EP commenced 6 months ago.
- In this context, Woodside allowed Titleholders a reasonable period for consultation in preparation of the EP.

Reasonable Opportunity

A reasonable opportunity to provide feedback has been provided because Woodside's approach to consultation with Titleholders is appropriate and adapted to the nature of interests of Titleholders:

- Woodside published advertisements in 6 national, state, and relevant local newspapers (see Consultation Activities). This allowed for broad awareness of the activity under the EP and also of consultation.
- Woodside ran a targeted social media campaign (see Consultation Activities). This allowed for broad awareness of the activity under the EP and also of consultation.
- In the absence of feedback, Woodside sent a follow-up consultation email on 8 October 2025, reminding Titleholders of the opportunity to provide feedback.

Outcomes of Consultation

Woodside has assessed the merits of each objection or claim (if any) about the adverse impact of the activity to which the EP relates, as required under Regulation 24. The measures (if any) that Woodside has adopted or proposes to adopt because of the consultation are appropriate because:

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- No additional measures were considered as a result of consultation as Titleholders did not provide feedback for this EP.
- Woodside will continue to accept and assess feedback throughout the life of the EP and apply its Management of Change and Revision process when applicable.
- The measures and controls described in this EP address the potential impact from the proposed activity on Titleholders' functions, interests or activities.

4.7.2 KUFPEC, Kyushu Electric Wheatstone, PE Wheatstone, Exxon Mobil Australia

Summary of information provided and record of consultation for this EP:

- On 9 September 2025, Woodside emailed adjacent titleholders KUFPEC, Kyushu Electric Wheatstone, Exxon Mobil Australia and PE Wheatstone advising of the proposed activity (Record of Consultation, reference 6.1.32), provided a Consultation Information Sheet, and a link to NOPSEMA's brochure '*Consultation on offshore petroleum environment plans: Information for the community*'. Woodside also provided an Adjacent Titles map (Record of Consultation, reference 6.1.8).
- On 8 October 2025, as no response had been received, Woodside proactively sent a follow-up email (Record of Consultation, reference 6.2.1).

Summary of Feedback, Objection or Claim	Woodside's Assessment of Merits of Feedback, Objection or Claim	Woodside's Statement of Response	Inclusion in Environment Plan
No feedback, objections or claims about the adverse impact of the activity received despite follow-up.		Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.7.1 of the EP).	Woodside will provide start of activity notifications to adjacent titleholders as referenced as C 1.6 and set out in Section 7.9 of the EP. No additional measures or controls are required.

Summary Report – Consultation Complete

Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and considers consultation with KUFPEC, Kyushu Electric Wheatstone, Exxon Mobil Australia and PE Wheatstone for the purpose of regulation 25 complete. Sufficient information, a reasonable period and a reasonable opportunity have been provided, as described in Section 5.4 of the EP and further summarised in the Consultation Approach above. Specifically:

Sufficient Information

Woodside has given KUFPEC, Kyushu Electric Wheatstone, Exxon Mobil Australia and PE Wheatstone sufficient information to allow KUFPEC, Kyushu Electric Wheatstone, Exxon Mobil Australia and PE Wheatstone to make an informed assessment of the possible consequences of the activity on its functions, interests or activities because:

- The Consultation Information Sheet for this EP has been publicly available on the Woodside website since September 2025. Woodside gave this information to KUFPEC, Kyushu Electric Wheatstone, Exxon Mobil Australia and PE Wheatstone on 9 September 2025, marking the commencement of consultation on this EP. The Consultation Information Sheet included:

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  - The purpose of consultation and set out what was being sought through consultation.
  - A summary of the activity description, location of the activity, timing of the activity, receiving environment, impacts and risks associated with the Petroleum Activity, and proposed mitigation and management measures.
  - A timeframe for consultation and the provision of feedback.
  - A link to NOPSEMA's brochure '*Consultation on offshore petroleum environment plans: Information for the community'.*
  - Advice that relevant persons can request that particular information provided during consultation not be published (to align with 25(4) of the Environment Regulations).
- In addition to the Consultation Information Sheet, Woodside provided KUFPEC, Kyushu Electric Wheatstone, Exxon Mobil Australia and PE Wheatstone with tailored information regarding Operational Area overlap and potential impacts on its functions, interests or activities.

Reasonable Period

Woodside allowed KUFPEC, Kyushu Electric Wheatstone, Exxon Mobil Australia and PE Wheatstone a reasonable period for consultation in the preparation of the EP because:

- A consultation period was stated in the initial correspondence to KUFPEC, Kyushu Electric Wheatstone, Exxon Mobil Australia and PE Wheatstone advising of consultation as well as when consultation closed for the purposes of the preparation of the EP. This enabled Woodside to assess feedback before EP submission.
- Woodside's methodology allows a 45-day consultation period for MSS EPs and Woodside allowed KUFPEC, Kyushu Electric Wheatstone, Exxon Mobil Australia and PE Wheatstone 45 days for consultation.
- Consultation for this EP commenced 6 months ago.
- In this context, Woodside allowed KUFPEC, Kyushu Electric Wheatstone, Exxon Mobil Australia and PE Wheatstone a reasonable period for consultation in preparation of the EP.

Reasonable Opportunity

A reasonable opportunity to provide feedback has been provided because Woodside's approach to consultation with KUFPEC, Kyushu Electric Wheatstone, Exxon Mobil Australia and PE Wheatstone is appropriate and adapted to the nature of interests of KUFPEC, Kyushu Electric Wheatstone, Exxon Mobil Australia and PE Wheatstone:

- Woodside published advertisements in 6 national, state, and relevant local newspapers (see Consultation Activities). This allowed for broad awareness of the activity under the EP and also of consultation.
- Woodside ran a targeted social media campaign (see Consultation Activities). This allowed for broad awareness of the activity under the EP and also of consultation.
- In the absence of feedback, Woodside sent a follow-up consultation email on 8 October 2025, reminding KUFPEC, Kyushu Electric Wheatstone, Exxon Mobil Australia and PE Wheatstone of the opportunity to provide feedback.

Outcomes of Consultation

Woodside has assessed the merits of each objection or claim (if any) about the adverse impact of the activity to which the EP relates, as required under Regulation 24. The measures (if any) that Woodside has adopted or proposes to adopt because of the consultation are appropriate because:

- No additional measures were considered as a result of consultation as KUFPEC, Kyushu Electric Wheatstone, Exxon Mobil Australia and PE Wheatstone did not provide feedback for this EP.
- Woodside will continue to accept and assess feedback throughout the life of the EP and apply its Management of Change and Revision process when applicable.

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- The measures and controls described in this EP address the potential impact from the proposed activity on KUFPEC, Kyushu Electric Wheatstone, Exxon Mobil Australia and PE Wheatstone's functions, interests or activities.

4.7.3 Chevron Australia / JERA Gorgon / MidOcean Gorgon / Osaka Gas Gorgon

Summary of information provided and record of consultation for this EP:

- On 9 September 2025, Woodside emailed Chevron advising of the proposed activity (Record of Consultation, reference 6.1.31), provided a Consultation Information Sheet, and a link to NOPSEMA's brochure '*Consultation on offshore petroleum environment plans: Information for the community*'. Woodside also provided an Adjacent Titles map (Record of Consultation, reference 6.1.8) and asked that the consultation information be forwarded to Chevron's Joint Venture participants Jera Gorgon, MidOcean Gorgon and Osaka Gas Gorgon for feedback.
- On 8 October 2025, as no response had been received, Woodside proactively sent a follow-up email (Record of Consultation, reference 6.2.1).
- On 21 October 2025, Chevron thanked Woodside for the opportunity to comment on the EP (SI Report A, reference 13.1). Chevron:
  - **(1)** Noted it may have a MODU and vessels on location at the same time as the proposed activity and advised there may be SIMOPS considerations as vessels would be working around the Wheatstone Platform and parts of the Julimar Brunello fields.
  - **(2)** Advised it would appreciate further engagement regarding management of underwater noise including the extent of the ensonified area for the survey activities, as Woodside would be operating adjacent to Chevron permits.
- On 10 November 2025, Woodside thanked Chevron for its feedback and confirmed it was preparing a response (SI Report A, reference 13.2). Woodside:
  - **(1)** Asked Chevron to confirm likely locations and timings of its activities around the Wheatstone Platform and parts of the Julimar Brunello field, including the presence of a MODU and other vessels, to support Woodside's assessment of concurrent operations.
- On 27 November 2025, Chevron responded to Woodside's query (SI Report A, reference 13.3). Chevron:
  - **(1)** Advised that depending on the survey timing, Chevron may have activities in WA-15-R and WA-22-R. Chevron also attached an information sheet on its planned drilling activities which provided further information regarding location and timing.
- On 3 December 2025, Woodside thanked Chevron for the additional information provided on 27 November 2025 (SI Report A, reference 13.4) and:
  - **(1)** Advised that while the Operational Area overlapped permit WA-15-R, the Active Source Area was located 7.9 km from the boundary and 16.8 km from the boundary of WA-22-R.
  - **(2)** Acknowledged the potential for ensonified areas to overlap and noted potential for impacts to marine mammal behavioural response, cetacean (TTS) and turtles (TTS) depending on extent of Chevron's ensonified area.
  - **(2)** Requested that Chevron shared any further information on ensonified areas of Chevron's activities.
- On 5 December 2025, Woodside resent the email dated 3 December 2025 with a correction ('Active Source Area (ASA)' replaced with 'Survey Acquisition Area (SAA)') (SI Report A, reference 13.5).
- **(3)** On 18 December 2025, Chevron responded to advise it had no further feedback on this EP (SI Report A, reference 13.6).
- **(3)** On 18 December 2025, Woodside thanked Chevron for confirming it had no additional feedback on this EP (SI Report A, reference 13.7).

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Summary of Feedback, Objection or Claim	Woodside's Assessment of Merits of Feedback, Objection or Claim	Woodside's Statement of Response	Inclusion in Environment Plan
(1) Advised that Chevron may have a MODU and vessels on location at the same time as the proposed activity and SIMOPS considerations may be needed.	**(1)** Woodside has considered relevant SIMOPS in the EP.	**(1)** Woodside confirmed it had considered concurrent operations, including the Julimar Brunello field, in the EP, and advised that while the Operational Area overlapped permit WA-15-R, the Survey Acquisition Area was located 7.9 km from the boundary and 16.8 km from the boundary of WA-22-R.	**(1)** Woodside has included an assessment of cumulative impacts associated with Chevron's activities in WA-22-R and WA-15-R in Section 6.3.2 of the EP.
(2) Requested further engagement regarding underwater noise.	**(2)** Woodside accepts Chevron's request for further information and has provided details of the ensonified area.	**(2)** Woodside acknowledged the potential for ensonified areas to overlap and noted potential for impacts to marine mammal behavioural response, cetacean (TTS) and turtles (TTS) depending on the extent of Chevron's ensonified area and requested Chevron shared any further information on ensonified areas of Chevron's activities.	**(2)** Woodside has included an assessment of cumulative impacts associated with Chevron's activities in WA-22-R and WA-15-R in Section 6.3.2 of the EP.
(3) Advised it had no further feedback.	**(3)** Woodside accepts Chevron has no further feedback on this EP.	**(3)** Woodside thanked Chevron for confirming it had no additional feedback on the EP.	**(3)** Not required.
While feedback has been received, there were no objections or claims.	Woodside has assessed the merits of each objection or claim (if any) about the adverse impact of the activity to which the EP relates, as required under Regulation 24.	Woodside engages in ongoing consultation throughout the life of an EP. Woodside notes that further feedback may be received as part of ongoing consultation. Should further feedback be received, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.7.1 of the EP).	No additional controls or measures are required.
Summary Report – Consultation Complete			

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Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and considers consultation with Chevron for the purpose of regulation 25 complete. Sufficient information, a reasonable period and a reasonable opportunity have been provided, as described in Section 5.4 of the EP and further summarised in the Consultation Approach above. Specifically:

Sufficient Information

Woodside has given Chevron sufficient information to allow Chevron to make an informed assessment of the possible consequences of the activity on its functions, interests or activities because:

- The Consultation Information Sheet for this EP has been publicly available on the Woodside website since September 2025. Woodside gave this information to Chevron on 9 September 2025, marking the commencement of consultation on this EP. The Consultation Information Sheet included:
  - The purpose of consultation and set out what was being sought through consultation.
  - A summary of the activity description, location of the activity, timing of the activity, receiving environment, impacts and risks associated with the Petroleum Activity, and proposed mitigation and management measures.
  - A timeframe for consultation and the provision of feedback.
  - A link to NOPSEMA's brochure '*Consultation on offshore petroleum environment plans: Information for the community'*.
  - Advice that relevant persons can request that particular information provided during consultation not be published (to align with 25(4) of the Environment Regulations).
- Woodside also provided Chevron with tailored information regarding Operational Area overlap and potential impacts on its functions, interests or activities.
- On 21 October 2025, Chevron shared its feedback regarding this activity, indicating the information provided was sufficient to enable Chevron to make an informed assessment of the possible consequences of the activity on its functions, interests or activities.
- In addition to the information in the Consultation Information Sheet, Woodside provided additional information to Chevron in response to Chevron's feedback (Woodside's emails of 3 December 2025).

Reasonable Period

Woodside allowed Chevron a reasonable period for consultation in the preparation of the EP because:

- A consultation period was stated in the initial correspondence to Chevron advising of consultation as well as when consultation closed for the purposes of the preparation of the EP. This enabled Woodside to assess feedback before EP submission.
- Woodside's methodology allows a 45-day consultation period for MSS EPs and Woodside allowed Chevron 45 days for consultation.
- Consultation for this EP commenced 6 months ago.
- In this context, Woodside allowed Chevron a reasonable period for consultation in preparation of the EP, as evidenced by Chevron's response on 21 October 2025.

Reasonable Opportunity

A reasonable opportunity to provide feedback has been provided because Woodside's approach to consultation with Chevron is appropriate and adapted to the nature of interests of Chevron:

- Woodside published advertisements in 6 national, state, and relevant local newspapers (see Consultation Activities). This allowed for broad awareness of the activity under the EP and also of consultation.
- Woodside ran a targeted social media campaign (see Consultation Activities). This allowed for broad awareness of the activity under the EP and also of consultation.
- In the absence of feedback, Woodside sent a follow-up consultation email on 8 October 2025, reminding Chevron of the opportunity to provide feedback.

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Outcomes of Consultation

Woodside has assessed the merits of each objection or claim (if any) about the adverse impact of the activity to which the EP relates, as required under Regulation 24. The measures (if any) that Woodside has adopted or proposes to adopt because of the consultation are appropriate because:

- Chevron provided feedback but no objections or claims. In line with the intended outcome of consultation as set out in Section 5.2 and Regulations 24 and 34(g), Woodside has:
  - Responded to feedback from Chevron.
  - Included an assessment of cumulative impacts associated with concurrent activities in Chevron titles WA-22-R and WA-15-R in Section 6.3.2 of the EP as a result of Chevron's feedback. No additional controls or measures are required.
- Woodside will continue to accept and assess feedback throughout the life of the EP and apply its Management of Change and Revision process when applicable.

4.7.4 Santos NA Energy Holdings / Santos Ltd / Santos WA Northwest / Santos Offshore / Santos WA Southwest / Santos (BOL) / Santos WA PVG

Summary of information provided and record of consultation for this EP:

- On 8 September 2025, Woodside emailed Santos advising of the proposed activity (Record of Consultation, reference 6.1.9), provided a Consultation Information Sheet, and a link to NOPSEMA's brochure '*Consultation on offshore petroleum environment plans: Information for the community*'.
- On 18 September 2025, Santos emailed Woodside (SI Report A, reference 14.1) and:
  - **(1)** Confirmed it had no objections or claims regarding the activity.
- On 19 September 2025, Woodside responded thanking Santos for its feedback (SI Report A, reference 14.2). Woodside:
  - **(1)** Noted Santos had no objections or claims in relation to the activity.

Summary of Feedback, Objection or Claim	Woodside's Assessment of Merits of Feedback, Objection or Claim	Woodside's Statement of Response	Inclusion in Environment Plan
(1) Had no objection to the proposed activity.	**(1)** Woodside accepts Santos has no objections or claims.	**(1)** Woodside thanked Santos for its feedback and noted Santos had no objections or claims in relation to the planned activity.	**(1)** Not required.
While feedback has been received, there were no objections or claims.	Woodside has assessed the merits of each objection or claim (if any) about the adverse impact of the activity to which	Woodside engages in ongoing consultation throughout the life of an EP. Woodside notes that further feedback may be received as part of ongoing	No additional controls or measures are required.

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	the EP relates, as required under Regulation 24.	consultation. Should further feedback be received, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.7.1 of the EP).	

Summary Report – Consultation Complete

Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and considers consultation with Santos for the purpose of regulation 25 complete. Sufficient information, a reasonable period and a reasonable opportunity have been provided, as described in Section 5.4 of the EP and further summarised in the Consultation Approach above. Specifically:

Sufficient Information

Woodside has given Santos sufficient information to allow Santos to make an informed assessment of the possible consequences of the activity on its functions, interests or activities because:

- The Consultation Information Sheet for this EP has been publicly available on the Woodside website since September 2025. Woodside gave this information to Santos on 8 September 2025, marking the commencement of consultation on this EP. The Consultation Information Sheet included:
  - The purpose of consultation and set out what was being sought through consultation.
  - A summary of the activity description, location of the activity, timing of the activity, receiving environment, impacts and risks associated with the Petroleum Activity, and proposed mitigation and management measures, and an explanation of marine seismic surveys.
  - A timeframe for consultation and the provision of feedback.
  - A link to NOPSEMA's brochure '*Consultation on offshore petroleum environment plans: Information for the community'*.
  - Advice that relevant persons can request that particular information provided during consultation not be published (to align with 25(4) of the Environment Regulations).
- On 18 September 2025, Santos shared its feedback regarding this activity, indicating the information provided was sufficient to enable Santos to make an informed assessment of the possible consequences of the activity on its functions, interests or activities.

Reasonable Period

Woodside allowed Santos a reasonable period for consultation in the preparation of the EP because:

- A consultation period was stated in the initial correspondence to Santos advising of consultation as well as when consultation closed for the purposes of the preparation of the EP. This enabled Woodside to assess feedback before EP submission.
- Woodside's methodology allows a 45-day consultation period for MSS EPs for marine seismic surveys and Woodside allowed Santos 45 days for consultation.
- Consultation for this EP commenced 6 months ago.
- In this context, Woodside allowed Santos a reasonable period for consultation in preparation of the EP as evidenced by Santos' response on 18 September 2025

Reasonable Opportunity

A reasonable opportunity to provide feedback has been provided because Woodside's approach to consultation with Santos is appropriate and adapted to the nature of interests of Santos:

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- Woodside published advertisements in 6 national, state, and relevant local newspapers (see Consultation Activities). This allowed for broad awareness of the activity under the EP and also of consultation.
- Woodside ran a targeted social media campaign (see Consultation Activities). This allowed for broad awareness of the activity under the EP and also of consultation.

Outcomes of Consultation

Woodside has assessed the merits of each objection or claim (if any) about the adverse impact of the activity to which the EP relates, as required under Regulation 24. The measures (if any) that Woodside has adopted or proposes to adopt because of the consultation are appropriate because:

- Santos provided feedback but no objections or claims. In line with the intended outcome of consultation as set out in Section 5.2 and Regulations 24 and 34(g), Woodside has:
  - Responded to feedback from Santos.
  - Made no changes to the EP as a result of consultation with Santos because appropriate measures are already included in the EP.
- Woodside will continue to accept and assess feedback throughout the life of the EP and apply its Management of Change and Revision process when applicable.

4.7.5 Shell Australia

Summary of information provided and record of consultation for this EP:

- On 8 September 2025, Woodside emailed Shell Australia advising of the proposed activity (Record of Consultation, reference 6.1.9), provided a Consultation Information Sheet, and a link to NOPSEMA's brochure '*Consultation on offshore petroleum environment plans: Information for the community*'.
- On 9 September 2025, Woodside sent a follow-up email to Shell Australia to provide additional information on adjacent titles (Record of Consultation, reference 6.1.33). Woodside included an adjacent titles map (Record of Consultation, reference 6.1.8).
- On 8 October 2025, as no response had been received, Woodside proactively sent a follow-up email (Record of Consultation, reference 6.2.1).

Summary of Feedback, Objection or Claim	Woodside's Assessment of Merits of Feedback, Objection or Claim	Woodside's Statement of Response	Inclusion in Environment Plan
No feedback, objections or claims about the adverse impact of the activity received despite follow-up.		Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.7.1 of the EP).	Woodside will notify Shell Australia before activities commence, as referenced as C 1.6 of the EP and set out in Section 7.9 of the EP. No additional measures or controls are required.
Summary Report – Consultation Complete			

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Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and considers consultation with Shell Australia for the purpose of regulation 25 complete. Sufficient information, a reasonable period and a reasonable opportunity have been provided, as described in Section 5.4 of the EP and further summarised in the Consultation Approach above. Specifically:

Sufficient Information

Woodside has given Shell Australia sufficient information to allow Shell Australia to make an informed assessment of the possible consequences of the activity on its functions, interests or activities because:

- The Consultation Information Sheet for this EP has been publicly available on the Woodside website since September 2025. Woodside gave this information to Shell Australia on 8 September 2025, marking the commencement of consultation on this EP. The Consultation Information Sheet included:
  - The purpose of consultation and set out what was being sought through consultation.
  - A summary of the activity description, location of the activity, timing of the activity, receiving environment, impacts and risks associated with the Petroleum Activity, and proposed mitigation and management measures.
  - A timeframe for consultation and the provision of feedback.
  - A link to NOPSEMA's brochure '*Consultation on offshore petroleum environment plans: Information for the community'.*
  - Advice that relevant persons can request that particular information provided during consultation not be published (to align with 25(4) of the Environment Regulations).
- In addition to the Consultation Information Sheet, Woodside provided Shell Australia with tailored information regarding Operational Area overlap and potential impacts on its functions, interests or activities.

Reasonable Period

Woodside allowed Shell Australia a reasonable period for consultation in the preparation of the EP because:

- A consultation period was stated in the initial correspondence to Shell Australia Shell Australia advising of consultation as well as when consultation closed for the purposes of the preparation of the EP. This enabled Woodside to assess feedback before EP submission.
- Woodside's methodology allows a 45-day consultation period for MSS EPs and Woodside allowed Shell Australia 45 days for consultation.
- Consultation for this EP commenced 6 months ago.
- In this context, Woodside allowed Shell Australia a reasonable period for consultation in preparation of the EP.

Reasonable Opportunity

A reasonable opportunity to provide feedback has been provided because Woodside's approach to consultation with Shell Australia is appropriate and adapted to the nature of interests of Shell Australia:

- Woodside published advertisements in 6 national, state, and relevant local newspapers (see Consultation Activities). This allowed for broad awareness of the activity under the EP and also of consultation.
- Woodside ran a targeted social media campaign (see Consultation Activities). This allowed for broad awareness of the activity under the EP and also of consultation.
- In the absence of feedback, Woodside sent a follow-up consultation email on 8 October 2025, reminding Shell Australia of the opportunity to provide feedback.

Outcomes of Consultation

Woodside has assessed the merits of each objection or claim (if any) about the adverse impact of the activity to which the EP relates, as required under Regulation 24. The measures (if any) that Woodside has adopted or proposes to adopt because of the consultation are appropriate because:

- No additional measures were considered as a result of consultation as Shell Australia did not provide feedback for this EP.

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- Woodside will continue to accept and assess feedback throughout the life of the EP and apply its Management of Change and Revision process when applicable.
- The measures and controls described in this EP address the potential impact from the proposed activity on Shell Australia's functions, interests or activities.

4.7.6 InCapture

Summary of information provided and record of consultation for this EP:

- On 8 September 2025, Woodside emailed InCapture advising of the proposed activity (Record of Consultation, reference 6.1.9), provided a Consultation Information Sheet, and a link to NOPSEMA's brochure '*Consultation on offshore petroleum environment plans: Information for the community*'.
- On 11 September 2025, InCapture emailed Woodside (SI Report A, reference 15.1) and:
  - **(1)** Confirmed it had no objection regarding the activity.
- On 11 September 2024, Woodside responded thanking InCapture for its feedback (SI Report A, reference 15.2). Woodside:
  - **(1)** Noted InCapture had no objection to the activity.

Summary of Feedback, Objection or Claim	Woodside's Assessment of Merits of Feedback, Objection or Claim	Woodside's Statement of Response	Inclusion in Environment Plan
(1) Confirmed it had no objection to the proposed activity.	**(1)** Woodside accepts InCapture has no objection.	**(1)** Woodside thanked InCapture for its feedback and noted InCapture had no objections to the proposed activity	**(1)** Not required.
While feedback has been received, there were no objections or claims.	Woodside has assessed the merits of each objection or claim (if any) about the adverse impact of the activity to which the EP relates, as required under Regulation 24.	Woodside engages in ongoing consultation throughout the life of an EP. Woodside notes that further feedback may be received as part of ongoing consultation. Should further feedback be received, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.7.1 of the EP).	No additional controls or measures are required.
Summary Report – Consultation Complete			

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Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and considers consultation with InCapture for the purpose of regulation 25 complete. Sufficient information, a reasonable period and a reasonable opportunity have been provided, as described in Section 5.4 of the EP and further summarised in the Consultation Approach above. Specifically:

Sufficient Information

Woodside has given InCapture sufficient information to allow InCapture to make an informed assessment of the possible consequences of the activity on its functions, interests or activities because:

- The Consultation Information Sheet for this EP has been publicly available on the Woodside website since September 2025. Woodside gave this information to InCapture on 8 September 2025, marking the commencement of consultation on this EP. The Consultation Information Sheet included:
  - The purpose of consultation and set out what was being sought through consultation.
  - A summary of the activity description, location of the activity, timing of the activity, receiving environment, impacts and risks associated with the Petroleum Activity, and proposed mitigation and management measures, and an explanation of marine seismic surveys.
  - A timeframe for consultation and the provision of feedback.
  - A link to NOPSEMA's brochure '*Consultation on offshore petroleum environment plans: Information for the community'*.
  - Advice that relevant persons can request that particular information provided during consultation not be published (to align with 25(4) of the Environment Regulations).
- On 11 September 2025, InCapture shared its feedback regarding this activity, indicating the information provided was sufficient to enable InCapture to make an informed assessment of the possible consequences of the activity on its functions, interests or activities.

Reasonable Period

Woodside allowed InCapture a reasonable period for consultation in the preparation of the EP because:

- A consultation period was stated in the initial correspondence to InCapture advising of consultation as well as when consultation closed for the purposes of the preparation of the EP. This enabled Woodside to assess feedback before EP submission.
- Woodside's methodology allows a 45-day consultation period for MSS EPs for marine seismic surveys and Woodside allowed InCapture 45 days for consultation.
- Consultation for this EP commenced 6 months ago.
- In this context, Woodside allowed InCapture a reasonable period for consultation in preparation of the EP as evidenced by InCapture's response on 11 September 2025

Reasonable Opportunity

A reasonable opportunity to provide feedback has been provided because Woodside's approach to consultation with InCapture is appropriate and adapted to the nature of interests of InCapture:

- Woodside published advertisements in 6 national, state, and relevant local newspapers (see Consultation Activities). This allowed for broad awareness of the activity under the EP and also of consultation.
- Woodside ran a targeted social media campaign (see Consultation Activities). This allowed for broad awareness of the activity under the EP and also of consultation.

Outcomes of Consultation

Woodside has assessed the merits of each objection or claim (if any) about the adverse impact of the activity to which the EP relates, as required under Regulation 24. The measures (if any) that Woodside has adopted or proposes to adopt because of the consultation are appropriate because:

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- InCapture provided feedback but no objections or claims. In line with the intended outcome of consultation as set out in Section 5.2 and Regulations 24 and 34(g), Woodside has:
  - Responded to feedback from InCapture.
  - Made no changes to the EP as a result of consultation with InCapture because appropriate measures are already included in the EP.
- Woodside will continue to accept and assess feedback throughout the life of the EP and apply its Management of Change and Revision process when applicable.

4.7.7 Finder Energy

Summary of information provided and record of consultation for this EP:

- On 8 September 2025, Woodside emailed Finder Energy advising of the proposed activity (Record of Consultation, reference 6.1.9), provided a Consultation Information Sheet, and a link to NOPSEMA's brochure '*Consultation on offshore petroleum environment plans: Information for the community*'.
- On 9 September 2025, Finder Energy emailed thanking Woodside for the information (SI Report A, reference 16.1). Finder Energy also:
  - **(1)** Confirmed it had no comment or objection regarding the activity.
- On 10 September 2024, Woodside responded thanking Finder Energy for its feedback (SI Report A, reference 16.2). Woodside:
  - **(1)** Noted Finder Energy had no comment or objection to the activity.

Summary of Feedback, Objection or Claim	Woodside's Assessment of Merits of Feedback, Objection or Claim	Woodside's Statement of Response	Inclusion in Environment Plan
(1) Confirmed it had no comment or objection.	**(1)** Woodside accepts Finder Energy has no comment or objection.	**(1)** Woodside thanked Finder Energy for its feedback and noted Finder Energy had no comment or objection regarding the proposed activities.	**(1)** Not required.
While feedback has been received, there were no objections or claims.	Woodside has assessed the merits of each objection or claim (if any) about the adverse impact of the activity to which the EP relates, as required under Regulation 24.	Woodside engages in ongoing consultation throughout the life of an EP. Woodside notes that further feedback may be received as part of ongoing consultation. Should further feedback be received, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.7.1 of the EP).	No additional controls or measures are required.

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Summary Report – Consultation Complete

Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and considers consultation with Finder Energy for the purpose of regulation 25 complete. Sufficient information, a reasonable period and a reasonable opportunity have been provided, as described in Section 5.4 of the EP and further summarised in the Consultation Approach above. Specifically:

Sufficient Information

Woodside has given Finder Energy sufficient information to allow Finder Energy to make an informed assessment of the possible consequences of the activity on its functions, interests or activities because:

- The Consultation Information Sheet for this EP has been publicly available on the Woodside website since September 2025. Woodside gave this information to Finder Energy on 8 September 2025, marking the commencement of consultation on this EP. The Consultation Information Sheet included:
  - The purpose of consultation and set out what was being sought through consultation.
  - A summary of the activity description, location of the activity, timing of the activity, receiving environment, impacts and risks associated with the Petroleum Activity, and proposed mitigation and management measures, and an explanation of marine seismic surveys.
  - A timeframe for consultation and the provision of feedback.
  - A link to NOPSEMA's brochure '*Consultation on offshore petroleum environment plans: Information for the community'*.
  - Advice that relevant persons can request that particular information provided during consultation not be published (to align with 25(4) of the Environment Regulations).
- On 9 September 2025, Finder Energy shared its feedback regarding this activity, indicating the information provided was sufficient to enable Finder Energy to make an informed assessment of the possible consequences of the activity on its functions, interests or activities.

Reasonable Period

Woodside allowed Finder Energy a reasonable period for consultation in the preparation of the EP because:

- A consultation period was stated in the initial correspondence to Finder Energy advising of consultation as well as when consultation closed for the purposes of the preparation of the EP. This enabled Woodside to assess feedback before EP submission.
- Woodside's methodology allows a 45-day consultation period for MSS EPs for marine seismic surveys and Woodside allowed Finder Energy 45 days for consultation.
- Consultation for this EP commenced 6 months ago.
- In this context, Woodside allowed Finder Energy a reasonable period for consultation in preparation of the EP as evidenced by Finder Energy's response on 9 September 2025.

Reasonable Opportunity

A reasonable opportunity to provide feedback has been provided because Woodside's approach to consultation with Finder Energy is appropriate and adapted to the nature of interests of Finder Energy:

- Woodside published advertisements in 6 national, state, and relevant local newspapers (see Consultation Activities). This allowed for broad awareness of the activity under the EP and also of consultation.
- Woodside ran a targeted social media campaign (see Consultation Activities). This allowed for broad awareness of the activity under the EP and also of consultation.

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Outcomes of Consultation

Woodside has assessed the merits of each objection or claim (if any) about the adverse impact of the activity to which the EP relates, as required under Regulation 24. The measures (if any) that Woodside has adopted or proposes to adopt because of the consultation are appropriate because:

- Finder Energy provided feedback but no objections or claims. In line with the intended outcome of consultation as set out in Section 5.2 and Regulations 24 and 34(g), Woodside has:
  - Responded to feedback from Finder Energy.
  - Made no changes to the EP as a result of consultation with Finder Energy because appropriate measures are already included in the EP.
- Woodside will continue to accept and assess feedback throughout the life of the EP and apply its Management of Change and Revision process when applicable.

4.8 Peak industry representative bodies

4.8.1 Australian Energy Producers (AEP)

Summary of information provided and record of consultation for this EP:

- On 8 September 2025, Woodside emailed AEP advising of the proposed activity (Record of Consultation, reference 6.1.9), provided a Consultation Information Sheet, and a link to NOPSEMA's brochure '*Consultation on offshore petroleum environment plans: Information for the community*'.
- On 8 October 2025, as no response had been received, Woodside proactively sent a follow-up email (Record of Consultation, reference 6.2.1).

Summary of Feedback, Objection or Claim	Woodside's Assessment of Merits of Feedback, Objection or Claim	Woodside's Statement of Response	Inclusion in Environment Plan
No feedback, objections or claims about the adverse impact of the activity received despite follow-up.		Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.7.1 of the EP).	No additional measures or controls are required.
Summary Report – Consultation Complete			
Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and considers consultation with AEP for the purpose of regulation 25 complete. Sufficient information, a reasonable period and a reasonable opportunity have been provided, as described in Section 5.4 of the EP and further summarised in the Consultation Approach above. Specifically:			

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Sufficient Information

Woodside has given AEP sufficient information to allow AEP to make an informed assessment of the possible consequences of the activity on its functions, interests or activities because:

- The Consultation Information Sheet for this EP has been publicly available on the Woodside website since September 2025. Woodside gave this information to AEP on 8 September 2025, marking the commencement of consultation on this EP. The Consultation Information Sheet included:
  - The purpose of consultation and set out what was being sought through consultation.
  - A summary of the activity description, location of the activity, timing of the activity, receiving environment, impacts and risks associated with the Petroleum Activity, and proposed mitigation and management measures.
  - A timeframe for consultation and the provision of feedback.
  - A link to NOPSEMA's brochure '*Consultation on offshore petroleum environment plans: Information for the community'.*
  - Advice that relevant persons can request that particular information provided during consultation not be published (to align with 25(4) of the Environment Regulations).

Reasonable Period

Woodside allowed AEP a reasonable period for consultation in the preparation of the EP because:

- A consultation period was stated in the initial correspondence to AEP advising of consultation as well as when consultation closed for the purposes of the preparation of the EP. This enabled Woodside to assess feedback before EP submission.
- Woodside's methodology allows a 45-day consultation period for MSS EPs and Woodside allowed AEP 45 days for consultation.
- Consultation for this EP commenced 6 months ago.
- In this context, Woodside allowed AEP a reasonable period for consultation in preparation of the EP.

Reasonable Opportunity

A reasonable opportunity to provide feedback has been provided because Woodside's approach to consultation with AEP is appropriate and adapted to the nature of interests of AEP:

- Woodside published advertisements in 6 national, state, and relevant local newspapers (see Consultation Activities). This allowed for broad awareness of the activity under the EP and also of consultation.
- Woodside ran a targeted social media campaign (see Consultation Activities). This allowed for broad awareness of the activity under the EP and also of consultation.
- In the absence of feedback, Woodside sent a follow-up consultation email on 8 October 2025, reminding AEP of the opportunity to provide feedback.

Outcomes of Consultation

Woodside has assessed the merits of each objection or claim (if any) about the adverse impact of the activity to which the EP relates, as required under Regulation 24. The measures (if any) that Woodside has adopted or proposes to adopt because of the consultation are appropriate because:

- No additional measures were considered as a result of consultation as AEP did not provide feedback for this EP.
- Woodside will continue to accept and assess feedback throughout the life of the EP and apply its Management of Change and Revision process when applicable.
- The measures and controls described in this EP address the potential impact from the proposed activity on AEP's functions, interests or activities.

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4.9 Local government and elected parliamentary representatives, community groups or organisations

4.9.1 Exmouth Chamber of Commerce and Industry (Exmouth CCI)

Summary of information provided and record of consultation for this EP:

- On 8 September 2025, Woodside emailed Exmouth CCI advising of the proposed activity (Record of Consultation, reference 6.1.9), provided a Consultation Information Sheet, and a link to NOPSEMA's brochure '*Consultation on offshore petroleum environment plans: Information for the community*'.
- On 8 October 2025, as no response had been received, Woodside proactively sent a follow-up email (Record of Consultation, reference 6.2.1).

Summary of Feedback, Objection or Claim	Woodside's Assessment of Merits of Feedback, Objection or Claim	Woodside's Statement of Response	Inclusion in Environment Plan
No feedback, objections or claims about the adverse impact of the activity received despite follow-up.		Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.7.1 of the EP).	No additional measures or controls are required.

Summary Report – Consultation Complete

Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and considers consultation with Exmouth CCI for the purpose of regulation 25 complete. Sufficient information, a reasonable period and a reasonable opportunity have been provided, as described in Section 5.4 of the EP and further summarised in the Consultation Approach above. Specifically:

Sufficient Information

Woodside has given Exmouth CCI sufficient information to allow Exmouth CCI to make an informed assessment of the possible consequences of the activity on its functions, interests or activities because:

- The Consultation Information Sheet for this EP has been publicly available on the Woodside website since September 2025. Woodside gave this information to Exmouth CCI on 8 September 2025, marking the commencement of consultation on this EP. The Consultation Information Sheet included:
  - The purpose of consultation and set out what was being sought through consultation.
  - A summary of the activity description, location of the activity, timing of the activity, receiving environment, impacts and risks associated with the Petroleum Activity, and proposed mitigation and management measures.
  - A timeframe for consultation and the provision of feedback.
  - A link to NOPSEMA's brochure '*Consultation on offshore petroleum environment plans: Information for the community*'.

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– Advice that relevant persons can request that particular information provided during consultation not be published (to align with 25(4) of the Environment Regulations).

Reasonable Period

Woodside allowed Exmouth CCI a reasonable period for consultation in the preparation of the EP because:

- A consultation period was stated in the initial correspondence to Exmouth CCI advising of consultation as well as when consultation closed for the purposes of the preparation of the EP. This enabled Woodside to assess feedback before EP submission.
- Woodside's methodology allows a 45-day consultation period for MSS EPs and Woodside allowed Exmouth CCI 45 days for consultation.
- Consultation for this EP commenced 6 months ago.
- In this context, Woodside allowed Exmouth CCI a reasonable period for consultation in preparation of the EP.

Reasonable Opportunity

A reasonable opportunity to provide feedback has been provided because Woodside's approach to consultation with Exmouth CCI is appropriate and adapted to the nature of interests of Exmouth CCI:

- Woodside published advertisements in 6 national, state, and relevant local newspapers (see Consultation Activities). This allowed for broad awareness of the activity under the EP and also of consultation.
- Woodside ran a targeted social media campaign (see Consultation Activities). This allowed for broad awareness of the activity under the EP and also of consultation.
- Between 5 October 2025 and 18 October 2025, Woodside held, or hosted information stalls at, a number of community events and roadshows in regional areas including the Pilbara to raise awareness of the EP and provide another opportunity for feedback. These events were promoted on social media.
- On 12 November 2025, Woodside hosted an Exmouth Community Liaison Group meeting. The meeting was attended by a representative of the Exmouth CCI and this EP was discussed, providing another opportunity for Exmouth CCI to provide feedback.
- In the absence of feedback, Woodside sent a follow-up consultation email on 8 October 2025, reminding Exmouth CCI of the opportunity to provide feedback.

Outcomes of Consultation

Woodside has assessed the merits of each objection or claim (if any) about the adverse impact of the activity to which the EP relates, as required under Regulation 24. The measures (if any) that Woodside has adopted or proposes to adopt because of the consultation are appropriate because:

- No additional measures were considered as a result of consultation as Exmouth CCI did not provide feedback for this EP.
- Woodside will continue to accept and assess feedback throughout the life of the EP and apply its Management of Change and Revision process when applicable.
- The measures and controls described in this EP address the potential impact from the proposed activity on Exmouth CCI's functions, interests or activities.

4.9.2 Karratha and Districts Chamber of Commerce and Industry (Karratha and Districts CCI)

Summary of information provided and record of consultation for this EP:

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- On 8 September 2025, Woodside emailed Karratha and Districts CCI advising of the proposed activity (Record of Consultation, reference 6.1.9), provided a Consultation Information Sheet, and a link to NOPSEMA's brochure '*Consultation on offshore petroleum environment plans: Information for the community*'.
- On 8 October 2025, as no response had been received, Woodside proactively sent a follow-up email (Record of Consultation, reference 6.2.1).

Summary of Feedback, Objection or Claim	Woodside's Assessment of Merits of Feedback, Objection or Claim	Woodside's Statement of Response	Inclusion in Environment Plan
No feedback, objections or claims about the adverse impact of the activity received despite follow-up.		Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.7.1 of the EP).	No additional measures or controls are required.

Summary Report – Consultation Complete

Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and considers consultation with Karratha and Districts CCI for the purpose of regulation 25 complete. Sufficient information, a reasonable period and a reasonable opportunity have been provided, as described in Section 5.4 of the EP and further summarised in the Consultation Approach above. Specifically:

Sufficient Information

Woodside has given Karratha and Districts CCI sufficient information to allow Karratha and Districts CCI to make an informed assessment of the possible consequences of the activity on its functions, interests or activities because:

- The Consultation Information Sheet for this EP has been publicly available on the Woodside website since September 2025. Woodside gave this information to Karratha and Districts CCI on 8 September 2025, marking the commencement of consultation on this EP. The Consultation Information Sheet included:
  - The purpose of consultation and set out what was being sought through consultation.
  - A summary of the activity description, location of the activity, timing of the activity, receiving environment, impacts and risks associated with the Petroleum Activity, and proposed mitigation and management measures.
  - A timeframe for consultation and the provision of feedback.
  - A link to NOPSEMA's brochure '*Consultation on offshore petroleum environment plans: Information for the community*'.
  - Advice that relevant persons can request that particular information provided during consultation not be published (to align with 25(4) of the Environment Regulations).

Reasonable Period

Woodside allowed Karratha and Districts CCI a reasonable period for consultation in the preparation of the EP because:

- A consultation period was stated in the initial correspondence to Karratha and Districts CCI advising of consultation as well as when consultation closed for the purposes of the preparation of the EP. This enabled Woodside to assess feedback before EP submission.
- Woodside's methodology allows a 45-day consultation period for MSS EPs and Woodside allowed Karratha and Districts CCI 45 days for consultation.

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- Consultation for this EP commenced 6 months ago.
- In this context, Woodside allowed Karratha and Districts CCI a reasonable period for consultation in preparation of the EP.

Reasonable Opportunity

A reasonable opportunity to provide feedback has been provided because Woodside's approach to consultation with Karratha and Districts CCI is appropriate and adapted to the nature of interests of Karratha and Districts CCI:

- Woodside published advertisements in 6 national, state, and relevant local newspapers (see Consultation Activities). This allowed for broad awareness of the activity under the EP and also of consultation.
- Woodside ran a targeted social media campaign (see Consultation Activities). This allowed for broad awareness of the activity under the EP and also of consultation.
- On 25 September 2025, Woodside hosted a Karratha Community Liaison Group meeting. The meeting was attended by a representative of the Karratha and Districts CCI and this EP was discussed, providing another opportunity for Karratha and Districts CCI to provide feedback.
- Between 5 October 2025 and 18 October 2025, Woodside held, or hosted information stalls at, a number of community events and roadshows in regional areas including the Pilbara to raise awareness of the EP and provide another opportunity for feedback. These events were promoted on social media.
- In the absence of feedback, Woodside sent a follow-up consultation email on 8 October 2025, reminding Karratha and Districts CCI of the opportunity to provide feedback.

Outcomes of Consultation

Woodside has assessed the merits of each objection or claim (if any) about the adverse impact of the activity to which the EP relates, as required under Regulation 24. The measures (if any) that Woodside has adopted or proposes to adopt because of the consultation are appropriate because:

- No additional measures were considered as a result of consultation as Karratha and Districts CCI did not provide feedback for this EP.
- Woodside will continue to accept and assess feedback throughout the life of the EP and apply its Management of Change and Revision process when applicable.
- The measures and controls described in this EP address the potential impact from the proposed activity on Karratha and Districts CCI's functions, interests or activities.

4.9.3 Onslow Chamber of Commerce and Industry (Onslow CCI)

Summary of information provided and record of consultation for this EP:

- On 8 September 2025, Woodside emailed Onslow CCI advising of the proposed activity (Record of Consultation, reference 6.1.9), provided a Consultation Information Sheet, and a link to NOPSEMA's brochure '*Consultation on offshore petroleum environment plans: Information for the community*'.
- On 8 October 2025, as no response had been received, Woodside proactively sent a follow-up email (Record of Consultation, reference 6.2.1).

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Summary of Feedback, Objection or Claim	Woodside's Assessment of Merits of Feedback, Objection or Claim	Woodside's Statement of Response	Inclusion in Environment Plan
No feedback, objections or claims about the adverse impact of the activity received despite follow-up.		Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.7.1 of the EP).	No additional measures or controls are required.

Summary Report – Consultation Complete

Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and considers consultation with Onslow CCI for the purpose of regulation 25 complete. Sufficient information, a reasonable period and a reasonable opportunity have been provided, as described in Section 5.4 of the EP and further summarised in the Consultation Approach above. Specifically:

Sufficient Information

Woodside has given Onslow CCI sufficient information to allow Onslow CCI to make an informed assessment of the possible consequences of the activity on its functions, interests or activities because:

- The Consultation Information Sheet for this EP has been publicly available on the Woodside website since September 2025. Woodside gave this information to Onslow CCI on 8 September 2025, marking the commencement of consultation on this EP. The Consultation Information Sheet included:
  - The purpose of consultation and set out what was being sought through consultation.
  - A summary of the activity description, location of the activity, timing of the activity, receiving environment, impacts and risks associated with the Petroleum Activity, and proposed mitigation and management measures.
  - A timeframe for consultation and the provision of feedback.
  - A link to NOPSEMA's brochure '*Consultation on offshore petroleum environment plans: Information for the community*'.
  - Advice that relevant persons can request that particular information provided during consultation not be published (to align with 25(4) of the Environment Regulations).

Reasonable Period

Woodside allowed Onslow CCI a reasonable period for consultation in the preparation of the EP because:

- A consultation period was stated in the initial correspondence to Onslow CCI advising of consultation as well as when consultation closed for the purposes of the preparation of the EP. This enabled Woodside to assess feedback before EP submission.
- Woodside's methodology allows a 45-day consultation period for MSS EPs and Woodside allowed Onslow CCI 45 days for consultation.
- Consultation for this EP commenced 6 months ago.
- In this context, Woodside allowed Onslow CCI a reasonable period for consultation in preparation of the EP.

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Reasonable Opportunity

A reasonable opportunity to provide feedback has been provided because Woodside's approach to consultation with Onslow CCI is appropriate and adapted to the nature of interests of Onslow CCI:

- Woodside published advertisements in 6 national, state, and relevant local newspapers (see Consultation Activities). This allowed for broad awareness of the activity under the EP and also of consultation.
- Woodside ran a targeted social media campaign (see Consultation Activities). This allowed for broad awareness of the activity under the EP and also of consultation.
- Between 5 October 2025 and 18 October 2025, Woodside held, or hosted information stalls at, a number of community events and roadshows in regional areas including the Pilbara to raise awareness of the EP and provide another opportunity for feedback. These events were promoted on social media.
- In the absence of feedback, Woodside sent a follow-up consultation email on 8 October 2025, reminding Onslow CCI of the opportunity to provide feedback.

Outcomes of Consultation

Woodside has assessed the merits of each objection or claim (if any) about the adverse impact of the activity to which the EP relates, as required under Regulation 24. The measures (if any) that Woodside has adopted or proposes to adopt because of the consultation are appropriate because:

- No additional measures were considered as a result of consultation as Onslow CCI did not provide feedback for this EP.
- Woodside will continue to accept and assess feedback throughout the life of the EP and apply its Management of Change and Revision process when applicable.
- The measures and controls described in this EP address the potential impact from the proposed activity on Onslow CCI's functions, interests or activities.

4.9.4 Exmouth Community Liaison Group (Exmouth CLG)

Summary of information provided and record of consultation for this EP:

- On 8 September 2025, Woodside emailed Exmouth CLG advising of the proposed activity (Record of Consultation, reference 6.1.9), provided a Consultation Information Sheet, and a link to NOPSEMA's brochure '*Consultation on offshore petroleum environment plans: Information for the community*'.
- On 8 October 2025, as no response had been received, Woodside proactively sent a follow-up email (Record of Consultation, reference 6.2.1).
- On 12 November 2025, Woodside presented to the Exmouth CLG on EP consultation requirements and Woodside activities, including activities for this EP (SI Report A, reference 17.1). Woodside provided an overview of the Pluto 4D M3 Marine Seismic Survey EP including location, timing, technical details and history of the Pluto field. No feedback was received on the EP.
  - The slides included a QR code and a URL for the Consultation Activities page of the Woodside website.
  - 10 CLG members attended the meeting representing:
    - Shire of Exmouth
    - Gascoyne Development Commission
    - WA Country Health Service
    - Exmouth Chamber of Commerce and Industry

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- PHI
- St John WA

- On 28 November 2025, Woodside's November presentation pack was emailed to CLG members regardless of their attendance at the meeting.

Summary of Feedback, Objection or Claim	Assessment of Merits of Feedback, Objection or Claim	Woodside's Response	Inclusion in Environment Plan
No feedback, objections or claims received despite follow-up.		Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.7.1 of the EP).	No additional measures or controls are required.

Summary Report – Consultation Complete

Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and considers consultation with Exmouth CLG for the purpose of regulation 25 complete. Sufficient information, a reasonable period and a reasonable opportunity have been provided, as described in Section 5.4 of the EP and further summarised in the Consultation Approach above. Specifically:

Sufficient Information

Woodside has given Exmouth CLG sufficient information to allow Exmouth CLG to make an informed assessment of the possible consequences of the activity on its functions, interests or activities because:

- The Consultation Information Sheet for this EP has been publicly available on the Woodside website since September 2025. Woodside gave this information to Exmouth CLG on 8 September 2025, marking the commencement of consultation on this EP. The Consultation Information Sheet included:
  - The purpose of consultation and set out what was being sought through consultation.
  - A summary of the activity description, location of the activity, timing of the activity, receiving environment, impacts and risks associated with the Petroleum Activity, and proposed mitigation and management measures.
  - A timeframe for consultation and the provision of feedback.
  - A link to NOPSEMA's brochure '*Consultation on offshore petroleum environment plans: Information for the community'.*
  - Advice that relevant persons can request that particular information provided during consultation not be published (to align with 25(4) of the Environment Regulations).

Reasonable Period

Woodside allowed Exmouth CLG a reasonable period for consultation in the preparation of the EP because:

- A consultation period was stated in the initial correspondence to Exmouth CLG advising of consultation as well as when consultation closed for the purposes of the preparation of the EP. This enabled Woodside to assess feedback before EP submission.
- Woodside's methodology allows a 45-day consultation period for MSS EPs and Woodside allowed Exmouth CLG 45 days for consultation.

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- To accommodate the Exmouth CLG meeting on 12 November 2025, Woodside extended consultation for the Exmouth CLG until one week after the meeting.
- Consultation for this EP commenced 6 months ago.
- In this context, Woodside allowed Exmouth CLG a reasonable period for consultation in preparation of the EP.

Reasonable Opportunity

A reasonable opportunity to provide feedback has been provided because Woodside's approach to consultation with Exmouth CLG is appropriate and adapted to the nature of interests of Exmouth CLG:

- Woodside published advertisements in 6 national, state, and relevant local newspapers (see Consultation Activities). This allowed for broad awareness of the activity under the EP and also of consultation.
- Woodside ran a targeted social media campaign (see Consultation Activities). This allowed for broad awareness of the activity under the EP and also of consultation.
- In the absence of feedback, Woodside sent a follow-up consultation email on 8 October 2025, reminding Exmouth CLG of the opportunity to provide feedback.
- Between 5 October 2025 and 18 October 2025, Woodside held, or hosted information stalls at, a number of community events and roadshows in regional areas including the Pilbara to raise awareness of the EP and provide another opportunity for feedback. These events were promoted with newspaper and/or social media advertising.
- On 12 November 2025, Woodside hosted an Exmouth CLG meeting, discussed this EP and advised it would accept feedback from CLG members for an additional week after the meeting, providing CLG members with another opportunity to give feedback.

Outcomes of Consultation

Woodside has assessed the merits of each objection or claim (if any) about the adverse impact of the activity to which the EP relates, as required under Regulation 24. The measures (if any) that Woodside has adopted or proposes to adopt because of the consultation are appropriate because:

- No additional measures were considered as a result of consultation as Exmouth CLG did not provide feedback for this EP.
- Woodside will continue to accept and assess feedback throughout the life of the EP and apply its Management of Change and Revision process when applicable.
- The measures and controls described in this EP address the potential impact from the proposed activity on Exmouth CLG's functions, interests or activities.

4.9.5 Karratha Community Liaison Group (Karratha CLG)

Summary of information provided and record of consultation for this EP:

- On 8 September 2025, Woodside emailed Karratha CLG advising of the proposed activity (Record of Consultation, reference 6.1.9), provided a Consultation Information Sheet, and a link to NOPSEMA's brochure '*Consultation on offshore petroleum environment plans: Information for the community*'.
- On 8 October 2025, as no response had been received, Woodside proactively sent a follow-up email (Record of Consultation, reference 6.2.1).
- On 25 September 2025, Woodside presented to the Karratha CLG on EP consultation requirements and Woodside activities, including activities for this EP (SI Report A, reference 18.1). Woodside presented slides on how it consults relevant persons in the course of preparing EPs and provided information on relevant persons and EMBAs and an overview of the Pluto 4D M3 Marine Seismic Survey EP. Woodside provided a general explanation of marine seismic surveys and how they work, as well as details specific to this seismic EP.

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  - The slides included a QR code and a URL for the Consultation Activities page of the Woodside website.
  - 9 CLG members attended the meeting representing:
    - City of Karratha
    - Department of Education
    - Dampier Community Association
    - Karratha Central Healthcare
    - Karratha & Districts Chamber of Commerce and Industry
    - Pilbara Ports
    - Department of Creative Industries, Tourism and Sport
    - Community member x 2
  - No feedback was provided for this EP.
- On 26 September 2025, Woodside's September presentation summary pack to the CLG was emailed to the CLG members regardless of their attendance at the meeting.

Summary of Feedback, Objection or Claim	Assessment of Merits of Feedback, Objection or Claim	Woodside's Response	Inclusion in Environment Plan
No feedback, objections or claims received despite follow-up.		Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.7.1 of the EP).	No additional measures or controls are required.

Summary Report – Consultation Complete

Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and considers consultation with Karratha CLG for the purpose of regulation 25 complete. Sufficient information, a reasonable period and a reasonable opportunity have been provided, as described in Section 5.4 of the EP and further summarised in the Consultation Approach above. Specifically:

Sufficient Information

Woodside has given Karratha CLG sufficient information to allow Karratha CLG to make an informed assessment of the possible consequences of the activity on its functions, interests or activities because:

- The Consultation Information Sheet for this EP has been publicly available on the Woodside website since September 2025. Woodside gave this information to Karratha CLG on 8 September 2025, marking the commencement of consultation on this EP. The Consultation Information Sheet included:
  - The purpose of consultation and set out what was being sought through consultation.

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- A summary of the activity description, location of the activity, timing of the activity, receiving environment, impacts and risks associated with the Petroleum Activity, and proposed mitigation and management measures.
- A timeframe for consultation and the provision of feedback.
- A link to NOPSEMA's brochure '*Consultation on offshore petroleum environment plans: Information for the community*'.
- Advice that relevant persons can request that particular information provided during consultation not be published (to align with 25(4) of the Environment Regulations).

Reasonable Period

Woodside allowed Karratha CLG a reasonable period for consultation in the preparation of the EP because:

- A consultation period was stated in the initial correspondence to Karratha CLG advising of consultation as well as when consultation closed for the purposes of the preparation of the EP. This enabled Woodside to assess feedback before EP submission.
- Woodside's methodology allows a 45-day consultation period for MSS EPs and Woodside allowed Karratha CLG 45 days for consultation.
- Consultation for this EP commenced 6 months ago.
- In this context, Woodside allowed Karratha CLG a reasonable period for consultation in preparation of the EP.

Reasonable Opportunity

A reasonable opportunity to provide feedback has been provided because Woodside's approach to consultation with Karratha CLG is appropriate and adapted to the nature of interests of Karratha CLG:

- Woodside published advertisements in 6 national, state, and relevant local newspapers (see Consultation Activities). This allowed for broad awareness of the activity under the EP and also of consultation.
- Woodside ran a targeted social media campaign (see Consultation Activities). This allowed for broad awareness of the activity under the EP and also of consultation.
- On 25 September 2025, Woodside hosted a Karratha CLG meeting, discussed this EP and sought feedback, providing Karratha CLG members with another opportunity to provide feedback.
- Between 5 October 2025 and 18 October 2025, Woodside held, or hosted information stalls at, a number of community events and roadshows in regional areas including the Pilbara to raise awareness of the EP and provide another opportunity for feedback. These events were promoted with newspaper and/or social media advertising.
- In the absence of feedback, Woodside sent a follow-up consultation email on 8 October 2024, reminding Karratha CLG of the opportunity to provide feedback.

Outcomes of Consultation

Woodside has assessed the merits of each objection or claim (if any) about the adverse impact of the activity to which the EP relates, as required under Regulation 24. The measures (if any) that Woodside has adopted or proposes to adopt because of the consultation are appropriate because:

- No additional measures were considered as a result of consultation as Karratha CLG did not provide feedback for this EP.
- Woodside will continue to accept and assess feedback throughout the life of the EP and apply its Management of Change and Revision process when applicable.
- The measures and controls described in this EP address the potential impact from the proposed activity on Karratha CLG's functions, interests or activities.

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4.9.6 City of Karratha

Summary of information provided and record of consultation for this EP:

- On 8 September 2025, Woodside emailed City of Karratha advising of the proposed activity (Record of Consultation, reference 6.1.9), provided a Consultation Information Sheet, and a link to NOPSEMA's brochure '*Consultation on offshore petroleum environment plans: Information for the community*'.
- On 8 October 2025, as no response had been received, Woodside proactively sent a follow-up email (Record of Consultation, reference 6.2.1).

Summary of Feedback, Objection or Claim	Woodside's Assessment of Merits of Feedback, Objection or Claim	Woodside's Statement of Response	Inclusion in Environment Plan
No feedback, objections or claims about the adverse impact of the activity received despite follow-up.		Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.7.1 of the EP).	No additional measures or controls are required.

Summary Report – Consultation Complete

Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and considers consultation with City of Karratha for the purpose of regulation 25 complete. Sufficient information, a reasonable period and a reasonable opportunity have been provided, as described in Section 5.4 of the EP and further summarised in the Consultation Approach above. Specifically:

Sufficient Information

Woodside has given City of Karratha sufficient information to allow City of Karratha to make an informed assessment of the possible consequences of the activity on its functions, interests or activities because:

- The Consultation Information Sheet for this EP has been publicly available on the Woodside website since September 2025. Woodside gave this information to City of Karratha on 8 September 2025, marking the commencement of consultation on this EP. The Consultation Information Sheet included:
  - The purpose of consultation and set out what was being sought through consultation.
  - A summary of the activity description, location of the activity, timing of the activity, receiving environment, impacts and risks associated with the Petroleum Activity, and proposed mitigation and management measures.
  - A timeframe for consultation and the provision of feedback.
  - A link to NOPSEMA's brochure '*Consultation on offshore petroleum environment plans: Information for the community*'.
  - Advice that relevant persons can request that particular information provided during consultation not be published (to align with 25(4) of the Environment Regulations).

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Reasonable Period

Woodside allowed City of Karratha a reasonable period for consultation in the preparation of the EP because:

- A consultation period was stated in the initial correspondence to City of Karratha advising of consultation as well as when consultation closed for the purposes of the preparation of the EP. This enabled Woodside to assess feedback before EP submission.
- Woodside's methodology allows a 45-day consultation period for MSS EPs and Woodside allowed City of Karratha 45 days for consultation.
- Consultation for this EP commenced 6 months ago.
- In this context, Woodside allowed City of Karratha a reasonable period for consultation in preparation of the EP.

Reasonable Opportunity

A reasonable opportunity to provide feedback has been provided because Woodside's approach to consultation with City of Karratha is appropriate and adapted to the nature of interests of City of Karratha:

- Woodside published advertisements in 6 national, state, and relevant local newspapers (see Consultation Activities). This allowed for broad awareness of the activity under the EP and also of consultation.
- Woodside ran a targeted social media campaign (see Consultation Activities). This allowed for broad awareness of the activity under the EP and also of consultation.
- Between 5 October 2025 and 18 October 2025, Woodside held, or hosted information stalls at, a number of community events and roadshows in regional areas including the Pilbara to raise awareness of the EP and provide another opportunity for feedback. These events were promoted with newspaper and/or social media advertising.
- In the absence of feedback, Woodside sent a follow-up consultation email on 8 October 2025, reminding City of Karratha of the opportunity to provide feedback.

Outcomes of Consultation

Woodside has assessed the merits of each objection or claim (if any) about the adverse impact of the activity to which the EP relates, as required under Regulation 24. The measures (if any) that Woodside has adopted or proposes to adopt because of the consultation are appropriate because:

- No additional measures were considered as a result of consultation as City of Karratha did not provide feedback for this EP.
- Woodside will continue to accept and assess feedback throughout the life of the EP and apply its Management of Change and Revision process when applicable.
- The measures and controls described in this EP address the potential impact from the proposed activity on City of Karratha's functions, interests or activities.

4.9.7 Shire of Ashburton

Summary of information provided and record of consultation for this EP:

- On 8 September 2025, Woodside emailed Shire of Ashburton advising of the proposed activity (Record of Consultation, reference 6.1.24), provided a Consultation Information Sheet, and a link to NOPSEMA's brochure '*Consultation on offshore petroleum environment plans: Information for the community*'.
- On 8 October 2025, as no response had been received, Woodside proactively sent a follow-up email (Record of Consultation, reference 6.2.1).

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Summary of Feedback, Objection or Claim	Woodside's Assessment of Merits of Feedback, Objection or Claim	Woodside's Statement of Response	Inclusion in Environment Plan
No feedback, objections or claims about the adverse impact of the activity received despite follow-up.		Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.7.1 of the EP).	No additional measures or controls are required.

Summary Report – Consultation Complete

Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and considers consultation with Shire of Ashburton for the purpose of regulation 25 complete. Sufficient information, a reasonable period and a reasonable opportunity have been provided, as described in Section 5.4 of the EP and further summarised in the Consultation Approach above. Specifically:

Sufficient Information

Woodside has given Shire of Ashburton sufficient information to allow Shire of Ashburton to make an informed assessment of the possible consequences of the activity on its functions, interests or activities because:

- The Consultation Information Sheet for this EP has been publicly available on the Woodside website since September 2025. Woodside gave this information to Shire of Ashburton on 8 September 2025, marking the commencement of consultation on this EP. The Consultation Information Sheet included:
  - The purpose of consultation and set out what was being sought through consultation.
  - A summary of the activity description, location of the activity, timing of the activity, receiving environment, impacts and risks associated with the Petroleum Activity, and proposed mitigation and management measures.
  - A timeframe for consultation and the provision of feedback.
  - A link to NOPSEMA's brochure '*Consultation on offshore petroleum environment plans: Information for the community'*.
  - Advice that relevant persons can request that particular information provided during consultation not be published (to align with 25(4) of the Environment Regulations).

Reasonable Period

Woodside allowed Shire of Ashburton a reasonable period for consultation in the preparation of the EP because:

- A consultation period was stated in the initial correspondence to Shire of Ashburton advising of consultation as well as when consultation closed for the purposes of the preparation of the EP. This enabled Woodside to assess feedback before EP submission.
- Woodside's methodology allows a 45-day consultation period for MSS EPs and Woodside allowed Shire of Ashburton 45 days for consultation.
- Consultation for this EP commenced 6 months ago.
- In this context, Woodside allowed Shire of Ashburton a reasonable period for consultation in preparation of the EP.

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Reasonable Opportunity

A reasonable opportunity to provide feedback has been provided because Woodside's approach to consultation with Shire of Ashburton is appropriate and adapted to the nature of interests of Shire of Ashburton:

- Woodside published advertisements in 6 national, state, and relevant local newspapers (see Consultation Activities). This allowed for broad awareness of the activity under the EP and also of consultation.
- Woodside ran a targeted social media campaign (see Consultation Activities). This allowed for broad awareness of the activity under the EP and also of consultation.
- In the absence of feedback, Woodside sent a follow-up consultation email on 8 October 2025, reminding Shire of Ashburton of the opportunity to provide feedback.

Outcomes of Consultation

Woodside has assessed the merits of each objection or claim (if any) about the adverse impact of the activity to which the EP relates, as required under Regulation 24. The measures (if any) that Woodside has adopted or proposes to adopt because of the consultation are appropriate because:

- No additional measures were considered as a result of consultation as Shire of Ashburton did not provide feedback for this EP.
- Woodside will continue to accept and assess feedback throughout the life of the EP and apply its Management of Change and Revision process when applicable.
- The measures and controls described in this EP address the potential impact from the proposed activity on Shire of Ashburton's functions, interests or activities.

4.9.8 Shire of Exmouth

Summary of information provided and record of consultation for this EP:

- On 8 September 2025, Woodside emailed Shire of Exmouth advising of the proposed activity (Record of Consultation, reference 6.1.9), provided a Consultation Information Sheet, and a link to NOPSEMA's brochure '*Consultation on offshore petroleum environment plans: Information for the community*'.
- On 8 October 2025, as no response had been received, Woodside proactively sent a follow-up email (Record of Consultation, reference 6.2.1).

Summary of Feedback, Objection or Claim	Woodside's Assessment of Merits of Feedback, Objection or Claim	Woodside's Statement of Response	Inclusion in Environment Plan
No feedback, objections or claims about the adverse impact of the activity received despite follow-up.		Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.7.1 of the EP).	No additional measures or controls are required.
Summary Report – Consultation Complete			

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Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and considers consultation with Shire of Exmouth for the purpose of regulation 25 complete. Sufficient information, a reasonable period and a reasonable opportunity have been provided, as described in Section 5.4 of the EP and further summarised in the Consultation Approach above. Specifically:

Sufficient Information

Woodside has given Shire of Exmouth sufficient information to allow Shire of Exmouth to make an informed assessment of the possible consequences of the activity on its functions, interests or activities because:

- The Consultation Information Sheet for this EP has been publicly available on the Woodside website since September 2025. Woodside gave this information to Shire of Exmouth on 8 September 2025, marking the commencement of consultation on this EP. The Consultation Information Sheet included:
  - The purpose of consultation and set out what was being sought through consultation.
  - A summary of the activity description, location of the activity, timing of the activity, receiving environment, impacts and risks associated with the Petroleum Activity, and proposed mitigation and management measures.
  - A timeframe for consultation and the provision of feedback.
  - A link to NOPSEMA's brochure '*Consultation on offshore petroleum environment plans: Information for the community'*.
  - Advice that relevant persons can request that particular information provided during consultation not be published (to align with 25(4) of the Environment Regulations).

Reasonable Period

Woodside allowed Shire of Exmouth a reasonable period for consultation in the preparation of the EP because:

- A consultation period was stated in the initial correspondence to Shire of Exmouth advising of consultation as well as when consultation closed for the purposes of the preparation of the EP. This enabled Woodside to assess feedback before EP submission.
- Woodside's methodology allows a 45-day consultation period for MSS EPs and Woodside allowed Shire of Exmouth 45 days for consultation.
- Consultation for this EP commenced 6 months ago.
- In this context, Woodside allowed Shire of Exmouth a reasonable period for consultation in preparation of the EP.

Reasonable Opportunity

A reasonable opportunity to provide feedback has been provided because Woodside's approach to consultation with Shire of Exmouth is appropriate and adapted to the nature of interests of Shire of Exmouth:

- Woodside published advertisements in 6 national, state, and relevant local newspapers (see Consultation Activities). This allowed for broad awareness of the activity under the EP and also of consultation.
- Woodside ran a targeted social media campaign (see Consultation Activities). This allowed for broad awareness of the activity under the EP and also of consultation.
- Between 5 October 2025 and 18 October 2025, Woodside held, or hosted information stalls at, a number of community events and roadshows in regional areas including the Pilbara to raise awareness of the EP and provide another opportunity for feedback. These events were promoted with newspaper and/or social media advertising.
- On 12 November 2025, Woodside hosted an Exmouth Community Liaison Group meeting. The meeting was attended by a representative of the Shire of Exmouth and this EP was discussed, providing another opportunity for Shire of Exmouth to provide feedback.
- In the absence of feedback, Woodside sent a follow-up consultation email on 8 October 2025, reminding Shire of Exmouth of the opportunity to provide feedback.

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Outcomes of Consultation

Woodside has assessed the merits of each objection or claim (if any) about the adverse impact of the activity to which the EP relates, as required under Regulation 24. The measures (if any) that Woodside has adopted or proposes to adopt because of the consultation are appropriate because:

- No additional measures were considered as a result of consultation as Shire of Exmouth did not provide feedback for this EP.
- Woodside will continue to accept and assess feedback throughout the life of the EP and apply its Management of Change and Revision process when applicable.
- The measures and controls described in this EP address the potential impact from the proposed activity on Shire of Exmouth's functions, interests or activities.

4.10 Other non-government groups or organisations (NGOs) or individuals

4.10.1 Australian Marine Conservation Society (AMCS)

Summary of information provided and record of consultation for this EP:

- On 8 September 2025, Woodside emailed AMCS advising of the proposed activity (Record of Consultation, reference 6.1.9), provided a Consultation Information Sheet, and a link to NOPSEMA's brochure '*Consultation on offshore petroleum environment plans: Information for the community*'.
- On 8 October 2025, as no response had been received, Woodside proactively sent a follow-up email (Record of Consultation, reference 6.2.1).
- On 23 March 2026, AMCS emailed noting it had missed the public comment period but wished to provide feedback on the EP, and attached a letter (SI Report A, reference 23.1).
- On 23 March 2026, Woodside thanked AMCS for its correspondence and advised it was preparing a response (SI Report A, reference 23.2).

Summary of Feedback, Objection or Claim	Woodside's Assessment of Merits of Feedback, Objection or Claim	Woodside's Statement of Response	Inclusion in Environment Plan
Feedback, objections or claims about the adverse impact of the activity received.		Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.7.1 of the EP).	No additional measures or controls included.
Summary Report – Consultation Complete			

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Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and considers consultation with AMCS for the purpose of regulation 25 complete. Sufficient information, a reasonable period and a reasonable opportunity have been provided, as described in Section 5.4 of the EP and further summarised in the Consultation Approach above. Specifically:

Sufficient Information

Woodside has given AMCS sufficient information to allow AMCS to make an informed assessment of the possible consequences of the activity on its functions, interests or activities because:

- The Consultation Information Sheet for this EP has been publicly available on the Woodside website since September 2025. Woodside gave this information to AMCS on 8 September 2025, marking the commencement of consultation on this EP. The Consultation Information Sheet included:
  - The purpose of consultation and set out what was being sought through consultation.
  - A summary of the activity description, location of the activity, timing of the activity, receiving environment, impacts and risks associated with the Petroleum Activity, and proposed mitigation and management measures.
  - A timeframe for consultation and the provision of feedback.
  - A link to NOPSEMA's brochure '*Consultation on offshore petroleum environment plans: Information for the community'*.
  - Advice that relevant persons can request that particular information provided during consultation not be published (to align with 25(4) of the Environment Regulations).

Reasonable Period

Woodside allowed AMCS a reasonable period for consultation in the preparation of the EP because:

- A consultation period was stated in the initial correspondence to AMCS advising of consultation as well as when consultation closed for the purposes of the preparation of the EP. This enabled Woodside to assess feedback before EP submission.
- Woodside's methodology allows a 45-day consultation period for MSS EPs and Woodside allowed AMCS 45 days for consultation.
- Consultation for this EP commenced 6 months ago.
- In this context, Woodside allowed AMCS a reasonable period for consultation in preparation of the EP.

Reasonable Opportunity

A reasonable opportunity to provide feedback has been provided because Woodside's approach to consultation with AMCS is appropriate and adapted to the nature of interests of AMCS:

- Woodside published advertisements in 6 national, state, and relevant local newspapers (see Consultation Activities). This allowed for broad awareness of the activity under the EP and also of consultation.
- Woodside ran a targeted social media campaign (see Consultation Activities). This allowed for broad awareness of the activity under the EP and also of consultation.
- Between 5 October 2025 and 18 October 2025, Woodside held, or hosted information stalls at, a number of community events and roadshows in regional areas including the Pilbara to raise awareness of the EP and provide another opportunity for feedback. These events were promoted with newspaper and/or social media advertising.
- In the absence of feedback, Woodside sent a follow-up consultation email on 8 October 2025, reminding AMCS of the opportunity to provide feedback.
- Woodside also consulted the Protect Ningaloo conservation program, which is hosted by AMCS, providing AMCS with another opportunity to provide feedback.

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Outcomes of Consultation

Woodside has received feedback from AMCS and is assessing the merits of each objection or claim (if any) about the adverse impact of the activity to which the EP relates, in accordance with Regulation 24. At the time of submission:

- No additional controls or measures have been identified as a result of consultation with AMCS.
- Woodside will continue to accept and assess feedback throughout the life of the EP and apply its Management of Change and Revision process when applicable.
- The measures and controls described in this EP have been developed to address the potential impact from the proposed activity on AMCS's functions, interests or activities.

4.10.2 Greenpeace Australia Pacific (GAP)

Summary of information provided and record of consultation for this EP:

- On 8 September 2025, Woodside emailed GAP advising of the proposed activity (Record of Consultation, reference 6.1.9), provided a Consultation Information Sheet, and a link to NOPSEMA's brochure '*Consultation on offshore petroleum environment plans: Information for the community'*.
- On 8 October 2025, as no response had been received, Woodside proactively sent a follow-up email (Record of Consultation, reference 6.2.1).

Summary of Feedback, Objection or Claim	Woodside's Assessment of Merits of Feedback, Objection or Claim	Woodside's Statement of Response	Inclusion in Environment Plan
No feedback, objections or claims about the adverse impact of the activity received despite follow-up.		Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.7.1 of the EP).	No additional measures or controls are required.

Summary Report – Consultation Complete

Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and considers consultation with GAP for the purpose of regulation 25 complete. Sufficient information, a reasonable period and a reasonable opportunity have been provided, as described in Section 5.4 of the EP and further summarised in the Consultation Approach above. Specifically:

Sufficient Information

Woodside has given GAP sufficient information to allow GAP to make an informed assessment of the possible consequences of the activity on its functions, interests or activities because:

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- The Consultation Information Sheet for this EP has been publicly available on the Woodside website since September 2025. Woodside gave this information to GAP on 8 September 2025, marking the commencement of consultation on this EP. The Consultation Information Sheet included:
  - The purpose of consultation and set out what was being sought through consultation.
  - A summary of the activity description, location of the activity, timing of the activity, receiving environment, impacts and risks associated with the Petroleum Activity, and proposed mitigation and management measures.
  - A timeframe for consultation and the provision of feedback.
  - A link to NOPSEMA's brochure '*Consultation on offshore petroleum environment plans: Information for the community'.*
  - Advice that relevant persons can request that particular information provided during consultation not be published (to align with 25(4) of the Environment Regulations).

Reasonable Period

Woodside allowed GAP a reasonable period for consultation in the preparation of the EP because:

- A consultation period was stated in the initial correspondence to GAP advising of consultation as well as when consultation closed for the purposes of the preparation of the EP. This enabled Woodside to assess feedback before EP submission.
- Woodside's methodology allows a 45-day consultation period for MSS EPs and Woodside allowed GAP 45 days for consultation.
- Consultation for this EP commenced 6 months ago.
- In this context, Woodside allowed GAP a reasonable period for consultation in preparation of the EP.

Reasonable Opportunity

A reasonable opportunity to provide feedback has been provided because Woodside's approach to consultation with GAP is appropriate and adapted to the nature of interests of GAP:

- Woodside published advertisements in 6 national, state, and relevant local newspapers (see Consultation Activities). This allowed for broad awareness of the activity under the EP and also of consultation.
- Woodside ran a targeted social media campaign (see Consultation Activities). This allowed for broad awareness of the activity under the EP and also of consultation.
- Between 5 October 2025 and 18 October 2025, Woodside held, or hosted information stalls at, a number of community events and roadshows in regional areas including the Pilbara to raise awareness of the EP and provide another opportunity for feedback. These events were promoted with newspaper and/or social media advertising.
- In the absence of feedback, Woodside sent a follow-up consultation email on 8 October 2025, reminding GAP of the opportunity to provide feedback.

Outcomes of Consultation

Woodside has assessed the merits of each objection or claim (if any) about the adverse impact of the activity to which the EP relates, as required under Regulation 24. The measures (if any) that Woodside has adopted or proposes to adopt because of the consultation are appropriate because:

- No additional measures were considered as a result of consultation as GAP did not provide feedback for this EP.
- Woodside will continue to accept and assess feedback throughout the life of the EP and apply its Management of Change and Revision process when applicable.
- The measures and controls described in this EP address the potential impact from the proposed activity on GAP's functions, interests or activities.

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4.10.3 Conservation Council of Western Australia (CCWA)

Summary of information provided and record of consultation for this EP:

- On 8 September 2025, Woodside emailed CCWA advising of the proposed activity (Record of Consultation, reference 6.1.9), provided a Consultation Information Sheet, and a link to NOPSEMA's brochure '*Consultation on offshore petroleum environment plans: Information for the community*'.
- On 8 October 2025, as no response had been received, Woodside proactively sent a follow-up email (Record of Consultation, reference 6.2.1).
- On 6 March 2026, Woodside received, via NOPSEMA, a submission from CCWA as part of the public comment process for this EP (SI Report A, reference 24.5). Woodside has considered the submission and assessed and responded to CCWA's comments as part of its supplementary Titleholder Report on Public Comment. No new impacts or risks were identified as a result of CCWA's submission and no new measures or controls were required.

Summary of Feedback, Objection or Claim	Woodside's Assessment of Merits of Feedback, Objection or Claim	Woodside's Statement of Response	Inclusion in Environment Plan
Feedback, objections or claims received through the public comment process have been assessed in the Titleholder Report on Public Comment.	Feedback, objections or claims received through the public comment process have been assessed in the Titleholder Report on Public Comment.	Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.7.1 of the EP).	No additional measures or controls are required.

Summary Report – Consultation Complete

Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and considers consultation with CCWA for the purpose of regulation 25 complete. Sufficient information, a reasonable period and a reasonable opportunity have been provided, as described in Section 5.4 of the EP and further summarised in the Consultation Approach above. Specifically:

Sufficient Information

Woodside has given CCWA sufficient information to allow CCWA to make an informed assessment of the possible consequences of the activity on its functions, interests or activities because:

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- The Consultation Information Sheet for this EP has been publicly available on the Woodside website since September 2025. Woodside gave this information to CCWA on 8 September 2025, marking the commencement of consultation on this EP. The Consultation Information Sheet included:
  - The purpose of consultation and set out what was being sought through consultation.
  - A summary of the activity description, location of the activity, timing of the activity, receiving environment, impacts and risks associated with the Petroleum Activity, and proposed mitigation and management measures.
  - A timeframe for consultation and the provision of feedback.
  - A link to NOPSEMA's brochure '*Consultation on offshore petroleum environment plans: Information for the community'.*
  - Advice that relevant persons can request that particular information provided during consultation not be published (to align with 25(4) of the Environment Regulations).

Reasonable Period

Woodside allowed CCWA a reasonable period for consultation in the preparation of the EP because:

- A consultation period was stated in the initial correspondence to CCWA advising of consultation as well as when consultation closed for the purposes of the preparation of the EP. This enabled Woodside to assess feedback before EP submission.
- Woodside's methodology allows a 45-day consultation period for MSS EPs and Woodside allowed CCWA 45 days for consultation.
- Consultation for this EP commenced 6 months ago.
- In this context, Woodside allowed CCWA a reasonable period for consultation in preparation of the EP.

Reasonable Opportunity

A reasonable opportunity to provide feedback has been provided because Woodside's approach to consultation with CCWA is appropriate and adapted to the nature of interests of CCWA:

- Woodside published advertisements in 6 national, state, and relevant local newspapers (see Consultation Activities). This allowed for broad awareness of the activity under the EP and also of consultation.
- Woodside ran a targeted social media campaign (see Consultation Activities). This allowed for broad awareness of the activity under the EP and also of consultation.
- Between 5 October 2025 and 18 October 2025, Woodside held, or hosted information stalls at, a number of community events and roadshows in regional areas including the Pilbara to raise awareness of the EP and provide another opportunity for feedback. These events were promoted with newspaper and/or social media advertising.
- In the absence of feedback, Woodside sent a follow-up consultation email on 8 October 2025, reminding CCWA of the opportunity to provide feedback.
- Woodside directly consulted CCWA on this EP and provided an opportunity to provide feedback. CCWA did not provide feedback directly to Woodside. On 5 March 2026, CCWA made a submission to NOPSEMA via the public comment process.

Outcomes of Consultation

Woodside has assessed the merits of each objection or claim (if any) about the adverse impact of the activity to which the EP relates, as required under Regulation 24. The measures (if any) that Woodside has adopted or proposes to adopt because of the consultation are appropriate because:

- CCWA provided feedback or objections or claims about the adverse impact of the activity to which this EP relates via the public comment process. In line with the intended outcome of consultation as set out in Section 5.2 and Regulations 24 and 34(g), Woodside has:
  - Assessed the merits of any objection or claim about the adverse impact of activities to which this EP relates.
  - As a result of CCWA's feedback, made minor clarifying updates to sections of the EP. No new measures or controls were required as a result of the updates.

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- Woodside will continue to accept and assess feedback throughout the life of the EP and apply its Management of Change and Revision process when applicable. .

4.10.4 Telstra

Summary of information provided and record of consultation for this EP:

- On 8 September 2025, Woodside emailed Telstra advising of the proposed activity (Record of Consultation, reference 6.1.11), provided a Consultation Information Sheet, and a link to NOPSEMA's brochure '*Consultation on offshore petroleum environment plans: Information for the community*'.
- On 15 September 2025, Telstra confirmed it had received Woodside's request and would review and provide comment by 24 October 2025 (SI Report A, 19.1).
- On 17 September 2025, Telstra emailed Woodside advising it had reviewed the proposed survey works (SI Report A, reference 19.2). Telstra:
  - **(1)** Confirmed it had assets within the overall survey area, including two fibre-optic cables serving the Wheatstone platform and:
    - Noted the location should be known to Woodside and should be marked on Woodside plans.
    - Advised their area of concern was approximately 3.5km square.
  - **(2)** Requested Woodside take all necessary steps to avoid impact to the cables from planned survey operations and that Telstra was advised of any surface operation which could result in seabed disturbance or impact.
- On 16 October 2025, Woodside responded thanking Telstra for its feedback (SI Report A, reference 19.3) and:
  - **(1)** Confirmed Telstra's two fibre-optic cables serving the Wheatstone platform were known to Woodside and marked on Woodside plans.
  - **(2)** Advised physical interaction with the seabed was not planned as part of the activity, therefore no impact on subsea infrastructure was expected. Further, Woodside had adopted controls to reduce the risk of accidental loss of survey equipment and had committed to recover and relocate lost towed equipment where safe and practicable to do so.

Summary of Feedback, Objection or Claim	Woodside's Assessment of Merits of Feedback, Objection or Claim	Woodside's Statement of Response	Inclusion in Environment Plan
(1) Advised two Telstra fibre-optic cables in the overall survey area.	**(1)** Woodside is aware of Telstra's cables serving the Wheatstone platform and has them marked on Woodside plans.	**(1)** Woodside confirmed the Telstra cables were known to Woodside and marked on Woodside maps.	**(1)** No additional controls or measures required. Submarine communications infrastructure is described in Section 4.9.7 of the EP as standard.
(2) Noted Woodside should take all necessary steps to avoid impact to cables and advise Telstra of surface operations which could result in seabed disturbance.	**(2)** Physical interaction with the seabed is not planned as part of this activity.	**(2)** Woodside confirmed there were not expected to be any impacts on subsea infrastructure from planned activities and	**(2)** No additional controls or measures required. Controls related to unplanned disturbance to seabed from dripped

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		controls were in place to reduce the risk of accidental loss of survey equipment.	objects and equipment loss, are set out in Section 6.8.5 of the EP.
While feedback has been received, there were no objections or claims.	Woodside has assessed the merits of each objection or claim (if any) about the adverse impact of the activity to which the EP relates, as required under Regulation 24.	Woodside engages in ongoing consultation throughout the life of an EP. Woodside notes that further feedback may be received as part of ongoing consultation. Should further feedback be received, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.7.1 of the EP).	No additional controls or measures are required.

Summary Report – Consultation Complete

Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and considers consultation with Telstra for the purpose of regulation 25 complete. Sufficient information, a reasonable period and a reasonable opportunity have been provided, as described in Section 5.4 of the EP and further summarised in the Consultation Approach above. Specifically:

Sufficient Information

Woodside has given Telstra sufficient information to allow Telstra to make an informed assessment of the possible consequences of the activity on its functions, interests or activities because:

- The Consultation Information Sheet for this EP has been publicly available on the Woodside website since September 2025. Woodside gave this information to Telstra on 8 September 2025, marking the commencement of consultation on this EP. The Consultation Information Sheet included:
  - The purpose of consultation and set out what was being sought through consultation.
  - A summary of the activity description, location of the activity, timing of the activity, receiving environment, impacts and risks associated with the Petroleum Activity, and proposed mitigation and management measures.
  - A timeframe for consultation and the provision of feedback.
  - A link to NOPSEMA's brochure '*Consultation on offshore petroleum environment plans: Information for the community'*.
  - Advice that relevant persons can request that particular information provided during consultation not be published (to align with 25(4) of the Environment Regulations).
- Woodside provided additional tailored information to Telstra including a map of submarine telecommunications cables relevant to the activity.
- On 15 and 17 September 2025, Telstra shared its feedback regarding this activity, indicating the information provided was sufficient to enable Telstra to make an informed assessment of the possible consequences of the activity on its functions, interests or activities.
- In addition to the information in the Consultation Information Sheet, Woodside provided additional information to Telstra in response to Telstra's feedback (Woodside's email of 16 October 2025).

Reasonable Period

Woodside allowed Telstra a reasonable period for consultation in the preparation of the EP because:

- A consultation period was stated in the initial correspondence to Telstra advising of consultation as well as when consultation closed for the purposes of the preparation of the EP. This enabled Woodside to assess feedback before EP submission.

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- Woodside's methodology allows a 45-day consultation period for MSS EPs and Woodside allowed Telstra 45 days for consultation. Telstra provided feedback within this period.
- Consultation for this EP commenced 6 months ago.
- In this context, Woodside allowed Telstra a reasonable period for consultation in preparation of the EP as evidenced by its responses on 15 and 17 September 2025

Reasonable Opportunity

A reasonable opportunity to provide feedback has been provided because Woodside's approach to consultation with Telstra is appropriate and adapted to the nature of interests of Telstra:

- Woodside published advertisements in 6 national, state, and relevant local newspapers (see Consultation Activities). This allowed for broad awareness of the activity under the EP and also of consultation.
- Woodside ran a targeted social media campaign (see Consultation Activities). This allowed for broad awareness of the activity under the EP and also of consultation.
- In the absence of feedback, Woodside sent a follow-up consultation email on 8 October 2025, reminding Telstra of the opportunity to provide feedback.

Outcomes of Consultation

Woodside has assessed the merits of each objection or claim (if any) about the adverse impact of the activity to which the EP relates, as required under Regulation 24. The measures (if any) that Woodside has adopted or proposes to adopt because of the consultation are appropriate because:

- Telstra provided feedback but no objections or claims. In line with the intended outcome of consultation as set out in Section 5.2 and Regulations 24 and 34(g), Woodside has:
  - Responded to feedback from Telstra.
  - Made no changes or inclusions to the EP as a result of consultation with Telstra because appropriate measures are already included in the EP.
- Woodside will continue to accept and assess feedback throughout the life of the EP and apply its Management of Change and Revision process when applicable.

4.10.5 Vocus

Summary of information provided and record of consultation for this EP:

- On 8 September 2025, Woodside emailed Vocus advising of the proposed activity (Record of Consultation, reference 6.1.11), provided a Consultation Information Sheet, and a link to NOPSEMA's brochure '*Consultation on offshore petroleum environment plans: Information for the community*'.
- On 8 October 2025, as no response had been received, Woodside proactively sent a follow-up email (Record of Consultation, reference 6.2.1).

Summary of Feedback, Objection or Claim	Woodside's Assessment of Merits of Feedback, Objection or Claim	Woodside's Statement of Response	Inclusion in Environment Plan
No feedback, objections or claims about the adverse impact of the activity received despite follow-up.		Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the	No additional measures or controls are required.

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		EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.7.1 of the EP).	

Summary Report – Consultation Complete

Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and considers consultation with Vocus for the purpose of regulation 25 complete. Sufficient information, a reasonable period and a reasonable opportunity have been provided, as described in Section 5.4 of the EP and further summarised in the Consultation Approach above. Specifically:

Sufficient Information

Woodside has given Vocus sufficient information to allow Vocus to make an informed assessment of the possible consequences of the activity on its functions, interests or activities because:

- The Consultation Information Sheet for this EP has been publicly available on the Woodside website since September 2025. Woodside gave this information to Vocus on 8 September 2025, marking the commencement of consultation on this EP. The Consultation Information Sheet included:
  - The purpose of consultation and set out what was being sought through consultation.
  - A summary of the activity description, location of the activity, timing of the activity, receiving environment, impacts and risks associated with the PAP, and proposed mitigation and management measures.
  - A timeframe for consultation and the provision of feedback.
  - A link to NOPSEMA's brochure '*Consultation on offshore petroleum environment plans: Information for the community'*.
  - Advice that relevant persons can request that particular information provided during consultation not be published (to align with 25(4) of the Environment Regulations).
- In addition to the Consultation Information Sheet, Woodside provided Vocus with information tailored to Vocus by providing a map of submarine telecommunications cables relevant to the activity.

Reasonable Period

Woodside allowed Vocus a reasonable period for consultation in the preparation of the EP because:

- A consultation period was stated in the initial correspondence to Vocus advising of consultation as well as when consultation closed for the purposes of the preparation of the EP. This enabled Woodside to assess feedback before EP submission.
- Woodside's methodology allows a 45-day consultation period for MSS EPs and Woodside allowed Vocus 45 days for consultation.
- Consultation for this EP commenced 6 months ago.
- In this context, Woodside allowed Vocus a reasonable period for consultation in preparation of the EP.

Reasonable Opportunity

A reasonable opportunity to provide feedback has been provided because Woodside's approach to consultation with Vocus is appropriate and adapted to the nature of interests of Vocus:

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- Woodside published advertisements in 6 national, state, and relevant local newspapers (see Consultation Activities). This allowed for broad awareness of the activity under the EP and also of consultation.
- Woodside ran a targeted social media campaign (see Consultation Activities). This allowed for broad awareness of the activity under the EP and also of consultation.
- In the absence of feedback, Woodside sent a follow-up consultation email on 8 October 2025, reminding Vocus of the opportunity to provide feedback.

Outcomes of Consultation

Woodside has assessed the merits of each objection or claim (if any) about the adverse impact of the activity to which the EP relates, as required under Regulation 24. The measures (if any) that Woodside has adopted or proposes to adopt because of the consultation are appropriate because:

- No additional measures were considered as a result of consultation as Vocus did not provide feedback for this EP.
- Woodside will continue to accept and assess feedback throughout the life of the EP and apply its Management of Change and Revision process when applicable.
- The measures and controls described in this EP address the potential impact from the proposed activity on Vocus's functions, interests or activities.

4.11 Research institutes and local conservation groups or organisations

4.11.1 Cape Conservation Group

Summary of information provided and record of consultation for this EP:

- On 8 September 2025, Woodside emailed Cape Conservation Group advising of the proposed activity (Record of Consultation, reference 6.1.9), provided a Consultation Information Sheet, and a link to NOPSEMA's brochure '*Consultation on offshore petroleum environment plans: Information for the community*'.
- On 8 October 2025, as no response had been received, Woodside proactively sent a follow-up email (Record of Consultation, reference 6.2.1).

Summary of Feedback, Objection or Claim	Woodside's Assessment of Merits of Feedback, Objection or Claim	Woodside's Statement of Response	Inclusion in Environment Plan
No feedback, objections or claims about the adverse impact of the activity received despite follow-up.		Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.7.1 of the EP).	No additional measures or controls are required.
Summary Report – Consultation Complete			

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Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and considers consultation with Cape Conservation Group for the purpose of regulation 25 complete. Sufficient information, a reasonable period and a reasonable opportunity have been provided, as described in Section 5.4 of the EP and further summarised in the Consultation Approach above. Specifically:

Sufficient Information

Woodside has given Cape Conservation Group sufficient information to allow Cape Conservation Group to make an informed assessment of the possible consequences of the activity on its functions, interests or activities because:

- The Consultation Information Sheet for this EP has been publicly available on the Woodside website since September 2025. Woodside gave this information to Cape Conservation Group on 8 September 2025, marking the commencement of consultation on this EP. The Consultation Information Sheet included:
  - The purpose of consultation and set out what was being sought through consultation.
  - A summary of the activity description, location of the activity, timing of the activity, receiving environment, impacts and risks associated with the Petroleum Activity, and proposed mitigation and management measures.
  - A timeframe for consultation and the provision of feedback.
  - A link to NOPSEMA's brochure '*Consultation on offshore petroleum environment plans: Information for the community'*.
  - Advice that relevant persons can request that particular information provided during consultation not be published (to align with 25(4) of the Environment Regulations).

Reasonable Period

Woodside allowed Cape Conservation Group a reasonable period for consultation in the preparation of the EP because:

- A consultation period was stated in the initial correspondence to Cape Conservation Group advising of consultation as well as when consultation closed for the purposes of the preparation of the EP. This enabled Woodside to assess feedback before EP submission.
- Woodside's methodology allows a 45-day consultation period for MSS EPs and Woodside allowed Cape Conservation Group 45 days for consultation.
- Consultation for this EP commenced 6 months ago.
- In this context, Woodside allowed Cape Conservation Group a reasonable period for consultation in preparation of the EP.

Reasonable Opportunity

A reasonable opportunity to provide feedback has been provided because Woodside's approach to consultation with Cape Conservation Group is appropriate and adapted to the nature of interests of Cape Conservation Group:

- Woodside published advertisements in 6 national, state, and relevant local newspapers (see Consultation Activities). This allowed for broad awareness of the activity under the EP and also of consultation.
- Woodside ran a targeted social media campaign (see Consultation Activities). This allowed for broad awareness of the activity under the EP and also of consultation.
- Between 5 October 2025 and 18 October 2025, Woodside held, or hosted information stalls at, a number of community events and roadshows in regional areas including the Pilbara to raise awareness of the EP and provide another opportunity for feedback. These events were promoted with newspaper and/or social media advertising.
- In the absence of feedback, Woodside sent a follow-up consultation email on 8 October 2025, reminding Cape Conservation Group of the opportunity to provide feedback.
- Cape Conservation Group was also consulted as part of the Exmouth Community Liaison Group (CLG), providing Cape Conservation Group with another opportunity to provide feedback.

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Outcomes of Consultation

Woodside has assessed the merits of each objection or claim (if any) about the adverse impact of the activity to which the EP relates, as required under Regulation 24. The measures (if any) that Woodside has adopted or proposes to adopt because of the consultation are appropriate because:

- No additional measures were considered as a result of consultation as Cape Conservation Group did not provide feedback for this EP.
- Woodside will continue to accept and assess feedback throughout the life of the EP and apply its Management of Change and Revision process when applicable.
- The measures and controls described in this EP address the potential impact from the proposed activity on Cape Conservation Group's functions, interests or activities.

4.11.2 Protect Ningaloo

Summary of information provided and record of consultation for this EP:

- On 8 September 2025, Woodside emailed Protect Ningaloo advising of the proposed activity (Record of Consultation, reference 6.1.9), provided a Consultation Information Sheet, and a link to NOPSEMA's brochure '*Consultation on offshore petroleum environment plans: Information for the community*'.
- On 8 October 2025, as no response had been received, Woodside proactively sent a follow-up email (Record of Consultation, reference 6.2.1).

Summary of Feedback, Objection or Claim	Woodside's Assessment of Merits of Feedback, Objection or Claim	Woodside's Statement of Response	Inclusion in Environment Plan
No feedback, objections or claims about the adverse impact of the activity received despite follow-up.		Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.7.1 of the EP).	No additional measures or controls are required.

Summary Report – Consultation Complete

Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and considers consultation with Protect Ningaloo for the purpose of regulation 25 complete. Sufficient information, a reasonable period and a reasonable opportunity have been provided, as described in Section 5.4 of the EP and further summarised in the Consultation Approach above. Specifically:

Sufficient Information

Woodside has given Protect Ningaloo sufficient information to allow Protect Ningaloo to make an informed assessment of the possible consequences of the activity on its functions, interests or activities because:

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- The Consultation Information Sheet for this EP has been publicly available on the Woodside website since September 2025. Woodside gave this information to Protect Ningaloo on 8 September 2025, marking the commencement of consultation on this EP. The Consultation Information Sheet included:
  - The purpose of consultation and set out what was being sought through consultation.
  - A summary of the activity description, location of the activity, timing of the activity, receiving environment, impacts and risks associated with the Petroleum Activity, and proposed mitigation and management measures.
  - A timeframe for consultation and the provision of feedback.
  - A link to NOPSEMA's brochure '*Consultation on offshore petroleum environment plans: Information for the community'.*
  - Advice that relevant persons can request that particular information provided during consultation not be published (to align with 25(4) of the Environment Regulations).

Reasonable Period

Woodside allowed Protect Ningaloo a reasonable period for consultation in the preparation of the EP because:

- A consultation period was stated in the initial correspondence to advising of consultation as well as when consultation closed for the purposes of the preparation of the EP. This enabled Woodside to assess feedback before EP submission.
- Woodside's methodology allows a 45-day consultation period for MSS EPs and Woodside allowed Protect Ningaloo 45 days for consultation.
- Consultation for this EP commenced 6 months ago.
- In this context, Woodside allowed Protect Ningaloo a reasonable period for consultation in preparation of the EP.

Reasonable Opportunity

A reasonable opportunity to provide feedback has been provided because Woodside's approach to consultation with Protect Ningaloo is appropriate and adapted to the nature of interests of Protect Ningaloo:

- Woodside published advertisements in 6 national, state, and relevant local newspapers (see Consultation Activities). This allowed for broad awareness of the activity under the EP and also of consultation.
- Woodside ran a targeted social media campaign (see Consultation Activities). This allowed for broad awareness of the activity under the EP and also of consultation.
- On 5 October 2025, Woodside held an information stall at the Exmouth Community Markets to raise awareness of the EP and provide another opportunity for feedback. The stall was promoted on social media.
- In the absence of feedback, Woodside sent a follow-up consultation email on 8 October 2025, reminding Protect Ningaloo of the opportunity to provide feedback.
- Woodside also consulted AMCS – the parent organisation of the Protect Ningaloo conservation program – for this EP, providing Protect Ningaloo another opportunity to provide feedback.

Outcomes of Consultation

Woodside has assessed the merits of each objection or claim (if any) about the adverse impact of the activity to which the EP relates, as required under Regulation 24. The measures (if any) that Woodside has adopted or proposes to adopt because of the consultation are appropriate because:

- No additional measures were considered as a result of consultation as Protect Ningaloo did not provide feedback for this EP.
- Woodside will continue to accept and assess feedback throughout the life of the EP and apply its Management of Change and Revision process when applicable.
- The measures and controls described in this EP address the potential impact from the proposed activity on Protect Ningaloo's functions, interests or activities.

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4.12 Traditional custodians and nominated representative corporations

4.12.1 Buurabalayji Thalanyji Aboriginal Corporation (BTAC)

BTAC is established under the *Native Title Act 1993 (*Cth*)* by the Thalanyji people to represent the Thalanyji people (defined broadly by reference to descent from the set of ancestors who were known to have a continuous and unbroken connection as the Traditional Custodians at the time of European colonisation) and represent their communal interests including, among other things, management and protection of cultural values.

Woodside has an existing relationship with BTAC which extends prior to consultation for this EP. Woodside's consultation approach for Traditional Custodians has a focus on building and maintaining long-term relationships with each group. Woodside also has assigned a First Nations Engagement team member as a dedicated focal person for EP consultation with BTAC, who is responsible for building a consultative relationship and is readily available to provide information and take feedback.

At the start of consultation, Woodside provided BTAC a table of cultural values previously identified for BTAC through consultation and reviews of publicly available literature. Woodside invited BTAC to make changes or provide additional information about these cultural values. This context and process demonstrates that Woodside's consultation approach with BTAC is appropriate and adapted to the nature and interests of BTAC.

Summary of information provided and record of consultation for this EP:

- On 8 September 2025, Woodside emailed BTAC advising of the proposed activity (Record of Consultation, reference 6.1.34). The email included:
  - A Summary Information Sheet.
  - A link to the Consultation Information Sheet.
  - An overview of the proposed activity.
  - Links to the NOPSEMA *Consultation Guidelines, Consultation Brochure, and Draft Policy for Managing Gender-Restricted Information* and contact details.
  - Information on the cultural values that BTAC has previously provided to Woodside considered relevant to the activity:
    - **(1)** BTAC's cultural obligation to care for the environmental values of Sea Country, such as ceremonial sites and archaeological sites identified on nearshore islands including the Montebello Islands, Barrow Island and Mackerel Islands.
  - **(1)** A request from Woodside that BTAC confirm if there were any changes or additional information regarding cultural values that Woodside should consider in the preparation for this EP.
  - A request for feedback by 24 October 2025 for the purposes of preparation of the EP.
  - A request for information on how BTAC would like to engage with Woodside about the proposed activity, including the opportunity to meet face-to-face.
  - Advice that feedback can continue to be provided to Woodside during the life of an EP, including after consultation for the EP has closed, during EP assessment, and after an EP has been accepted by NOPSEMA.
  - Woodside's commitment to managing gender-restricted or other culturally sensitive information.
  - A request for BTAC to provide information about the proposed activity to other individuals as required.

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- On 10 October 2025, Woodside emailed BTAC a reminder about the proposed activity (SI Report B, reference 1.1.1). The email included:
  - A reference to the original consultation email for this EP sent to BTAC, which included a Summary Information Sheet and a link to the Consultation Information Sheet.
  - A reminder that consultation for the preparation of the EP closes on 24 October 2025.
  - A request for information on how BTAC would like to engage with Woodside about the proposed activity, including the opportunity to meet face to face.
  - Woodside's commitment to managing gender-restricted or other culturally sensitive information.
  - Advice that feedback can continue to be provided to Woodside during the life of an EP, including after consultation for the EP has closed, during EP assessment, and after an EP has been accepted by NOPSEMA.
  - Acknowledgement that discussions relating to Woodside's consultation framework agreement has been ongoing and that these discussions will progress in parallel with consultation for the proposed activity's EP.

Summary of Feedback, Objection or Claim	Woodside's Assessment of Merits of Feedback, Objection or Claim	Woodside's Response	Inclusion in Environment Plan
(1) Cultural Values: Sea Country – connection to, access to and transfer of knowledge: • Enduring deep connection north of Onslow, extending out to Islands off the Pilbara coast including the Montebello, Barrow and Mackerel Islands. • Cultural obligation to care for environment and values of Sea Country. • Resources including fish, shellfish, crabs, crustaceans, sea urchins, eggs, turtles, dugongs, flora and fauna associated with mangrove communities. • Artefacts and burials in coastal sand dunes. • Archaeological sites on Barrow and Montebello Islands. • Archaeological evidence of use of resources including fish, turtles,	**(1)** This value has been identified through Woodside's data collection processes (consultation and reviews of publicly available literature).	**(1)** At the beginning of consultation for this EP, Woodside invited BTAC to make changes or provide additional information about these cultural values (ROC, 6.1.34) BTAC did not request changes.	**(1)** Woodside has updated Section 4.9 to record these interests and cultural values and assessed the potential impacts on these and where appropriate included controls in Sections 6.7 and 6.8.

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marine mammals, crocodiles, crabs and sea urchins. • Ceremonial sites (Thalu) for the increase of turtle, shark, ray, fish, squid, octopus, hill kangaroo and emu.			
No feedback, objection or claim about the adverse impact of the activity received despite follow-up.	Although no feedback, objections or claims were provided for this EP, historical cultural values considered relevant have been identified and included based on consultation and literature review.	Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.7.1).	No additional measures or controls are required.

Summary Report – Consultation Complete

Woodside has discharged its obligations for consultation under regulation 25 of the Environmental Regulations and consultation with BTAC for the purpose of regulation 25 is complete. Sufficient information and a reasonable period have been provided, as described in Section 5.4 of the EP. Specifically:

Sufficient Information

Sufficient information has been provided because:

- Since September 2025, Woodside made the Consultation Information Sheet available on the Woodside website.
- Woodside provided information to BTAC on 8 September 2025 when consultation commenced. Woodside provided:
  - A Summary Information Sheet developed specifically for First Nations groups and reviewed by a member of the First Nations Engagement team. This sheet included an overview of the proposed activity, the location of the activity, the timing of the activity, the potential risks and impacts of the activity, diagrams and details about how to provide feedback.
  - Links to the NOPSEMA *Consultation Guidelines, Consultation Brochure, and Draft Policy for Managing Gender-Restricted Information*, and contact details.
  - Confirmation of the purpose of consultation, what was being sought by Woodside through consultation including understanding the nature of BTAC's interests and how the activity could impact those interests.
  - A request for the consultation and information sheets to be distributed to members and individuals as required.
  - An offer to provide more specific information, maps and images if required.
- Woodside provided contact information for Woodside and NOPSEMA.
- Woodside provided updated information to BTAC on 10 October 2025 which included:
  - A reference to the original consultation email for this EP sent to BTAC on 8 September 2025, which included a Summary Information Sheet and a link to the Consultation Information Sheet.
  - A reminder that consultation for the preparation of the EP closes on 24 October 2024.

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  - A request for information on how BTAC would like to engage with Woodside about the proposed activity, including the opportunity to meet face to face.
  - Advice that feedback can continue to be provided to Woodside during the life of an EP, including after consultation for the EP has closed, during EP assessment, and after an EP has been accepted by NOPSEMA.

Reasonable Period

A reasonable period for consultation in the preparation of the EP has been provided because:

- Woodside commenced consultation on this EP with BTAC on 8 September 2025 and requested BTAC provide feedback by 24 October 2025 for the purposes of preparation of the EP in line with Woodside's methodology of a 45-day period for consultation.
- Woodside has addressed and responded to BTAC for 6 months, demonstrating a "reasonable period" of consultation.

Reasonable Opportunity

A reasonable opportunity to provide feedback has been provided and Woodside's approach to consultation is appropriate and adapted because:

- Woodside sought direction on BTAC's preferred method of consultation and has consulted in a way that Woodside understands is appropriate for First Nations groups.
- Woodside has made information on this EP publicly available for 6 months. This has included publishing advertisements in national, state and local newspapers including Indigenous newspapers, the Koori Mail (10 September 2025) and National Indigenous Times (24 September 2025) advising of the proposed activities and requesting comments or feedback.
- Woodside's initial email about this EP on 8 September 2025:
  - Included a general email address and telephone number for Woodside, as well as a direct email and telephone number for a dedicated focal person from Woodside's First Nations Engagement team. Woodside also provided contact details for NOPSEMA.
  - Offered for Woodside to speak with BTAC members as well as the BTAC Board.
  - Asked BTAC to advise how it would like Woodside to engage and whether BTAC required further information.
- Throughout the consultation period, Woodside and BTAC have had direct contact lines to each other.

Outcomes of Consultation

The measures (if any) that Woodside has adopted or proposes to adopt because of the consultation are appropriate because:

- Woodside has incorporated cultural values previously provided by BTAC into the EP.
- During the past 6 months, BTAC has not raised objections or claims about the adverse impact of the activity to which this EP relates.

Woodside engages in ongoing consultation once an EP has been submitted for assessment as well as throughout the life of an EP. Should feedback be received after the EP has been accepted (including relevant new information relating to cultural values), it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.7.1 of the EP).

4.12.2 Kariyarra Aboriginal Corporation (KAC)

KAC is established under the *Native Title Act 1993* (Cth) by Kariyarra people to represent the Kariyarra people (defined broadly by reference to descent from the set of ancestors who were known to have a continuous and unbroken connection as the Traditional Custodians at the time of European colonisation) and represent their communal interests including, among other things, management and protection of cultural values.

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Woodside has an existing relationship with KAC which extends prior to consultation for this EP. Woodside's consultation approach for Traditional Custodians has a focus on building and maintaining long-term relationships with each group. Woodside also has assigned a First Nations Engagement team member as a dedicated focal person for EP consultation with KAC, who is responsible for building a consultative relationship and is readily available to provide information and take feedback.

At the start of consultation, Woodside provided KAC a table of cultural values previously identified for KAC through consultation and reviews of publicly available literature. Woodside invited KAC to make changes or provide additional information about these cultural values. This context and process demonstrates that Woodside's consultation approach with KAC is appropriate and adapted to the nature and interests of KAC.

Summary of information provided and record of consultation for this EP:

- On 8 September 2025, Woodside emailed KAC advising of the proposed activity (Record of Consultation, reference 6.1.35). The email included:
  - A Summary Information Sheet.
  - A link to the Consultation Information Sheet.
  - An overview of the proposed activity.
  - Information on the cultural values that KAC has previously provided to Woodside considered relevant to the activity:
  - Information on the cultural values relating to KAC that Woodside considers relevant to the activity:
    - **(1)** Marine animals:
      - Turtles – management of and sea turtle nesting.
      - Whales – connection to Songlines, impacts to whale migration.
      - Shellfish, cockles, oysters, clam shells, con shells.
      - Mullets (fish).
      - Sea cow (dugong).
    - **(2)** Sea Country:
      - Cultural obligations to care for Country.
      - Secret habitat totems.
      - Access for fishing, trapping crabbing, catching turtle, hunting dugong, using stingray barbs for spears, collecting shellfish and visiting offshore islands at low tide.
    - **(3)** Yinta:
      - Significant cultural/spiritual sites.
      - Cultural rights to land determine who can use or speak for an area.
    - **(4)** Marine species as resources:
      - Marine mammals including sea cow (dugong).
      - Fish including mullets.
      - Molluscs including bivalves, gastropods and cephalopods.

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        - Shellfish, cockles, oysters, clam shells, con shells.
    - **(5)** Potential impacts on coastal landforms and vegetation.
    - **(6)** Heritage sites associated with the coast and ocean including the presence of mythical snakes.
    - **(7)** Transfer of knowledge to future generations:
        - Impacts to resources – species reduction.
        - Temporary exclusion to areas in the case of an oil spill.
    - **(8)** Islands off the coast of Port Hedland are significant:
        - Little Turtle.
        - North Turtle.
        - Bedout.
    - **(9)** Importance of river systems as food chains.
  - **(1, 2, 3, 4, 5, 6, 7, 8, 9)** A request from Woodside that KAC confirm if there were any changes or additional information regarding cultural values that Woodside should consider in the preparation for this EP.
  - A request for feedback by 24 October 2024 for the purposes of preparation of the EP.
  - A request for information on how KAC would like to engage with Woodside about the proposed activity, including the opportunity to meet face-to-face.
  - Advice that feedback can continue to be provided to Woodside during the life of an EP, including after consultation for the EP has closed, during EP assessment, and after an EP has been accepted by NOPSEMA.
  - Woodside's commitment to managing gender-restricted or other culturally sensitive information.
  - A request for KAC to provide information about the proposed activity to other individuals as required.
- Between 9 – 10 September 2025, KAC emailed Woodside to confirm that the proposed activity was a new EP not previously presented to KAC, and following a telephone conversation with Woodside, KAC confirmed that 21 October 2025 was available for Woodside to meet with the KAC Board and present information about the proposed activity (SI Report B, reference 1.2.1 – 1.2.2).
- **(1, 9)** On 17 September 2025, Woodside emailed KAC updated information about KAC's record of Cultural Values and responses to questions taken on notice during a meeting on 21 August 2025 about EPs unrelated to the proposed activity. Woodside advised that the updated Cultural Values record will be shared with KAC for review when consulting on future EPs (SI Report B, reference 1.2.3).
- Between 19 September – 16 October 2025, Woodside and KAC exchanged emails and telephone calls to confirm date, time, location, meeting agenda and activities to be presented at a meeting on 23 October 2025 (SI Report B, reference 1.2.4 – 1.2.9).
- On 23 October 2025, Woodside met with KAC in South Hedland to present information about the proposed activity and another unrelated EP (SI Report B, reference 1.2.10). During the meeting:
  - Woodside provided an explanation of EPs, the purpose of the meeting and EP consultation.
  - Woodside identified the distances from KAC Native Title determination to the proposed activity's Operational Area and EMBA.
  - Woodside provided an overview of marine seismic surveys, including an explanation of the concept and history of these types of surveys, which have been conducted for over 50 years.
  - Woodside stated:

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- That surveying the seabed was important to manage the Pluto gas reservoir and monitor changes in gas behaviour and volume over time, which is why the survey is 4D (4 dimensional).
- The first survey of the Pluto reservoir was in 2016, the second in 2020, and the planned survey will be the third.
- The current survey campaign is planned for 40 days, starting in January - February 2026, with any changes to timeframe possible due to potential cyclones.
- The survey vessels are large, slow-moving boats with around 100 people onboard, and measures are undertaken to minimise impact to the environment and marine fauna, such as avoiding equipment contacting the seabed.
- The potential impacts and risks from planned and unplanned events, noting that 'noise' or acoustic emissions are identified as one of the main impacts on marine fauna. Woodside explained the measures taken to mitigate noise, including new thresholds for turtles and additional modelling for pygmy whales.
- That strategies for monitoring marine species and responding to their presence during surveys were outlined, including the use of underwater microphones.
- It conducts assessments of vessels and equipment to prevent the introduction of invasive marine species.

– **(10)** KAC raised concerns about noise produced by the activity. **(10)** Woodside explained the potential acoustic impacts to marine fauna and a number of mitigations it employs. Acoustic modelling is undertaken based on best practice thresholds for relevant marine species to inform the extent of potential impacts. Woodside stated it uses animat modelling for pygmy whales that considers behavioural information, including the migratory patterns for marine species. Woodside has also scheduled the activity's timeframes to avoid peak migration periods in Biologically Important Areas (BIAs).

– **(11)** KAC raised that whales may not be able to move away from vessels when surveying. **(11)** Woodside acknowledged the concern and described its observation, lower power and shutdown zones if sound-sensitive marine fauna are observed. Woodside also stated there is a passive acoustic monitoring system using hydrophones with operators to listen for whale songs in the vicinity of the seismic source during low-light conditions and hours of darkness.

– **(12)** KAC asked if there was an impact on sea snakes. **(12)** Woodside stated that the survey area is in deep water and far offshore. Therefore, population level impacts of sea snakes are not expected.

– Throughout the presentation, Woodside engaged with KAC, addressing questions and comments regarding the survey's impact and planning.

– Woodside also provided information on the cultural values KAC has provided to Woodside when consulting on previous EPs, and emphasised the importance of ongoing engagement with KAC regarding its cultural values.

- On 27 October 2025, Woodside and KAC exchanged emails to confirm the names of KAC members who attended the 23 October meeting (SI Report B, reference 1.2.11 – 1.2.12).
- On 28 October 2025, KAC emailed Woodside requesting a copy of the presentation delivered at the 23 October meeting (SI Report B, reference 1.2.13).
- On 7 November 2025, Woodside emailed KAC advising that all key information in the presentation relating to the activity is in the Summary Information Sheet previously provided to KAC (SI Report B, reference 1.2.14).

Summary of Feedback, Objection or Claim	Woodside's Assessment of Merits of Feedback, Objection or Claim	Woodside's Response	Inclusion in Environment Plan
(1) Marine animals: • Turtles – management of and sea turtle nesting.	**(1)** This value has been identified through Woodside's data collection processes (consultation).	**(1)** At the beginning of consultation for this EP, Woodside invited KAC to make changes or provide additional information about this cultural value (See ROC, 6.1.35).	**(1)** Woodside has updated Section 4.9 to record these interests and cultural values. Whale migration and turtle nesting has been included in Section 4.6 of the EP. Controls have been adopted

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• Whales – connection to Songlines, impacts to whale migration. • Shellfish, cockles, oysters, clam shells, con shells. • Mullets (fish). • Sea cow (dugong).		KAC did not request changes.	where appropriate in Section 6.7 and 6.8 of the EP.
(2) Sea Country: • Cultural obligations to care for Country. • Secret habitat totems. Access for fishing, trapping crabbing, catching turtle, hunting dugong, using stingray barbs for spears, collecting shellfish and visiting offshore islands at low tide.	**(2)** This value has been identified through Woodside's data collection processes (consultation and reviews of publicly available literature).	**(2)** At the beginning of consultation for this EP, Woodside invited KAC to make changes or provide additional information about this cultural value (See ROC, 6.1.35). KAC did not request changes.	**(2)** Woodside has updated Section 4.9 to record these interests and cultural values and assessed the potential impacts on these and where appropriate included controls, in Sections 6.7 and 6.8 of the EP.
(3) Yinta: • Significant cultural/spiritual sites. • Cultural rights to land determine who can use or speak for an area.	**(3)** This value has been identified through Woodside's data collection processes (consultation and reviews of publicly available literature).	**(3)** At the beginning of consultation for this EP, Woodside invited KAC to make changes or provide additional information about this cultural value (See ROC, 6.1.35). KAC did not request changes.	**(3)** Woodside has updated Section 4.9 to record these interests and cultural values and assessed the potential impacts on these and where appropriate included controls, in Sections 6 of the EP.
(4) Marine species as resources: • Marine mammals including sea cow (dugong). • Fish including mullets. • Molluscs including bivalves, gastropods and cephalopods. • Shellfish, cockles, oysters, clam shells, con shells.	**(4)** This value has been identified through Woodside's data collection processes (consultation).	**(4)** At the beginning of consultation for this EP, Woodside invited KAC to make changes or provide additional information about this cultural value (See ROC, 6.1.35). KAC did not request changes.	**(4)** Woodside has updated Section 4.9 to record these interests and cultural values and assessed the potential impacts on these and where appropriate including controls, in Section 6 of the EP.
(5)	**(5)**	**(5)**	**(5)**

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Coastal landforms and vegetation.	This value has been identified through Woodside's data collection processes (consultation).	At the beginning of consultation for this EP, Woodside invited KAC to make changes or provide additional information about this cultural value (See ROC, 6.1.35). KAC did not request changes.	Woodside has updated Section 4.9 to record these interests and cultural values and assessed the potential impacts on these and where appropriate including controls, in Section 6 of the EP.
(6) Heritage sites associated with the coast and ocean including the presence of mythical snakes.	**(6)** This value has been identified through Woodside's data collection processes (consultation and reviews of publicly available literature).	**(6)** At the beginning of consultation for this EP, Woodside invited KAC to make changes or provide additional information about this cultural value (See ROC, 6.1.35). KAC did not request changes.	**(6)** Woodside has updated Section 4.9 to record these interests and cultural values and assessed the potential impacts on these and where appropriate including controls in Section 6 of the EP.
(7) Transfer of knowledge to future generations: • Impacts to resources – species reduction. • Temporary exclusion to areas in the case of an oil spill etc.	**(7)** This value has been identified through Woodside's data collection processes (consultation).	**(7)** At the beginning of consultation for this EP, Woodside invited KAC to make changes or provide additional information about this cultural value (See ROC, 6.1.35). KAC did not request changes.	**(7)** Woodside recorded this cultural value in section 4.9 of the EP. Measures relating to oil spills are covered in Appendix G – Oil Spill Preparedness and Response and Appendix H – Oil Pollution First Strike Plan.
(8) Islands off the coast of Port Hedland are significant: • Little Turtle. • North Turtle. • Bedout.	**(8)** This value has been identified through Woodside's data collection processes (consultation).	**(8)** At the beginning of consultation for this EP, Woodside invited KAC to make changes or provide additional information about this cultural value (See ROC, 6.1.35). KAC did not request changes.	**(8)** Woodside has updated Section 4.9 to record these interests and cultural values and assessed the potential impacts on these and where appropriate including controls, in Section 6 of the EP.
(9) Importance of river systems as food chains.	**(9)** This value has been identified through Woodside's data collection processes (consultation).	**(9)** At the beginning of consultation for this EP, Woodside invited KAC to make changes or provide additional information about this cultural value (See ROC, 6.1.35). KAC did not request changes.	**(9)** Woodside has updated Section 4.9 to record these interests and cultural values and assessed the potential impacts on these and where appropriate including controls, in Section 6 of the EP.

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(10) KAC raised concerns about noise produced the activity.	**(10)** Woodside assess environmental impacts of its EPs and puts in place appropriate mitigation measures regarding noise and marine life.	**(10)** Woodside assesses the potential acoustic impacts to marine fauna and employs a number of mitigations. Acoustic modelling is undertaken based on best practice thresholds to inform the extent of potential impacts. Woodside also uses animat modelling that considers behavioural information, including the migratory patterns for pygmy blue whales. In addition, Woodside has scheduled the activity's timeframes to avoid peak migration periods in BIAs.	**(10)** Woodside has assessed the potential impacts of noise/acoustic emissions on marine fauna and where appropriate included controls in Section 6.7.2 and Section 6.7.3 of the EP.
(11) KAC raised that whales may be able to move away from vessels when surveying.	**(11)** Woodside assess environmental impacts of its EPs and puts in place appropriate mitigation measures regarding noise and marine fauna.	**(11)** Woodside uses observation, low power and shutdown zones if sound-sensitive marine fauna are observed during the activity. Woodside also undertakes a passive acoustic monitoring system that uses hydrophones with operators to listen for whale songs in the vicinity of the seismic source during low-light conditions and hours of darkness.	**(11)** Woodside has assessed the impacts of the activity to marine fauna and migration patterns, and where appropriate included controls in Sections 6.7 and 6.8 of the EP.
(12) KAC asked if there was an impact on sea snakes.	**(12)** Woodside assess environmental impacts of its EPs and puts in place appropriate mitigation measures regarding marine fauna.	**(12)** Woodside confirms that the survey area is in deep water and far offshore. Therefore, population level impacts of sea snakes are not expected.	**(12)** Not action required.
While feedback has been received there were no objections or claims.	Woodside has assessed the merits of each objection or claim (if any) about the adverse impact of the activity to which the EP relates, as required under Regulation 24	Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.7.1 of the EP).	Based on the engagement to date, no additional measures or controls are required.

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Summary Report – Consultation Complete

Woodside has discharged its obligations for consultation under regulation 25 of the Environmental Regulations and consultation with KAC for the purpose of regulation 25 is complete. Sufficient information and a reasonable period have been provided, as described in Section 5.4 of the EP. Specifically:

Sufficient Information

Sufficient information has been provided because:

- Since September 2025, Woodside made the Consultation Information Sheet available on the Woodside website.
- Woodside provided information to KAC on 8 September 2025 when consultation commenced. Woodside provided:
  - A Summary Information Sheet developed specifically for First Nations groups and reviewed by a member of the First Nations Engagement team. This sheet included an overview of the proposed activity, the location of the activity, the timing of the activity, the potential risks and impacts of the activity, diagrams and details about how to provide feedback.
  - Links to the NOPSEMA *Consultation Guidelines, Consultation Brochure, and Draft Policy for Managing Gender-Restricted Information*, and contact details.
  - Confirmation of the purpose of consultation, what was being sought by Woodside through consultation including understanding the nature of KAC's interests and how the activity could impact those interests.
  - A request for the consultation and information sheets to be distributed to members and individuals as required.
  - An offer to provide more specific information, maps and images if required.
- Woodside provided contact information for Woodside and NOPSEMA.

Reasonable Period

A reasonable period for consultation in the preparation of the EP has been provided because:

- Woodside commenced consultation on this EP with KAC on 8 September 2025 and requested KAC provide feedback by 24 October 2025 for the purposes of preparation of the EP in line with Woodside's methodology of a 45-day period for consultation.
- Woodside has addressed and responded to KAC for 6 months, demonstrating a "reasonable period" of consultation.

Reasonable Opportunity

A reasonable opportunity to provide feedback has been provided and Woodside's approach to consultation is appropriate and adapted because:

- Woodside sought direction on KAC's preferred method of consultation and has consulted in a way that Woodside understands is appropriate for First Nations groups.
- Woodside has made information on this EP publicly available for 6 months. This has included publishing advertisements in national, state and local newspapers including Indigenous newspapers, the Koori Mail (10 September 2025) and National Indigenous Times (24 September 2025) advising of the proposed activities and requesting comments or feedback.
- Woodside's initial email about this EP on 8 September 2025:
  - Included a general email address and telephone number for Woodside, as well as a direct email and telephone number for a dedicated focal person from Woodside's First Nations Engagement team. Woodside also provided contact details for NOPSEMA.
  - Offered for Woodside to speak with KAC members as well as the KAC Board.
  - Asked KAC to advise how it would like Woodside to engage and whether BTAC required further information.
- Throughout the consultation period, Woodside and KAC have had direct contact lines to each other.

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Outcomes of Consultation

The measures (if any) that Woodside has adopted or proposes to adopt because of the consultation are appropriate because:

- Woodside has incorporated cultural values previously provided by KAC into the EP.
- During the past 6 months, KAC has not raised objections about the adverse impact of the activity to which this EP relates.
- KAC raised concerns during an EP consultation meeting about the noise produced by the activity and the safety of marine fauna during surveying activities. Woodside provided responses to the concerns during the meeting, and where appropriate, controls have been included in the EP.
- KAC has provided no additional feedback or claims during consultation.

Woodside engages in ongoing consultation once an EP has been submitted for assessment as well as throughout the life of an EP. Should feedback be received after the EP has been accepted (including relevant new information relating to cultural values), it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.7.1 of the EP).

4.12.3 Murujuga Aboriginal Corporation (MAC)

MAC is established under the Burrup and Maitland Industrial Estates Agreement and is the representative body for the Traditional Custodians for Murujuga being the Ngarluma, the Mardudhunera, the Yaburara, the Yindjibarndi, and the Wong-Goo-Tt-Oo peoples (collectively Ngarda-Ngarli). MAC is the cultural authority for Murujuga and is responsible for the management and protection of its cultural values. In July 2025, United Nations Educational, Scientific and Cultural Organization (UNESCO) inscribed the Murujuga Cultural Landscape on the World Heritage list.

Woodside has an existing relationship with MAC which extends prior to consultation for this EP. Woodside's consultation approach for Traditional Owners has a focus on building and maintaining long-term relationships with each group. Woodside has also assigned a First Nations Engagement team member as a dedicated focal person for EP consultation with MAC, who is responsible for building a consultative relationship and is readily available to provide information and take feedback.

At the start of consultation, Woodside provided MAC a table of cultural values previously identified for MAC through consultation and reviews of publicly available literature. Woodside invited MAC to make changes or provide additional information about these cultural values. This context and process demonstrates that Woodside's consultation approach with MAC is appropriate and adapted to the nature and interests of MAC.

Summary of information provided and record of consultation for this EP:

- On 8 September 2025, Woodside emailed MAC advising of the proposed activity (Record of Consultation, reference 6.1.36). The email included:
  - A Summary Information Sheet.
  - A link to the Consultation Information Sheet.
  - An overview of the proposed activity.
  - Links to the NOPSEMA *Consultation Guidelines, Consultation Brochure, and Draft Policy for Managing Gender-Restricted Information* and contact details.

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- Information on the cultural values that MAC has previously provided to Woodside considered relevant to the activity:
  - **(1)** The ecosystem and health of Mermaid Sound.
  - **(2)** Marine species:
    - Whales – totemic importance
    - Dolphins – cultural ceremonies
    - Dugongs – food source
    - Fish – cultural ceremonies
    - Sea snakes – culturally important
    - Turtles – Songlines
    - Coral – attract fish and other species
    - Seagrass – provide protection for animals
    - Stingrays
    - Sharks
    - Crustaceans
    - Octopus
    - Sea stars
    - Sea urchins
    - Sponges
    - Molluscs
  - **(3)** Marine eco-systems:
    - Mangroves
    - Macroalgal (seaweed) communities
    - Subtidal soft bottom communities (ocean bottom)
    - Intertidal sand and mudflat communities
    - Rocky shores
  - **(4)** Fish traps in Conzinc Bay and Angel and Gidley Islands.
  - **(5)** Harvesting squid around Conzinc Bay.
  - **(6)** MAC is the appropriate cultural authority for Murujuga.
  - **(7)** Submerged landscape:
    - Potential impact on Jinna (Songlines).
    - Potential impact to Aboriginal heritage.
  - **(8)** Murujuga seasonal calendar:

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- Any change to the feeding, breeding or migratory behaviour of culturally significant species would impact significantly on subsistence, cultural and ceremonial activities.

– **(1, 2, 3, 4, 5, 6, 7, 8)** A request from Woodside that MAC confirm if there were any changes or additional information regarding cultural values that Woodside should consider in the preparation for this EP.
– A request for feedback by 24 October 2025 for the purposes of preparation of the EP.
– A request for information on how MAC would like to engage with Woodside about the proposed activity, including the opportunity to meet face-to-face.
– Advice that feedback can continue to be provided to Woodside during the life of an EP, including after consultation for the EP has closed, during EP assessment, and after an EP has been accepted by NOPSEMA.
– Woodside's commitment to managing gender-restricted or other culturally sensitive information.
– A request for MAC to provide information about the proposed activity to other individuals as required.

- On 10 October 2024, Woodside emailed MAC a reminder about the proposed activity (SI Report B, reference 1.3.1). The email included:
  – A reference to the original consultation email for this EP sent to MAC on 8 September 2025, which included a Summary Information Sheet and a link to the Consultation Information Sheet.
  – A reminder that consultation for the preparation of the EP closes on 24 October 2025.
  – A request for information on how MAC would like to engage with Woodside about the proposed activity, including the opportunity to meet face to face.
  – Woodside's commitment to managing gender-restricted or other culturally sensitive information.
  – Advice that feedback can continue to be provided to Woodside during the life of an EP, including after consultation for the EP has closed, during EP assessment, and after an EP has been accepted by NOPSEMA.
- On 23 October 2025, MAC emailed Woodside a response to an activity update for this EP (SI Report B, reference 1.3.2). MAC provided this feedback:
  – **(8)** Any activity that could potentially affect the natural movement, migration and/or other behaviour of marine species (including sea birds) may impact the cultural interpretation of the seasonal landscape and seascape.
  – **(9)** Impacts on environmental values should be assessed separately to cultural values.
  – **(10)** MAC does not require further consultation on this EP and expects to be consulted about Woodside projects located closer to Murujuga.
- On 30 October 2025, Woodside emailed MAC a reply to its email on 23 October 2025 (SI Report B, reference 1.3.3). Matters relevant to this EP:
  – **(8, 9)** Woodside has assessed risks and impacts to marine fauna using established methodologies and recognises their cultural importance.
  – **(8, 9)** Impacts from activities on the environment, including marine fauna, are assessed, and management measures are established to mitigate these impacts, including scheduling activities outside of whale migration periods.
  – **(8, 9)** Key impacts, risks, and proposed management measures are outlined in Constitution Information Sheets linked during initial consultations.
  – **(10)** Woodside welcomes further queries or discussions regarding MAC's cultural values in EPs and related matters.

Summary of Feedback, Objection or Claim	Woodside's Assessment of Merits of Feedback, Objection or Claim	Woodside's Response	Inclusion in Environment Plan
(1)	**(1)**	**(1)**	**(1)**

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The ecosystem and health of Mermaid Sound.	This value has been identified through Woodside's data collection processes (consultation). Woodside notes that Mermaid Sound does not fall within the EMBA.	At the beginning of consultation for this EP, Woodside provided MAC with a list of the cultural values known to Woodside that it believed relevant to the group and invited it to make changes or provide additional information (see ROC, 6.1.36). MAC did not request changes.	Cultural values relating to Mermaid Sound are in 4.9. Mermaid Sound is not relevant to this EP therefore no impacts are expected.
(2) Marine species: • Whales – totemic importance • Dolphins – cultural ceremonies • Dugongs – food source • Fish – cultural ceremonies • Sea snakes – culturally important • Turtles – Songlines • Coral – attract fish and other species • Seagrass – provide protection for animals • Stingrays • Sharks • Crustaceans • Octopus • Sea stars • Sea urchins • Sponges • Molluscs	**(2)** This value has been identified through Woodside's data collection processes (consultation).	**(2)** At the beginning of consultation for this EP, Woodside provided MAC with a list of the cultural values known to Woodside that it believed relevant to the group and invited it to make changes or provide additional information (see ROC, 6.1.36). MAC did not request changes.	**(2)** Woodside has updated Section 4.9 to record these interests and cultural values and assessed the potential impacts on these and where appropriate included controls in Sections 6.7 and 6.8 of the EP.
(3) Marine eco-systems: • Mangroves	**(3)** This value has been identified through Woodside's data collection processes	**(3)** At the beginning of consultation for this EP, Woodside provided MAC with a list of the cultural values known to	**(3)** Woodside has updated Section 4.9 to record these interests and cultural values and assessed the potential

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• Macroalgal (seaweed) communities • Subtidal soft bottom communities (ocean bottom) • Intertidal sand and mudflat communities • Rocky shores	(consultation and publicly available literature).	Woodside that it believed relevant to the group and invited it to make changes or provide additional information (see ROC, 6.1.36). MAC did not request changes.	impacts on these and where appropriate included controls in Sections 6.7 and 6.8 of the EP.
(4) Fish traps in Conzinc Bay and Angel and Gidley Islands.	**(4)** This value has been identified through Woodside's data collection processes (publicly available literature). Although this area is not within the EP EMBA Woodside has noted this value in the EP.	**(4)** At the beginning of consultation for this EP, Woodside provided MAC with a list of the cultural values known to Woodside that it believed relevant to the group and invited it to make changes or provide additional information (see ROC, 6.1.36). MAC did not request changes.	**(4)** Cultural values relating to Fish traps in Conzinc Bay and Angel and Gidley Islands are in Section 4.9 of the EP. These areas are not relevant to this EP therefore no impacts are expected.
(5) Harvesting squid around Conzinc Bay.	**(5)** This value has been identified through Woodside's data collection processes (publicly available literature). Although this area is not within the EP EMBA Woodside has noted this value in the EP.	**(5)** At the beginning of consultation for this EP, Woodside provided MAC with a list of the cultural values known to Woodside that it believed relevant to the group and invited it to make changes or provide additional information (see ROC, 6.1.36). MAC did not request changes.	**(5)** Cultural values relating to harvesting squid in Conzinc Bay are in Section 4.9. This area is not relevant to this EP therefore no impacts are expected.
(6) MAC is the appropriate cultural authority for Murujuga.	**(6)** Murujuga does not fall within the EMBA therefore no impacts are expected.	**(6)** At the beginning of consultation for this EP, Woodside provided MAC with a list of the cultural values known to Woodside that it believed relevant to the group and invited it to make changes or provide additional information (see ROC, 6.1.36). MAC did not request changes.	**(6)** No action required.
(7) Submerged landscape:	**(7)**	**(7)**	**(7)**

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• Potential impact on Jinna (Songlines). • Potential impact to Aboriginal heritage.	This value has been identified through Woodside's data collection processes (consultation).	At the beginning of consultation for this EP, Woodside provided MAC with a list of the cultural values known to Woodside that it believed relevant to the group and invited it to make changes or provide additional information (see ROC, 6.1.36). MAC did not request changes.	Woodside considers underwater cultural heritage in Section 4.9 and relevant controls are in Section 6.7 and 6.8 of the EP.
(8) Murujuga seasonal calendar: • Any change to the feeding, breeding or migratory behaviour of culturally significant species would impact significantly on subsistence, cultural and ceremonial activities.	**(8)** This value has been identified through Woodside's data collection processes (consultation).	**(8)** At the beginning of consultation for this EP, Woodside provided MAC with a list of the cultural values known to Woodside that it believed relevant to the group and invited it to make changes or provide additional information (see ROC, 6.1.36). MAC reiterated the importance of this value in correspondence about this EP on 23 October 2025. Woodside explained in its reply to MAC on 30 October 2025 that it had assessed risks and impacts to marine fauna using established methodologies and recognises their cultural importance. Impacts from activities on the environment, including marine fauna, are assessed, and management measures are established to mitigate these impacts.	**(8)** Woodside has updated Section 4.9 to record these interests and cultural values and assessed the potential impacts on these and where appropriate included controls in Sections 6.7 and 6.8 of the EP.
(9) Impacts on environmental values should be assessed separately to cultural values.	**(9)** Woodside has assessed risks and impacts to marine fauna using established methodologies and recognises their cultural importance.	**(9)** Woodside has assessed risks and impacts to marine fauna using established methodologies and recognises their cultural importance. Impacts from activities on the environment, including marine fauna, are assessed, and management measures are established to mitigate these impacts.	**(9)** Woodside has updated Section 4.9 to record these interests and cultural values and assessed the potential impacts on these and where appropriate included controls in Sections 6.7 and 6.8 of the EP.

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(10) MAC does not require further consultation on his plan and expects to be consulted about Woodside projects located closer to Murujuga.	**(10)** Woodside accepts MAC's feedback that it does not require further consultation on this plan. Under Woodside's methodology, MAC is consulted about EPs near Murujuga.	**(10)** Woodside welcomes further queries or discussions regarding MAC's cultural values in EPs and related matters.	**(10)** No action required.
While feedback has been received there were no objections or claims.	Woodside has assessed the merits of each objection or claim (if any) about the adverse impact of the activity to which the EP relates, as required under Regulation 24	Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.7.1 of the EP).	Based on the engagement to date, no additional measures or controls are required.

Summary Report – Consultation Complete

Woodside has discharged its obligations for consultation under regulation 25 of the Environmental Regulations and consultation with MAC for the purpose of regulation 25 is complete. Sufficient information and a reasonable period have been provided, as described in Section 5.4 of the EP. Specifically:

Sufficient Information

Sufficient information has been provided because:

- Since September 2025, Woodside made the Consultation Information Sheet available on the Woodside website.
- Woodside provided information to MAC on 8 September 2025 when consultation commenced. Woodside provided:
  - A Summary Information Sheet developed specifically for First Nations groups and reviewed by a member of the First Nations Engagement team. This sheet included an overview of the proposed activity, the location of the activity, the timing of the activity, the potential risks and impacts of the activity, diagrams and details about how to provide feedback.
  - Links to the NOPSEMA *Consultation Guidelines, Consultation Brochure, and Draft Policy for Managing Gender-Restricted Information*, and contact details.
  - Confirmation of the purpose of consultation, what was being sought by Woodside through consultation including understanding the nature of MAC's interests and how the activity could impact those interests.
  - A request for the consultation and information sheets to be distributed to members and individuals as required.
  - An offer to provide more specific information, maps and images if required.
- Woodside provided contact information for Woodside and NOPSEMA.

Reasonable Period

A reasonable period for consultation in the preparation of the EP has been provided because:

- Woodside commenced consultation on this EP with MAC on 8 September 2025 and requested MAC provide feedback by 24 October 2025 for the purposes of preparation of the EP in line with Woodside's methodology of a 45-day period for consultation.

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- Woodside has addressed and responded to MAC for 6 months, demonstrating a “reasonable period” of consultation.

Reasonable Opportunity

A reasonable opportunity to provide feedback has been provided and Woodside’s approach to consultation is appropriate and adapted because:

- Woodside sought direction on MAC’s preferred method of consultation and has consulted in a way that Woodside understands is appropriate for First Nations groups.
- Woodside has made information on this EP publicly available for 6 months. This has included publishing advertisements in national, state and local newspapers including Indigenous newspapers, the Koori Mail (10 September 2025) and National Indigenous Times (24 September 2025) advising of the proposed activities and requesting comments or feedback.
- Woodside’s initial email about this EP on 8 September 2025:
  - Included a general email address and telephone number for Woodside, as well as a direct email and telephone number for a dedicated focal person from Woodside’s First Nations Engagement team. Woodside also provided contact details for NOPSEMA.
  - Offered for Woodside to speak with MAC members as well as the MAC Board.
  - Asked MAC to advise how it would like Woodside to engage and whether MAC required further information.
- Throughout the consultation period, Woodside and MAC have had direct contact lines to each other.

Outcomes of Consultation

The measures (if any) that Woodside has adopted or proposes to adopt because of the consultation are appropriate because:

- Woodside has incorporated cultural values previously provided by MAC into the EP.
- During the past 6 months, MAC has not raised objections or claims about the adverse impact of the activity to which this EP relates.
- MAC has provided feedback about the:
  - Natural movement, migration and behaviour of marine species (including sea birds), which may impact the cultural interpretation of the seasonal landscape and seascape.
  - Impacts on environmental values and advised that they should be assessed separately to cultural values.
- Woodside has responded to the feedback and, where appropriate, controls have been included in the EP.
- MAC has stated that it does not require further consultation on this EP and expects to be consulted about Woodside projects located closer to Murujuga.

Woodside engages in ongoing consultation once an EP has been submitted for assessment as well as throughout the life of an EP. Should feedback be received after the EP has been accepted (including relevant new information relating to cultural values), it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.7.1 of the EP).

4.12.4 Nganhurra Thanardi Garrbu Aboriginal Corporation (NTGAC)

NTGAC is established under the *Native Title Act 1993* (Cth) by the Baiyungu people to represent the Baiyungu people (defined broadly by reference to descent from the set of ancestors who were known to have a continuous and unbroken connection as the Traditional Custodians at the time of European colonisation) and represent their communal interests including, among other things, management and protection of cultural values.

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Woodside has an existing relationship with NTGAC which extends prior to consultation for this EP. Woodside's consultation approach for Traditional Owners has a focus on building and maintaining long-term relationships with each group. Woodside has assigned a First Nations Engagement team member as a dedicated focal person for EP consultation with NTGAC, who is responsible for building a consultative relationship and is readily available to provide information and take feedback.

At the start of consultation, Woodside provided NTGAC a table of cultural values previously identified for NTGAC through consultation and reviews of publicly available literature. Woodside invited NTGAC to make changes or provide additional information about these cultural values. NTGAC did not request changes. Woodside consults NTGAC via YMAC. This context and process demonstrates that Woodside's consultation approach with NTGAC is appropriate and adapted to the nature and interests of NTGAC.

Summary of information provided and record of consultation for this EP:

- On 8 September 2025, Woodside emailed NTGAC (via YMAC) advising of the proposed activity (Record of Consultation, reference 6.1.42). The email included:
  - A Summary Information Sheet.
  - A link to the Consultation Information Sheet.
  - An overview of the proposed activity.
  - Links to the NOPSEMA *Consultation Guidelines, Consultation Brochure, and Draft Policy for Managing Gender-Restricted Information* and contact details.
  - Information on the cultural values relating to NTGAC that Woodside considers relevant to the activity:
    - **(1)** Interests in marine ecosystems and species:
      - Invasive marine species.
      - Chemicals released into the water – ballast water discharge.
      - Marine parks – risks.
  - **(1)** A request from Woodside that NTGAC confirm if there were any changes or additional information regarding cultural values that Woodside should consider in the preparation for this EP.
  - A request for feedback by 24 October 2025 for the purposes of preparation of the EP.
  - A request for information on how NTGAC (via YMAC) would like to engage with Woodside about the proposed activity, including the opportunity to meet face-to-face.
  - Advice that feedback can continue to be provided to Woodside during the life of an EP, including after consultation for the EP has closed, during EP assessment, and after an EP has been accepted by NOPSEMA.
  - Woodside's commitment to managing gender-restricted or other culturally sensitive information.
  - A request for NTGAC (via YMAC) to provide information about the proposed activity to other individuals as required.
- On 10 October 2025, Woodside emailed NTGAC (via YMAC) a reminder about the proposed activity (SI Report B, reference 1.4.1). The email included:
  - A reference to the original consultation email for this EP sent to NTGAC (via YMAC) on 8 September 2025, which included a Summary Information Sheet and a link to the Consultation Information Sheet.
  - A reminder that consultation for the preparation of the EP closes on 24 October 2025.
  - A request for information on how NTGAC (via YMAC) would like to engage with Woodside about the proposed activity, including the opportunity to meet face to face.
  - Woodside's commitment to managing gender-restricted or other culturally sensitive information.

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– Advice that feedback can continue to be provided to Woodside during the life of an EP, including after consultation for the EP has closed, during EP assessment, and after an EP has been accepted by NOPSEMA.
– Acknowledgement that discussions relating to Woodside's consultation framework agreement has been ongoing and that these discussions will progress in parallel with consultation for the proposed activity's EP.

Summary of Feedback, Objection or Claim	Woodside's Assessment of Merits of Feedback, Objection or Claim	Woodside's Response	Inclusion in Environment Plan
(1) Interests in marine ecosystems and species: • Invasive marine species. • Chemicals released into the water – ballast water discharge. • Marine parks – risks.	**(1)** This value has been identified through Woodside's data collection processes (consultation).	**(1)** At the beginning of consultation for this EP, Woodside provided NTGAC with a list of the cultural values known to Woodside that it believed relevant to the group and invited it to make changes or provide additional information (See ROC, 6.1.42). NTGAC did not request changes.	**(1)** Woodside recorded this cultural value in Section 4.9 of the EP. The management of ballast water discharges is covered in Section 6.8.8 of the EP.
No feedback, objections or claims about the adverse impact of the activity received despite follow-up.	Although no feedback, objections or claims were provided for this EP, historical cultural values considered relevant have been identified and included based on consultation and/or literature review.	Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.7.1).	No additional measures or controls are required.

Summary Report – Consultation Complete

Woodside has discharged its obligations for consultation under regulation 25 of the Environmental Regulations and consultation with NTGAC (YMAC) for the purpose of regulation 25 is complete. Sufficient information and a reasonable period have been provided, as described in Section 5.4 of the EP. Specifically:

Sufficient Information

Sufficient information has been provided because:

- Since September 2025, Woodside made the Consultation Information Sheet available on the Woodside website.
- Woodside provided information to NTGAC (via YMAC) on 8 September 2025 when consultation commenced. Woodside provided:
  – A Summary Information Sheet developed specifically for First Nations groups and reviewed by a member of the First Nations Engagement team. This sheet included an overview of the proposed activity, the location of the activity, the timing of the activity, the potential risks and impacts of the activity, diagrams and details about how to provide feedback.
  – Links to the NOPSEMA *Consultation Guidelines, Consultation Brochure, and Draft Policy for Managing Gender-Restricted Information*, and contact details.

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  - Confirmation of the purpose of consultation, what was being sought by Woodside through consultation including understanding the nature of NTGAC's interests and how the activity could impact those interests.
  - A request for the consultation and information sheets to be distributed to members and individuals as required.
  - An offer to provide more specific information, maps and images if required.
- Woodside provided contact information for Woodside and NOPSEMA.
- Woodside provided updated information to NTGAC (via YMAC) on 10 October 2025 which included:
  - A reference to the original consultation email for this EP sent to NTGAC (via YMAC) on 8 September 2025, which included a Summary Information Sheet and a link to the Consultation Information Sheet.
  - A reminder that consultation for the preparation of the EP closes on 24 October 2024.
  - A request for information on how NTGAC (via YMAC) would like to engage with Woodside about the proposed activity, including the opportunity to meet face to face.
  - Advice that feedback can continue to be provided to Woodside during the life of an EP, including after consultation for the EP has closed, during EP assessment, and after an EP has been accepted by NOPSEMA.

Reasonable Period

A reasonable period for consultation in the preparation of the EP has been provided because:

- Woodside commenced consultation on this EP with NTGAC (via YMAC) on 8 September 2025 and requested NTGAC (YMAC) provide feedback by 24 October 2025 for the purposes of preparation of the EP in line with Woodside's methodology of a 45-day period for consultation.
- Woodside has addressed and responded to NTGAC (via YMAC) for 6 months, demonstrating a "reasonable period" of consultation.

Reasonable Opportunity

A reasonable opportunity to provide feedback has been provided and Woodside's approach to consultation is appropriate and adapted because:

- Woodside sought direction on NTGAC's preferred method of consultation and has consulted in a way that Woodside understands is appropriate for First Nations groups.
- Woodside has made information on this EP publicly available for 6 months. This has included publishing advertisements in national, state and local newspapers including Indigenous newspapers, the Koori Mail (10 September 2025) and National Indigenous Times (24 September 2025) advising of the proposed activities and requesting comments or feedback.
- Woodside's initial email about this EP on 8 September 2025:
  - Included a general email address and telephone number for Woodside, as well as a direct email and telephone number for a dedicated focal person from Woodside's First Nations Engagement team. Woodside also provided contact details for NOPSEMA.
  - Offered for Woodside to speak with NTGAC (via YMAC) members as well as the NTGAC Board.
  - Asked NTGAC (via YMAC) to advise how it would like Woodside to engage and whether NTGAC required further information.
- Throughout the consultation period, Woodside and NTGAC (via YMAC) have had direct contact lines to each other.

Outcomes of Consultation

The measures (if any) that Woodside has adopted or proposes to adopt because of the consultation are appropriate because:

- Woodside has incorporated cultural values previously provided by NTGAC (via YMAC) into the EP.
- During the past 6 months, NTGAC (via YMAC) has not raised objections or claims about the adverse impact of the activity to which this EP relates.

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Woodside engages in ongoing consultation once an EP has been submitted for assessment as well as throughout the life of an EP. Should feedback be received after the EP has been accepted (including relevant new information relating to cultural values), it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.7.1 of the EP).

4.12.5 Ngarluma Aboriginal Corporation (NAC)

NAC is established under the *Native Title Act 1993* (Cth) by the Ngarluma people to represent the Ngarluma people (defined broadly by reference to descent from the set of ancestors who were known to have a continuous and unbroken connection as the Traditional Custodians at the time of European colonisation) and represent their communal interests including, among other things, management and protection of cultural values.

Woodside has an existing relationship with NAC which extends prior to consultation for this EP. Woodside's consultation approach for Traditional Owners has a focus on building and maintaining long-term relationships with each group. Woodside has assigned a First Nations Engagement team member as a dedicated focal person for EP consultation with NAC, who is responsible for building a consultative relationship and is readily available to provide information and take feedback. Aside from regular consultation about EPs, NAC also attends Quarterly Heritage Meetings hosted by Woodside.

At the start of consultation, Woodside provided NAC a table of cultural values previously identified for NAC through consultation. Woodside invited NAC to make changes or provide additional information about these cultural values. NAC did not request any changes. This context and process demonstrates that Woodside's consultation approach with NAC is appropriate and adapted to the nature and interests of NAC.

Summary of information provided and record of consultation for this EP:

- On 8 September 2025, Woodside emailed NAC advising of the proposed activity (Record of Consultation, reference 6.1.37). The email included:
  - A Summary Information Sheet.
  - A link to the Consultation Information Sheet.
  - An overview of the proposed activity.
  - Links to the NOPSEMA *Consultation Guidelines, Consultation Brochure, and Draft Policy for Managing Gender-Restricted Information* and contact details.
  - Information on the cultural values relating to NAC that Woodside considers relevant to the activity:
    - **(1)** Onshore heritage.
    - **(2)** Potential of submerged heritage.
    - **(3)** Manggan (creative beings) used supernatural force to shape the hills, rivers, seas and landforms.
  - **(1, 2, 3)** A request from Woodside that NAC confirm if there were any changes or additional information regarding cultural values that Woodside should consider in the preparation for this EP.
  - A request for feedback by 24 October 2025 for the purposes of preparation of the EP.
  - A request for information on how NAC would like to engage with Woodside about the proposed activity, including the opportunity to meet face-to-face.
  - Advice that feedback can continue to be provided to Woodside during the life of an EP, including after consultation for the EP has closed, during EP assessment, and after an EP has been accepted by NOPSEMA.

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- Woodside's commitment to managing gender-restricted or other culturally sensitive information.
- A request for NAC to provide information about the proposed activity to other individuals as required.

- On 10 October 2025, Woodside emailed NAC a reminder about the proposed activity (SI Report B, reference 1.5.1). The email included:
  - A reference to the original consultation email for this EP sent to NAC on 8 September 2025, which included a Summary Information Sheet and a link to the Consultation Information Sheet.
  - A reminder that consultation for the preparation of the EP closes on 24 October 2025.
  - A request for information on how NAC would like to engage with Woodside about the proposed activity, including the opportunity to meet face to face.
  - Woodside's commitment to managing gender-restricted or other culturally sensitive information.
  - Advice that feedback can continue to be provided to Woodside during the life of an EP, including after consultation for the EP has closed, during EP assessment, and after an EP has been accepted by NOPSEMA.
  - Acknowledgement that discussions relating to Woodside's consultation framework agreement has been ongoing and that these discussions will progress in parallel with consultation for the proposed activity's EP.
- On 2 December 2025, Woodside emailed NAC an invitation to Woodside's Quarterly Heritage Meeting on 3 December 2025, as an opportunity for Woodside to provide updates on Woodside's activities to Traditional Owner groups and to receive feedback from the community (SI Report B, reference 1.5.2).
- On 3 December 2025, NAC attended Woodside's Quarterly Heritage Meeting, at which Woodside stated that consultation for future EPs would recommence in Q1 2026 and showed an example of new animations videos used to support EP consultation (SI Report B, reference 6.1).

Summary of Feedback, Objection or Claim	Woodside's Assessment of Merits of Feedback, Objection or Claim	Woodside's Response	Inclusion in Environment Plan
(1) Cultural Value: • Onshore Heritage.	**(1)** This value has been identified through Woodside's data collection processes (consultation).	**(1)** At the beginning of consultation for this EP, Woodside provided NAC with a list of the cultural values known to Woodside that it believed relevant to the group and invited it to make changes or provide additional information (See ROC, 6.1.37). NAC did not request changes.	**(1)** Woodside has updated Section 4.9 to record these interests and cultural values. Impacts are not expected as an unplanned hydrocarbon release is not expected to reach higher than highest atronomical tide levels.
(2) Cultural Value: • Potential of submerged heritage.	**(2)** This value has been identified through Woodside's data collection processes (consultation).	**(2)** At the beginning of consultation for this EP, Woodside provided NAC with a list of the cultural values known to Woodside that it believed relevant to the group and invited it to make changes or provide additional information (See	**(2)** Woodside considers underwater cultural heritage in Section 4.9. Unplanned seabed contact is not expected to have an impact on potential underwater cultural heritage, this is outlined in Section 6.8 of the EP.

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		ROC, 6.1.37). NAC did not request changes.	
(3) Cultural Value: • Manggan (creative beings) used supernatural force to shape the hills, rivers, seas and landforms.	**(3)** This value has been identified through Woodside's data collection processes (literature review).	**(3)** At the beginning of consultation for this EP, Woodside provided NAC with a list of the cultural values known to Woodside that it believed relevant to the group and invited it to make changes or provide additional information (See ROC, 6.1.61). NAC did not request changes.	**(3)** Woodside has updated Section 4.9 to record these interests and cultural values; where relevant, controls have been adopted in Section 6.7.
No feedback, objections or claims about the adverse impact of the activity received despite follow-up.	Although no feedback, objections or claims were provided for this EP, historical cultural values considered relevant have been identified and included based on consultation and / or literature review.	Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.7.1).	No additional measures or controls are required.

Summary Report – Consultation Complete

Woodside has discharged its obligations for consultation under regulation 25 of the Environmental Regulations and consultation with NAC for the purpose of regulation 25 is complete. Sufficient information and a reasonable period have been provided, as described in Section 5.4 of the EP. Specifically:

Sufficient Information

Sufficient information has been provided because:

- Since September 2025, Woodside made the Consultation Information Sheet available on the Woodside website.
- Woodside provided information to NAC n 8 September 2025 when consultation commenced. Woodside provided:
  - A Summary Information Sheet developed specifically for First Nations groups and reviewed by a member of the First Nations Engagement team. This sheet included an overview of the proposed activity, the location of the activity, the timing of the activity, the potential risks and impacts of the activity, diagrams and details about how to provide feedback.
  - Links to the NOPSEMA *Consultation Guidelines, Consultation Brochure, and Draft Policy for Managing Gender-Restricted Information*, and contact details.
  - Confirmation of the purpose of consultation, what was being sought by Woodside through consultation including understanding the nature of NAC's interests and how the activity could impact those interests.
  - A request for the consultation and information sheets to be distributed to members and individuals as required.
  - An offer to provide more specific information, maps and images if required.
- Woodside provided contact information for Woodside and NOPSEMA.

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- Woodside provided updated information to NAC on 10 October 2025 which included:
  - A reference to the original consultation email for this EP sent to NAC on 8 September 2025, which included a Summary Information Sheet and a link to the Consultation Information Sheet.
  - A reminder that consultation for the preparation of the EP closes on 24 October 2024.
  - A request for information on how NAC would like to engage with Woodside about the proposed activity, including the opportunity to meet face to face.
  - Advice that feedback can continue to be provided to Woodside during the life of an EP, including after consultation for the EP has closed, during EP assessment, and after an EP has been accepted by NOPSEMA.

Reasonable Period

A reasonable period for consultation in the preparation of the EP has been provided because:

- Woodside commenced consultation on this EP with NAC on 8 September 2025 and requested NAC provide feedback by 24 October 2025 for the purposes of preparation of the EP in line with Woodside's methodology of a 45-day period for consultation.
- Woodside has addressed and responded to NAC for 6 months, demonstrating a "reasonable period" of consultation.

Reasonable Opportunity

A reasonable opportunity to provide feedback has been provided and Woodside's approach to consultation is appropriate and adapted because:

- Woodside sought direction on NAC's preferred method of consultation and has consulted in a way that Woodside understands is appropriate for First Nations groups.
- Woodside has made information on this EP publicly available for 6 months. This has included publishing advertisements in national, state and local newspapers including Indigenous newspapers, the Koori Mail (10 September 2025) and National Indigenous Times (24 September 2025) advising of the proposed activities and requesting comments or feedback.
- Woodside's initial email about this EP on 8 September 2025:
  - Included a general email address and telephone number for Woodside, as well as a direct email and telephone number for a dedicated focal person from Woodside's First Nations Engagement team. Woodside also provided contact details for NOPSEMA.
  - Offered for Woodside to speak with NAC members as well as the NAC Board.
  - Asked NAC to advise how it would like Woodside to engage and whether NAC required further information.
- Throughout the consultation period, Woodside and NAC have had direct contact lines to each other.

Outcomes of Consultation

The measures (if any) that Woodside has adopted or proposes to adopt because of the consultation are appropriate because:

- Woodside has incorporated cultural values previously provided by NAC into the EP.
- During the past 6 months, NAC has not raised objections or claims about the adverse impact of the activity to which this EP relates.

Woodside engages in ongoing consultation once an EP has been submitted for assessment as well as throughout the life of an EP. Should feedback be received after the EP has been accepted (including relevant new information relating to cultural values), it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.7.1 of the EP).

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4.12.6 Nhuwala Claim Group (Nhuwala)

The Nhuwala Claim Group Native Title claim is in Western Australia's Pilbara region within the Shire of Ashburton. The application area covers around 3,475 square kilometres near the town of Onslow. Nhuwala is represented by YMAC. Before consultation commenced for this EP, Nhuwala (via YMAC) requested an EP consultation meeting with Woodside on 22 September 2025 to discuss other EPs. When informed about being a relevant person for consultation for this EP on 8 September 2025, Nhuwala requested the proposed activity to be included for discussion at the meeting.

The meeting was rescheduled and booked for 4 November 2025 but was cancelled by Nhuwala (via YMAC) on 30 October 2025, with a request for the meeting to be postponed to the week beginning 17 November 2025. Woodside informed Nhuwala (via YMAC) that formal consultation for this EP closed on 24 October 2025 and any feedback received during the meeting would be considered ongoing consultation. This context and process demonstrates that Woodside's consultation approach with Nhuwala is appropriate and adapted to its nature and interests.

Summary of information provided and record of consultation for this EP:

- On 8 September 2025, Woodside emailed Nhuwala (via YMAC) advising of the proposed activity (Record of Consultation, reference 6.1.42). The email included:
  - A Summary Information Sheet.
  - A link to the Consultation Information Sheet.
  - An overview of the proposed activity.
  - Links to the NOPSEMA *Consultation Guidelines, Consultation Brochure, and Draft Policy for Managing Gender-Restricted Information* and contact details.
  - A request for feedback by 24 October 2025 for the purposes of preparation of the EP.
  - A request for information on how Nhuwala (via YMAC) would like to engage with Woodside about the proposed activity, including the opportunity to meet face-to-face.
  - Advice that feedback can continue to be provided to Woodside during the life of an EP, including after consultation for the EP has closed, during EP assessment, and after an EP has been accepted by NOPSEMA.
  - Woodside's commitment to managing gender-restricted or other culturally sensitive information.
  - A request for Nhuwala (via YMAC) to provide information about the proposed activity to other individuals as required.
- On 8 September 2025, Nhuwala (via YMAC) emailed Woodside regarding the proposed EP consultation meeting, scheduled for 22 September 2025 in Karratha. YMAC included a cost estimate for the meeting (SI Report B, reference 1.6.1).
- On 11 September 2025, Nhuwala (via YMAC) emailed Woodside to follow-up on its cost estimates budget for a proposed meeting on 22 September 2025 (SI Report B, reference 1.6.2).
- On 11 September 2025, Woodside emailed Nhuwala (via YMAC) in response to an earlier email regarding cost estimates for a proposed EP consultation meeting on 22 September 2025. Woodside advised YMAC that the proposed cost exceeded the limits set by Woodside's policies in relation to funding consultation meetings and requested YMAC submit a revised quote (SI Report B, reference 1.6.3).
- On 11 September 2025, Nhuwala (via YMAC) emailed Woodside thanking it for the feedback regarding the budget for the proposed consultation meeting (SI Report B, reference 1.6.4). In the email YMAC:
  - Acknowledged that Woodside has policies that may limit the funding for such meetings.

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  - Stated that Nhuwala required the ability to select the venue for consultation meetings, particularly for the first meeting to ensure its members felt comfortable and safe.
  - Stated that Nhuwala has nominated a specific number of members for the consultation committee based on their cultural knowledge, experience, and expertise.
  - Advised that YMAC would bring Woodside's proposal to the next meeting of Nhuwala members in mid-October.
  - Stated that a legal representative is required to attend the first meeting with Woodside to support the Nhuwala group, and costs associated with this representative should be funded by Woodside.
  - Informed Woodside that the originally proposed date of 22 September was not achievable.
  - Reiterated Nhuwala's desire to be consulted on EPs and to build a good working relationship with Woodside, and looked forward to finding a mutually agreeable path forward.
- On 23 September 2025, Woodside emailed Nhuwala (via YMAC) regarding the cost, location and date of an upcoming meeting (SI Report, reference 1.6.5).
- On 1 October 2025, YMAC emailed Woodside in relation to earlier discussions about meeting to discuss EP consultation (SI Report B, reference 1.6.6).
- On 10 October 20205, Woodside emailed Nhuwala (via YMAC) a reminder about the proposed activity (SI Report B, reference 1.6.7). The email included:
  - A reference to the original consultation email for this EP sent to Nhuwala (via YMAC) on 8 September 2025, which included a Summary Information Sheet and a link to the Consultation Information Sheet.
  - A reminder that consultation for the preparation of the EP closes on 24 October 2025.
  - A request for information on how Nhuwala (via YMAC) would like to engage with Woodside about the proposed activity, including the opportunity to meet face to face.
  - Woodside's commitment to managing gender-restricted or other culturally sensitive information.
  - Advice that feedback can continue to be provided to Woodside during the life of an EP, including after consultation for the EP has closed, during EP assessment, and after an EP has been accepted by NOPSEMA.
- Between 14 and 15 October 2025, Woodside and Nhuwala (via YMAC) exchanged emails about meeting on 22 October 2025 (SI Report B, reference 1.6.8 – 1.6.12).
- On 16 October 2025, Nhuwala (via YMAC) emailed Woodside and requested that the meeting scheduled for 22 October 2025 be delayed until 4 or 5 November 2025. YMAC also noted the closing date for the outstanding EPs was the end of October, and requested a short extension for these matters to be addressed (SI Report B, reference 1.6.13).
- On 16 October 2025, Woodside emailed Nhuwala (via YMAC) agreeing to Nhuwala's request to postpone the planned meeting to the early November but explained that consultation periods for this EP and others would have closed by this time. Woodside explained that feedback received during the meeting would be assessed and any measures or controls considered as required will be applied via Woodside's Management of Change and Review process (SI Report B, reference 1.6.14).
- Between 16 and 30 October 2025, Nhuwala (via YMAC) and Woodside exchanged emails about meeting in early November. During the exchange, a new meeting date of 4 November 2025 was confirmed, and logistics including catering and budgets were discussed (SI Report B, references 1.6.15 – 1.6.30).
- On 30 October 2025, Nhuwala (via YMAC) emailed Woodside and cancelled the planned meeting for 4 November 2025. Nhuwala requested the meeting be postponed until the week of 17 November 2025 (SI Report B, reference 1.6.31).
- Between 30 October and 6 November 2025, Nhuwala (via YMAC) exchanged emails about postponing the meeting scheduled for 4 November 2025. During the exchange it was agreed that the meeting would be postponed to 20 November 2025. Woodside explained that consultation for this EP would be closed by that date and feedback received would be considered as ongoing consultation (SI Report B, references 1.6.32 – 1.6.36).

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- Between 7 and 14 November 2025, Woodside and Nhuwala (via YMAC) exchanged emails about logistics relating to the rescheduled meeting on 20 November 2025 (SI Report B, references 1.6.37 – 1.6.45).
- On 20 November 2025, Woodside met with Nhuwala and YMAC in Karratha to present information about the proposed activity and an unrelated EP (SI Report B, reference 1.6.46). During the meeting:
  - Woodside provided an explanation of EPs, the role of NOPSEMA, the purpose of the meeting and EP consultation – including understanding and learning about Nhuwala's cultural values, important areas and stories.
  - Woodside explained the modelling scenarios and development of EMBAs.
  - Woodside identified the distances from Nhuwala Native Title Claim to the proposed activity's Operational Area and EMBA.
  - During the meeting, Woodside:
    - Provided an overview of marine seismic surveys, including an explanation of the concept and process of marine surveying and the vessels used.
    - Stated that the current survey campaign is planned for 40 days, starting in January - February 2027 and operating 24 hours.
    - Confirmed that the first monitor survey of the Pluto reservoir was in 2016, the second in 2020, with the planned survey being the third time.
    - The potential impacts and risks from planned and unplanned events, including discharges, greenhouse gases and acoustic modelling.
    - That strategies for detecting/monitoring marine species and responding to their presence during surveys were outlined.
  - **(1)** KAC asked about when there has been a shut-down due to marine life. **(1)** Woodside explained its procedures for spotting marine life and suspending activities until it is safe to recommence surveying.
  - Throughout the presentation, Woodside engaged with Nhuwala, addressing questions and comments regarding the proposed activity.
- On 21 November 2025, YMAC emailed Woodside with an invoice for a meeting with Nhuwala the previous day (SI Report B, reference 1.6.47).
- On 28 November 2025, Woodside emailed Nhuwala (via YMAC) answers to questions taken on notice during the 20 November 2025 meeting (SI Report B, reference 1.6.48). The email included:
  - Links to videos shared during the meeting.
  - Links to Consultation Information Sheets for EPs discussed during the meeting.
  - Information about Woodside's Cultural Heritage Assessment Process.
  - An explanation about "ongoing consultation".
  - A request for any further information about Nhuwala's cultural values.

Summary of Feedback, Objection or Claim	Woodside's Assessment of Merits of Feedback, Objection or Claim	Woodside's Response	Inclusion in Environment Plan
(1) Nhuwala asked about when there has been a shut-down due to marine life.	**(1)** Woodside assess environmental impacts of its EPs and puts in place appropriate mitigation measures regarding impacts to marine fauna.	**(1)** Woodside suspends its activities when whales are observed in shutdown zones and recommences surveying activities when they move to a safe distance. .	**(1)** Woodside has assessed the impacts of the activity to marine fauna and migration patterns, and where appropriate included controls in Sections 6.7 and 6.8 of the EP.

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While feedback has been received there were no objections or claims.	Woodside has assessed the merits of each objection or claim (if any) about the adverse impact of the activity to which the EP relates, as required under Regulation 24	Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.7.1 of the EP).	Based on the engagement to date, no additional measures or controls are required.

Summary Report – Consultation Complete

Woodside has discharged its obligations for consultation under regulation 25 of the Environmental Regulations and consultation with Nhuwala (via YMAC) for the purpose of regulation 25 is complete. Sufficient information and a reasonable period have been provided, as described in Section 5.4 of the EP. Specifically:

Sufficient Information

Sufficient information has been provided because:

- Since September 2025, Woodside made the Consultation Information Sheet available on the Woodside website.
- Woodside provided information to Nhuwala (via YMAC) on 8 September 2025 when consultation commenced. Woodside provided:
  - A Summary Information Sheet developed specifically for First Nations groups and reviewed by a member of the First Nations Engagement team. This sheet included an overview of the proposed activity, the location of the activity, the timing of the activity, the potential risks and impacts of the activity, diagrams and details about how to provide feedback.
  - Links to the NOPSEMA *Consultation Guidelines, Consultation Brochure, and Draft Policy for Managing Gender-Restricted Information*, and contact details.
  - Confirmation of the purpose of consultation, what was being sought by Woodside through consultation including understanding the nature of Nhuwala's interests and how the activity could impact those interests.
  - A request for the consultation and information sheets to be distributed to members and individuals as required.
  - An offer to provide more specific information, maps and images if required.
- Woodside provided contact information for Woodside and NOPSEMA.
- Woodside provided updated information to Nhuwala (via YMAC) on 10 October 2025 which included:
  - A reference to the original consultation email for this EP sent to Nhuwala (via YMAC) on 8 September 2025, which included a Summary Information Sheet and a link to the Consultation Information Sheet.
  - A reminder that consultation for the preparation of the EP closes on 24 October 2024.
  - A request for information on how Nhuwala (via YMAC) would like to engage with Woodside about the proposed activity, including the opportunity to meet face to face.
  - Advice that feedback can continue to be provided to Woodside during the life of an EP, including after consultation for the EP has closed, during EP assessment, and after an EP has been accepted by NOPSEMA.

Reasonable Period

A reasonable period for consultation in the preparation of the EP has been provided because:

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- Woodside commenced consultation on this EP with Nhuwala (via YMAC) on 8 September 2025 and requested Nhuwala (via YMAC) provide feedback by 24 October 2025 for the purposes of preparation of the EP in line with Woodside's methodology of a 45-day period for consultation.
- Woodside has addressed and responded to Nhuwala (via YMAC) for 6 months, demonstrating a "reasonable period" of consultation.

Reasonable Opportunity

A reasonable opportunity to provide feedback has been provided and Woodside's approach to consultation is appropriate and adapted because:

- Woodside sought direction on Nhuwala's preferred method of consultation and has consulted in a way that Woodside understands is appropriate for First Nations groups.
- Woodside has made information on this EP publicly available for 6 months. This has included publishing advertisements in national, state and local newspapers including Indigenous newspapers, the Koori Mail (10 September 2025) and National Indigenous Times (24 September 2025) advising of the proposed activities and requesting comments or feedback.
- Woodside's initial email about this EP on 8 September 2025:
  - Included a general email address and telephone number for Woodside, as well as a direct email and telephone number for a dedicated focal person from Woodside's First Nations Engagement team. Woodside also provided contact details for NOPSEMA.
  - Offered for Woodside to speak with Nhuwala's members.
  - Asked Nhuwala (via YMAC) to advise how it would like Woodside to engage and whether Nhuwala (via YMAC) required further information.
- Throughout the consultation period, Woodside and Nhuwala (via YMAC) have had direct contact lines to each other.

Outcomes of Consultation

The measures (if any) that Woodside has adopted or proposes to adopt because of the consultation are appropriate because:

- During the past 6 months, Nhuwala (via YMAC) has not raised objections or claims about the adverse impact of the activity to which this EP relates.

Woodside engages in ongoing consultation once an EP has been submitted for assessment as well as throughout the life of an EP. Should feedback be received after the EP has been accepted (including relevant new information relating to cultural values), it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.7.1 of the EP).

4.12.7 Robe River Kuruma Aboriginal Corporation (RRKAC)

RRKAC is established under the *Native Title Act 1993* (Cth) by the Robe River Kuruma people to represent the Robe River Kuruma people (defined broadly by reference to descent from the set of ancestors who were known to have a continuous and unbroken connection as the Traditional Custodians at the time of European colonisation) and represent their communal interests including, among other things, management and protection of cultural values.

Woodside has an existing relationship with RRKAC which extends prior to consultation for this EP. Woodside's consultation approach for Traditional Owners has a focus on building and maintaining long-term relationships with each group. Woodside has assigned a First Nations Engagement team member as a dedicated focal person for EP consultation with RRKAC, who is responsible for building a consultative relationship and is readily available to provide information and take feedback.

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At the start of consultation, Woodside provided RRKAC a table of cultural values previously identified for RRKAC through consultation and reviews of publicly available literature. Woodside invited RRKAC to make changes or provide additional information about these cultural values. RRKAC did not request any changes. This context and process demonstrates that Woodside's consultation approach with RRKAC is appropriate and adapted to the nature and interests of RRKAC.

Summary of information provided and record of consultation for this EP:

- On 8 September 2025, Woodside emailed RRKAC advising of the proposed activity (Record of Consultation, reference 6.1.38). The email included:
  - A Summary Information Sheet.
  - A link to the Consultation Information Sheet.
  - An overview of the proposed activity.
  - Links to the NOPSEMA *Consultation Guidelines, Consultation Brochure, and Draft Policy for Managing Gender-Restricted Information* and contact details.
  - Information on the cultural values that RRKAC has previously provided to Woodside considered relevant to the activity:
    - **(1)** Concerns about underwater heritage – impacts at shoreline.
    - **(2)** The coastline.
  - **(1, 2)** A request from Woodside that RRKAC confirm if there were any changes or additional information regarding cultural values that Woodside should consider in the preparation for this EP.
  - A request for feedback by 24 October 2025 for the purposes of preparation of the EP.
  - A request for information on how RRKAC would like to engage with Woodside about the proposed activity, including the opportunity to meet face-to-face.
  - Advice that feedback can continue to be provided to Woodside during the life of an EP, including after consultation for the EP has closed, during EP assessment, and after an EP has been accepted by NOPSEMA.
  - Woodside's commitment to managing gender-restricted or other culturally sensitive information.
  - A request for RRKAC to provide information about the proposed activity to other individuals as required.
- On 10 October 2025, Woodside emailed RRKAC a reminder about the proposed activity (SI Report B, reference 1.7.1). The email included:
  - A reference to the original consultation email for this EP sent to RRKAC on 8 September 2025, which included a Summary Information Sheet and a link to the Consultation Information Sheet.
  - A reminder that consultation for the preparation of the EP closes on 24 October 2025.
  - A request for information on how RRKAC would like to engage with Woodside about the proposed activity, including the opportunity to meet face to face.
  - Woodside's commitment to managing gender-restricted or other culturally sensitive information.
  - Advice that feedback can continue to be provided to Woodside during the life of an EP, including after consultation for the EP has closed, during EP assessment, and after an EP has been accepted by NOPSEMA.
  - Acknowledgement that discussions relating to Woodside's consultation framework agreement has been ongoing and that these discussions will progress in parallel with consultation for the proposed activity's EP.

Summary of Feedback, Objection or Claim	Woodside's Assessment of Merits of Feedback, Objection or Claim	Woodside's Response	Inclusion in Environment Plan

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(1) Cultural Value: • Concerns about underwater heritage – impacts at shoreline.	**(1)** This value has been identified through Woodside's data collection processes (consultation).	**(1)** At the beginning of consultation for this EP, Woodside provided RRKAC with a list of the cultural values known to Woodside that it believed relevant to the group and invited it to make changes or provide additional information (See ROC, 6.1.38). RRKAC did not request changes.	**(1)** Unplanned seabed contact is not expected to have an impact on potential underwater cultural heritage, this is outlined in Section 6.8 of the EP.
(2) Cultural Value: • The coastline.	**(2)** This value has been identified through Woodside's data collection processes (consultation).	**(2)** At the beginning of consultation for this EP, Woodside provided RRKAC with a list of the cultural values known to Woodside that it believed relevant to the group and invited it to make changes or provide additional information (See ROC, 6.1.38). RRKAC did not request changes.	**(2)** The coastline is not expected to be impacted by this activity, and no additional measures or controls are required or outlined in this EP.
No feedback, objections or claims about the adverse impact of the activity received despite follow-up.	Although no feedback, objections or claims were provided for this EP, historical cultural values considered relevant have been identified and included based on consultation.	Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.7.1).	No additional measures or controls are required.
Summary Report – Consultation Complete			
Woodside has discharged its obligations for consultation under regulation 25 of the Environmental Regulations and consultation with RRKAC for the purpose of regulation 25 is complete. Sufficient information and a reasonable period have been provided, as described in Section 5.4 of the EP. Specifically: **Sufficient Information** Sufficient information has been provided because: • Since September 2025, Woodside made the Consultation Information Sheet available on the Woodside website. • Woodside provided information to RRKAC on 8 September 2025 when consultation commenced. Woodside provided:			

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  - A Summary Information Sheet developed specifically for First Nations groups and reviewed by a member of the First Nations Engagement team. This sheet included an overview of the proposed activity, the location of the activity, the timing of the activity, the potential risks and impacts of the activity, diagrams and details about how to provide feedback.
  - Links to the NOPSEMA *Consultation Guidelines, Consultation Brochure, and Draft Policy for Managing Gender-Restricted Information*, and contact details.
  - Confirmation of the purpose of consultation, what was being sought by Woodside through consultation including understanding the nature of RRKAC's interests and how the activity could impact those interests.
  - A request for the consultation and information sheets to be distributed to members and individuals as required.
  - An offer to provide more specific information, maps and images if required.
- Woodside provided contact information for Woodside and NOPSEMA.
- Woodside provided updated information to RRKAC on 10 October 2025 which included:
  - A reference to the original consultation email for this EP sent to RRKAC on 8 September 2025, which included a Summary Information Sheet and a link to the Consultation Information Sheet.
  - A reminder that consultation for the preparation of the EP closes on 24 October 2024.
  - A request for information on how RRKAC would like to engage with Woodside about the proposed activity, including the opportunity to meet face to face.
  - Advice that feedback can continue to be provided to Woodside during the life of an EP, including after consultation for the EP has closed, during EP assessment, and after an EP has been accepted by NOPSEMA.

Reasonable Period

A reasonable period for consultation in the preparation of the EP has been provided because:

- Woodside commenced consultation on this EP with RRKAC on 8 September 2025 and requested RRKAC provide feedback by 24 October 2025 for the purposes of preparation of the EP in line with Woodside's methodology of a 45-day period for consultation.
- Woodside has addressed and responded to RRKAC for 6 months, demonstrating a "reasonable period" of consultation.

Reasonable Opportunity

A reasonable opportunity to provide feedback has been provided and Woodside's approach to consultation is appropriate and adapted because:

- Woodside sought direction on RRKAC's preferred method of consultation and has consulted in a way that Woodside understands is appropriate for First Nations groups.
- Woodside has made information on this EP publicly available for 6 months. This has included publishing advertisements in national, state and local newspapers including Indigenous newspapers, the Koori Mail (10 September 2025) and National Indigenous Times (24 September 2025) advising of the proposed activities and requesting comments or feedback.
- Woodside's initial email about this EP on 8 September 2025:
  - Included a general email address and telephone number for Woodside, as well as a direct email and telephone number for a dedicated focal person from Woodside's First Nations Engagement team. Woodside also provided contact details for NOPSEMA.
  - Offered for Woodside to speak with RRKAC's members.
  - Asked RRKAC to advise how it would like Woodside to engage and whether RRKAC required further information.
- Throughout the consultation period, Woodside and RRKAC have had direct contact lines to each other.

Outcomes of Consultation

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The measures (if any) that Woodside has adopted or proposes to adopt because of the consultation are appropriate because:

- Woodside has incorporated cultural values previously provided by RRKAC into the EP.
- During the past 6 months, RRKAC has not raised objections or claims about the adverse impact of the activity to which this EP relates.

Woodside engages in ongoing consultation once an EP has been submitted for assessment as well as throughout the life of an EP. Should feedback be received after the EP has been accepted (including relevant new information relating to cultural values), it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.7.1 of the EP).

4.12.8 Thalanyji / Nhuwala People

The Thalanyji / Nhuwala People Native Title claim is in Western Australia's Pilbara region within the Shire of Ashburton. The application area consists of multiple parts with a total combined area of around 2,058 square kilometres in an area surrounding Onslow. The Thalanyji / Nhuwala People have legal representation and are associated with BTAC. Woodside has consulted with the Thalanyji / Nhuwala People via BTAC. This context and process demonstrates that Woodside's consultation approach with The Thalanyji / Nhuwala People is appropriate and adapted to the nature and interests of the Thalanyji / Nhuwala People.

Summary of information provided and record of consultation for this EP:

- On 8 September 2025, Woodside emailed Thalanyji / Nhuwala People (via BTAC) advising of the proposed activity (Record of Consultation, reference 6.1.34). The email included:
  - A Summary Information Sheet.
  - A link to the Consultation Information Sheet.
  - An overview of the proposed activity.
  - Links to the NOPSEMA *Consultation Guidelines, Consultation Brochure, and Draft Policy for Managing Gender-Restricted Information* and contact details.
  - A request for feedback by 24 October 2025 for the purposes of preparation of the EP.
  - A request for information on how Thalanyji / Nhuwala People (via BTAC) would like to engage with Woodside about the proposed activity, including the opportunity to meet face-to-face.
  - Advice that feedback can continue to be provided to Woodside during the life of an EP, including after consultation for the EP has closed, during EP assessment, and after an EP has been accepted by NOPSEMA.
  - Woodside's commitment to managing gender-restricted or other culturally sensitive information.
  - A request for Thalanyji / Nhuwala People (via BTAC) to provide information about the proposed activity to other individuals as required.
  - Acknowledgement that discussions relating to Woodside's consultation framework agreement has been ongoing and that these discussions will progress in parallel with consultation for the proposed activity's EP.
- On 10 October 2025, Woodside emailed Thalanyji / Nhuwala People (via BTAC) a reminder about the proposed activity (SI Report B, reference 1.8.1). The email included:

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- A reference to the original consultation email for this EP sent to Thalanyji / Nhuwala People (via BTAC) on 8 September 2025, which included a Summary Information Sheet and a link to the Consultation Information Sheet.
- A reminder that consultation for the preparation of the EP closes on 24 October 2025.
- A request for information on how Thalanyji / Nhuwala People (via BTAC) would like to engage with Woodside about the proposed activity, including the opportunity to meet face to face.
- Woodside's commitment to managing gender-restricted or other culturally sensitive information.
- Advice that feedback can continue to be provided to Woodside during the life of an EP, including after consultation for the EP has closed, during EP assessment, and after an EP has been accepted by NOPSEMA.

Summary of Feedback, Objection or Claim	Woodside's Assessment of Merits of Feedback, Objection or Claim	Woodside's Response	Inclusion in Environment Plan
No feedback, objection or claim about the adverse impact of the activity received despite follow-up.	Woodside engages in ongoing consultation throughout the life of an EP.	Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.7.1 of this EP).	No additional measures or controls are required.

Summary Report – Consultation Complete

Woodside has discharged its obligations for consultation under regulation 25 of the Environmental Regulations and consultation with Thalanyji / Nhuwala People for the purpose of regulation 25 is complete. Sufficient information and a reasonable period have been provided, as described in Section 5.4 of the EP. Specifically:

Sufficient Information

Sufficient information has been provided because:

- Since September 2025, Woodside made the Consultation Information Sheet available on the Woodside website.
- Woodside provided information to Thalanyji / Nhuwala People (via BTAC) on 8 September 2025 when consultation commenced. Woodside provided:
  - A Summary Information Sheet developed specifically for First Nations groups and reviewed by a member of the First Nations Engagement team. This sheet included an overview of the proposed activity, the location of the activity, the timing of the activity, the potential risks and impacts of the activity, diagrams and details about how to provide feedback.
  - Links to the NOPSEMA *Consultation Guidelines, Consultation Brochure, and Draft Policy for Managing Gender-Restricted Information*, and contact details.
  - Confirmation of the purpose of consultation, what was being sought by Woodside through consultation including understanding the nature of Thalanyji / Nhuwala People's interests and how the activity could impact those interests.
  - A request for the consultation and information sheets to be distributed to members and individuals as required.
  - An offer to provide more specific information, maps and images if required.
- Woodside provided contact information for Woodside and NOPSEMA.
- Woodside provided updated information to Thalanyji / Nhuwala People (via BTAC) on 10 October 2025 which included:

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- A reference to the original consultation email for this EP sent to Thalanyji / Nhuwala People (via BTAC) on 8 September 2025, which included a Summary Information Sheet and a link to the Consultation Information Sheet.
- A reminder that consultation for the preparation of the EP closes on 24 October 2024.
- A request for information on how Thalanyji / Nhuwala People (via BTAC) would like to engage with Woodside about the proposed activity, including the opportunity to meet face to face.
- Advice that feedback can continue to be provided to Woodside during the life of an EP, including after consultation for the EP has closed, during EP assessment, and after an EP has been accepted by NOPSEMA.

Reasonable Period

A reasonable period for consultation in the preparation of the EP has been provided because:

- Woodside commenced consultation on this EP with Thalanyji / Nhuwala People (via BTAC) on 8 September 2025 and requested Thalanyji / Nhuwala People (via BTAC) provide feedback by 24 October 2025 for the purposes of preparation of the EP in line with Woodside's methodology of a 45-day period for consultation.
- Woodside has addressed and responded to Thalanyji / Nhuwala People (via BTAC) for 6 months, demonstrating a "reasonable period" of consultation.

Reasonable Opportunity

A reasonable opportunity to provide feedback has been provided and Woodside's approach to consultation is appropriate and adapted because:

- Woodside sought direction on Thalanyji / Nhuwala People's (via BTAC) preferred method of consultation and has consulted in a way that Woodside understands is appropriate for First Nations groups.
- Woodside has made information on this EP publicly available for 6 months. This has included publishing advertisements in national, state and local newspapers including Indigenous newspapers, the Koori Mail (10 September 2025) and National Indigenous Times (24 September 2025) advising of the proposed activities and requesting comments or feedback.
- Woodside's initial email about this EP on 8 September 2025:
  - Included a general email address and telephone number for Woodside, as well as a direct email and telephone number for a dedicated focal person from Woodside's First Nations Engagement team. Woodside also provided contact details for NOPSEMA.
  - Offered for Woodside to speak with Thalanyji / Nhuwala People's members.
  - Asked Thalanyji / Nhuwala People (via BTAC) to advise how it would like Woodside to engage and whether Thalanyji / Nhuwala People required further information.
- Throughout the consultation period, Woodside and Thalanyji / Nhuwala People (via BTAC) have had direct contact lines to each other.

Outcomes of Consultation

The measures (if any) that Woodside has adopted or proposes to adopt because of the consultation are appropriate because:

- During the past 6 months, Thalanyji / Nhuwala People (via BTAC) has not raised objections or claims about the adverse impact of the activity to which this EP relates.

Woodside engages in ongoing consultation once an EP has been submitted for assessment as well as throughout the life of an EP. Should feedback be received after the EP has been accepted (including relevant new information relating to cultural values), it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.7.1 of the EP).

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4.12.9 Wirrawandi Aboriginal Corporation (WAC)

WAC is established under the *Native Title Act 1993 (*Cth*)* by the Mardudhunera and Yaburara people to represent the Mardudhunera and Yaburara people (defined broadly by reference to descent from the set of ancestors who were known to have a continuous and unbroken connection as the Traditional Custodians at the time of European colonisation) and represent their communal interests including, among other things, management and protection of cultural values.

At the start of consultation, Woodside provided WAC a table of cultural values previously identified for WAC through consultation and reviews of publicly available literature. Woodside invited WAC to make changes or provide additional information about these cultural values. WAC did not request changes.

Summary of information provided and record of consultation for this EP:

- On 8 September 2025, Woodside emailed WAC advising of the proposed activity (Record of Consultation, reference 6.1.39). The email included:
  - A Summary Information Sheet.
  - A link to the Consultation Information Sheet.
  - An overview of the proposed activity.
  - Links to the NOPSEMA *Consultation Guidelines, Consultation Brochure, and Draft Policy for Managing Gender-Restricted Information* and contact details.
  - Information on the cultural values relating to WAC that Woodside considers relevant to the activity:
    - **(1)** Marine species:
      - Whales – migration and potential impact of noise on whale communication.
      - Turtles – general interest around management and monitoring.
    - **(2)** Rock art – potential impact of emissions from activities.
    - **(3)** Underwater heritage – impacts particularly given recent finding of artefacts.
    - **(4)** Onshore heritage – management of sites.
  - **(1, 2, 3, 4)** A request from Woodside that WAC confirm if there were any changes or additional information regarding cultural values that Woodside should consider in the preparation for this EP.
  - A request for feedback by 24 October 2024 for the purposes of preparation of the EP.
  - A request for information on how WAC would like to engage with Woodside about the proposed activity, including the opportunity to meet face-to-face.
  - Advice that feedback can continue to be provided to Woodside during the life of an EP, including after consultation for the EP has closed, during EP assessment, and after an EP has been accepted by NOPSEMA.
  - Woodside's commitment to managing gender-restricted or other culturally sensitive information.
  - A request for WAC to provide information about the proposed activity to other individuals as required.
- On 10 October 2025, Woodside emailed WAC a reminder about the proposed activity (SI Report B, reference 1.9.1). The email included:
  - A reference to the original consultation email for this EP sent to WAC on 8 September 2025, which included a Summary Information Sheet and a link to the Consultation Information Sheet.
  - A reminder that consultation for the preparation of the EP closes on 24 October 2025.

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- A request for information on how WAC would like to engage with Woodside about the proposed activity, including the opportunity to meet face to face.
- Woodside's commitment to managing gender-restricted or other culturally sensitive information.
- Advice that feedback can continue to be provided to Woodside during the life of an EP, including after consultation for the EP has closed, during EP assessment, and after an EP has been accepted by NOPSEMA.
- Acknowledgement that discussions relating to Woodside's consultation framework agreement has been ongoing and that these discussions will progress in parallel with consultation for the proposed activity's EP.

- On 2 December 2025, Woodside emailed WAC an invitation reminder to Woodside's Quarterly Heritage Meeting on 3 December 2025, as an opportunity for Woodside to provide updates on Woodside's activities to Traditional Owner groups and to receive feedback from the community (SI Report, reference 1.9.2)
- On 3 December 2025, WAC attended Woodside's Quarterly Heritage Meeting, at which Woodside stated that consultation for future EPs would recommence in Q1 2026 and showed an example of new animations videos used to support EP consultation (SI Report, reference 6.1).

Summary of Feedback, Objection or Claim	Woodside's Assessment of Merits of Feedback, Objection or Claim	Woodside's Response	Inclusion in Environment Plan
(1) Marine species: • Whales – migration and potential impact of noise on whale communication. Turtles – general interest around management and monitoring.	**(1)** This value has been identified through Woodside's data collection processes (consultation).	**(1)** At the beginning of consultation for this EP, Woodside provided WAC with a list of the cultural values known to Woodside that it believed relevant to the group and invited it to make changes or provide additional information (See ROC, 6.1.39). WAC did not request changes.	**(1)** Woodside has updated Section 4.9 to record these interests and cultural values and assessed the potential impacts on these and where appropriate included controls in Sections 6.7 and 6.8 of the EP.
(2) Rock art – potential impact of emissions from activities.	**(2)** This value has been identified through Woodside's data collection processes (consultation). Onshore emissions are not considered within the scope of this activity and therefore not relevant to the EP.	**(2)** At the beginning of consultation for this EP, Woodside provided WAC with a list of the cultural values known to Woodside that it believed relevant to the group and invited it to make changes or provide additional information (See ROC, 6.1.39). WAC did not request changes.	**(2)** Woodside has updated Section 4.9 to record these interests and cultural values. Onshore emissions are not considered within the scope of this activity and therefore not relevant to the EP.
(3) Underwater heritage – impacts particularly given recent finding of artefacts.	**(3)** This value has been identified through Woodside's data collection processes (consultation).	**(3)** At the beginning of consultation for this EP, Woodside provided WAC with a list of the cultural values known to Woodside that it believed relevant to the group and invited it to make changes or	**(3)** Woodside has updated Section 4.9 to record these interests and cultural values. Impacts are not expected as an unplanned hydrocarbon release is not

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		provide additional information (See ROC, 6.1.39). WAC did not request changes.	expected to reach higher than highest atronomical tide levels.
(4) Onshore heritage – management of sites.	**(4)** This value has been identified through Woodside's data collection processes (consultation).	**(4)** At the beginning of consultation for this EP, Woodside provided WAC with a list of the cultural values known to Woodside that it believed relevant to the group and invited it to make changes or provide additional information (See ROC, 6.1.39). WAC did not request changes.	**(4)** Woodside has updated Section 4.9 to record these interests and cultural values and assessed the potential impacts on these and where appropriate included controls in Sections 6.7 and 6.8 of the EP.
No feedback, objections or claims about the adverse impact of the activity received despite follow-up.	Although no feedback, objections or claims were provided for this EP, historical cultural values considered relevant have been identified and included based on consultation and / or literature review.	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 7.7.1 of this EP).	No additional measures or controls are required.

Summary Report – Consultation Complete

Woodside has discharged its obligations for consultation under regulation 25 of the Environmental Regulations and consultation with RRKAC for the purpose of regulation 25 is complete. Sufficient information and a reasonable period have been provided, as described in Section 5.4 of the EP. Specifically:

Sufficient Information

Sufficient information has been provided because:

- Since September 2025, Woodside made the Consultation Information Sheet available on the Woodside website.
- Woodside provided information to WAC on 8 September 2025 when consultation commenced. Woodside provided:
  - A Summary Information Sheet developed specifically for First Nations groups and reviewed by a member of the First Nations Engagement team. This sheet included an overview of the proposed activity, the location of the activity, the timing of the activity, the potential risks and impacts of the activity, diagrams and details about how to provide feedback.
  - Links to the NOPSEMA *Consultation Guidelines, Consultation Brochure, and Draft Policy for Managing Gender-Restricted Information*, and contact details.
  - Confirmation of the purpose of consultation, what was being sought by Woodside through consultation including understanding the nature of WAC's interests and how the activity could impact those interests.

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  - A request for the consultation and information sheets to be distributed to members and individuals as required.
  - An offer to provide more specific information, maps and images if required.
- Woodside provided contact information for Woodside and NOPSEMA.
- Woodside provided updated information to WAC on 10 October 2025 which included:
  - A reference to the original consultation email for this EP sent to WAC on 8 September 2025, which included a Summary Information Sheet and a link to the Consultation Information Sheet.
  - A reminder that consultation for the preparation of the EP closes on 24 October 2024.
  - A request for information on how WAC would like to engage with Woodside about the proposed activity, including the opportunity to meet face to face.
  - Advice that feedback can continue to be provided to Woodside during the life of an EP, including after consultation for the EP has closed, during EP assessment, and after an EP has been accepted by NOPSEMA.

Reasonable Period

A reasonable period for consultation in the preparation of the EP has been provided because:

- Woodside commenced consultation on this EP with WAC on 8 September 2025 and requested WAC provide feedback by 24 October 2025 for the purposes of preparation of the EP in line with Woodside's methodology of a 45-day period for consultation.
- Woodside has addressed and responded to WAC for 6 months, demonstrating a "reasonable period" of consultation.

Reasonable Opportunity

A reasonable opportunity to provide feedback has been provided and Woodside's approach to consultation is appropriate and adapted because:

- Woodside sought direction on WAC's a preferred method of consultation and has consulted in a way that Woodside understands is appropriate for First Nations groups.
- Woodside has made information on this EP publicly available for 6 months. This has included publishing advertisements in national, state and local newspapers including Indigenous newspapers, the Koori Mail (10 September 2025) and National Indigenous Times (24 September 2025) advising of the proposed activities and requesting comments or feedback.
- Woodside's initial email about this EP on 8 September 2025:
  - Included a general email address and telephone number for Woodside, as well as a direct email and telephone number for a dedicated focal person from Woodside's First Nations Engagement team. Woodside also provided contact details for NOPSEMA.
  - Offered for Woodside to speak with WAC's members or with the WAC Board.
  - Asked WAC to advise how it would like Woodside to engage and whether WAC required further information.
- Throughout the consultation period, Woodside and WAC have had direct contact lines to each other.

Outcomes of Consultation

The measures (if any) that Woodside has adopted or proposes to adopt because of the consultation are appropriate because:

- Woodside has incorporated cultural values previously provided by WAC into the EP.
- During the past 6 months, WAC has not raised objections or claims about the adverse impact of the activity to which this EP relates.

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Woodside engages in ongoing consultation once an EP has been submitted for assessment as well as throughout the life of an EP. Should feedback be received after the EP has been accepted (including relevant new information relating to cultural values), it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.7.1 of the EP).

4.12.10 Yindjibarndi Aboriginal Corporation (Yindjibarndi)

Yindjibarndi is established under the *Native Title Act 1993* (Cth) by the Yindjibarndi people to represent the Yindjibarndi people (defined broadly by reference to descent from the set of ancestors who were known to have a continuous and unbroken connection as the Traditional Custodians at the time of European colonisation) and represent their communal interests including, among other things, management and protection of cultural values.

Woodside has an existing relationship with Yindjibarndi which extends prior to consultation for this EP. Woodside's consultation approach for Traditional Owners has a focus on building and maintaining long-term relationships with each group. Woodside has assigned a First Nations Engagement team member as a dedicated focal person for EP consultation with Yindjibarndi, who is responsible for building a consultative relationship and is readily available to provide information and take feedback.

Yindjibarndi during previous consultation has requested Woodside to refer all correspondence about EPs to the Ngarluma Yindjibarndi Foundation Ltd (NYFL). This context and process demonstrates that Woodside's consultation approach with Yindjibarndi is appropriate and adapted to the nature and interests of Yindjibarndi.

Summary of information provided and record of consultation for this EP:

- On 8 September 2025, Woodside emailed Yindjibarndi (via NYFL) advising of the proposed activity (Record of Consultation, reference 6.1.43). The email included:
  - A Summary Information Sheet.
  - A link to the Consultation Information Sheet.
  - An overview of the proposed activity.
  - Links to the NOPSEMA *Consultation Guidelines, Consultation Brochure, and Draft Policy for Managing Gender-Restricted Information* and contact details.
  - A request for feedback by 24 October 2025 for the purposes of preparation of the EP.
  - A request for information on how Yindjibarndi (via NYFL) would like to engage with Woodside about the proposed activity, including the opportunity to meet face-to-face.
  - Advice that feedback can continue to be provided to Woodside during the life of an EP, including after consultation for the EP has closed, during EP assessment, and after an EP has been accepted by NOPSEMA.
  - Woodside's commitment to managing gender-restricted or other culturally sensitive information.
  - A request for Yindjibarndi (via NYFL) to provide information about the proposed activity to other individuals as required.
- On 10 October 2025, Woodside emailed Yindjibarndi (via NYFL) a reminder about the proposed activity (SI Report B, reference 1.10.1). The email included:

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- A reference to the original consultation email for this EP sent to Yindjibarndi (via NYFL) on 8 September 2025, which included a Summary Information Sheet and a link to the Consultation Information Sheet.
- A reminder that consultation for the preparation of the EP closes on 24 October 2025.
- A request for information on how Yindjibarndi (via NYFL) would like to engage with Woodside about the proposed activity, including the opportunity to meet face to face.
- Woodside's commitment to managing gender-restricted or other culturally sensitive information.
- Advice that feedback can continue to be provided to Woodside during the life of an EP, including after consultation for the EP has closed, during EP assessment, and after an EP has been accepted by NOPSEMA.
- Acknowledgement that discussions relating to Woodside's consultation framework agreement has been ongoing and that these discussions will progress in parallel with consultation for the proposed activity's EP.

Summary of Feedback, Objection or Claim	Woodside's Assessment of Merits of Feedback, Objection or Claim	Woodside's Response	Inclusion in Environment Plan
No feedback, objection or claim about the adverse impact of the activity received despite follow-up.	Woodside engages in ongoing consultation throughout the life of an EP.	Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.7.1 of this EP).	No additional measures or controls are required.

Summary Report – Consultation Complete

Woodside has discharged its obligations for consultation under regulation 25 of the Environmental Regulations and consultation with Yindjibarndi (via NYFL) for the purpose of regulation 25 is complete. Sufficient information and a reasonable period have been provided, as described in Section 5.4 of the EP. Specifically:

Sufficient Information

Sufficient information has been provided because:

- Since September 2025, Woodside made the Consultation Information Sheet available on the Woodside website.
- Woodside provided information to Yindjibarndi (via NYFL) on 8 September 2025 when consultation commenced. Woodside provided:
  - A Summary Information Sheet developed specifically for First Nations groups and reviewed by a member of the First Nations Engagement team. This sheet included an overview of the proposed activity, the location of the activity, the timing of the activity, the potential risks and impacts of the activity, diagrams and details about how to provide feedback.
  - Links to the NOPSEMA *Consultation Guidelines, Consultation Brochure, and Draft Policy for Managing Gender-Restricted Information*, and contact details.
  - Confirmation of the purpose of consultation, what was being sought by Woodside through consultation including understanding the nature of Yindjibarndi's interests and how the activity could impact those interests.
  - A request for the consultation and information sheets to be distributed to members and individuals as required.
  - An offer to provide more specific information, maps and images if required.
- Woodside provided contact information for Woodside and NOPSEMA.

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- Woodside provided updated information to Yindjibarndi (via NYFL) on 10 October 2025 which included:
  - A reference to the original consultation email for this EP sent to Yindjibarndi (via NYFL) on 8 September 2025, which included a Summary Information Sheet and a link to the Consultation Information Sheet.
  - A reminder that consultation for the preparation of the EP closes on 24 October 2024.
  - A request for information on how Yindjibarndi (via NYFL) would like to engage with Woodside about the proposed activity, including the opportunity to meet face to face.
  - Advice that feedback can continue to be provided to Woodside during the life of an EP, including after consultation for the EP has closed, during EP assessment, and after an EP has been accepted by NOPSEMA.

Reasonable Period

A reasonable period for consultation in the preparation of the EP has been provided because:

- Woodside commenced consultation on this EP with Yindjibarndi (via NYFL) on 8 September 2025 and requested Yindjibarndi (via NYFL) provide feedback by 24 October 2025 for the purposes of preparation of the EP in line with Woodside's methodology of a 45-day period for consultation.
- Woodside has addressed and responded to Yindjibarndi (via NYFL) for 6 months, demonstrating a "reasonable period" of consultation.

Reasonable Opportunity

A reasonable opportunity to provide feedback has been provided and Woodside's approach to consultation is appropriate and adapted because:

- Woodside sought direction on Yindjibarndi's preferred method of consultation and has consulted in a way that Woodside understands is appropriate for First Nations groups.
- Woodside has made information on this EP publicly available for 6 months. This has included publishing advertisements in national, state and local newspapers including Indigenous newspapers, the Koori Mail (10 September 2025) and National Indigenous Times (24 September 2025) advising of the proposed activities and requesting comments or feedback.
- Woodside's initial email about this EP on 8 September 2025:
  - Included a general email address and telephone number for Woodside, as well as a direct email and telephone number for a dedicated focal person from Woodside's First Nations Engagement team. Woodside also provided contact details for NOPSEMA.
  - Offered for Woodside to speak with Yindjibarndi members as well as the Yindjibarndi Board.
  - Asked KLC to advise how it would like Woodside to engage and whether Yindjibarndi (via NYFL) required further information.
- Throughout the consultation period, Woodside and Yindjibarndi (via NYFL) have had direct contact lines to each other.

Outcomes of Consultation

The measures (if any) that Woodside has adopted or proposes to adopt because of the consultation are appropriate because:

- During the past 6 months, Yindjibarndi (via NYFL) has not raised objections or claims about the adverse impact of the activity to which this EP relates.

Woodside engages in ongoing consultation once an EP has been submitted for assessment as well as throughout the life of an EP. Should feedback be received after the EP has been accepted (including relevant new information relating to cultural values), it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.7.1 of the EP).

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4.12.11 Yinggarda Aboriginal Corporation (YAC)

YAC is established under the *Native Title Act 1993 (*Cth*)* by the Yinggarda people to represent the Yinggarda people (defined broadly by reference to descent from the set of ancestors who were known to have a continuous and unbroken connection as the Traditional Custodians at the time of European colonisation) and represent their communal interests including, among other things, management and protection of cultural values.

Woodside has an existing relationship with YAC which extends prior to consultation for this EP. Woodside's consultation approach for Traditional Owners has a focus on building and maintaining long-term relationships with each group. Woodside has assigned a First Nations Engagement team member as a dedicated focal person for EP consultation with YAC, who is responsible for building a consultative relationship and is readily available to provide information and take feedback. Woodside notes that YAC is represented by a legal representative and therefore Woodside defers consultation material to the legal representative on behalf of YAC.

At the start of consultation, Woodside provided YAC a table of cultural values previously identified for YAC through consultation and reviews of publicly available literature. Woodside invited YAC to make changes or provide additional information about these cultural values. YAC did not request changes. This context and process demonstrates that Woodside's consultation approach with YAC is appropriate and adapted to the nature and interests of YAC.

Summary of information provided and record of consultation for this EP:

- On 8 September 2025, Woodside emailed YAC advising of the proposed activity (Record of Consultation, reference 6.1.40). The email included:
  - A Summary Information Sheet.
  - A link to the Consultation Information Sheet.
  - An overview of the proposed activity.
  - Links to the NOPSEMA *Consultation Guidelines, Consultation Brochure, and Draft Policy for Managing Gender-Restricted Information* and contact details.
  - Information on the cultural values that YAC has previously provided to Woodside considered relevant to the activity:
    - **(1)** The right and responsibility to speak and care for Country.
    - **(2)** Contemporary use of Country for cultural activities:
      - Fishing including for Shark Bay mullet.
      - Camping.
      - Hunting and gathering.
    - **(3)** Ecosystem health:
      - Plants, animals and the environment are inexorably linked to culture.
      - Seagrass is an important food source for dugongs.
    - **(4)** Marine mammals:
      - Dugongs.
      - Whales – potential impact to migration patterns and potential collisions with vessels.
  - **(1, 2, 3, 4)** A request from Woodside that YAC confirm if there were any changes or additional information regarding cultural values that Woodside should consider in the preparation for this EP.

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- A request for feedback by 24 October 2025 for the purposes of preparation of the EP.
- A request for information on how YAC would like to engage with Woodside about the proposed activity, including the opportunity to meet face-to-face.
- Advice that feedback can continue to be provided to Woodside during the life of an EP, including after consultation for the EP has closed, during EP assessment, and after an EP has been accepted by NOPSEMA.
- Woodside's commitment to managing gender-restricted or other culturally sensitive information.
- A request for YAC to provide information about the proposed activity to other individuals as required.

- On 10 October 2025, Woodside emailed YAC a reminder about the proposed activity (SI Report B, reference 1.11.1). The email included:
  - A reference to the original consultation email for this EP sent to YAC on 8 September 2025, which included a Summary Information Sheet and a link to the Consultation Information Sheet.
  - A reminder that consultation for the preparation of the EP closes on 24 October 2025.
  - A request for information on how YAC would like to engage with Woodside about the proposed activity, including the opportunity to meet face to face.
  - Woodside's commitment to managing gender-restricted or other culturally sensitive information.
  - Advice that feedback can continue to be provided to Woodside during the life of an EP, including after consultation for the EP has closed, during EP assessment, and after an EP has been accepted by NOPSEMA.
  - Acknowledgement that discussions relating to Woodside's consultation framework agreement has been ongoing and that these discussions will progress in parallel with consultation for the proposed activity's EP.

Summary of Feedback, Objection or Claim	Woodside's Assessment of Merits of Feedback, Objection or Claim	Woodside's Response	Inclusion in Environment Plan
(1) The right and responsibility to speak and care for Country.	**(1)** This value has been identified through Woodside's data collection processes (publicly available literature).	**(1)** At the beginning of consultation for this EP, Woodside provided YAC with a list of the cultural values known to Woodside that it believed relevant to the group and invited it to make changes or provide additional information (See ROC, 6.1.40). YAC did not request changes.	**(1)** Woodside has updated Section 4.9 to record these interests and cultural values.
(2) Contemporary use of Country for cultural activities: • Fishing including for Shark Bay mullet. • Camping.	**(2)** This value has been identified through Woodside's data collection processes (consultation and publicly available literature).	**(2)** At the beginning of consultation for this EP, Woodside provided YAC with a list of the cultural values known to Woodside that it believed relevant to the group and invited it to make changes or provide additional information (See ROC, 6.1.40).	**(2)** Woodside has updated Section 4.9 to record these interests and cultural values.

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• Hunting and gathering.		YAC did not request changes.	
(3) Ecosystem health: • Plants, animals and the environment are inexorably linked to culture. • Seagrass is an important food source for dugongs.	**(3)** This value has been identified through Woodside's data collection processes (consultation).	**(3)** At the beginning of consultation for this EP, Woodside provided YAC with a list of the cultural values known to Woodside that it believed relevant to the group and invited it to make changes or provide additional information (See ROC, 6.1.40). YAC did not request changes.	**(3)** Woodside has updated Section 4.9 to record these interests and cultural values. These receptors are only predicted to be contacted in the event of a large hydrocarbon spill. Mitigation measures have been included in Section 6.8 of the EP.
(4) Marine mammals: • Dugongs. • Whales – potential impact to migration patterns and potential collisions with vessels.	**(4)** This value has been identified through Woodside's data collection processes (consultation).	**(4)** At the beginning of consultation for this EP, Woodside provided YAC with a list of the cultural values known to Woodside that it believed relevant to the group and invited it to make changes or provide additional information (See ROC, 6.1.40). YAC did not request changes.	**(4)** Woodside has updated Section 4.9 to record these interests and cultural values and assessed the potential impacts on these and where appropriate included controls, in Sections 6.7 and 6.8 of the EP.
No feedback, objections or claims about the adverse impact of the activity received despite follow-up.	Although no feedback, objections or claims were provided for this EP, historical cultural values considered relevant have been identified and included based on consultation and / or literature review.	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 7.7.1 of this EP).	No additional measures or controls are required.
Summary Report – Consultation Complete			
Woodside has discharged its obligations for consultation under regulation 25 of the Environmental Regulations and consultation with YAC for the purpose of regulation 25 is complete. Sufficient information and a reasonable period have been provided, as described in Section 5.4 of the EP. Specifically: **Sufficient Information** Sufficient information has been provided because: • Since September 2025, Woodside made the Consultation Information Sheet available on the Woodside website.			

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- Woodside provided information to YAC on 8 September 2025 when consultation commenced. Woodside provided:
  - A Summary Information Sheet developed specifically for First Nations groups and reviewed by a member of the First Nations Engagement team. This sheet included an overview of the proposed activity, the location of the activity, the timing of the activity, the potential risks and impacts of the activity, diagrams and details about how to provide feedback.
  - Links to the NOPSEMA *Consultation Guidelines, Consultation Brochure, and Draft Policy for Managing Gender-Restricted Information*, and contact details.
  - Confirmation of the purpose of consultation, what was being sought by Woodside through consultation including understanding the nature of YAC's interests and how the activity could impact those interests.
  - A request for the consultation and information sheets to be distributed to members and individuals as required.
  - An offer to provide more specific information, maps and images if required.
- Woodside provided contact information for Woodside and NOPSEMA.
- Woodside provided updated information to YAC on 10 October 2025 which included:
  - A reference to the original consultation email for this EP sent to YAC on 8 September 2025, which included a Summary Information Sheet and a link to the Consultation Information Sheet.
  - A reminder that consultation for the preparation of the EP closes on 24 October 2024.
  - A request for information on how YAC would like to engage with Woodside about the proposed activity, including the opportunity to meet face to face.
  - Advice that feedback can continue to be provided to Woodside during the life of an EP, including after consultation for the EP has closed, during EP assessment, and after an EP has been accepted by NOPSEMA.

Reasonable Period

A reasonable period for consultation in the preparation of the EP has been provided because:

- Woodside commenced consultation on this EP with YAC on 8 September 2025 and requested YAC provide feedback by 24 October 2025 for the purposes of preparation of the EP in line with Woodside's methodology of a 45-day period for consultation.
- Woodside has addressed and responded to YAC for 6 months, demonstrating a "reasonable period" of consultation.

Reasonable Opportunity

A reasonable opportunity to provide feedback has been provided and Woodside's approach to consultation is appropriate and adapted because:

- Woodside sought direction on YAC's preferred method of consultation and has consulted in a way that Woodside understands is appropriate for First Nations groups.
- Woodside has made information on this EP publicly available for 6 months. This has included publishing advertisements in national, state and local newspapers including Indigenous newspapers, the Koori Mail (10 September 2025) and National Indigenous Times (24 September 2025) advising of the proposed activities and requesting comments or feedback.
- Woodside's initial email about this EP on 8 September 2025:
  - Included a general email address and telephone number for Woodside, as well as a direct email and telephone number for a dedicated focal person from Woodside's First Nations Engagement team. Woodside also provided contact details for NOPSEMA.
  - Offered for Woodside to speak with YAC members as well as the YAC Board.
  - Asked YAC to advise how it would like Woodside to engage and whether YAC required further information.
- Throughout the consultation period, Woodside and YAC have had direct contact lines to each other.

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Outcomes of Consultation

The measures (if any) that Woodside has adopted or proposes to adopt because of the consultation are appropriate because:

- Woodside has incorporated cultural values previously provided by YAC into the EP.
- During the past 6 months, YAC has not raised objections or claims about the adverse impact of the activity to which this EP relates.

Woodside engages in ongoing consultation once an EP has been submitted for assessment as well as throughout the life of an EP. Should feedback be received after the EP has been accepted (including relevant new information relating to cultural values), it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.7.1 of the EP).

4.13 Native Title representative bodies

4.13.1 Kimberley Land Council (KLC)

KLC is the Native Title Representative Body for the Kimberley region of Western Australia. As such, it is not a Prescribed Body Corporate or Registered Native Title Body Corporate but exists to assist Native Title claimants and holders.

Woodside has an existing relationship with KLC which extends prior to consultation for this EP. Woodside's consultation approach for Traditional Owners has a focus on building and maintaining long-term relationships with each group. Woodside has assigned a First Nations Engagement team member as a dedicated focal person for EP consultation with KLC, who is responsible for building a consultative relationship and is readily available to provide information and take feedback.

This context and process demonstrates that Woodside's consultation approach with KLC is appropriate and adapted to the nature and interests of KLC.

Summary of information provided and record of consultation for this EP:

- On 8 September 2025, Woodside emailed KLC advising of the proposed activity (Record of Consultation, reference 6.1.41). The email included:
  - A Summary Information Sheet.
  - A link to the Consultation Information Sheet.
  - An overview of the proposed activity.
  - Links to the NOPSEMA *Consultation Guidelines, Consultation Brochure, and Draft Policy for Managing Gender-Restricted Information* and contact details.
  - A request for feedback by 24 October 2025 for the purposes of preparation of the EP.
  - A request for information on how KLC would like to engage with Woodside about the proposed activity, including the opportunity to meet face-to-face.
  - Advice that feedback can continue to be provided to Woodside during the life of an EP, including after consultation for the EP has closed, during EP assessment, and after an EP has been accepted by NOPSEMA.
  - Woodside's commitment to managing gender-restricted or other culturally sensitive information.
  - A request for KLC to provide information about the proposed activity to other individuals as required.
- On 10 October 2025, Woodside emailed KLC a reminder about the proposed activity (SI Report B, reference 2.1.1). The email included:

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- A reference to the original consultation email for this EP sent to KLC on 8 September 2025, which included a Summary Information Sheet and a link to the Consultation Information Sheet.
- A reminder that consultation for the preparation of the EP closes on 24 October 2025.
- A request for information on how KLC would like to engage with Woodside about the proposed activity, including the opportunity to meet face to face.
- Woodside's commitment to managing gender-restricted or other culturally sensitive information.
- Advice that feedback can continue to be provided to Woodside during the life of an EP, including after consultation for the EP has closed, during EP assessment, and after an EP has been accepted by NOPSEMA.

Summary of Feedback, Objection or Claim	Woodside's Assessment of Merits of Feedback, Objection or Claim	Woodside's Response	Inclusion in Environment Plan
No feedback, objection or claim about the adverse impact of the activity received despite follow-up.	Woodside engages in ongoing consultation throughout the life of an EP.	Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.7.1 of this EP).	No additional measures or controls are required.

Summary Report – Consultation Complete

Woodside has discharged its obligations for consultation under regulation 25 of the Environmental Regulations and consultation with KLC for the purpose of regulation 25 is complete. Sufficient information and a reasonable period have been provided, as described in Section 5.4 of the EP. Specifically:

Sufficient Information

Sufficient information has been provided because:

- Since September 2025, Woodside made the Consultation Information Sheet available on the Woodside website.
- Woodside provided information to KLC on 8 September 2025 when consultation commenced. Woodside provided:
  - A Summary Information Sheet developed specifically for First Nations groups and reviewed by a member of the First Nations Engagement team. This sheet included an overview of the proposed activity, the location of the activity, the timing of the activity, the potential risks and impacts of the activity, diagrams and details about how to provide feedback.
  - Links to the NOPSEMA *Consultation Guidelines, Consultation Brochure, and Draft Policy for Managing Gender-Restricted Information*, and contact details.
  - Confirmation of the purpose of consultation, what was being sought by Woodside through consultation including understanding the nature of KLC's interests and how the activity could impact those interests.
  - A request for the consultation and information sheets to be distributed to members and individuals as required.
  - An offer to provide more specific information, maps and images if required.
- Woodside provided contact information for Woodside and NOPSEMA.
- Woodside provided updated information to KLC on 10 October 2025 which included:

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- A reference to the original consultation email for this EP sent to KLC on 8 September 2025, which included a Summary Information Sheet and a link to the Consultation Information Sheet.
- A reminder that consultation for the preparation of the EP closes on 24 October 2024.
- A request for information on how KLC would like to engage with Woodside about the proposed activity, including the opportunity to meet face to face.
- Advice that feedback can continue to be provided to Woodside during the life of an EP, including after consultation for the EP has closed, during EP assessment, and after an EP has been accepted by NOPSEMA.

Reasonable Period

A reasonable period for consultation in the preparation of the EP has been provided because:

- Woodside commenced consultation on this EP with KLC on 8 September 2025 and requested KLC provide feedback by 24 October 2025 for the purposes of preparation of the EP in line with Woodside's methodology of a 45-day period for consultation.
- Woodside has addressed and responded to KLC for 6 months, demonstrating a "reasonable period" of consultation.

Reasonable Opportunity

A reasonable opportunity to provide feedback has been provided and Woodside's approach to consultation is appropriate and adapted because:

- Woodside sought direction on KLC's preferred method of consultation and has consulted in a way that Woodside understands is appropriate for First Nations groups.
- Woodside has made information on this EP publicly available for 6 months. This has included publishing advertisements in national, state and local newspapers including Indigenous newspapers, the Koori Mail (10 September 2025) and National Indigenous Times (24 September 2025) advising of the proposed activities and requesting comments or feedback.
- Woodside's initial email about this EP on 8 September 2025:
  - Included a general email address and telephone number for Woodside, as well as a direct email and telephone number for a dedicated focal person from Woodside's First Nations Engagement team. Woodside also provided contact details for NOPSEMA.
  - Offered for Woodside to speak with KLC members as well as the KLC Board.
  - Asked KLC to advise how it would like Woodside to engage and whether KLC required further information.
- Throughout the consultation period, Woodside and KLC have had direct contact lines to each other.

Outcomes of Consultation

The measures (if any) that Woodside has adopted or proposes to adopt because of the consultation are appropriate because:

- During the past 6 months, KLC has not raised objections or claims about the adverse impact of the activity to which this EP relates.

Woodside engages in ongoing consultation once an EP has been submitted for assessment as well as throughout the life of an EP. Should feedback be received after the EP has been accepted (including relevant new information relating to cultural values), it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.7.1 of the EP).

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4.13.2 Yamatji Marlpa Aboriginal Corporation (YMAC)

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.

YMAC is also the primary contact for the Nhuwala Claim Group.

Summary of information provided and record of consultation for this EP:

- On 8 September 2025, Woodside emailed YMAC advising of the proposed activity (Record of Consultation, reference 6.1.42). The email included:
  - A Summary Information Sheet.
  - A link to the Consultation Information Sheet.
  - An overview of the proposed activity.
  - Links to the NOPSEMA *Consultation Guidelines, Consultation Brochure, and Draft Policy for Managing Gender-Restricted Information* and contact details.
  - A request for information on how YMAC would like to engage with Woodside about the proposed activity, including the opportunity to meet face-to-face.
  - A request for feedback by 24 October 2025 for the purposes of preparation of the EP.
  - Advice that feedback can continue to be provided to Woodside during the life of an EP, including after consultation for the EP has closed, during EP assessment, and after an EP has been accepted by NOPSEMA.
  - Woodside's commitment to managing gender-restricted or other culturally sensitive information.
  - A request for YMAC to provide information about the proposed activity to other individuals as required.
- On 10 October 2025, Woodside emailed YMAC a reminder about the proposed activity (SI Report B, reference 2.21). The email included:
  - A reference to the original consultation email for this EP sent to YMAC on 8 September 2025, which included a Summary Information Sheet and a link to the Consultation Information Sheet.
  - A reminder that consultation for the preparation of the EP closes on 24 October 2025.
  - A request for information on how YMAC would like to engage with Woodside about the proposed activity, including the opportunity to meet face to face.
  - Woodside's commitment to managing gender-restricted or other culturally sensitive information.
  - Advice that feedback can continue to be provided to Woodside during the life of an EP, including after consultation for the EP has closed, during EP assessment, and after an EP has been accepted by NOPSEMA.

Summary of Feedback, Objection or Claim	Woodside's Assessment of Merits of Feedback, Objection or Claim	Woodside's Response	Inclusion in Environment Plan
No feedback, objection or claim about the adverse impact of the activity received despite follow-up.	Woodside engages in ongoing consultation throughout the life of an EP.	Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.7.1 of this EP).	No additional measures or controls are required.

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Summary Report – Consultation Complete

Woodside has discharged its obligations for consultation under regulation 25 of the Environmental Regulations and consultation with YMAC for the purpose of regulation 25 is complete. Sufficient information and a reasonable period have been provided, as described in Section 5.4 of the EP. Specifically:

Sufficient Information

Sufficient information has been provided because:

- Since September 2025, Woodside made the Consultation Information Sheet available on the Woodside website.
- Woodside provided information to YMAC on 8 September 2025 when consultation commenced. Woodside provided:
  - A Summary Information Sheet developed specifically for First Nations groups and reviewed by a member of the First Nations Engagement team. This sheet included an overview of the proposed activity, the location of the activity, the timing of the activity, the potential risks and impacts of the activity, diagrams and details about how to provide feedback.
  - Links to the NOPSEMA *Consultation Guidelines, Consultation Brochure, and Draft Policy for Managing Gender-Restricted Information*, and contact details.
  - Confirmation of the purpose of consultation, what was being sought by Woodside through consultation including understanding the nature of YMAC's interests and how the activity could impact those interests.
  - A request for the consultation and information sheets to be distributed to members and individuals as required.
  - An offer to provide more specific information, maps and images if required.
- Woodside provided contact information for Woodside and NOPSEMA.
- Woodside provided updated information to YMAC on 10 October 2025 which included:
  - A reference to the original consultation email for this EP sent to YMAC on 8 September 2025, which included a Summary Information Sheet and a link to the Consultation Information Sheet.
  - A reminder that consultation for the preparation of the EP closes on 24 October 2024.
  - A request for information on how YMAC would like to engage with Woodside about the proposed activity, including the opportunity to meet face to face.
  - Advice that feedback can continue to be provided to Woodside during the life of an EP, including after consultation for the EP has closed, during EP assessment, and after an EP has been accepted by NOPSEMA.

Reasonable Period

A reasonable period for consultation in the preparation of the EP has been provided because:

- Woodside commenced consultation on this EP with YMAC on 8 September 2025 and requested KLC provide feedback by 24 October 2025 for the purposes of preparation of the EP in line with Woodside's methodology of a 45-day period for consultation.
- Woodside has addressed and responded to YMAC for 6 months, demonstrating a "reasonable period" of consultation.

Reasonable Opportunity

A reasonable opportunity to provide feedback has been provided and Woodside's approach to consultation is appropriate and adapted because:

- Woodside sought direction on YMAC's preferred method of consultation and has consulted in a way that Woodside understands is appropriate for First Nations groups.

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- Woodside has made information on this EP publicly available for 6 months. This has included publishing advertisements in national, state and local newspapers including Indigenous newspapers, the Koori Mail (10 September 2025) and National Indigenous Times (24 September 2025) advising of the proposed activities and requesting comments or feedback.
- Woodside's initial email about this EP on 8 September 2025:
  - Included a general email address and telephone number for Woodside, as well as a direct email and telephone number for a dedicated focal person from Woodside's First Nations Engagement team. Woodside also provided contact details for NOPSEMA.
  - Offered for Woodside to speak with YMAC members as well as the YMAC Board.
  - Asked YMAC to advise how it would like Woodside to engage and whether YMAC required further information.
- Throughout the consultation period, Woodside and YMAC have had direct contact lines to each other.

Outcomes of Consultation

The measures (if any) that Woodside has adopted or proposes to adopt because of the consultation are appropriate because:

- During the past 6 months, YMAC has not raised objections or claims about the adverse impact of the activity to which this EP relates.

Woodside engages in ongoing consultation once an EP has been submitted for assessment as well as throughout the life of an EP. Should feedback be received after the EP has been accepted (including relevant new information relating to cultural values), it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.7.1 of the EP).

4.14 Self-identified First Nations groups

4.14.1 Ngarluma Yindjibarndi Foundation Ltd (NYFL)

NYFL was created to act as Trustee for the Trust under the *Northwest Shelf Agreement 1998* struck between the Ngarluma and Yindjibarndi registered native title claimants, the NWS JVs and Woodside, prior to the resolution of the Ngarluma and Yindjibarndi Native Title claim. Its purpose is to carry on the business of enterprise development, investment and social welfare.

In 1999 the Ngarluma and Yindjibarndi Native Title claim was settled with the Federal Court appointing, at the request of the common law Native Title holders, the NAC as the PBC to represent the communal interests of the Ngarluma people, and the Yindjibarndi Aboriginal Corporation as PBC to represent the communal interests of the Yindjibarndi people. Woodside consulted both NAC and Yindjibarndi as relevant persons in the course of preparing this EP.

NYFL self-identified and has advised it is relevant for this EP. The Yindjibarndi Aboriginal Corporation has requested all correspondence about EPs be directed to NYFL.

Since March 2024, Woodside and NYFL have been in communication about a draft consultation agreement. Woodside and NYFL have exchanged the draft consultation agreement a number of times during this period. Woodside also travelled to Roebourne to meet with NYFL to progress negotiations and provided funding to NYFL for legal advice to finalise the agreement. During consultation for other EPs, NYFL has claimed that formal consultation had not taken place due to the absence of a finalised consultation agreement. Woodside has reiterated to NYFL on a number of occasions, including during consultation for this EP, that a consultation agreement is not a pre-requisite for consultation and that negotiations relating to a consultation agreement have and continue to occur in parallel to EP consultation. Discussions between Woodside and NYFL in relation to finalising this agreement remain ongoing.

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Woodside has continually confirmed it is open to receiving or being notified of feedback, claims or objections on EPs.

Summary of information provided and record of consultation for this EP:

- On 8 September 2025, Woodside emailed NYFL advising of the proposed activity (Record of Consultation, reference 6.1.43). The email included:
  - A Summary Information Sheet.
  - A link to the Consultation Information Sheet.
  - An overview of the proposed activity.
  - Links to the NOPSEMA *Consultation Guidelines, Consultation Brochure, and Draft Policy for Managing Gender-Restricted Information* and contact details.
  - A request for feedback by 24 October 2024 for the purposes of preparation of the EP.
  - A request for information on how NYFL would like to engage with Woodside about the proposed activity, including the opportunity to meet face-to-face.
  - Advice that feedback can continue to be provided to Woodside during the life of an EP, including after consultation for the EP has closed, during EP assessment, and after an EP has been accepted by NOPSEMA.
  - Woodside's commitment to managing gender-restricted or other culturally sensitive information.
  - A request for NYFL to provide information about the proposed activity to other individuals as required.
- **(1)** On 23 September 2025, NYFL emailed Woodside to follow-up on a previous offer to meet to discuss the consultation agreement (SI Report B, reference 3.1.1).
- **(1)** On 24 September 2025, Woodside emailed NYFL to confirm an online meeting could be held to discuss the consultation agreement however Woodside would not provide funding for legal advice in addition to what had been previously agreed. Woodside reminded NYFL that negotiation towards a consultation agreement can and does occur in parallel with consultation about individual EPs (SI Report B, reference 3.1.2).
- **(1)** On 25 September 2025, NYFL emailed Woodside thanking it for the response the day before and seeking further advice on funding scope relating to finalising the consultation agreement (SI Report B, reference 3.1.3).
- On 10 October 2025, Woodside emailed NYFL a reminder about the proposed activity (SI Report B, reference 3.1.4). The email included:
  - A reference to the original consultation email for this EP sent to NYFL on 8 September 2025, which included a Summary Information Sheet and a link to the Consultation Information Sheet.
  - A reminder that consultation for the preparation of the EP closes on 24 October 2025.
  - A request for information on how NYFL would like to engage with Woodside about the proposed activity, including the opportunity to meet face to face.
  - Woodside's commitment to managing gender-restricted or other culturally sensitive information.
  - Advice that feedback can continue to be provided to Woodside during the life of an EP, including after consultation for the EP has closed, during EP assessment, and after an EP has been accepted by NOPSEMA.
  - Acknowledgement that discussions relating to Woodside's consultation framework agreement has been ongoing and that these discussions will progress in parallel with consultation for the proposed activity's EP.

Summary of Feedback, Objection or Claim	Woodside's Assessment of Merits of Feedback, Objection or Claim	Woodside's Response	Inclusion in Environment Plan
(1)	**(1)**	**(1)**	**(1)**

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NYFL has acknowledged it supports an agreement to enable a process of consultation.	Separate from consultation under Regulation 25 of the Environment Regulations, Woodside is open to engaging with a joint First Nations framework for consultation. Woodside notes that a consultation agreement is not a prerequisite for consultation and consultation for the preparation of environment plans can and does occur concurrently with agreement negotiations (if any). Sufficient information to allow informed assessment has already been provided by other means. Woodside has an existing engagement framework in place with NYFL which enables regular (quarterly) communication.	Woodside sent a 7-page draft consultation framework to NYFL in March 2024 for its consideration. In November 2024, Woodside met with NYFL to discuss a number of matters relating to the draft consultation agreement, with NYFL agreeing to provide Woodside with feedback on 7 April 2025, NYFL notified Woodside that it would be sending the draft agreement in due course. On 15 June 2025, Woodside emailed NYFL amendments to a draft consultation agreement. In the email Woodside reiterated that consultation for the preparation of environment plans occurs concurrently with agreement negotiations. In September 2025, Woodside and NYFL exchanged emails to confirm meeting to progress the draft consultation agreement.	Not required.
No feedback, objection or claim about the adverse impact of the activity received despite follow-up.	Woodside engages in ongoing consultation throughout the life of an EP.	Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.7.1 of this EP).	No additional measures or controls are required.
Summary Report – Consultation Complete			
Woodside has discharged its obligations for consultation under regulation 25 of the Environmental Regulations and consultation with NYFL for the purpose of regulation 25 is complete. Sufficient information and a reasonable period have been provided, as described in Section 5.4 of the EP. Specifically: **Sufficient Information** Sufficient information has been provided because: • Since September 2025, Woodside made the Consultation Information Sheet available on the Woodside website. • Woodside provided information to NYFL on 8 September 2025 when consultation commenced. Woodside provided:			

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  - A Summary Information Sheet developed specifically for First Nations groups and reviewed by a member of the First Nations Engagement team. This sheet included an overview of the proposed activity, the location of the activity, the timing of the activity, the potential risks and impacts of the activity, diagrams and details about how to provide feedback.
  - Links to the NOPSEMA *Consultation Guidelines, Consultation Brochure, and Draft Policy for Managing Gender-Restricted Information*, and contact details.
  - Confirmation of the purpose of consultation, what was being sought by Woodside through consultation including understanding the nature of NYFL's interests and how the activity could impact those interests.
  - A request for the consultation and information sheets to be distributed to members and individuals as required.
  - An offer to provide more specific information, maps and images if required.
- Woodside provided contact information for Woodside and NOPSEMA.
- Woodside provided updated information to NYFL on 10 October 2025 which included:
  - A reference to the original consultation email for this EP sent to NYFL on 8 September 2025, which included a Summary Information Sheet and a link to the Consultation Information Sheet.
  - A reminder that consultation for the preparation of the EP closes on 24 October 2024.
  - A request for information on how NYFL would like to engage with Woodside about the proposed activity, including the opportunity to meet face to face.
  - Advice that feedback can continue to be provided to Woodside during the life of an EP, including after consultation for the EP has closed, during EP assessment, and after an EP has been accepted by NOPSEMA.

Reasonable Period

A reasonable period for consultation in the preparation of the EP has been provided because:

- Woodside commenced consultation on this EP with NYFL on 8 September 2025 and requested NYFL provide feedback by 24 October 2025 for the purposes of preparation of the EP in line with Woodside's methodology of a 45-day period for consultation.
- Woodside has addressed and responded to NYFL for 6 months, demonstrating a "reasonable period" of consultation.

Reasonable Opportunity

A reasonable opportunity to provide feedback has been provided and Woodside's approach to consultation is appropriate and adapted because:

- Woodside sought direction on NYFL's preferred method of consultation and has consulted in a way that Woodside understands is appropriate for First Nations groups.
- Woodside has made information on this EP publicly available for 6 months. This has included publishing advertisements in national, state and local newspapers including Indigenous newspapers, the Koori Mail (10 September 2025) and National Indigenous Times (24 September 2025) advising of the proposed activities and requesting comments or feedback.
- Woodside's initial email about this EP on 8 September 2025:
  - Included a general email address and telephone number for Woodside, as well as a direct email and telephone number for a dedicated focal person from Woodside's First Nations Engagement team. Woodside also provided contact details for NOPSEMA.
  - Offered for Woodside to speak with NYFL members as well as the NYFL Board.
  - Asked NYFL to advise how it would like Woodside to engage and whether NYFL required further information.
- Throughout the consultation period, Woodside and NYFL have had direct contact lines to each other.

Outcomes of Consultation

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The measures (if any) that Woodside has adopted or proposes to adopt because of the consultation are appropriate because:

- During the past 6 months, NYFL has not raised objections or claims about the adverse impact of the activity to which this EP relates.

Woodside engages in ongoing consultation once an EP has been submitted for assessment as well as throughout the life of an EP. Should feedback be received after the EP has been accepted (including relevant new information relating to cultural values), it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.7.1 of the EP).

4.15 Other First Nations groups

4.15.1 Save Our Songlines

SOS and/or [Individual 1] do not squarely fall within the consultation categories in the current Woodside methodology and are therefore considered in their own category.

SOS is an organisation formed by [Individual 1], who Woodside currently understands is the group's primary spokesperson. The stated interests of [Individual 1] and SOS include the conservation of Murujuga rock art, and opposition to expansion of projects on the Burrup Peninsula. [Individual 1] and SOS are together represented by lawyers from Johnson Legal Pty Ltd. Woodside understands that the views expressed by SOS align with the views of [Individual 1]. Woodside therefore approaches communication with SOS and/or [Individual 1] as communication with SOS and has consulted them concurrently.

Woodside understands [Individual 1] is a Mardudhunera woman and a Traditional Custodian of Murujuga. Woodside has consulted with the Kuruma and Mardudhunera people including through consultation with MAC, WAC, NAC and RRKAC. [Individual 1] and SOS have expressly stated to Woodside that their views and positions differ from that of MAC and other Elders. Woodside has observed social media statements and news articles from Traditional Owner groups with cultural authority over Murujuga expressing a view that the views held by SOS and/or [Individual 1] are not views held by community [Ref for example, 9 August 2025 - The Saturday Paper and MAC LinkedIn]. Woodside has advised SOS and/or [Individual 1] that any cultural information shared with Woodside by [Individual 1] and SOS would need to be verified with the appropriate cultural authority.

Conversations and meetings with SOS and/or [Individual 1] have been occurring since around 2021, dating back to when [Individual 1] was a Board member of MAC and when SOS was first established. During this time, SOS and/or [Individual 1] have been actively engaged in consultation on Woodside's EPs and environmental approvals. SOS and/or [Individual 1] have provided information for Woodside's consideration in various forms and forums. As evidenced by Woodside's publicly available EPs, Woodside has, and continues to, review, assess and consider SOS's and/or [Individual 1's] information when developing EPs.

This context and process demonstrates that Woodside's consultation approach with SOS and/ or [Individual 1] is appropriate and adapted to the nature and interests of SOS and/or [Individual 1].

Historical engagement:

During previous consultation for other activities, SOS and/or [Individual 1] has provided information relating to its cultural values which Woodside deem relevant to this EP:

- **(1)** Threats to Murujuga Rock Art and Cultural Heritage:
  - Emissions, movement and potential damage.

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  - Impacts on sites of cultural and spiritual significance.
- **(1)** Woodside has noted the cultural significant of Murujuga Rock Art and assessed risks in its EPs.
- **(2)** Cultural and Environmental Significance:
  - Songlines, Dreaming, and energy lines.
  - Cultural features related to marine life including whales, marine mammals, seagrass, turtles.
  - Importance of the meeting of freshwater and saltwater.
  - Connection to Sea Country and the sea.
- **(2)** Woodside has recorded matters of cultural and environmental significance in its EP.
- **(3)** Environmental Protection and Cultural Values:
  - Caring for country, significance of eagle, kangaroo, bungarra.
  - Importance of offshore islands, including Rosemary Island.
  - Disturbance of seabed, noise, and pollution.
  - Relationship between environmental protection and cultural values.
- **(3)** Woodside has included matters of cultural and environmental significance in the EP.

Please see Scarborough Offshore Facility and Trunkline (Operations) EP and North West Shelf Phase 1 Plug and Abandonment and TPA03 Well Intervention (Appendix F and SI Report) for further details of this correspondence.

Summary of information provided and record of consultation for this EP:

- On 8 September 2025, Woodside emailed SOS and/or [Individual 1] (via legal representative) advising of the proposed activity (Record of Consultation, reference 6.1.44). The email included:
  - A Summary Information Sheet.
  - A link to the Consultation Information Sheet.
  - An overview of the proposed activity.
  - Links to the NOPSEMA *Consultation Guidelines, Consultation Brochure, and Draft Policy for Managing Gender-Restricted Information* and contact details.
  - A request for feedback by 24 October 2025 for the purposes of preparation of the EP.
  - A request for information on how SOS and/or [Individual 1] would like to engage with Woodside about the proposed activity, including the opportunity to meet face-to-face.
  - Advice that feedback can continue to be provided to Woodside during the life of an EP, including after consultation for the EP has closed, during EP assessment, and after an EP has been accepted by NOPSEMA.
  - Woodside's commitment to managing gender-restricted or other culturally sensitive information.
  - A request for SOS and/or [Individual 1] to provide information about the proposed activity to other individuals as required.
- On 8 September 2025, SOS and/or [Individual 1] (via legal representative) emailed Woodside (SI Report B, reference 4.1.1):
  - A letter relating to two unrelated activities in Western Australian waters. Matters relevant to this EP included:
    - **(4)** SOS and [Individual 1] disputes Woodside's assertion that they are not an appropriate authority in relation to cultural information about the Murujuga area.

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  - A submission about another EP, not related to the proposed activity, stated:
    - **(4)** SOS' and [Individual 1's] view that [Individual 1] is a Mardudhunera lore woman, Elder and a traditional custodian of Murujuga and is therefore a person who is required to be consulted.
- On 10 October 2025, Woodside emailed SOS and/ or [Individual 1] (via legal representative) a reminder about the proposed activity (SI Report, reference 4.1.2). The email included:
  - A reference to the original consultation email for this EP sent to SOS and/or [Individual 1] on 8 September 2025, which included a Summary Information Sheet and a link to the Consultation Information Sheet.
  - A reminder that consultation for the preparation of the EP closes on 24 October 2025.
  - A request for information on how SOS and/or [Individual 1] would like to engage with Woodside about the proposed activity, including the opportunity to meet face to face.
  - Woodside's commitment to managing gender-restricted or other culturally sensitive information.
  - Advice that feedback can continue to be provided to Woodside during the life of an EP, including after consultation for the EP has closed, during EP assessment, and after an EP has been accepted by NOPSEMA.
- On 24 October 2025, SOS and/or [Individual 1] (via legal representative) emailed Woodside a submission regarding the proposed activity (SI Report, reference 4.1.3). The submission raised a number of issues including greater transparency, precaution, and respect for cultural and environmental values, while advocating for regulatory reform and adoption of best practices in marine seismic surveying. The following is specific feedback and claims:
  - **(4)** That [Individual 1] asserts they are a Mardudhunera woman, Elder and Traditional Custodian and has a cultural heritage connection, responsibilities and obligations to the lands and seas of the northwest region of Australia.
  - **(2)** That there are impacts to [Individual 1's] cultural heritage arising from harm caused by seismic testing to marine animals, particularly whales, which are central to Dreaming stories, Songlines and energy lines.
  - **(5)** The environmental significance of the marine environment where the activity is being conducted, and the potential direct and indirect impacts to those environments where the activity is being conducted.
  - **(6)** The lack of certainty in the timing of the activity.
  - **(7)** Insufficient details about the acoustic pulses and their impact to marine animals.
  - **(8)** The lack of assessment of cumulative impacts from the activity underestimates the impacts and risks to marine life and the food chain.
  - **(9)** The current regulatory framework for offshore seismic activities and impacts has been found to be providing insufficient protection for environmental risks and impacts and is outdated.
  - **(11)** The Senate Inquiry recommendations relating to lower impact technologies, such as marine vibroseis, should be implemented.
  - **(12)** That the EMBA includes Montebello Islands Marine Park and also the Agro-Rowley Terrace Marine Park, the northern reaches of the UNESCO World Heritage Listed Ningaloo Coast, and Gascoyne Marine Park, and Barrow Island Marine Park and Barrow Island.
  - **(13)** That the activity area is within the migration routes and Biologically Important Areas (BIA) of the Western Australian Humpback Whale, pygmy blue whale, Antarctic Blue whale and Eastern Indian Ocean Blue Whale, and that Blue Whale Conservation Management Plan advises that seismic surveys should avoid BIAs.
- **(4)** On 28 October 2025, Woodside emailed a reply to SOS and/or [Individual 1] in response to an unrelated EP but relevant to this EP (SI Report B, reference 4.1.4). In the response, Woodside stated that it understands [Individual 1] to be a Mardudhunera woman and a Traditional Custodian of Murujuga. Woodside also stated that it considers MAC to be the cultural authority authorised to represent the views and knowledge of the five language groups of Murujuga. MAC has also provided confirmation to Woodside that they are the relevant cultural authority over Murujuga. This is set out in previous publicly available EPs and set out in previous

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consultations with SOS and/or [Individual 1]. Woodside reiterated to SOS and/or [Individual 1] that any feedback provided by SOS and/or [Individual 1] is assessed and incorporated into the EP.

- On 27 November 2025, Woodside emailed SOS and/or [Individual 1] (via legal representative) a response to the submission emailed to Woodside on 24 October 2025 regarding the proposed activity (SI Report B, reference 4.1.5). The response addressed repeated feedback from previous submissions and clarified cultural values, proposed activities, timing, acoustic impacts, and cumulative impacts. Details of Woodside's response included the following:
  - **(4)** Woodside understands [Individual 1] as a Mardudhunera woman. As has been previously communicated to SOS and/or [Individual 1], Woodside considers MAC to be the cultural authority authorised to represent the views and knowledge of the five language groups of Murujuga. MAC has also provided confirmation to Woodside that they are the relevant cultural authority over Murujuga.
  - **(2)** Cultural values provided by SOS and/or [Individual 1] have been reviewed, assessed, and incorporated into the EP where appropriate. Woodside also provided a list of cultural values previously provided to by SOS and/or [Individual 1] which includes marine species (whales, turtles, dugongs, plankton, seagrass, pelagic fish, sharks, seabirds), totemic species (bungarra, eagle, kangaroo), caring for Sea Country and Songlines, Dreaming and energy lines.
  - **(5)** Woodside stated that it takes a robust and systematic approach to environmental management of its activities including an environmental assessment with risks analysed and mitigation measures put in place as controls in the EP. In addition, indirect impacts to cultural values and heritage, and the marine environment resulting from planned impacts and unplanned risks have been assessed through an environmental impact assessment. Mitigation measures have been adopted to minimise impacts and risks to As Low as Reasonably Practicable (ALARP) and an acceptable level – a summary of key impacts and risks and proposed management measures is outlined in Table 4 of the Consultation Information Sheet which was provided to SOS and/or [Individual 1].
  - **(6)** Woodside disagreed with the assertion in the submission that the timing of the activity had not been made clear. As outlined in the Consultation Information Sheet provided to SOS and/or [Individual 1] on 8 September 2025 and 10 October 2025, and also in the submission provided by SOS and/or [Individual 1], the proposed activity is planned for late December 2026 to early February 2027. As a contingency, the EP also covers the same period in the subsequent year (2027/2028).
  - **(7)** Woodside stated it had assessed potential acoustic impacts of marine noise on marine fauna in the EP. Assessments are based on a number of factors including current research, best practice and learnings from undertaking previous marine seismic surveys of the Pluto field. Woodside stated to SOS and/or [Individual 1]:
    - That the proposed activity plans to use a compressed air acoustic source, which is discharged to generate acoustic pulses, approximately every 10 seconds. These acoustic pulses are directed vertically through the water column to the seabed.
    - That guidance from regulators indicates that when properly planned and mitigated, marine seismic surveys do not result in serious or irreversible environmental impacts to marine fauna populations, and is included in Table 4 in the Consultation information Sheet, which describes the potential impacts from acoustic pulses on marine fauna.
    - That Woodside has modelled the potential extent of acoustic impacts for different marine fauna including marine mammals, turtles and fish, fish eggs and larvae, benthic invertebrates and coral, and adopts the latest available thresholds provided by expert groups for each marine fauna group.
    - That the seismic source SPL (sound pressure levels) and SEL (sound energy levels) are within the same range as other seismic surveys conducted by Woodside and other operators in waters offshore to Western Australia over the past decade.
    - That technical details of the modelled source array have been prepared by an independent third-party specialist in underwater acoustics, and will be included in the EP and assessed by NOPSEMA prior to EP acceptance.
    - That control measures and mitigations to minimise acoustic impacts including the use of drones, bubble curtains and real time passive acoustic monitoring have been considered during development of the EP and adopted where Woodside considers it is appropriate and practicable.
    - That Woodside noted SOS's and/or [Individual 1's] recommendations for further mitigation measures to minimise acoustic impacts, and Woodside will assess these and incorporate into the EP where Woodside considers it appropriate and practicable.

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- **(8)** Woodside disagrees that the cumulative impacts relating to the activity are understated. Previous surveys and potential interactions have been considered, assessed in EP and reviewed by NOPSEMA. Woodside reiterated that the impacts expected to be temporary or localised and that the controls address cultural and environmental receptors. Woodside stated in its response:
  - Cumulative impacts are considered by examining concurrent and sequential activities with the potential to interact with one another. Cumulative impacts have been assessed in relation to physical presence, light emissions, acoustic emissions, and routine and non-routine discharges but are expected to be temporary or localised. Key impacts, risks, and mitigation and management measures relating to the proposed activity are outlined in the Consultation Information Sheet.
  - The EP acknowledges the interconnectedness of marine ecological values and intangible cultural heritage and applies controls that address both cultural and environmental receptors, including marine fauna and benthic habitats of cultural significance. Cumulative impacts have been considered in accordance with relevant regulatory requirements.
- **(9)** Woodside stated that potential impacts to cultural heritage and the marine environment are considered in the EP with guidance from a number of sources including Woodside's Environment and Biodiversity Policy, as well as assessments that review physical environmental characteristics, habitats, biological communities, protected species and protected places. Potential impacts to cultural values are assessed and managed with relevant environmental controls and in accordance with applicable Commonwealth legislation.
- **(10)** Woodside stated it had considered the Senate Inquiry recommendations and additional published studies, and that the EP has been developed in line with updated regulatory guidance and policy revisions, and that Woodside had participated in research programs relevant to seismic impacts. Woodside thanked SOS and/or [Individual 1] for suggesting the use of alternative seismic technologies, such as marine vibroseis and ocean bottom seismic. Woodside has followed the development of marine seismic vibrator technology over the past 20 years and has participated in technical forums held with seismic contractors, however this technology is still in research and development and is yet to be offered commercially, noting that the Pluto survey requires the same source type technology used in previous surveys of the Pluto field for time-lapse data consistency.
- **(11)** Woodside acknowledged that the EMBA includes the Montebello Islands Marine Park, Ningaloo Coast World Heritage Area (which is 175 km southwest of the Operational Area), Gascoyne Marine Park, and Barrow Island Marine Park, and confirmed that the EMBA does not overlap the Argo-Rowley Terrace Marine Park.
- **(12)** Woodside stated that the survey timing avoids Biologically Important Areas (BIAs) and migration routes for pygmy blue whales, humpback whales, and whale sharks. Controls measures are put in place to reduce the impact to migratory routes including pre-survey visual observations, soft-start procedures, ongoing monitoring by trained observers, passive acoustic monitoring, temporary shutdown if marine fauna is detected.

Summary of Feedback, Objection or Claim	Woodside's Assessment of Merits of Feedback, Objection or Claim	Woodside's Response	Inclusion in Environment Plan
(1) Threats to Murujuga Rock Art and Cultural Heritage: • Emissions, movement and potential damage. • Impacts on sites of cultural and spiritual significance.	**(1)** This value has been identified through Woodside's data collection processes (consultation).	**(1)** Woodside acknowledges the cultural significance of Murujuga Rock Art.	**(1)** Woodside has updated Section 4.9 to record these interests and cultural values.
(2) Cultural and Environmental Significance:	**(2)** This value has been identified through Woodside's data collection processes	**(2)**	**(2)** Woodside has updated Section 4.9 to record these interests and cultural

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• Songlines, dreaming, and energy lines. • Cultural features related to marine life including whales, marine mammals, seagrass, turtles. • Importance of the meeting of freshwater and saltwater. • Connection to Sea Country and the sea. In response to this EP, SOS and/or [Individual 1] stated that there are impacts to [Individual 1's] cultural heritage arising from harm caused by seismic testing to marine animals, particularly whales, which are central to Dreaming stories, Songlines and energy lines.	(consultation) and from feedback from SOS and/or [Individual 1].	Woodside has reviewed, assessed and recorded matters of cultural and environmental significance in this EP.	values. Woodside has also assessed the potential impacts on these interests and cultural values, and where appropriate, included controls, in Sections 6.7 of the EP.
(3) Environmental Protection and Cultural Values: • Caring for country, significance of eagle, kangaroo, bungarra. • Importance of offshore islands, including Rosemary Island. • Disturbance of seabed, noise, and pollution. • Relationship between environmental protection and cultural values.	**(3)** This value has been identified through Woodside's data collection processes (consultation).	**(3)** Woodside has included matters of cultural and environmental significance in the EP.	**(3)** Woodside has updated Section 4.9 to record these interests and cultural values. Woodside has also assessed the potential impacts on these interests and cultural values, and where appropriate, included controls, in Sections 6.7 and 6.8 of the EP.
(4) That [Individual 1] is a Mardudhunera lore woman, Elder and a Traditional Custodian of Murujuga. SOS and/or [Individual 1] disputes Woodside's assertion that they are not an appropriate authority in relation to	**(4)** Woodside understands [Individual 1] to be a Mardudhunera woman and a Traditional Custodian of Murujuga.	**(4)** Woodside has informed SOS and/or [Individual 1] on a number of occasions in response to previous EP consultations, that Woodside considers MAC to be the cultural authority authorised to represent the views and knowledge of the five language groups of Murujuga. MAC has also provided	**(4)** No action required.

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cultural information about the Murujuga area. In response to this EP, SOS and/or [Individual 1] stated that [Individual 1] is a Mardudhunera woman, Elder and Traditional Custodian and has a cultural heritage connection, responsibilities and obligations to the lands and seas of the northwest region of Australia.		confirmation to Woodside that they are the relevant cultural authority over Murujuga. This is set out in previous publicly available EPs and set out in previous consultations with SOS and/or [Individual 1]. Woodside has reiterated to SOS and/ or [Individual 1] that any feedback provided by SOS and/or [Individual 1] is assessed and incorporated into the EP.	
(5) The environmental significance of the marine environment where the activity is being conducted, and the potential direct and indirect impacts to those environments where the activity is being conducted.	(5) Woodside assess the direct and indirect impacts to the environment and marine fauna and establishes appropriate control and mitigation measures to minimise the impacts.	**(5)** Woodside takes a robust and systematic approach to environmental management of its activities including an environmental assessment with risks analysed and mitigation measures put in place as controls in the EP. In addition, indirect impacts to cultural values and heritage, and the marine environment resulting from planned impacts and unplanned risks have been assessed through an environmental impact assessment. Mitigation measures have been adopted to minimise impacts and risks to As Low as Reasonably Practicable (ALARP) and an acceptable level – a summary of which is outlined in Table 4 of the Consultation Information Sheet which was provided to SOS and/or [Individual 1].	**(5)** Woodside has assessed the potential direct and indirect impacts to those environments where the activity is being conducted, and where appropriate included controls in Section 6.7 of the EP.
(6) The lack of certainty in the timing of the activity.	**(6)** The claim has no merit as the timing of the activity was outlined in the Summary Information Sheet and Consultation Information Sheet (which is publicly available online).	**(6)** Woodside disagreed with SOS's and/or [Individual 1's] claim regarding the lack of certainty of the activity's timing, and reminded SOS and/or [Individual 1] that the activity's timeframe was provided to SOS and/or [Individual 1] on 8 September 2025 and 10 October 2025.	**(6)** No action required.

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(7) Insufficient details about the acoustic pulses and their impact to marine animals.	**(7)** Woodside assesses potential acoustic impacts of noise on marine fauna in the EP. Assessments are based on a number of factors including current research, best practice and learnings from undertaking previous marine seismic surveys of the Pluto field.	**(7)** Woodside stated to SOS and/or [Individual 1] that guidance from regulators indicated that when properly planned and mitigated, marine seismic surveys do not result in serious or irreversible environmental impacts to marine fauna populations. Woodside referred to Table 4 in the Consultation information Sheet which describes the potential impacts from acoustic pulses on marine fauna. Woodside also outlined in its response to SOS and/or [Individual 1] a number of controls and mitigation measures it employs to minimise the impact to marine fauna including: • The proposed activity uses a compressed air acoustic source, which is discharged to generate acoustic pulses, approximately every 10 seconds. • Acoustic pulses are directed vertically through the water column to the seabed. • That Woodside has modelled the potential extent of acoustic impacts for different marine fauna and adopts the latest available thresholds provided by expert groups for each marine fauna group. • SPLs and SELs are within the same range as other seismic surveys conducted by Woodside and other operators in waters offshore over the past decade.	**(7)** Woodside has assessed the potential impacts of noise/acoustic emissions on marine life and where appropriate included controls in Section 6.7.2 and Section 6.7.3 of the EP.

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		• Technical details of the modelled source array have been prepared by an independent third-party specialist in underwater acoustics. • The use of drones, bubble curtains and real time passive acoustic monitoring have been considered during development of the EP and adopted where Woodside considers it is appropriate and practicable.	
(8) The lack of assessment of cumulative impacts from the activity underestimates the impacts and risks to marine life and the food chain.	**(8)** Woodside assess the cumulative impacts to the environment and marine fauna and establishes appropriate control and mitigation measures to minimise the impacts marine fauna and the food chains.	**(8)** Woodside disagrees with the assertion that the cumulative impacts relating to the activity are understated. Previous surveys and potential interactions have been considered, assessed in EP and reviewed by NOPSEMA. Woodside reiterated that the impacts expected to be temporary or localised and that the controls address cultural and environmental receptors.	**(8)** Woodside has assessed the cumulative impacts of the activity on marine life and food chains, and where appropriate included controls in Section 6.7 of the EP.
(9) The current regulatory framework for offshore seismic activities and impacts has been found to be providing insufficient protection for environmental risks and impacts and is outdated.	**(9)** Potential impacts to cultural values are assessed and managed with relevant environmental controls and in accordance with applicable Commonwealth legislation.	**(9)** Woodside considers potential impacts to cultural heritage and the marine environment with guidance from a number of sources including Woodside's Environment and Biodiversity Policy, as well as assessments that review physical environmental characteristics, habitats, biological communities, protected species and protected places.	**(9)** Woodside has assessed the planned activity against its regulatory and legislative requirements, and environmental impacts, risks and mitigation measures are outlined in Section 6.7 of the EP.
(10) The Senate Inquiry recommendations relating to lower impact technologies,	**(10)** Woodside has determined that the use of alternative seismic technologies, such as marine vibroseis and ocean bottom	**(10)** Woodside informed SOS and/or [Individual 1] that it had considered the Senate Inquiry recommendations and	**(10)** No action required.

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such as marine vibroseis, should be implemented.	seismic, however the technology is still in research and development and is yet to be offered commercially.	additional published studies, and develops the EP in line with updated regulatory guidance and policy revisions. Woodside also stated had participated in research programs relevant to seismic impacts.	
(11) That the EMBA includes Montebello Islands Marine Park and also the Agro-Rowley Terrace Marine Park, the northern reaches of the UNESCO World Heritage Listed Ningaloo Coast, and Gascoyne Marine Park, and Barrow Island Marine Park and Barrow Island.	**(11)** Woodside directed SOS and/or [Individual 1] to the Consultation Information Sheet which identifies the marine parks in relation to the Operational Area.	**(11)** Woodside acknowledged that the EMBA includes the Montebello Islands Marine Park, Ningaloo Coast World Heritage Area (which is 175 km southwest of the Operational Area), Gascoyne Marine Park, and Barrow Island Marine Park, and asserted that the EMBA does not overlap the Argo-Rowley Terrace Marine Park.	**(11)** No action required.
(12) That the activity area is within the migration routes and Biologically Important Areas (BIA) of the Western Australian Humpback Whale, pygmy blue whale, Antarctic Blue whale and Eastern Indian Ocean Blue Whale, and that Blue Whale Conservation Management Plan advises that seismic surveys should avoid BIAs.	**(12)** Woodside has assessed and reviewed the migratory patterns and routes of marine fauna potentially impacted by the activity, in line with a number of best practice research and publications including the Blue Whale Conservation Management Plan. Woodside has actively ensured that the timing of the activity is outside the migratory times of marine fauna and has detailed a number of control and mitigation measures to reduce the impact to marine fauna.	**(12)** Woodside confirmed that the survey timing avoids BIAs and migration routes for whale species. Controls measures aim to reduce the impact to migratory routes including pre-survey visual observations, soft-start procedures, ongoing monitoring by trained observers, passive acoustic monitoring, temporary shutdown if marine fauna is detected.	**(12)** Woodside has assessed the impacts of the activity to marine species and migration patterns, and where appropriate included controls in Sections 6.7 and 6.8 of the EP.
Woodside has addressed objections and claims, as noted above.	Woodside has assessed the merits of any objection or claim (if any) about the adverse impact of the activity to which the EP relates as required under Regulation 24.	Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.7.1 of this EP).	Based on the engagement to date, no additional measures or controls are required.

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Summary Report – Consultation Complete

Woodside has discharged its obligations for consultation under regulation 25 of the Environmental Regulations and consultation with SOS and/or [Individual 1] for the purpose of regulation 25 is complete. Sufficient information and a reasonable period have been provided, as described in Section 5.4 of the EP. Specifically:

Sufficient Information

Sufficient information has been provided because:

- Since September 2025, Woodside made the Consultation Information Sheet available on the Woodside website.
- Woodside provided information to SOS and/or [Individual 1] on 8 September 2025 when consultation commenced. Woodside provided:
  - A Summary Information Sheet developed specifically for First Nations groups and reviewed by a member of the First Nations Engagement team. This sheet included an overview of the proposed activity, the location of the activity, the timing of the activity, the potential risks and impacts of the activity, diagrams and details about how to provide feedback.
  - Links to the NOPSEMA *Consultation Guidelines, Consultation Brochure, and Draft Policy for Managing Gender-Restricted Information*, and contact details.
  - Confirmation of the purpose of consultation, what was being sought by Woodside through consultation including understanding the nature of SOS' and/ or [Individual 1's] interests and how the activity could impact those interests.
  - A request for the consultation and information sheets to be distributed to members and individuals as required.
  - An offer to provide more specific information, maps and images if required.
- Woodside provided contact information for Woodside and NOPSEMA.
- Woodside provided updated information to SOS and/or [Individual 1] on 10 October 2025 which included:
  - A reference to the original consultation email for this EP sent to SOS and/ or [Individual 1] on 8 September 2025, which included a Summary Information Sheet and a link to the Consultation Information Sheet.
  - A reminder that consultation for the preparation of the EP closes on 24 October 2024.
  - A request for information on how SOS and/ or [Individual 1] would like to engage with Woodside about the proposed activity, including the opportunity to meet face to face.
  - Advice that feedback can continue to be provided to Woodside during the life of an EP, including after consultation for the EP has closed, during EP assessment, and after an EP has been accepted by NOPSEMA.

Reasonable Period

A reasonable period for consultation in the preparation of the EP has been provided because:

- Woodside commenced consultation on this EP with SOS and/ or [Individual 1] on 8 September 2025 and requested SOS and/ or [Individual 1] provide feedback by 24 October 2025 for the purposes of preparation of the EP in line with Woodside's methodology of a 45-day period for consultation.
- Woodside has addressed and responded to SOS and/or [Individual 1] for 6 months, demonstrating a "reasonable period" of consultation.

Reasonable Opportunity

A reasonable opportunity to provide feedback has been provided and Woodside's approach to consultation is appropriate and adapted because:

- Woodside sought direction on SOS' and/ or [Individual 1's] preferred method of consultation and has consulted in a way that Woodside understands is appropriate for First Nations groups.

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- Woodside has made information on this EP publicly available for 6 months. This has included publishing advertisements in national, state and local newspapers including Indigenous newspapers, the Koori Mail (10 September 2025) and National Indigenous Times (24 September 2025) advising of the proposed activities and requesting comments or feedback.
- Woodside's initial email about this EP on 8 September 2025:
  - Included a general email address and telephone number for Woodside, as well as a direct email and telephone number for a dedicated focal person from Woodside's First Nations Engagement team. Woodside also provided contact details for NOPSEMA.
  - Offered for Woodside to speak with SOS members.
  - Asked SOS and/or [Individual 1] to advise how it would like Woodside to engage and whether SOS and/or [Individual 1] required further information.
- Throughout the consultation period, Woodside and SOS and/or [Individual 1] have had direct contact lines to each other.

Outcomes of Consultation

The measures (if any) that Woodside has adopted or proposes to adopt because of the consultation are appropriate because:

- Woodside has incorporated cultural values previously provided by SOS and/or [Individual 1] into the EP.
- During the past 6 months, SOS and/or [Individual 1] has provided feedback and raised claims about the adverse impact of the activity to which this EP relates. These included (but not limited to):
  - The impacts to [Individual 1's] cultural heritage and marine fauna, particularly whales, arising from the activity.
  - The direct and indirect impacts to the marine environment.
  - The lack of certainty in the activity's timing, insufficient details about the acoustic impacts to marine fauna, and the lack of assessment relating to the cumulative impacts to marine life and the food chain from the activity.
  - That the current regulatory framework provides insufficient protection for environment risks.
  - That Woodside consider the recommendations from a Senate Inquiry relating to lower impact technologies.
  - That the activity avoids areas that include the migratory and BIAs for marine fauna.
- Woodside has responded to the feedback, claims and objections and, where appropriate, controls have been included in the EP.
- SOS and/or [Individual 1] has provided no additional feedback, objections or claims during consultation.

Woodside engages in ongoing consultation once an EP has been submitted for assessment as well as throughout the life of an EP. Should feedback be received after the EP has been accepted (including relevant new information relating to cultural values), it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.7.1 of the EP).

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5. TABLE 3: ENGAGEMENT REPORT WITH PERSONS OR ORGANISATIONS ASSESSED AS NOT RELEVANT

The black numbering **(N)** in the 'Summary of information provided and record of consultation for this EP' in Table 3 denotes an item raised by a stakeholder. The green numbering **(N)** in this section denotes Woodside's response to that issue.

5.1 Commonwealth commercial fisheries and peak representative bodies

5.1.1 Southern Bluefin Tuna Fishery

Summary of information provided and record of consultation for this EP:

- On 8 September 2025, Woodside emailed Southern Bluefin Tuna Fishery licence holders advising of the proposed activity (Record of Consultation, reference 6.1.14), provided a Consultation Information Sheet, information on potential impacts to fisheries, and a link to NOPSEMA's brochure '*Consultation on offshore petroleum environment plans: Information for the community*'.
- On 8 October 2025, as no response had been received, Woodside proactively sent a follow-up email (Record of Consultation, reference 6.2.1).
- **(1)** On 8 October 2025, a licence holder asked Woodside to delete its email address as it no longer held any fishery investments (SI Report A, reference 20.1).
- **(1)** On 8 October 2025, Woodside thanked the licence holders for its response and confirmed the email address had been removed from its mailing list (SI Report A, reference 20.2).

Summary of Feedback, Objection or Claim	Woodside's Assessment of Merits of Feedback, Objection or Claim	Woodside's Statement of Response	Inclusion in Environment Plan
(1) A licence holder requested to be removed from Woodside's mailing list.	**(1)** Woodside accepts that participation in the consultation process is voluntary.	**(1)** Woodside confirmed it had removed the licence holder from its mailing list.	**(1)** Not required.
While feedback has been received, there were no objections or claims.	Woodside has assessed the merits of each objection or claim (if any) about the adverse impact of the activity to which the EP relates, as required under Regulation 24.	Woodside engages in ongoing consultation throughout the life of an EP. Woodside notes that further feedback may be received as part of ongoing consultation. Should further feedback be received, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.7.1 of the EP).	No additional controls or measures are required.

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Summary Report – Consultation Complete
While Southern Bluefin Tuna Fishery is not a relevant person under regulation 25 of the Environment Regulations, Woodside considers it has still provided sufficient information and a reasonable period outside of regulatory requirements for Southern Bluefin Tuna Fishery to provide feedback during the consultation process.

5.1.2 Western Skipjack Fishery

Summary of information provided and record of consultation for this EP:

- On 8 September 2025, Woodside emailed Western Skipjack Fishery licence holders advising of the proposed activity (Record of Consultation, reference 6.1.14), provided a Consultation Information Sheet, information on potential impacts to fisheries, and a link to NOPSEMA's brochure '*Consultation on offshore petroleum environment plans: Information for the community*'.
- On 8 October 2025, as no response had been received, Woodside proactively sent a follow-up email (Record of Consultation, reference 6.2.1).

Summary of Feedback, Objection or Claim	Woodside's Assessment of Merits of Feedback, Objection or Claim	Woodside's Statement of Response	Inclusion in Environment Plan
No feedback, objections or claims about the adverse impact of the activity received despite follow-up.		Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.7.1 of the EP).	No additional measures or controls are required.

Summary Report – Consultation Complete
While Western Skipjack Fishery is not a relevant person under regulation 25 of the Environment Regulations, Woodside considers it has still provided sufficient information and a reasonable period outside of regulatory requirements for Western Skipjack Fishery to provide feedback during the consultation process.

5.1.3 Western Tuna and Billfish Fishery

Summary of information provided and record of consultation for this EP:

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- On 8 September 2025, Woodside emailed Western Tuna and Billfish Fishery licence holders advising of the proposed activity (Record of Consultation, reference 6.1.14), provided a Consultation Information Sheet, information on potential impacts to fisheries, and a link to NOPSEMA's brochure '*Consultation on offshore petroleum environment plans: Information for the community*'.
- On 8 October 2025, as no response had been received, Woodside proactively sent a follow-up email (Record of Consultation, reference 6.2.1).

Summary of Feedback, Objection or Claim	Woodside's Assessment of Merits of Feedback, Objection or Claim	Woodside's Statement of Response	Inclusion in Environment Plan
No feedback, objections or claims about the adverse impact of the activity received despite follow-up.		Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.7.1 of the EP).	No additional measures or controls are required.
Summary Report – Consultation Complete			
While Western Tuna and Billfish Fishery is not a relevant person under regulation 25 of the Environment Regulations, Woodside considers it has still provided sufficient information and a reasonable period outside of regulatory requirements for Western Tuna and Billfish Fishery to provide feedback during the consultation process.			

5.2 State commercial fisheries and peak representative bodies

5.2.1 Onslow Prawn Managed Fishery

Summary of information provided and record of consultation for this EP:

- On 10 September 2025, WAFIC, on behalf of Woodside, emailed Onslow Prawn Managed Fishery licence holders advising of the proposed activity (Record of Consultation, reference 6.1.26), provided a Consultation Information Sheet, information on potential impacts to fisheries, and a link to NOPSEMA's brochure 'Consultation on offshore petroleum environment plans: Information for the community'.
- As per advice from WAFIC regarding its consultation guidelines, no follow-up email was required for Onslow Prawn Managed Fishery.
- On 24 October 2025, WAFIC emailed Woodside confirming that no feedback had been received from licence holders in the Onslow Prawn Managed Fishery (SI Report A, reference 9.3).

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Summary of Feedback, Objection or Claim	Woodside's Assessment of Merits of Feedback, Objection or Claim	Woodside's Statement of Response	Inclusion in Environment Plan
No feedback, objections or claims about the adverse impact of the activity received despite follow-up.		Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.7.1 of the EP).	No additional measures or controls are required.
While Onslow Prawn Managed Fishery is not a relevant person under regulation 25 of the Environment Regulations, Woodside considers it has still provided sufficient information and a reasonable period outside of regulatory requirements for Western Tuna and Billfish Fishery to provide feedback during the consultation process.			

5.3 Research institutes and local conservation groups or organisations

5.3.1 Australian Institute of Marine Science (AIMS)

Summary of information provided and record of consultation for this EP:

- On 8 September 2025, Woodside emailed AIMS advising of the proposed activity (Record of Consultation, reference 6.1.20), provided a Consultation Information Sheet, and a link to NOPSEMA's brochure '*Consultation on offshore petroleum environment plans: Information for the community*'.
- On 8 October 2025, as no response had been received, Woodside proactively sent a follow-up email (Record of Consultation, reference 6.2.1).

Summary of Feedback, Objection or Claim	Woodside's Assessment of Merits of Feedback, Objection or Claim	Woodside's Statement of Response	Inclusion in Environment Plan
No feedback, objections or claims about the adverse impact of the activity received despite follow-up.		Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.7.1 of the EP).	No additional measures or controls are required.
Summary Report – Consultation Complete			

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While AIMS is not a relevant person under regulation 25 of the Environment Regulations, Woodside considers it has still provided sufficient information and a reasonable period outside of regulatory requirements for AIMS to provide feedback during the consultation process.

5.3.2 Commonwealth Scientific and Industrial Research Organisation (CSIRO)

Summary of information provided and record of consultation for this EP:

- On 8 September 2025, Woodside emailed CSIRO of the proposed activity (Record of Consultation, reference 6.1.20), provided a Consultation Information Sheet, and a link to NOPSEMA's brochure '*Consultation on offshore petroleum environment plans: Information for the community*'.
- On 8 October 2025, as no response had been received, Woodside proactively sent a follow-up email (Record of Consultation, reference 6.2.1).

Summary of Feedback, Objection or Claim	Woodside's Assessment of Merits of Feedback, Objection or Claim	Woodside's Statement of Response	Inclusion in Environment Plan
No feedback, objections or claims about the adverse impact of the activity received despite follow-up.		Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.7.1 of the EP).	No additional measures or controls are required.
Summary Report – Consultation Complete			
While CSIRO is not a relevant person under regulation 25 of the Environment Regulations, Woodside considers it has still provided sufficient information and a reasonable period outside of regulatory requirements for CSIRO to provide feedback during the consultation process.			

5.3.3 Western Australian Marine Science Institution (WAMSI)

Summary of information provided and record of consultation for this EP:

- On 8 September 2025, Woodside emailed WAMSI advising of the proposed activity (Record of Consultation, reference 6.1.20), provided a Consultation Information Sheet, and a link to NOPSEMA's brochure '*Consultation on offshore petroleum environment plans: Information for the community*'.
- On 8 October 2025, as no response had been received, Woodside proactively sent a follow-up email (Record of Consultation, reference 6.2.1).

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Summary of Feedback, Objection or Claim	Woodside's Assessment of Merits of Feedback, Objection or Claim	Woodside's Statement of Response	Inclusion in Environment Plan
No feedback, objections or claims about the adverse impact of the activity received despite follow-up.		Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.7.1 of the EP).	No additional measures or controls are required.
Summary Report – Consultation Complete			
While WAMSI is not a relevant person under regulation 25 of the Environment Regulations, Woodside considers it has still provided sufficient information and a reasonable period outside of regulatory requirements for WAMSI to provide feedback during the consultation process.			

5.3.4 Curtin University

Summary of information provided and record of consultation for this EP:

- On 8 September 2025, Woodside emailed Curtin University advising of the proposed activity (Record of Consultation, reference 6.1.20), provided a Consultation Information Sheet, and a link to NOPSEMA's brochure '*Consultation on offshore petroleum environment plans: Information for the community*'.
- On 8 October 2025, as no response had been received, Woodside proactively sent a follow-up email (Record of Consultation, reference 6.2.1).

Summary of Feedback, Objection or Claim	Woodside's Assessment of Merits of Feedback, Objection or Claim	Woodside's Statement of Response	Inclusion in Environment Plan
No feedback, objections or claims about the adverse impact of the activity received despite follow-up.		Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.7.1 of the EP).	No additional measures or controls are required.
Summary Report – Consultation Complete			

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While Curtin University is not a relevant person under regulation 25 of the Environment Regulations, Woodside considers it has still provided sufficient information and a reasonable period outside of regulatory requirements for Curtin University to provide feedback during the consultation process.

5.3.5 Edith Cowan University (ECU)

Summary of information provided and record of consultation for this EP:

- On 8 September 2025, Woodside emailed ECU advising of the proposed activity (Record of Consultation, reference 6.1.20), provided a Consultation Information Sheet, and a link to NOPSEMA's brochure '*Consultation on offshore petroleum environment plans: Information for the community*'.
- On 8 October 2025, as no response had been received, Woodside proactively sent a follow-up email (Record of Consultation, reference 6.2.1).

Summary of Feedback, Objection or Claim	Woodside's Assessment of Merits of Feedback, Objection or Claim	Woodside's Statement of Response	Inclusion in Environment Plan
No feedback, objections or claims about the adverse impact of the activity received despite follow-up.		Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.7.1 of the EP).	No additional measures or controls are required.

Summary Report – Consultation Complete

While ECU is not a relevant person under regulation 25 of the Environment Regulations, Woodside considers it has still provided sufficient information and a reasonable period outside of regulatory requirements for ECU to provide feedback during the consultation process.

5.3.6 Murdoch University

Summary of information provided and record of consultation for this EP:

- On 8 September 2025, Woodside emailed Murdoch University advising of the proposed activity (Record of Consultation, reference 6.1.20), provided a Consultation Information Sheet, and a link to NOPSEMA's brochure '*Consultation on offshore petroleum environment plans: Information for the community*'.
- On 8 October 2025, as no response had been received, Woodside proactively sent a follow-up email (Record of Consultation, reference 6.2.1).

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Summary of Feedback, Objection or Claim	Woodside's Assessment of Merits of Feedback, Objection or Claim	Woodside's Statement of Response	Inclusion in Environment Plan
No feedback, objections or claims about the adverse impact of the activity received despite follow-up.		Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.7.1 of the EP).	No additional measures or controls are required.
Summary Report – Consultation Complete			
While Murdoch University is not a relevant person under regulation 25 of the Environment Regulations, Woodside considers it has still provided sufficient information and a reasonable period outside of regulatory requirements for Murdoch University to provide feedback during the consultation process.			

5.3.7 University of Western Australia (UWA)

Summary of information provided and record of consultation for this EP:

- On 8 September 2025, Woodside emailed UWA advising of the proposed activity (Record of Consultation, reference 6.1.20), provided a Consultation Information Sheet, and a link to NOPSEMA's brochure '*Consultation on offshore petroleum environment plans: Information for the community*'.
- On 8 October 2025, as no response had been received, Woodside proactively sent a follow-up email (Record of Consultation, reference 6.2.1).

Summary of Feedback, Objection or Claim	Woodside's Assessment of Merits of Feedback, Objection or Claim	Woodside's Statement of Response	Inclusion in Environment Plan
No feedback, objections or claims about the adverse impact of the activity received despite follow-up.		Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.7.1 of the EP).	No additional measures or controls are required.
Summary Report – Consultation Complete			

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While UWA is not a relevant person under regulation 25 of the Environment Regulations, Woodside considers it has still provided sufficient information and a reasonable period outside of regulatory requirements for UWA to provide feedback during the consultation process.

5.4 Other non-government groups or organisations (NGOs) or individuals

5.4.1 Australian Conservation Foundation (ACF)

Summary of information provided and record of consultation for this EP:

- On 8 September 2025, Woodside emailed ACF advising of the proposed activity (Record of Consultation, reference 6.1.9), provided a Consultation Information Sheet, and a link to NOPSEMA's brochure '*Consultation on offshore petroleum environment plans: Information for the community*'.
- On 8 October 2025, as no response had been received, Woodside proactively sent a follow-up email (Record of Consultation, reference 6.2.1).

Summary of Feedback, Objection or Claim	Woodside's Assessment of Merits of Feedback, Objection or Claim	Woodside's Statement of Response	Inclusion in Environment Plan
No feedback, objections or claims about the adverse impact of the activity received despite follow-up.		Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.7.1 of the EP).	No additional measures or controls are required.
Summary Report – Consultation Complete			
While ACF is not a relevant person under regulation 25 of the Environment Regulations, Woodside considers it has still provided sufficient information and a reasonable period outside of regulatory requirements for ACF to provide feedback during the consultation process.			

5.4.2 International Fund for Animal Welfare (IFAW)

Summary of information provided and record of consultation for this EP:

- On 8 September 2025, Woodside emailed IFAW advising of the proposed activity (Record of Consultation, reference 6.1.9), provided a Consultation Information Sheet, and a link to NOPSEMA's brochure '*Consultation on offshore petroleum environment plans: Information for the community*'.

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• On 8 October 2025, as no response had been received, Woodside proactively sent a follow-up email (Record of Consultation, reference 6.2.1).			
Summary of Feedback, Objection or Claim	**Woodside's Assessment of Merits of Feedback, Objection or Claim**	**Woodside's Statement of Response**	**Inclusion in Environment Plan**
No feedback, objections or claims about the adverse impact of the activity received despite follow-up.		Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.7.1 of the EP).	No additional measures or controls are required.
Summary Report – Consultation Complete			
While IFAW is not a relevant person under regulation 25 of the Environment Regulations, Woodside considers it has still provided sufficient information and a reasonable period outside of regulatory requirements for IFAW to provide feedback during the consultation process.			

5.4.3 Minderoo Foundation

Summary of information provided and record of consultation for this EP: • On 8 September 2025, Woodside emailed Minderoo Foundation advising of the proposed activity (Record of Consultation, reference 6.1.9), provided a Consultation Information Sheet, and a link to NOPSEMA's brochure '*Consultation on offshore petroleum environment plans: Information for the community*'. • On 9 September 2025, Minderoo Foundation emailed thanking Woodside for getting in touch and advising the message had been forwarded to the team best suited to address the information (SI Report A, reference 22.1). • On 8 October 2025, as no further response had been received, Woodside proactively sent a follow-up email (Record of Consultation, reference 6.2.1).			
Summary of Feedback, Objection or Claim	**Woodside's Assessment of Merits of Feedback, Objection or Claim**	**Woodside's Statement of Response**	**Inclusion in Environment Plan**
No feedback, objections or claims about the adverse impact of the activity received despite follow-up.		Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of	No additional measures or controls are required.

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		Change and Revision process (see Section 7.7.1 of the EP).	
Summary Report – Consultation Complete			
While Minderoo Foundation is not a relevant person under regulation 25 of the Environment Regulations, Woodside considers it has still provided sufficient information and a reasonable period outside of regulatory requirements for Minderoo Foundation to provide feedback during the consultation process.			

5.4.4 Sea Shepherd Australia

Summary of information provided and record of consultation for this EP:

- On 8 September 2025, Woodside emailed Sea Shepherd Australia advising of the proposed activity (Record of Consultation, reference 6.1.9), provided a Consultation Information Sheet, and a link to NOPSEMA's brochure '*Consultation on offshore petroleum environment plans: Information for the community*'.
- On 8 October 2025, as no response had been received, Woodside proactively sent a follow-up email (Record of Consultation, reference 6.2.1).

Summary of Feedback, Objection or Claim	Woodside's Assessment of Merits of Feedback, Objection or Claim	Woodside's Statement of Response	Inclusion in Environment Plan
No feedback, objections or claims about the adverse impact of the activity received despite follow-up.		Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.7.1 of the EP).	No additional measures or controls are required.
Summary Report – Consultation Complete			
While Sea Shepherd Australia is not a relevant person under regulation 25 of the Environment Regulations, Woodside considers it has still provided sufficient information and a reasonable period outside of regulatory requirements for Sea Shepherd Australia to provide feedback during the consultation process.			

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5.4.5 The Wilderness Society (TWS)

Summary of information provided and record of consultation for this EP:

- On 8 September 2025, Woodside emailed TWS advising of the proposed activity (Record of Consultation, reference 6.1.9), provided a Consultation Information Sheet, and a link to NOPSEMA's brochure '*Consultation on offshore petroleum environment plans: Information for the community*'.
- On 5 October 2025, a member of TWS identified themselves at Woodside's stall at the Exmouth Community Markets and took a copy of the Consultation Information Sheet for this EP. Woodside confirmed that consultation for the EP was open until 24 October 2025 if they wished to provide feedback, and that Woodside had also provided the information to the broader TWS organisation.
- On 8 October 2025, as no response had been received from TWS, Woodside proactively sent a follow-up email (Record of Consultation, reference 6.2.1).

Summary of Feedback, Objection or Claim	Woodside's Assessment of Merits of Feedback, Objection or Claim	Woodside's Statement of Response	Inclusion in Environment Plan
No feedback, objections or claims about the adverse impact of the activity received despite follow-up.		Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.7.1 of the EP).	No additional measures or controls are required.

Summary Report – Consultation Complete

While TWS is not a relevant person under regulation 25 of the Environment Regulations, Woodside considers it has still provided sufficient information and a reasonable period outside of regulatory requirements for TWS to provide feedback during the consultation process.

5.4.6 World Wildlife Fund (WWF) Australia

Summary of information provided and record of consultation for this EP:

- On 8 September 2025, Woodside emailed WWF Australia advising of the proposed activity (Record of Consultation, reference 6.1.9), provided a Consultation Information Sheet, and a link to NOPSEMA's brochure '*Consultation on offshore petroleum environment plans: Information for the community*'.
- On 8 October 2025, as no response had been received, Woodside proactively sent a follow-up email (Record of Consultation, reference 6.2.1).

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Summary of Feedback, Objection or Claim	Woodside's Assessment of Merits of Feedback, Objection or Claim	Woodside's Statement of Response	Inclusion in Environment Plan
No feedback, objections or claims about the adverse impact of the activity received despite follow-up.		Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.7.1 of the EP).	No additional measures or controls are required.
Summary Report – Consultation Complete			
While WWF Australia is not a relevant person under regulation 25 of the Environment Regulations, Woodside considers it has still provided sufficient information and a reasonable period outside of regulatory requirements for WWF Australia to provide feedback during the consultation process.			

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6. RECORD OF CONSULTATION

6.1 Initial consultation

6.1.1 Consultation Information sheet

Woodside Energy

Consultation Information Sheet
September 2025

Pluto 4D M3 Marine Seismic Survey Environment Plan

Carnarvon Basin, North-West Australia

Activity overview

The Pluto 4D M3 (Monitor 3) Marine Seismic Survey (MSS) Environment Plan (EP) covers:

- Seismic data acquisition using a survey vessel towing an acoustic source array and hydrophone cables (streamers).
- Support operations from a support vessel and chase vessel.

This MSS is a time-lapse survey which forms part of the ongoing reservoir management and surveillance program for the Pluto reservoir. To obtain this time-lapse data, the seismic survey replicates as accurately as possible previous Pluto monitor surveys, undertaken in 2016 and 2020, to detect changes such as pressure depletion and water movement within and surrounding the Pluto gas reservoir during production.

More information on marine seismic surveys is found on **Page 3.**

Location

- In Commonwealth waters, approximately 28 km north-west of the Montebello Islands and 150 km north-west of Dampier **(Figure 2).**

Water depth

- ~ 73 m – 1,185 m deep.

Timing

- The survey window is planned for late December 2026 to early February 2027. As a contingency the EP also covers the same period in the subsequent year (2027/2028).

Duration

- ~ 40 days, which includes weather downtime and technical standby.
- The survey data will be acquired over a 24-hour period, subject to required shutdowns.

Joint Venture

- Operator – Woodside Burrup Pty Ltd.
- Joint Venture Partners – MidOcean Pluto Pty Ltd and Kansai Electric Power Australia Pty Ltd.

We would like to hear from you

We would like relevant persons whose functions, interests or activities may be affected by the proposed activity to have the opportunity to be consulted and provide feedback.

Woodside consults relevant persons when developing an EP to confirm current measures or identify additional measures, which could lessen or avoid potential adverse effects of the proposed activity on the environment.

Woodside aims to ensure the proposed activity is carried out in a manner consistent with the principles of ecologically sustainable development and carried out in a manner by which the environmental impacts and risks of the activity are reduced to as low as reasonably practicable (ALARP) and to an acceptable level.

If you are an individual, organisation or community group and believe your functions, interests or activities may be affected by the activities under this EP, we would like your feedback by **24 October 2025.**

consultation@feedback.woodside.com
Toll free: 1800 442 977
woodside.com

A summary of the activity and location is found in **Tables 1** and **3.**



Figure 1: An example of a vessel used in marine seismic surveys.

Woodside Energy recognises Aboriginal and Torres Strait Islander peoples as Australia's First Peoples. We acknowledge their connection to land, waters and the environment and pay our respects to ancestors and Elders, past and present. We extend this recognition and respect to First Nations peoples and communities around the world.

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Activity Location

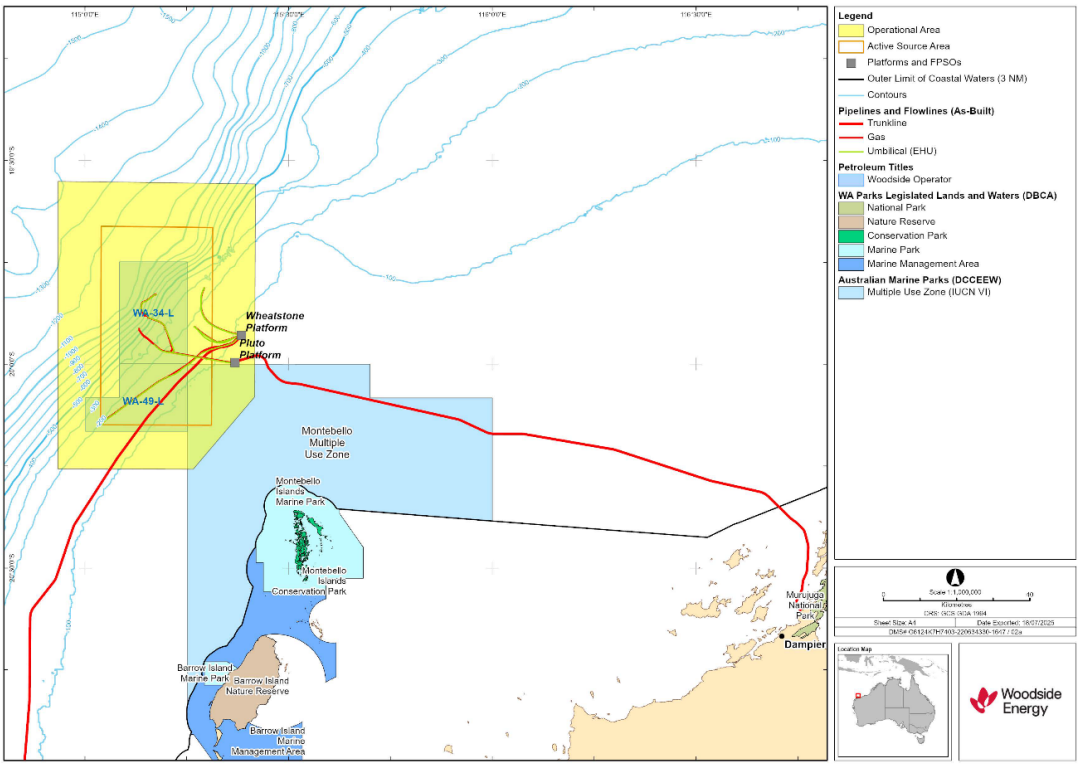


Figure 2. Location of the Pluto 4D M3 MSS Operational Area.

Table 1 – Activity and Location Summary

Pluto 4D M3 MSS Environment Plan	
Activity details	• The proposed activity involves acquiring 4D seismic data using an acoustic source (dual array) and 12 solid streamers towed behind a survey vessel. The proposed activity is typical of seismic surveys conducted in Australian marine waters, in terms of technical methods and procedures. • A technical overview of the activity is provided in Table 2.
Titles	Operational Area consists of: • Production / infrastructure licences: WA-34-L, WA-1-IL and pipeline licences WA-16-PL and WA-17-PL. • Other titleholders' licence areas that overlap the Operational Area (that may be subject to Access Authority and Special Prospecting Authority): WA-3-IL, WA-49-L, WA-550-P, WA-554-P, WA-536-P, WA-46-L, WA-47-L, WA-48-L, WA-76-R, WA-5-R, WA-15-R, WA-21-R, WA-23-R, WA-26-PL, WA-29-PL, WA-32-PL, WA-25-PL.
Vessels	• A purpose-built seismic survey vessel. • A support vessel to provide logistical and operational support to the survey vessel, such as manoeuvring support and resupply of fuel. • A chase vessel to assist with survey operations and to manage interactions with third-party vessels, as required.
Operational Area, Active Source Area and Survey Acquisition Area	• The Operational Area is approximately 3,860 km². Within the Operational Area are two smaller areas defined as: 1. An Active Source Area (ASA) of approximately 1,540 km², which is the maximum potential area within which seismic acoustic emissions may occur for the purpose of acquiring the survey data, including soft starts and source testing. 2. A Survey Acquisition Area (SAA) of approximately 780 km², which is the area within which seismic recording will occur for the purposes of acquiring data for sub surface imaging. • The Operational Area includes a 15 km buffer around the SAA that has been extended to 20 km north and south for the purpose of vessel manoeuvring.
Communication with mariners	• Marine notices will be issued prior to the commencement of activities within the Operational Area. • Other marine users are permitted to use the Operational Area. • A three nautical mile (3NM) radius safe navigation area will be in place around the survey vessel and towed equipment.
Distance to nearest marine park/nature reserve	• Montebello Marine Park – Multiple Use Zone (Cth) is within the southeast corner of the Operational Area. • Montebello Islands Marine Park (WA) is ~ 30 km southeast of the Operational Area.

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Table 2 – Technical overview

Technical overview of the MSS	
Number of streamers (approximate)	12
Each streamer length (approximate)	7 km
Distance between streamers	100 m
Safe navigation area	Three nautical mile (3NM) radius around the survey vessel, and towed equipment during data acquisition.
Streamer tow depth	15 m - 18 m

Table 3 – Approximate locations within the scope of the Pluto 4D M3 MSS EP

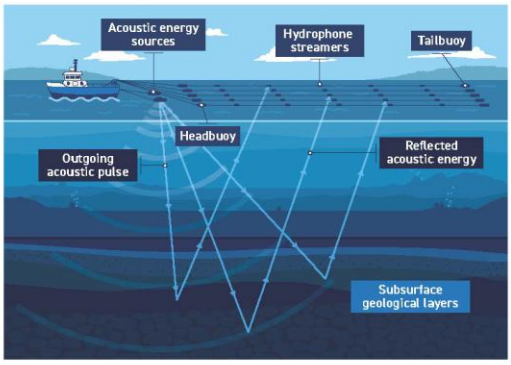
Location Point	Latitude	Longitude
Survey Acquisition Area		
a	19° 44' 02.451" S	115° 04' 37.853" E
b	20° 04' 37.104" S	115° 04' 37.946" E
c	20° 04' 39.019" S	115° 16' 23.684" E
d	19° 44' 11.842" S	115° 16' 28.804" E
Active Source Area		
i	19° 39' 40.850" S	115° 02' 23.670" E
ii	19° 39' 52.999" S	115° 18' 48.903" E
iii	20° 09' 00.490" S	115° 18' 38.558" E
iv	20° 08' 55.690" S	115° 02' 17.055" E
Operational Area[1]		
A	19° 33' 04.683" S	114° 56' 03.125" E
B	20° 15' 25.575" S	114° 56' 01.032" E
C	20° 15' 29.330" S	115° 15' 56.152" E
D	20° 04' 49.110" S	115° 24' 59.927" E
E	19° 33' 27.728" S	115° 25' 05.996" E

About marine seismic surveys

During the planned activity of acquiring a three-dimensional (3D) seismic survey, the survey vessel traverses a series of pre-determined sail lines within the survey Active Source Area (ASA) at a speed of approximately 4.5 knots (7-9 km/hr).

As the vessel traverses along these sail line series, compressed air is discharged through acoustic sources to generate acoustic pulses, approximately every 10 seconds. These acoustic pulses are directed vertically through the water column and into the seabed. The released sound energy is reflected at geological boundaries that exhibit different rock properties, with the reflected signals detected by sensitive microphones called hydrophones, geophones or 'MEMS', embedded within cables or streamers, towed directly behind the seismic survey vessel just below the sea surface.

The reflected sound is recorded and then processed to generate a seismic image, providing information about the structures and composition of geological formations and the associated sedimentary properties below the seabed.



Monitor or four-dimensional (4D) marine surveys are time-lapse repeats of earlier 3D surveys. These are conducted over the same area at different times to monitor changes in oil and gas reservoirs during production.

[1] *In the event that any activities carried out in the Operational Area are not included in Woodside's existing titles, Woodside will obtain the relevant authorisations.*

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Environment that May Be Affected (EMBA)

The EMBA is the largest geographic area where an unplanned event could potentially have an environmental consequence on the surrounding environment. The broadest extent of the EMBA takes into consideration planned activities and unplanned events. The EMBA has been developed combining numerous modelling outputs based on highly unlikely releases of hydrocarbons to the environment. The modelling scenario that informs the EMBA is a vessel collision. The EMBA is depicted in **Figure 4.**

The EMBA does not represent the extent of the predicted impact of a highly unlikely hydrocarbon release. Rather, the EMBA represents the merged area of many possible paths that a highly unlikely hydrocarbon release could travel, which depends on the weather and ocean conditions at the time of a release. This means that in the highly unlikely event that a hydrocarbon release does occur, the whole EMBA will not be affected. The specific and minimal part of the EMBA that is affected will only be known if there is a release. To learn more about an EMBA, please see the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA) video on oil spill modelling at **www.nopsema.gov.au**.

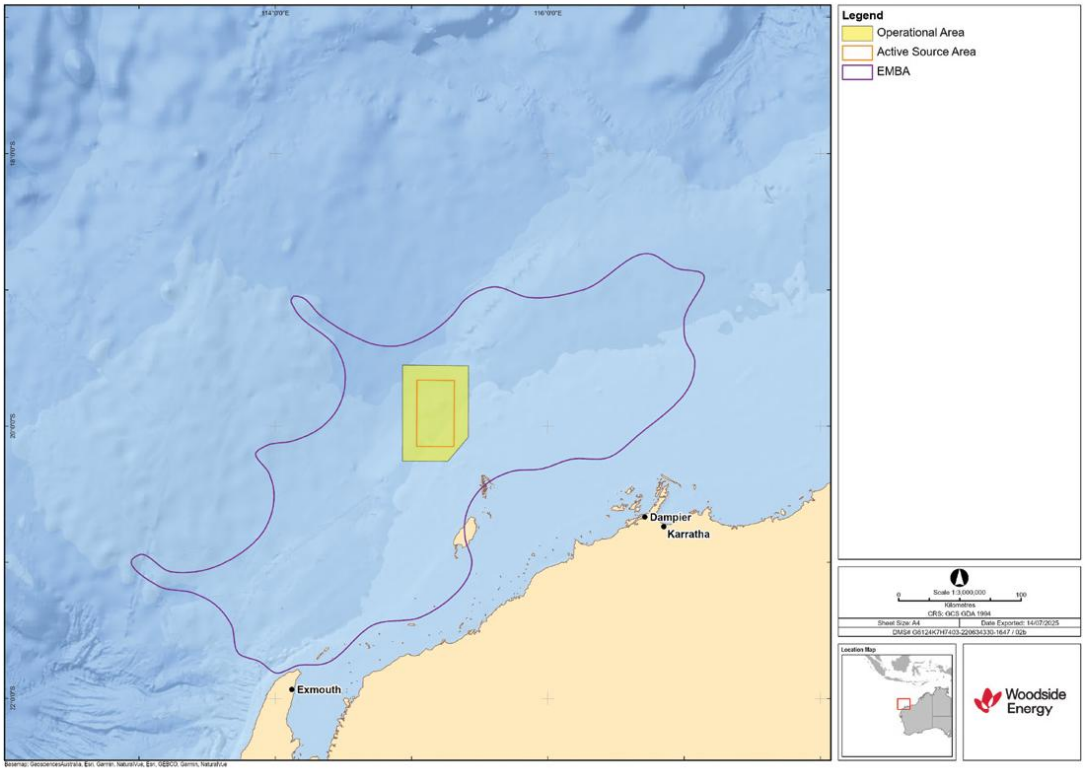


Figure 4: The Environment that May Be Affected (EMBA) for the Pluto 4D M3 MSS EP.

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Impacts/Risks, and Mitigation and/or Management Measures

Woodside assessed the impacts and risks to the environment as well as risks to relevant persons, whose functions, interests or activities may be affected by the proposed activities, arising from the planned activities and unplanned events. This assessment considers the timing, duration and location of the activities. Proposed mitigation and management measures will be implemented and are summarised in **Table 4.** Further details will be provided in the EP.

In preparing the EP, Woodside's intent is to minimise environmental, social and cultural impacts and risks associated with the proposed activities, and Woodside seeks your feedback to inform our decision-making.

Table 4 – Summary of key impacts and risks and proposed management measures*

Impact/Risk	Description of Source of Impact/Risk	Description of Impact/Risk	Proposed Mitigation and/or Management Measure
Planned activities (routine and non-routine)			
Physical presence: ***interaction with other marine users***	• A seismic survey, support and chase vessel will be required to complete the activity. • The physical presence and movement of the vessels within the Operational Area has the potential to displace other marine users.	• Potential temporary displacement of other marine users. • Due to the offshore location and the localised nature of the activity, if there is an interaction it is expected to be localised with no lasting effect.	• Vessels adhere to regulatory requirements for navigational safety. • Notify relevant stakeholders of activity commencement as requested. • Notify the Australian Hydrographic Office prior to commencement of the activity so that marine users are aware of the activity. • Consult with relevant persons so they are informed of the proposed activities. • Publish an online publicly available interactive map showing location of the seismic vessel. • Vessels to operate automatic identification system (AIS), and tail buoys will be fitted with lights, Global Navigation Satellite System (GNSS) and virtual AIS. • A 3 NM radius safe navigation area (SNA) established around the seismic vessel and towed array. • A chase vessel available to assist the seismic vessel and manage third-party vessel interactions. • A concurrent operations plan developed for relevant concurrent activities identified. • A grievance framework in place for stakeholders who consider themselves affected by the activity.
Routine acoustic emissions: ***seismic survey equipment***	• Generation of underwater noise from seismic survey equipment. • The seismic source will generate acoustic pulses by discharging compressed air periodically into the water column, at intervals of about every 10 seconds.	• Elevated underwater noise can affect marine fauna, including marine mammals, marine reptiles, fishes, sharks and rays, and diving seabirds in three main ways: 1. By causing direct physical effects, including injury or hearing impairment. 2. Through disturbance leading to behavioural changes or displacement from important areas. The occurrence and intensity of disturbance is highly variable and depends on a range of factors relating to the animal and situation. 3. By masking or interfering with other biologically important sounds (including vocal communication, echolocation, signals and sounds produced by predators or prey). • The area over which seismic sound may impact marine species depends upon many factors including the extent of sound propagation relative to the location of receptors, and the sensitivity and range of spectral hearing of different species.	• Comply with regulatory requirements for interactions with marine fauna to prevent adverse interactions. • Apply EPBC Policy Statement 2.1 Part A, including observation and shutdown zones. • Apply passive acoustic monitoring (PAM) to monitor for presence of whales to aid application of EPBC Policy Statement 2.1 Part A. • Trained Marine Fauna Observers to implement management procedures and adaptive management measures to minimise potential impacts to marine fauna from seismic noise. • Timing of use of sound source to avoid the humpback whale migration and pygmy blue whale peak migration periods. • Timing the activity to avoid shearwater fledgling period in the first two weeks of April. • The seismic source will not be discharged outside of the Active Source Area.

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Impact/Risk	Description of Source of Impact/Risk	Description of Impact/Risk	Proposed Mitigation and/or Management Measure
Routine acoustic emissions: ***seismic survey equipment continued...***		• The potential impacts of noise emissions from the seismic source on zooplankton during the seismic acquisition are considered to be localised, and the activity is not likely to result in ecologically significant impacts at a population level for zooplankton, fish eggs or larvae that may be present in the water column within or adjacent to the Operational Area. • Demersal and pelagic fish communities within the Operational Area may exhibit some temporary localised behavioural responses to noise emissions from the seismic source, however, this is not likely to have an impact at the ecosystem level. • Potential impacts from acoustic emissions on fish, sharks and rays are likely to be restricted to localised and temporary avoidance behaviour, and individuals impacted are unlikely to represent a significant proportion of the population. • The potential impacts of noise emissions from the seismic source on marine mammals during the acquisition of the survey are likely to be localised and restricted to temporary behavioural changes (avoidance) in individuals moving through the Operational Area, with predicted noise levels from the seismic acquisition not considered likely to cause injury effects. • The potential impacts of noise emissions from the seismic source on marine reptiles (turtles) during the acquisition of the survey are considered to be restricted to localised behavioural changes (avoidance) to transient turtles. Turtles would be exposed to noise levels above behavioural threshold levels for a short period of time as the vessel moves through the survey area. • The potential impacts of noise emissions from the seismic source on diving seabirds (shearwaters) during the acquisition of the survey are considered to be restricted to localised and temporary avoidance behaviour, and individuals impacted are unlikely to represent a significant proportion of the population. • The activity will be undertaken in a manner consistent with the management objectives for Australian Marine Parks (AMPs) and the North-West Marine Park Network. No long-term impacts are predicted and the values will be conserved and protected.	

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Impact/Risk	Description of Source of Impact/Risk	Description of Impact/Risk	Proposed Mitigation and/or Management Measure
Routine and non-routine acoustic emissions: ***generation of noise during routine vessel and helicopter operations***	• Generation of noise from operation of vessel thruster engines, propellers and onboard machinery.	• Localised behavioural impacts to marine fauna around vessels, with no lasting impact.	• Comply with EPBC Regulations 2000 Part 8 Division 8.1 for interactions with marine fauna. • Comply with Biodiversity Conservation Regulations 2018 for whale sharks. • Helicopter movements are undertaken in accordance with EPBC Regulations 2000 Part 8 Division 8.1.
Routine and non-routine discharges: ***vessel utility systems (bilge water, grey water, sewage, putrescible wastes and deck drainage water)***	• Discharges from vessel utility systems including: – Sewage, grey water and organic solid waste. – Deck water, drainage systems and bilge water. – Brine and cooling water.	• Localised impacts to water quality with no lasting effect.	• Marine discharges managed according to regulatory requirements. • No routine vessel utility discharges within the Montebello AMP - Multiple Use Zone (Cth).
Routine and non-routine atmospheric and Greenhouse Gas (GHG) emissions	• Atmospheric emissions and greenhouse gases will be generated by the survey vessels from internal combustion engines and incineration activities.	• Emissions associated with the vessels could result in temporary, localised reduction in air quality in the immediate airshed.	• Comply with legislative and regulatory requirements relating to GHG emissions and reporting. • Vessels comply with Marine Orders for pollution prevention to air.
Routine and non-routine light emissions: ***light emissions from vessels***	• Light emissions from vessels.	• Light emissions have potential to temporarily affect fauna such as fish, marine reptiles and seabirds by influencing changes in their behaviour or impacting orientation in close proximity to vessels.	• Lighting is limited to the minimum required for navigational safety, and safe working requirements except for emergency events. • Implementation of Woodside Offshore Seabird Management Plan.
Unplanned events (accidents / incidents / emergency situations)			
Unplanned hydrocarbon release: ***vessel collision***	• Loss of hydrocarbons to marine environment due to vessel collision (e.g., other vessels or marine users). For a collision to result in the worst-case scenario diesel release, several factors must occur as follows: 1. Identified causes of vessel interaction must result in a collision. 2. The collision has enough force to penetrate the vessel hull and in the exact location of the fuel tank, and 3. The fuel tank must be full or at least a volume which is higher than the point of penetration.	• In the highly unlikely event of a vessel collision causing a release of marine diesel, impacts to water quality and marine ecosystems could occur. • Modelling of a surface release of marine diesel was used to understand potential impacts. • Marine diesel is a relatively volatile, non-persistent nature hydrocarbon with up to 41% evaporating within the first 24 hours. • Potential to result reduction to water quality. • Potential disruption to marine fauna, including protected species. • Potential interference with or displacement of other marine users including fisheries, tourism and recreation.	**Preventing marine vessel collisions** • Vessels adhere to regulatory requirements for navigational safety and the prevention of vessel collisions. • Notify relevant stakeholders of activity commencement as requested. • Notify the Australian Hydrographic Office prior to commencement of the activity so that marine users are aware of the activity. • Consult with relevant persons so they are informed of the proposed activities. • Publish an online publicly available interactive map showing location of the seismic vessel. • Vessels to operate automatic identification system (AIS), and tail buoys will be fitted with lights, Global Navigation Satellite System (GNSS) and virtual AIS. • A 3NM safe navigation area (SNA) is established around the seismic vessel and towed array. • A concurrent operations plan developed for relevant concurrent activities identified. • Marine gas oil (MGO) / low sulphur marine diesel fuel will be used in vessels. **Spill response arrangements** • In the event of a spill emergency response activities implemented in accordance with the Oil Pollution Emergency Plan (OPEP). • Arrangements supporting the activities in the OPEP will be tested so that the OPEP can be implemented as planned.

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Impact/Risk	Description of Source of Impact/Risk	Description of Impact/Risk	Proposed Mitigation and/or Management Measure
Unplanned hydrocarbon release: ***vessel refuelling***	• Accidental loss of marine diesel to the marine environment during bunkering/refuelling may occur; caused by a partial or total failure of a bulk transfer hose or fitting due to mechanical or integrity failure.	• A bunkering release of marine diesel is expected to be confined to several kilometres of the release site. • Potential to result reduction to water quality. • Potential disruption to marine fauna, including protected species. • Potential interference with or displacement of other marine users including fisheries, tourism and recreation.	**Preventing unplanned hydrocarbon release due to bunkering**: • Comply with regulatory requirements to prevent pollution events. • Maintain bunkering equipment, and contractors to follow procedures and requirements for bunkering and refuelling to reduce the likelihood of a release. • No bunkering will occur within the Montebello AMP - Multiple Use Zone (Cth). **Spill response arrangements**: • Maintain and locate spill kits close to hydrocarbon storage and deck areas for use to contain and recover deck spills. • In the event of a spill emergency response activities implemented in accordance with the OPEP. • Arrangements supporting the activities in the OPEP will be tested so that the OPEP can be implemented as planned.
Unplanned release: ***deck spills***	• Accidental release of chemicals/ hydrocarbons from a vessels deck.	• Unplanned discharges of non-process chemicals and hydrocarbons may decrease the water quality in the immediate vicinity of the release. Only small volumes (<50 L) are anticipated, resulting in very short-term impacts to water quality, and limited to the immediate release location. • The biological consequences of such a small volume spill on identified open water sensitive receptors relate to a minor potential for toxicity impacts to plankton and fish populations (surface and water column biota) and localised reduction in water quality within a small spill affected area. No impacts are predicted to benthic habitat communities in the Operational Area.	• Comply with regulatory requirements for the prevention of marine pollution. • Liquid chemical and fuel storage areas are bunded or secondarily contained when they are not being handled/moved temporarily. • Spill kits positioned in high-risk locations around the vessel (near potential spill points such as transfer stations).
Unplanned release: ***hazardous and non-hazardous solid waste management***	• Accidental loss of solid wastes generated by vessels including packaging, domestic wastes and hazardous wastes such as oil rags, batteries and waste oil.	• The potential impacts of hazardous or non-hazardous solid wastes and equipment accidentally released to the marine environment include contamination of the environment as well as secondary impacts relating to potential contact of marine fauna with wastes. • The temporary or permanent loss of waste materials/equipment into the marine environment is not likely to have a significant environmental impact based on the types, size and low likelihood of waste loss that could occur.	• Comply with regulatory requirements to prevent pollution events. • If safe and practicable to do so, solid waste will be recovered. • Implementation of vessel waste management plans.
Physical presence: ***interactions with marine fauna***	• Accidental collision between vessels and marine fauna. • The survey vessel will be advancing at low speeds of around 4-5 knots (7-9 km) during the data acquisition. • Survey equipment (streamers behind vessel) has the potential to present an entanglement risk to marine fauna (in particular marine turtles).	• Vessel movements have the potential to result in accidental collisions between the vessel (hull and propellers) and marine fauna. • Given the short duration of survey activities and the slow speeds at which survey vessel operates; collisions with cetaceans are considered unlikely.	• Comply with EPBC Regulations 2000 – Part 8 Division 8.1 Interacting with Cetaceans to reduce the likelihood of an accidental collision occurring. • Streamer tail buoys fitted with appropriate turtle guards or employ a design that does not represent an entanglement risk for marine turtles. • The activity avoids the humpback whale migration and pygmy blue whale northern migration.

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Impact/Risk	Description of Source of Impact/Risk	Description of Impact/Risk	Proposed Mitigation and/or Management Measure
Physical presence: ***loss of survey equipment***	• Accidental loss of towed survey equipment (streamers behind vessel).	• Accidental loss of survey equipment (streamers behind vessel) has the potential to temporarily disturb marine users (i.e. commercial fishers) and presents a marine fauna entanglement risk. If unable to be recovered may cause physical damage to seabed and benthic communities.	• Deploy, retrieve and operate streamers as per predetermined procedures, including: – Streamer deployment will not occur in water closer than 12 nm to shore, or in waters less than 50 m deep. – Streamers will only be deployed in suitable sea state to meet safe working requirements. • Recover and relocate lost towed equipment where safe and practicable to do so. • Install steerable fins on streamers, which are designed to minimise streamer entanglement with debris • Activate pressure activated streamer recovery devices (SRDs) within streamers in the event of loss, to bring the equipment to the surface.
Physical presence: ***introduction of invasive marine species (IMS)***	• Vessels and submersible equipment have the potential to introduce IMS to the Operational Area through marine biofouling (containing IMS), as well as within high-risk ballast water exchange.	• The likelihood of IMS being introduced and establishing viable populations within the Operational Area or immediate surrounds is considered remote. • Introduction of IMS may result in changes to the ecology of the Operational Area and competition with existing biota.	• Ballast water and biofouling will be managed according to the Australian Ballast Water Management Requirements and the Australian Biofouling Management Requirements, as applicable. • Woodside's IMS risk assessment process will be applied to vessels and immersible equipment entering the Operational Area.

** These mitigation and management measures are subject to change through the consultation and subsequent assessment process and may not represent content in the publicly available EP or in the final plan once accepted.*

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Feedback

Woodside consults relevant persons in the course of preparing Environment Plans to notify them of the activity and to obtain relevant feedback to inform its planning for proposed petroleum activities.

If you would like to comment on the proposed activities outlined in this information sheet, please provide feedback to Woodside by **24 October 2025** via:

consultation@feedback.woodside.com
Toll free: 1800 442 977

You can subscribe on our website to receive Consultation Information Sheets for proposed activities:
woodside.com/what-we-do/consultation-activities

Please note that stakeholder feedback will be communicated to the NOPSEMA as required under legislation. Woodside will communicate any material changes to the proposed activity to affected relevant persons as relevant and appropriate.

Your feedback and our response will be included in our EP for the proposed activity, which will be submitted to NOPSEMA for acceptance in accordance with the *Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2023* (Cth) and support other regulatory processes associated with the planned activities (which may or may not be required to be kept confidential).

Personal information collected in the course of consultation will be handled in accordance with Woodside's Environment Plan Privacy Collection Notice. To understand how personal information will be handled, please visit:
woodside.com/what-we-do/consultation-activities



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6.1.2 Summary Information sheet

Woodside Energy

Summary Consultation Information Sheet
September 2025

Pluto 4D M3 Marine Seismic Survey Environment Plan

Carnarvon Basin, North-West Australia (Commonwealth Waters)

Woodside Energy recognises Aboriginal and Torres Strait Islander peoples as Australia's First Peoples. We acknowledge their connection to land, waters and the environment and pay our respects to ancestors and Elders, past and present. We extend this recognition and respect to First Nations peoples and communities around the world.

Have Your Say

We want to talk, share ideas, and yarn with local communities who have a deep connection to the land and sea. Your knowledge helps us do our work better!

We want to understand the environments we want to work in. We want to work in a way which manages the environmental impacts and risks of the activities appropriately. By working together, we want to help protect cultural heritage and keep the Land and Sea Country healthy.

We welcome feedback from First Nations communities and stakeholders whose functions, interests and activities may be affected by our activities under this Environment Plan (EP). If you'd like to share your views, please contact us before **Friday 24 October 2025**.

Email: **feedback@woodside.com**
Call: **1800 442 977 (toll-free)**
Visit: **woodside.com/what-we-do/consultation-activities**

Your feedback will be included in our EP submissions to NOPSEMA (National Offshore Petroleum Safety and Environmental Management Authority) and will help guide responsible environmental decision-making.



Figure 1: An example of a vessel used in marine seismic surveys.

Activity Overview

The Pluto 4D M3 (Monitor 3) Marine Seismic Survey (MSS) EP covers:

- Seismic data acquisition using a survey vessel towing an acoustic source array and hydrophone cables (streamers).
- Support operations from a support vessel and chase vessel.

This MMS is a time-lapse survey which forms part of the ongoing reservoir management and surveillance program for the Pluto reservoir. To obtain this time-lapse data, the seismic survey replicates as accurately as possible previous Pluto monitor surveys, undertaken in 2016 and 2020, to detect changes such as pressure depletion and water movement within and surrounding the Pluto gas reservoir during production.

More information is found on **Page 3**.

Location

- In Commonwealth Waters, approximately 28 km north-west of the Montebello Islands and 150 km north-west of Dampier (**Figure 2**).

Water Depth

- ~73 m – 1,185 m deep.

Timing

- The survey window is planned for late December 2026 to early February 2027. The EP also covers the same period in the subsequent year (2027/2028) as contingency.

Duration

- ~40 days, which includes weather downtime and technical standby.
- The survey data will be acquired over a 24-hour period, subject to required shutdowns.

Joint Venture

- Operator – Woodside Burrup Pty Ltd.
- Joint Venture – MidOcean Pluto Pty Ltd and Kansai Electric Power Australia Pty Ltd.

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Activity Location

The EP explains how Woodside will manage environmental risks and impacts while carrying out our activities. These plans help us conduct operations safely and responsibly, with respect for the environment and cultural heritage. The location where the work will be done is known as the Operational Area (**Figure 2**).

Woodside must consult with relevant persons, including Traditional Custodian groups whose functions, interests or activities may be affected by the activities to be carried out under the EP or that are considered relevant, to listen to concerns and, where required, incorporate feedback into the EP.

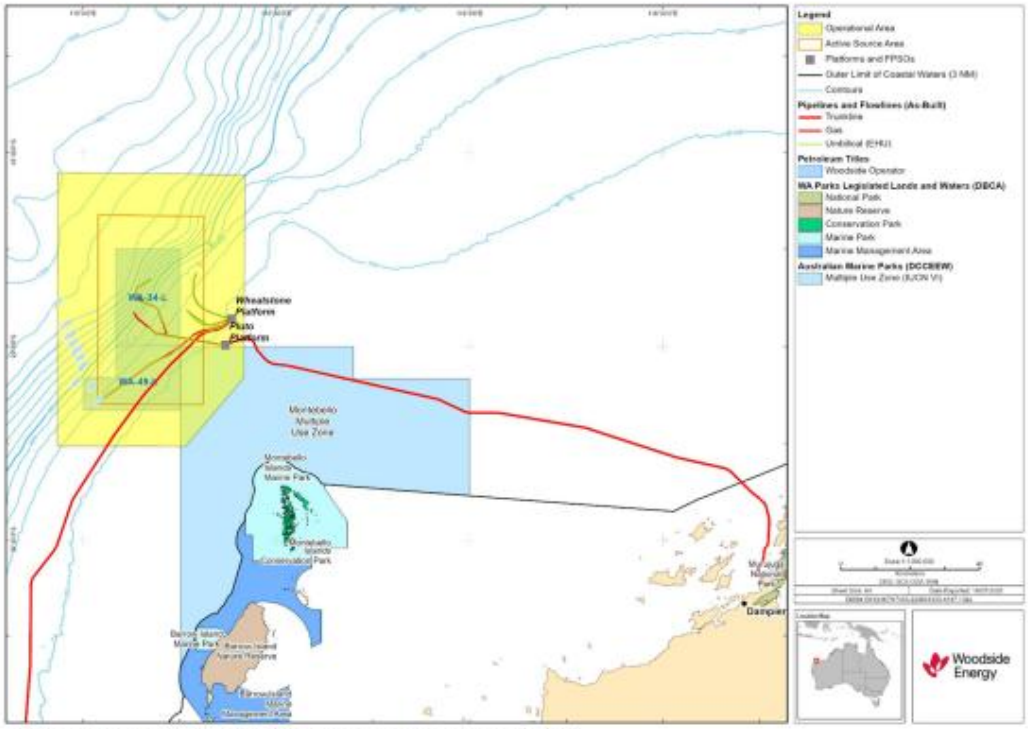


Figure 2: Location of the activity, including Operational Area and associated infrastructure.

Planned Activities and Unplanned Events

We assess both planned activities and unplanned events which may result in environmental risks and impacts.

Planned activities are activities that Woodside knows will happen as part of the work under the EP. This could include generating underwater noise, light emissions, associated atmospheric emissions or routine discharges (such as sewage, waste, and deck drainage). We take steps so that planned activities comply with legislative and regulatory requirements.

Unplanned events are very unlikely. They may be the result of an accident, incident or emergency, such as a spill of fuel or oil from a ship (vessel) collision, a spill on the deck of a vessel (like during refuelling), unplanned seabed and/or marine life disturbance, or accidental introduction of invasive species from outside the region.

Planned and unplanned activities, potential impacts, and management measures are included in the Consultation Information Sheet for this activity, available at www.woodside.com/what-we-do/consultation-activities.

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About Marine Seismic Surveys

During the planned activity of acquiring a three-dimensional (3D) seismic survey, the survey vessel traverses a series of pre-determined sail lines within the survey Active Source Area (ASA) at a speed of approximately 4.5 knots (7-9 km/hr).

As the vessel traverses along these sail line series, compressed air is discharged through acoustic sources to generate acoustic pulses, approximately every 10 seconds. These acoustic pulses are directed vertically through the water column and into the seabed. The released sound energy is reflected at geological boundaries that exhibit different rock properties, with the reflected signals detected by sensitive microphones called 'hydrophones, geophones or MEMS', embedded within cables or streamers, towed directly behind the seismic survey vessel just below the sea surface.

The reflected sound is recorded and then processed to generate a seismic image, providing information about the structures and composition of geological formations and the associated sedimentary properties below the seabed.

Monitor or four-dimensional (4D) marine surveys are time-lapse repeats of earlier 3D surveys. These are conducted over the same area at different times to monitor changes in oil and gas reservoirs during production.

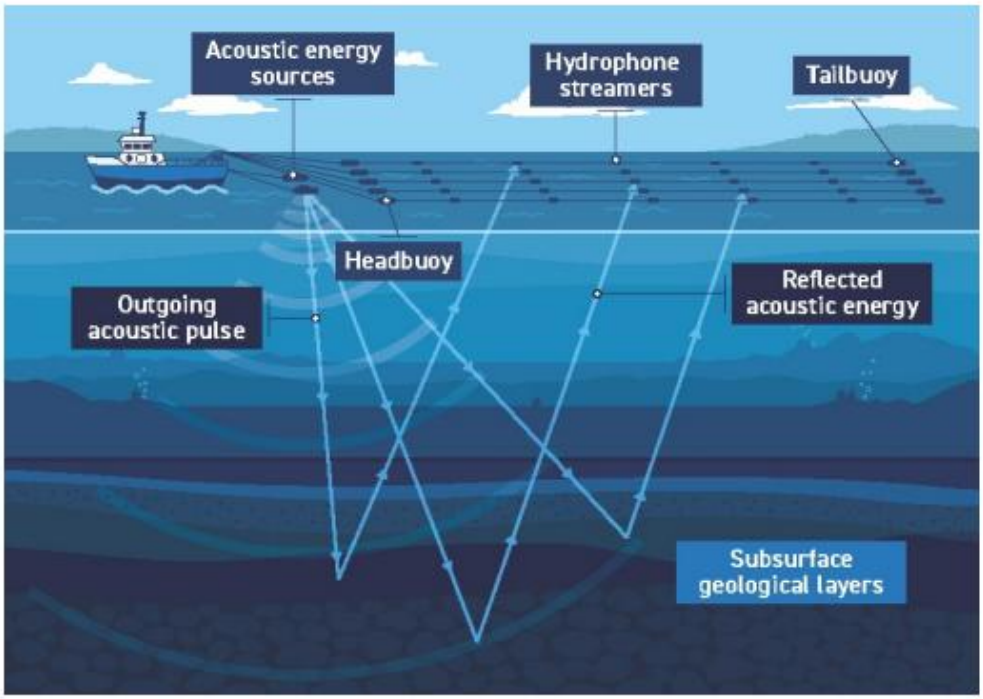


Figure 3: Key elements relating to marine seismic surveys.

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Environment that May Be Affected (EMBA)

The EMBA map (**Figure 4**) is a model of the largest spatial area where the activity could have a potential environmental impact. It combines multiple modelling outputs for both planned and unplanned activities in the highly unlikely event of hydrocarbon release to the environment. The modelling scenario that informs the EMBA is a vessel collision.

The EMBA does not show the predicted impact of a single event - it is the merged area of many possible scenarios that a highly unlikely hydrocarbon release could travel, depending on the weather and ocean conditions at the time. This means that if a hydrocarbon release was to occur, the whole EMBA would not be affected. The specific and minimal part of the EMBA that is affected will only be known at the time of a release.

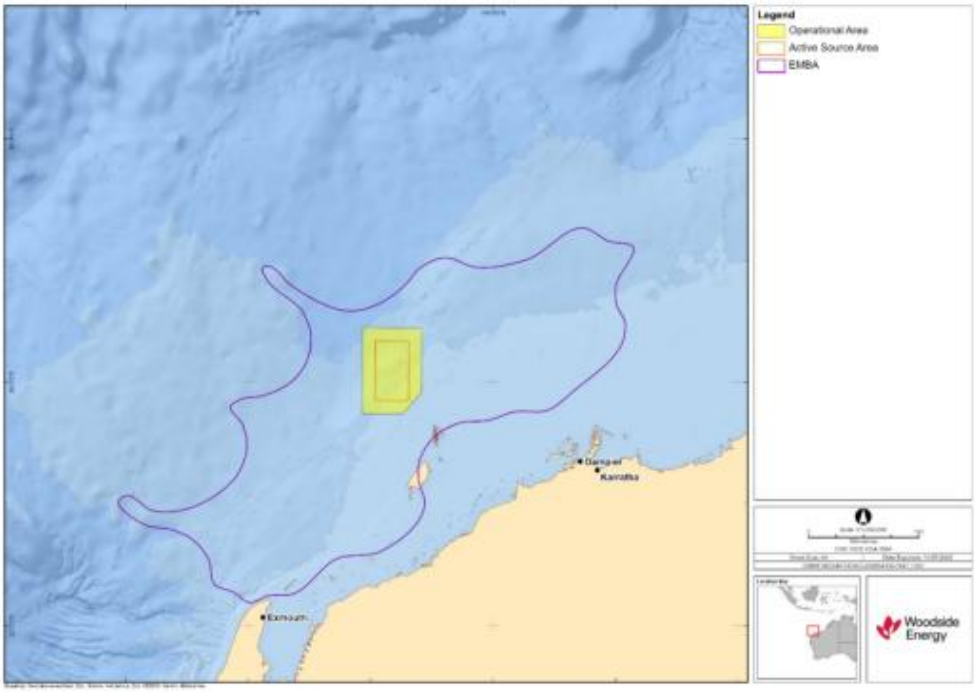


Figure 4: Environment that May Be Affected (EMBA) map

Your Feedback is Important

Woodside consults with relevant persons during the preparation of EPs to notify them about the activity and hear their feedback. By working together, we aim to protect biodiversity and maintain the health of ecosystems while carrying out our projects.

Your feedback helps shape the EP by:

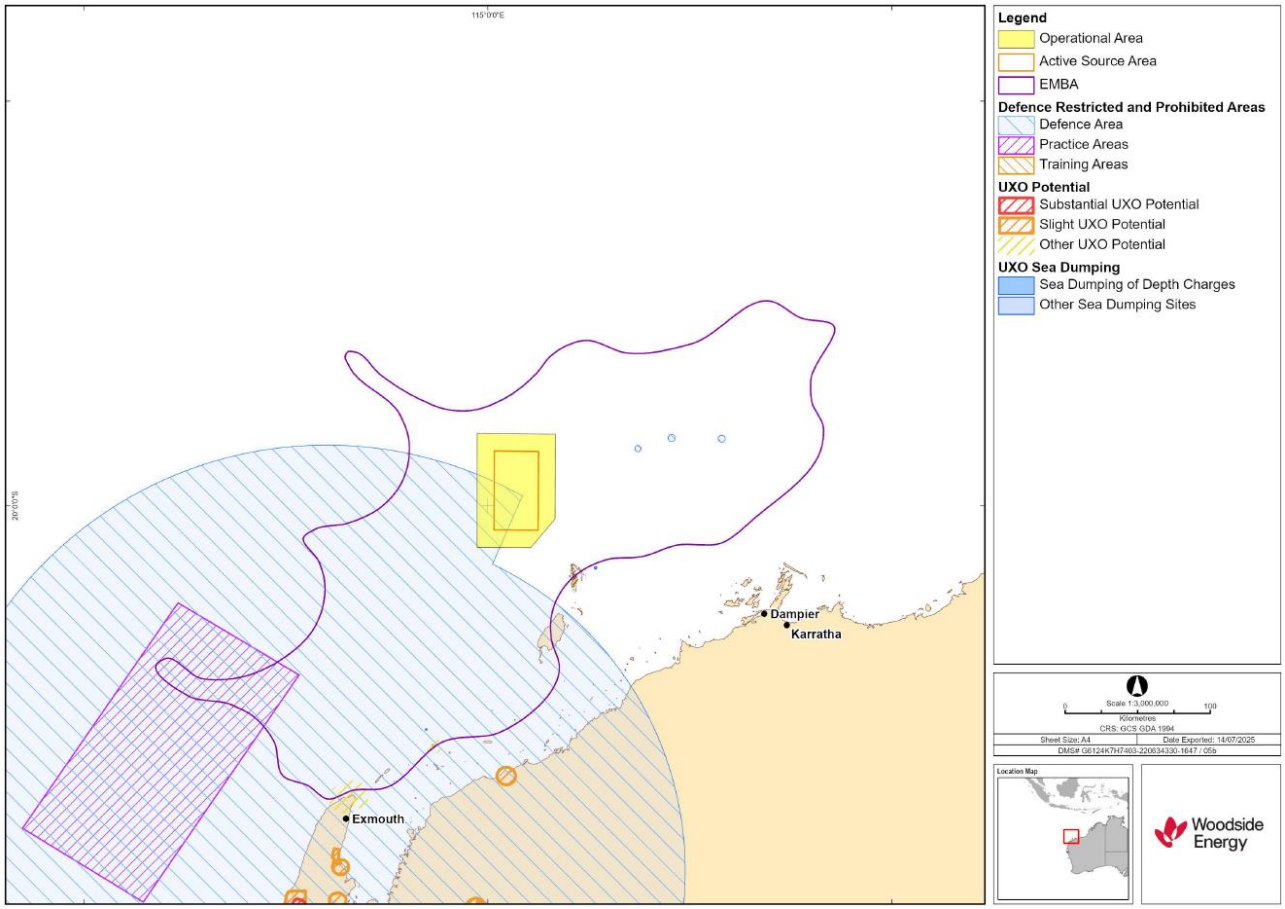
- Identifying additional possible measures to reduce environmental impacts.
- Helping us consider cultural heritage and environmental values.
- Providing information that may help improve Woodside's environmental practices.

If there is particular information that you provide during consultation that you'd prefer not to be published, please let us know. We'll make your request known to NOPSEMA.

We'll manage any personal information collected during our consultation with you in accordance with Woodside's Environment Plan Privacy Collection Notice. To understand more, please visit www.woodside.com/what-we-do/consultation-activities.

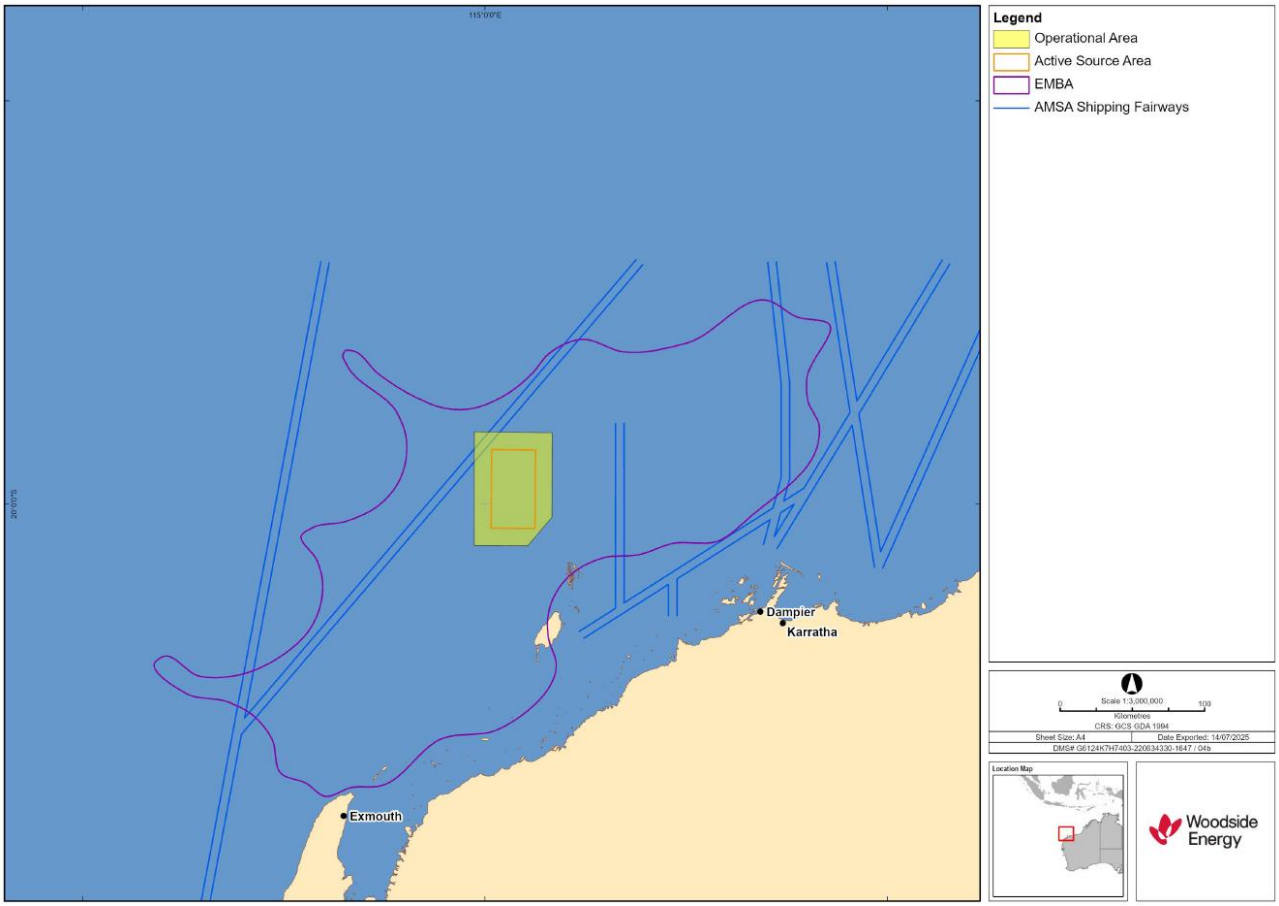
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6.1.3 Defence zones map



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6.1.4 Shipping lanes map



6.1.5 State historical shipwrecks

Pluto 4D Monitor 3 Marine Seismic Survey EP: State Historical Shipwrecks

Vessel name	Vessel type	When lost	Where lost	Latitude	Longitude
Lady Ann	Ship (non-sail)	18/09/1982	24 miles north of NW Cape	21°24	114°12
McCormack	Barge	1989/10/00	N.E. tip of Eaglehawk Island West of Dampier, Dampier Archipelago	20°08.200	115°57.200
McDermott Derrick Barge No 20	Barge	20/10/1989	N.E. tip of Eaglehawk Island, Dampier Archipelago	20°08.200	115°57.200
Plym HMS	Warship	17808	Trimouille Island Island	20°24.208	115°33.950
Trial	Ship	1622/05/24	Trial Rocks	20°17.159	115°22.514
Tropic Queen		9/04/1975		20°26	115°30.05
Veronica	Lugger	1928/07	Sunday Island, Exmouth Gulf	21°41	114°23

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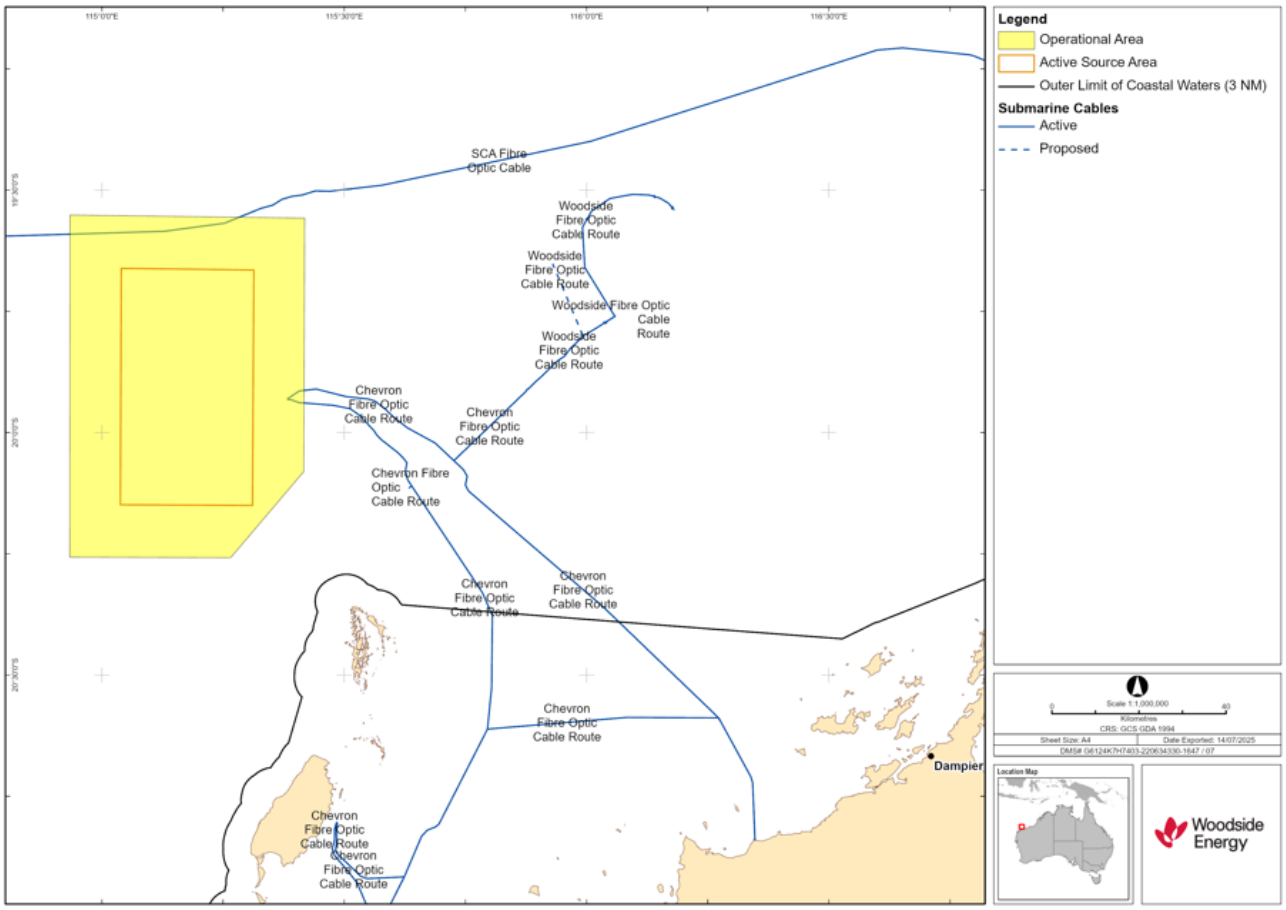
6.1.6 Australian shipwrecks

Pluto 4D Monitor 3 Marine Seismic Survey EP: Australian National Shipwrecks

Vessel name	Vessel type	When lost	Where lost	Latitude	Longitude
Agnes	Sailing vessel	1893	Exmouth Gulf	-21.75	114.0833333
Beatrice	Sailing vessel	1899	Off North-West Cape	-21.61666667	113.9833333
Bell	Sailing vessel	1893	Exmouth	-21.75	114.0833333
Curlew	Sailing vessel	1911	At Onslow, Monte Bellos Group	-20	115.1666667
Elizabeth	Sailing vessel	1893	Exmouth Gulf	-21.75	114.0833333
Ellen	Sailing vessel	1893	Exmouth Gulf	-21.75	114.0833333
Florence	Sailing vessel	1893	Exmouth Gulf	-21.75	114.0833333
Gem	Sailing vessel	1893	North West Cape	-21.61666667	113.9833333
Kapala	Unknown	1964	Exmouth Gulf	-21.75	114.0833333
Lady Ann	Sailing vessel	1982	24 miles north of NW Cape	-21.4	114.2
Lamareaux	Sailing vessel	1893	Exmouth Gulf	-21.75	114.0833333
Leave	Sailing vessel	1893	Exmouth Gulf	-21.75	114.0833333
Lily Of The Lake	Sailing vessel	1875	Exmouth Gulf	-21.75	114.0833333
Mabel	Sailing vessel	1893	Exmouth Gulf	-21.75	114.0833333
Marietta	Unknown	1905	Barrow Island	-20	115.1666667
McCormack		1989	N.E. tip of Eaglehawk Island West of Dampier,	-20.13666667	115.9533333
McDermott Derrick Barge No 20	Barge	1989	N.E. tip of Eaglehawk Island, Dampier Archipelago	-20.13666667	115.9533333
Nellie	Sailing vessel	1893	Exmouth Gulf	-21.75	114.0833333
Olive	Sailing vessel	1893	Exmouth Gulf	-21.75	114.0833333
Pearl	Sailing vessel	1896	Exmouth Gulf, Meda Creek	-21.75	114.0833333
Plym HMS	Frigate	1952		-20.40346667	115.5658333
Ruby	Sailing vessel	1893	Exmouth Gulf	-21.75	114.0833333
Sea Queen	Sailing vessel	1893	Exmouth Gulf	-21.75	114.0833333
Smuggler	Sailing vessel	1893	Exmouth Gulf	-21.75	114.0833333
Tanami	Sailing vessel		Trial Rocks	-20.28333	115.36666
Trial	Sailing vessel	1622	Trial Rocks	-20.28598333	115.3752333
Tropic Queen		1975		-20.43333333	115.5008333
Unidentified Lugger	Unknown	1893	Exmouth Gulf	-21.75	114.0833333
Veronica	Sailing vessel	1928	Sunday Island, Exmouth Gulf	-21.68333333	114.3833333
Vianen	Sailing vessel	1628	Barrow Island Area	-20	115.1666667
Wild Wave	Sailing vessel	1875	Exmouth Gulf	-21.75	114.0833333
Wild Wave (China)	Sailing vessel	1873	Monte Bello Island	-20	115.1666667

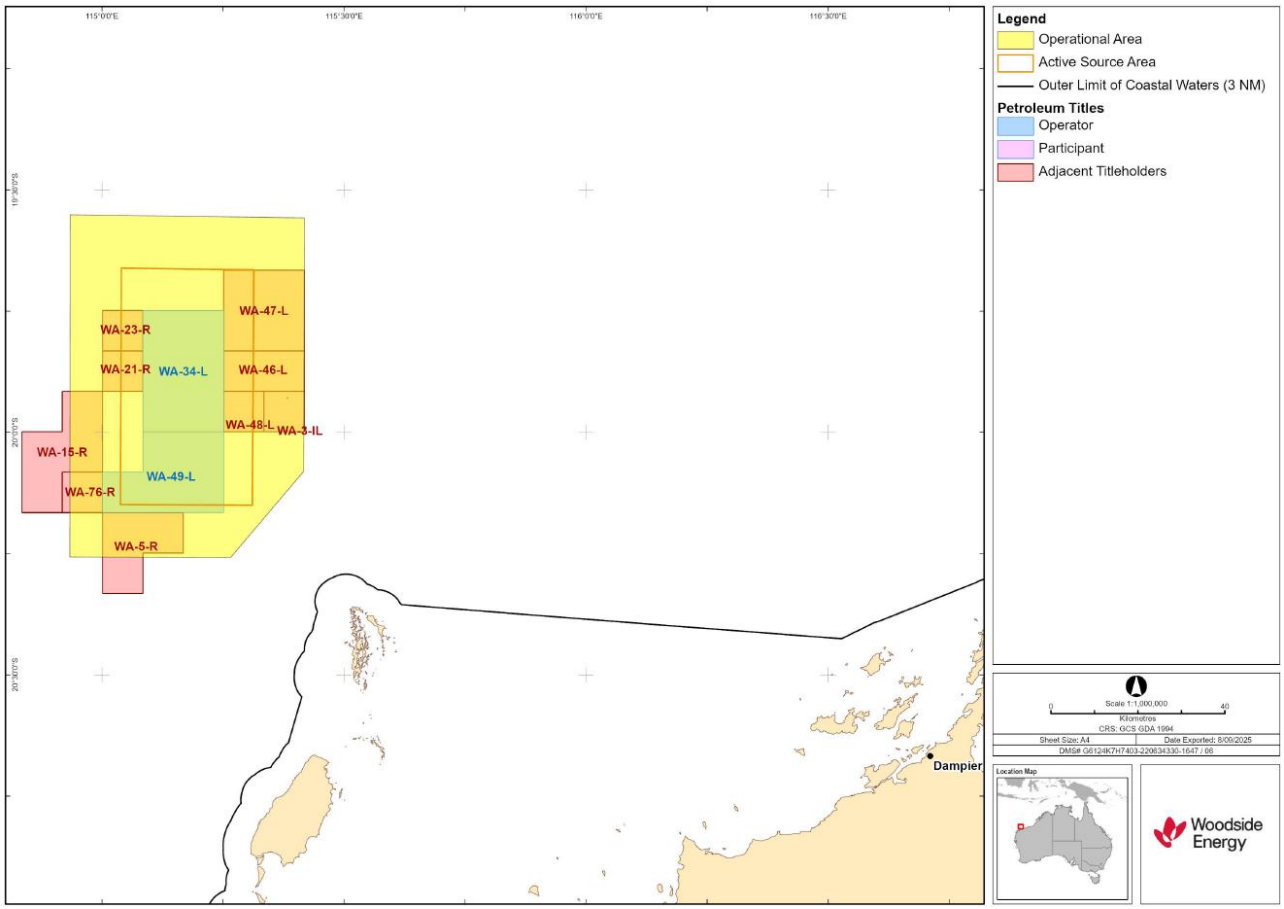
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6.1.7 Submarine communication cables map



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6.1.8 Adjacent titleholders and Operational Area map



6.1.9 Email sent to Australian Border Force (ABF), Australian Maritime Safety Authority (AMSA) Marine Pollution, Pilbara Ports, Department of Mines, Petroleum and Exploration (DMPE), Department of Industry, Science and Resources (DISR), Beagle No 1, Carbon CQ, Finder Energy, InCapture, INPEX Alpha, JX Nippon O&G Exploration Australia, Longreach Capital Investments, KATO Energy / KATO Corowa / KATO NWS / KATO Amulet, Melbana Exploration, OMV Australia / Sapura OMV Upstream, Pelsart Resources, Santos NA Energy Holdings / Santos Ltd / Santos WA Northwest / Santos Offshore / Santos WA Southwest / Santos (BOL) / Santos WA PVG, SK Earthon, Shell Australia, Skye Napoleon / Skye Resources, Tanami Energy, Vermilion Energy, Western Gas, Australian Energy Producers (AEP), Exmouth Chamber of Commerce and Industry, Karratha and Districts Chamber of Commerce and Industry, Onslow Chamber of Commerce and Industry, Exmouth Community Liaison Group (CLG), Karratha Community Liaison Group (CLG), City of Karratha, Shire of Exmouth, Australian Conservation Foundation (ACF), Australian Marine Conservation Society (AMCS), Conservation Council of Western Australia (CCWA), Greenpeace Australia Pacific (GAP), International Fund for Animal Welfare (IFAW), World Wildlife Fund (WWF) Australia, Sea Shepherd Australia (SSA), Minderoo Foundation, The Wilderness Society (TWS), Cape Conservation Group

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(CCG), Protect Ningaloo, Ningaloo Coast World Heritage Advisory Committee (NCWHAC) – 8 September 2025

Woodside is planning to submit the Pluto 4D M3 Marine Seismic Survey Environment Plan (EP). The Pluto 4D M3 (Monitor 3) Marine Seismic Survey (MSS) overlaps Petroleum Licence Area WA-34-L and WA-1-IL and other titleholders' adjacent Petroleum Licence Areas (described below), within Commonwealth waters approximately 28 km north-west of the Montebello Islands and 150 km north-west of Dampier.

If you would like to comment on the proposed activity, please provide feedback to Woodside by 24 October 2025 using the details below.

Overview

The Pluto 4D M3 MSS EP covers:

- Seismic data acquisition using a seismic survey vessel towing an acoustic source array and hydrophone cables (streamers).
- Support operations from a support vessel and chase vessel.

This four-dimensional (4D) MSS is a time-lapse monitor survey which forms part of the ongoing reservoir management and surveillance program for the Pluto reservoir. To obtain time lapse data, the seismic survey replicates as accurately as possible previous Pluto monitor surveys, undertaken in 2016 and 2020. This new seismic data is then compared to the previous data to observe subtle differences in fluid movement and pressure changes both within and surrounding the reservoir.

Consultation information

A Consultation Information Sheet is attached, which provides additional background on our approach to consultation, and the proposed activities including summaries of key impacts and risks and associated management measures. This is also available on our website.

Activity and location summary

Pluto 4D M3 Marine Seismic Survey Environment Plan	
Activity details	The proposed activity involves acquiring 4D seismic data using an acoustic source (dual array) and 12 solid streamers towed behind a survey vessel. The proposed activity is typical of seismic surveys conducted In Australian marine waters, in terms of technical methods and procedures.
Titles	· Operational Area consists of: o Production/ infrastructure licences WA-34-L, WA-1-IL and pipeline licences WA-16-PL and WA-17-PL. o Other titleholders' licence areas that overlap the Operational Area (that may be subject to Access Authority and Special Prospecting Authority): WA-3-IL, WA-49-L, WA-550-P, WA-554-P, WA-536- P, WA-46-L, WA-47-L, WA-48-L, WA-76-R, WA-5-R, WA-15-R WA-21-R, WA-23-R, WA-26-PL, WA-29-PL, WA-32-PL and WA-25-PL.
Location	In Commonwealth waters, approximately 28 km north-west of the Montebello Islands and 150 km north-west of Dampier.
Water depth	~ 73 m - 1,185 m

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Timing	Late December 2026 to early February 2027. As a contingency the EP covers the same period the subsequent year (i.e. Q4 2027 to Q1 2028).
Duration	· Approximately 40 days, which includes weather downtime and technical standby. · The survey data will be acquired over a 24-hour period, subject to required shutdowns.
Vessels	Key vessels include, but are not limited to: · A purpose-built seismic survey vessel. · A support vessel to provide logistical and operational support to the survey vessel. · A chase vessel to assist with survey operations and to manage interactions with third party vessels, as required.
Operational Area, Active Source Area and Survey Acquisition Area	· The Operational Area is approximately 3,860 km2. Within the Operational Area are two smaller areas defined as: o An Active Source Area (ASA) of approximately 1,540 km2, which is the maximum potential area within which seismic acoustic emissions may occur for the purpose of acquiring the survey data, including soft starts and source testing. o A Survey Acquisition Area (SAA) of approximately 780 km2, which is the area within which seismic recording will occur for the purposes of acquiring data for sub surface imaging. · The Operational Area includes a 15 km buffer around the SAA that has been extended to 20 km north and south for the purpose of vessel manoeuvring.
Communication with mariners	· Marine notices will be issued prior to the commencement of activities within the Operational Area. · Other marine users are permitted to use the Operational Area. · A three nautical mile (3nm) radius safe navigation area will be in place around the survey vessel and towed equipment.

Environment that May Be Affected (EMBA)

The EMBA is the largest geographic area where an unplanned event could potentially have an environmental consequence. The broadest extent of the EMBA takes into consideration planned activities and unplanned events. The EMBA has been developed combining numerous modelling outputs based on highly unlikely releases of hydrocarbons to the environment. The modelling scenario that informs the EMBA is a vessel collision.

The EMBA does not represent the extent of the predicted impact of a highly unlikely hydrocarbon release. Rather, the EMBA represents the merged area of many possible paths that a highly unlikely hydrocarbon release could travel, which depends on the weather and ocean conditions at the time of a release. This means that in the highly unlikely event that a hydrocarbon release does occur, the whole EMBA will not be affected. The specific and minimal part of the EMBA that is affected will only be known if there is a release.

Feedback

If you have feedback specific to the proposed activities, we welcome your feedback via email at consultation@feedback.woodside.com, via phone call at 1800 442 977 or via the feedback form on our

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website by **24 October 2025**. Alternatively, Woodside is willing to consider and accept your feedback via a means which suits you.

Your feedback and our response will be included in our EP, which will be submitted to the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA) for acceptance in accordance with the *Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2023* (Cth). Your feedback may also be used to support other regulatory processes associated with the planned activities (which may or may not be confidential).

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Regards

Woodside Energy Consultation

6.1.10 Email sent to Department of Defence (DoD) – 8 September 2025

Woodside is planning to submit the Pluto 4D M3 Marine Seismic Survey Environment Plan (EP). The Pluto 4D M3 (Monitor 3) Marine Seismic Survey (MSS) overlaps Petroleum Licence Area WA-34-L and WA-1-IL and other titleholders' adjacent Petroleum Licence Areas (described below), within Commonwealth waters approximately 28 km north-west of the Montebello Islands and 150 km north-west of Dampier.

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Overview

The Pluto 4D M3 MSS EP covers:

- Seismic data acquisition using a seismic survey vessel towing an acoustic source array and hydrophone cables (streamers).
- Support operations from a support vessel and chase vessel.

This four-dimensional (4D) MSS is a time-lapse monitor survey which forms part of the ongoing reservoir management and surveillance program for the Pluto reservoir. To obtain time lapse data, the seismic survey replicates as accurately as possible previous Pluto monitor surveys, undertaken in 2016 and 2020. This new seismic data is then compared to the previous data to observe subtle differences in fluid movement and pressure changes both within and surrounding the reservoir.

Consultation information

A Consultation Information Sheet is attached, which provides additional background on our approach to consultation, and the proposed activities including summaries of key impacts and risks and associated management measures. This is also available on our website.

Please also find attached a defence area map in the areas surrounding the Operational Area and EMBA.

Activity and location summary

Pluto 4D M3 Marine Seismic Survey Environment Plan

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Activity details	The proposed activity involves acquiring 4D seismic data using an acoustic source (dual array) and 12 solid streamers towed behind a survey vessel. The proposed activity is typical of seismic surveys conducted In Australian marine waters, in terms of technical methods and procedures.
Titles	Operational Area consists of: • Production/ infrastructure licences WA-34-L, WA-1-IL and pipeline licences WA-16-PL and WA-17-PL. • Other titleholders' licence areas that overlap the Operational Area (that may be subject to Access Authority and Special Prospecting Authority): WA-3-IL, WA-49-L, WA-550-P, WA-554-P, WA-536- P, WA-46-L, WA-47-L, WA-48-L, WA-76-R, WA-5-R, WA-15-R WA-21-R, WA-23-R, WA-26-PL, WA-29-PL, WA-32-PL and WA-25-PL.
Location	In Commonwealth waters, approximately 28 km north-west of the Montebello Islands and 150 km north-west of Dampier.
Water depth	73 m - 1,185 m
Timing	Late December 2026 to early February 2027. As a contingency the EP covers the same period the subsequent year (i.e. Q4 2027 to Q1 2028).
Duration	• Approximately 40 days, which includes weather downtime and technical standby. • The survey data will be acquired over a 24-hour period, subject to required shutdowns.
Vessels	Key vessels include, but are not limited to: • A purpose-built seismic survey vessel. • A support vessel to provide logistical and operational support to the survey vessel. • A chase vessel to assist with survey operations and to manage interactions with third party vessels, as required.
Operational Area, Active Source Area and Survey Acquisition Area	• The Operational Area is approximately 3,860 km2. Within the Operational Area are two smaller areas defined as: 1. An Active Source Area (ASA) of approximately 1,540 km2, which is the maximum potential area within which seismic acoustic emissions may occur for the purpose of acquiring the survey data, including soft starts and source testing. 2. A Survey Acquisition Area (SAA) of approximately 780 km2, which is the area within which seismic recording will occur for the purposes of acquiring data for sub surface imaging. • The Operational Area includes a 15 km buffer around the SAA that has been extended to 20 km north and south for the purpose of vessel manoeuvring.

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Communication with mariners	• Marine notices will be issued prior to the commencement of activities within the Operational Area. • Other marine users are permitted to use the Operational Area. • A three nautical mile (3nm) radius safe navigation area will be in place around the survey vessel and towed equipment.

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6.1.11 Email sent to Australian Communications and Media Authority (ACMA), Telstra, Vocus – 8 September 2025

Woodside is planning to submit the Pluto 4D M3 Marine Seismic Survey Environment Plan (EP). The Pluto 4D M3 (Monitor 3) Marine Seismic Survey (MSS) overlaps Petroleum Licence Area WA-34-L and WA-1-IL and other titleholders' adjacent Petroleum Licence Areas (described below), within Commonwealth waters approximately 28 km north-west of the Montebello Islands and 150 km north-west of Dampier.

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Consultation information

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Please also find attached a map of the submarine communication cables in the vicinity of the Operational Area.

Activity and location summary

Pluto 4D M3 Marine Seismic Survey Environment Plan	
Activity details	The proposed activity involves acquiring 4D seismic data using an acoustic source (dual array) and 12 solid streamers towed behind a survey vessel. The proposed activity is typical of seismic surveys conducted In Australian marine waters, in terms of technical methods and procedures.
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Communication with mariners	• Marine notices will be issued prior to the commencement of activities within the Operational Area. • Other marine users are permitted to use the Operational Area. • A three nautical mile (3nm) radius safe navigation area will be in place around the survey vessel and towed equipment.

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Regards

Woodside Energy Consultation

6.1.12 Email sent to Australian Hydrographic Office (AHO) – 8 September 2025

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Consultation information

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Please also find attached a shipping lanes map and GIS Shape Files.

Activity and location summary

Pluto 4D M3 Marine Seismic Survey Environment Plan	
Activity details	The proposed activity involves acquiring 4D seismic data using an acoustic source (dual array) and 12 solid streamers towed behind a survey vessel. The proposed activity is typical of seismic surveys conducted In Australian marine waters, in terms of technical methods and procedures.

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Feedback

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Your feedback and our response will be included in our EP, which will be submitted to the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA) for acceptance in accordance with the *Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2023 (Cth*). Your feedback may also be used to support other regulatory processes associated with the planned activities (which may or may not be confidential).

You may request that particular information you provide during consultation not be published in the EP made available on the NOPSEMA website. Please let us know if you request that particular information not be published, and we will make your request known to NOPSEMA.

NOPSEMA has published the brochure *Consultation on offshore petroleum environment plans – Information for the Community* to help community members understand consultation requirements for Commonwealth EPs and how to participate in consultation.

Personal information collected in the course of consultation will be handled in accordance with Woodside's Environment Plan Privacy Collection Notice. To understand how personal information will be handled, please visit our website.

Regards

Woodside Energy Consultation

6.1.13 Email sent to Australian Maritime Safety Authority (AMSA) Marine Safety – 8 September 2025

Woodside is planning to submit the Pluto 4D M3 Marine Seismic Survey Environment Plan (EP). The Pluto 4D M3 (Monitor 3) Marine Seismic Survey (MSS) overlaps Petroleum Licence Area WA-34-L and WA-1-IL and other titleholders' adjacent Petroleum Licence Areas (described below), within Commonwealth waters approximately 28 km north-west of the Montebello Islands and 150 km north-west of Dampier.

If you would like to comment on the proposed activity, please provide feedback to Woodside by 24 October 2025 using the details below.

Overview

The Pluto 4D M3 MSS EP covers:

- Seismic data acquisition using a seismic survey vessel towing an acoustic source array and hydrophone cables (streamers).

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- Support operations from a support vessel and chase vessel.

This four-dimensional (4D) MSS is a time-lapse monitor survey which forms part of the ongoing reservoir management and surveillance program for the Pluto reservoir. To obtain time lapse data, the seismic survey replicates as accurately as possible previous Pluto monitor surveys, undertaken in 2016 and 2020. This new seismic data is then compared to the previous data to observe subtle differences in fluid movement and pressure changes both within and surrounding the reservoir.

Consultation information

A Consultation Information Sheet is attached, which provides additional background on the proposed activities including summaries of key impacts and risks and associated management measures. This is also available on our website.

Please also find attached a shipping lane map and GIS Shape Files.

Activity and location summary

Pluto 4D M3 Marine Seismic Survey Environment Plan	
Activity details	The proposed activity involves acquiring 4D seismic data using an acoustic source (dual array) and 12 solid streamers towed behind a survey vessel. The proposed activity is typical of seismic surveys conducted In Australian marine waters, in terms of technical methods and procedures.
Titles	Operational Area consists of: • Production/ infrastructure licences WA-34-L, WA-1-IL and pipeline licences WA-16-PL and WA-17-PL. • Other titleholders' licence areas that overlap the Operational Area (that may be subject to Access Authority and Special Prospecting Authority): WA-3-IL, WA-49-L, WA-550-P, WA-554-P, WA-536- P, WA-46-L, WA-47-L, WA-48-L, WA-76-R, WA-5-R, WA-15-R WA-21-R, WA-23-R, WA-26-PL, WA-29-PL, WA-32-PL and WA-25-PL.
Location	In Commonwealth waters, approximately 28 km north-west of the Montebello Islands and 150 km north-west of Dampier.
Water depth	73 m - 1,185 m
Timing	Late December 2026 to early February 2027. As a contingency the EP covers the same period the subsequent year (i.e. Q4 2027 to Q1 2028).
Duration	• Approximately 40 days, which includes weather downtime and technical standby. • The survey data will be acquired over a 24-hour period, subject to required shutdowns.
Vessels	Key vessels include, but are not limited to: • A purpose-built seismic survey vessel. • A support vessel to provide logistical and operational support to the survey vessel. • A chase vessel to assist with survey operations and to manage interactions with third party vessels, as required.

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Operational Area, Active Source Area and Survey Acquisition Area	• The Operational Area is approximately 3,860 km2. Within the Operational Area are two smaller areas defined as: 1. An Active Source Area (ASA) of approximately 1,540 km2, which is the maximum potential area within which seismic acoustic emissions may occur for the purpose of acquiring the survey data, including soft starts and source testing. 2. A Survey Acquisition Area (SAA) of approximately 780 km2, which is the area within which seismic recording will occur for the purposes of acquiring data for sub surface imaging. • The Operational Area includes a 15 km buffer around the SAA that has been extended to 20 km north and south for the purpose of vessel manoeuvring.
Communication with mariners	• Marine notices will be issued prior to the commencement of activities within the Operational Area. • Other marine users are permitted to use the Operational Area. • A three nautical mile (3nm) radius safe navigation area will be in place around the survey vessel and towed equipment.

Environment that May Be Affected (EMBA)

The EMBA is the largest geographic area where an unplanned event could potentially have an environmental consequence. The broadest extent of the EMBA takes into consideration planned activities and unplanned events. The EMBA has been developed combining numerous modelling outputs based on highly unlikely releases of hydrocarbons to the environment. The modelling scenario that informs the EMBA is a vessel collision.

The EMBA does not represent the extent of the predicted impact of a highly unlikely hydrocarbon release. Rather, the EMBA represents the merged area of many possible paths that a highly unlikely hydrocarbon release could travel, which depends on the weather and ocean conditions at the time of a release. This means that in the highly unlikely event that a hydrocarbon release does occur, the whole EMBA will not be affected. The specific and minimal part of the EMBA that is affected will only be known if there is a release.

Additional information

Please note that Woodside will:

- Provide updates to both the AHO and AMSA Response Centre (ARC) on any material changes to planned activities.
- Notify AHO no less than four working weeks prior to the commencement of activities.
- Notify AMSA's Response Centre (ARC) at least 24-48 hours prior to the commencement of activities.
- Ensure vessels exhibit appropriate lights and shapes to reflect the nature of operations and the obligation to comply with the International Rules for Preventing Collisions at Sea (COLREGS).
- Evaluate and implement adequate anti-collision measures including but not limited to additional warnings and/or lights to attract attention, offshore chase vessel/s that can monitor traffic and installation of Automatic Identification System (AIS) units. Streamers tail buoys will be fitted to mark the end of seismic streamers.

Feedback

If you have feedback specific to the proposed activities, we welcome your feedback via email at consultation@feedback.woodside.com, via phone call at 1800 442 977 or via the feedback form on our website by **24 October 2025**. Alternatively, Woodside is willing to consider and accept your feedback via a means which suit you.

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Your feedback and our response will be included in our EP, which will be submitted to the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA) for acceptance in accordance with the *Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2023 (Cth)*. Your feedback may also be used to support other regulatory processes associated with the planned activities (which may or may not be confidential).

You may request that particular information you provide during consultation not be published in the Environment Plan made available on the NOPSEMA website. Please let us know if you request that particular information not be published, and we will make your request known to NOPSEMA.

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Regards

Woodside Energy Consultation

6.1.14 Email sent to Commonwealth Fisheries Association (CFA), North West Slope Trawl Fishery individual licence holders, Western Deepwater Trawl Fishery individual licence holders, Tuna Australia, Western Tuna and Billfish Fishery individual licence holders, Australian Southern Bluefin Tuna Industry Association (ASBTIA), Southern Bluefin Tuna Fishery individual licence holders, Western Skipjack Fishery individual licence holders – 8 September 2025

Woodside is planning to submit the Pluto 4D M3 Marine Seismic Survey Environment Plan (EP). The Pluto 4D M3 (Monitor 3) Marine Seismic Survey (MSS) overlaps Petroleum Licence Area WA-34-L and WA-1-IL and other titleholders' adjacent Petroleum Licence Areas (described below), within Commonwealth waters approximately 28 km north-west of the Montebello Islands and 150 km north-west of Dampier.

If you would like to comment on the proposed activity, please provide feedback to Woodside by 24 October 2025 using the details below.

Overview

The Pluto 4D M3 MSS EP covers:

- Seismic data acquisition using a seismic survey vessel towing an acoustic source array and hydrophone cables (streamers).
- Support operations from a support vessel and chase vessel.

This four-dimensional (4D) MSS is a time-lapse monitor survey which forms part of the ongoing reservoir management and surveillance program for the Pluto reservoir. To obtain time-lapse data, the seismic survey replicates as accurately as possible previous Pluto monitor surveys, undertaken in 2016 and 2020. This new seismic data is then compared to the previous data to observe subtle differences in fluid movement and pressure changes both within and surrounding the reservoir.

Consultation information

A Consultation Information Sheet is attached, which provides additional background on our approach to consultation, and the proposed activities including summaries of key impacts and risks and associated management measures. This is also available on our website.

Activity and location summary

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Pluto 4D M3 Marine Seismic Survey Environment Plan	
Activity details	The proposed activity involves acquiring 4D seismic data using an acoustic source (dual array) and 12 solid streamers towed behind a survey vessel. The proposed activity is typical of seismic surveys conducted In Australian marine waters, in terms of technical methods and procedures.
Titles	Operational Area consists of: • Production/ infrastructure licences WA-34-L, WA-1-IL and pipeline licences WA-16-PL and WA-17-PL. • Other titleholders' licence areas that overlap the Operational Area (that may be subject to Access Authority and Special Prospecting Authority): WA-3-IL, WA-49-L, WA-550-P, WA-554-P, WA-536- P, WA-46-L, WA-47-L, WA-48-L, WA-76-R, WA-5-R, WA-15-R WA-21-R, WA-23-R, WA-26-PL, WA-29-PL, WA-32-PL and WA-25-PL.
Location	In Commonwealth waters, approximately 28 km north-west of the Montebello Islands and 150 km north-west of Dampier.
Water depth	73 m - 1,185 m
Timing	Late December 2026 to early February 2027. As a contingency the EP covers the same period the subsequent year (i.e. Q4 2027 to Q1 2028).
Duration	• Approximately 40 days, which includes weather downtime and technical standby. • The survey data will be acquired over a 24-hour period, subject to required shutdowns.
Vessels	Key vessels include, but are not limited to: • A purpose-built seismic survey vessel. • A support vessel to provide logistical and operational support to the survey vessel. • A chase vessel to assist with survey operations and to manage interactions with third party vessels, as required.
Operational Area, Active Source Area and Survey Acquisition Area	• The Operational Area is approximately 3,860 km2. Within the Operational Area are two smaller areas defined as: 1. An Active Source Area (ASA) of approximately 1,540 km2, which is the maximum potential area within which seismic acoustic emissions may occur for the purpose of acquiring the survey data, including soft starts and source testing. 2. A Survey Acquisition Area (SAA) of approximately 780 km2, which is the area within which seismic recording will occur for the purposes of acquiring data for sub surface imaging. • The Operational Area includes a 15 km buffer around the SAA that has been extended to 20 km north and south for the purpose of vessel manoeuvring.

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Communication with mariners	• Marine notices will be issued prior to the commencement of activities within the Operational Area. • Other marine users are permitted to use the Operational Area. • A three nautical mile (3nm) radius safe navigation area will be in place around the survey vessel and towed equipment.

Environment that May Be Affected (EMBA)

The EMBA is the largest geographic area where an unplanned event could potentially have an environmental consequence. The broadest extent of the EMBA takes into consideration planned activities and unplanned events. The EMBA has been developed combining numerous modelling outputs based on highly unlikely releases of hydrocarbons to the environment. The modelling scenario that informs the EMBA is a vessel collision.

The EMBA does not represent the extent of the predicted impact of a highly unlikely hydrocarbon release. Rather, the EMBA represents the merged area of many possible paths that a highly unlikely hydrocarbon release could travel, which depends on the weather and ocean conditions at the time of a release. This means that in the highly unlikely event that a hydrocarbon release does occur, the whole EMBA will not be affected. The specific and minimal part of the EMBA that is affected will only be known if there is a release.

Commonwealth fisheries

Commonwealth fisheries active in the Operational Area:

- North West Slope Trawl Fishery

Commonwealth fisheries active in the EMBA:

- North West Slope Trawl Fishery
- Western Deepwater Trawl Fishery

Potential impacts to fisheries

Modelling of underwater noise emissions from the seismic acoustic source for the proposed survey has been used to inform the potential impacts on sensitive receptors, including fish and crustacean species targeted by commercial fisheries.

The size of the Operational Area (3860 km2) represents a very small portion of the overall area of the commercial fisheries identified as overlapping it. Predicted noise emissions are not considered likely to cause injury or permanent hearing impairment for any commercial species that may be present within or adjacent to the Active Source Area during the proposed survey. Impacts to fish species will be restricted to temporary behavioural changes (e.g. avoidance, startle or alarm responses or change in swim speed) in individuals that are in close proximity to the operating seismic acoustic source. Predicted noise emissions are not anticipated to expose crustaceans, such as prawns, to noise levels that would result in adverse impact or viability of catch.

It should be noted that the survey vessel will be moving continuously when acquiring seismic data which limits the exposure of commercial species in close proximity to the operating seismic acoustic source to a very short duration such that injury or impairment are not considered likely.

The potential impacts of noise emissions from the seismic acoustic source on commercial species are considered to be localised and of no lasting effect. Impacts to the recruitment of key commercial species, including fish and crustaceans due underwater noise emissions from the proposed survey are not predicted.

Notifications

Please let us know if you require notification prior to and on completion of the proposed activities.

Feedback

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If you have feedback specific to the proposed activities, we welcome your feedback via email at consultation@feedback.woodside.com, via phone call at 1800 442 977 or via the feedback form on our website by **24 October 2025**. Alternatively, Woodside is willing to consider and accept your feedback via a means which suits you.

Your feedback and our response will be included in our EP, which will be submitted to the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA) for acceptance in accordance with the *Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2023 (Cth)*. Your feedback may also be used to support other regulatory processes associated with the planned activities (which may or may not be confidential).

You may request that particular information you provide during consultation not be published in the EP made available on the NOPSEMA website. Please let us know if you request that particular information not be published, and we will make your request known to NOPSEMA.

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Regards

Woodside Energy Consultation

6.1.15 Email sent to Department of Agriculture, Fisheries and Forestry (DAFF) Biosecurity and DAFF Fisheries – 8 September 2025

Woodside is planning to submit the Pluto 4D M3 Marine Seismic Survey Environment Plan (EP). The Pluto 4D M3 (Monitor 3) Marine Seismic Survey (MSS) overlaps Petroleum Licence Area WA-34-L and WA-1-IL and other titleholders' adjacent Petroleum Licence Areas (described below), within Commonwealth waters approximately 28 km north-west of the Montebello Islands and 150 km north-west of Dampier.

If you would like to comment on the proposed activity, please provide feedback to Woodside by 24 October 2025 using the details below.

Overview

The Pluto 4D M3 MSS EP covers:

- Seismic data acquisition using a seismic survey vessel towing an acoustic source array and hydrophone cables (streamers).
- Support operations from a support vessel and chase vessel.

This four-dimensional (4D) MSS is a time-lapse monitor survey which forms part of the ongoing reservoir management and surveillance program for the Pluto reservoir. To obtain time lapse data, the seismic survey replicates as accurately as possible previous Pluto monitor surveys, undertaken in 2016 and 2020. This new seismic data is then compared to the previous data to observe subtle differences in fluid movement and pressure changes both within and surrounding the reservoir.

Consultation information

A Consultation Information Sheet is attached, which provides additional background on our approach to consultation, and the proposed activities including summaries of key impacts and risks and associated management measures. This is also available on our website.

Activity and location summary

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Pluto 4D M3 Marine Seismic Survey Environment Plan	
Activity details	The proposed activity involves acquiring 4D seismic data using an acoustic source (dual array) and 12 solid streamers towed behind a survey vessel. The proposed activity is typical of seismic surveys conducted In Australian marine waters, in terms of technical methods and procedures.
Titles	Operational Area consists of: • Production/ infrastructure licences WA-34-L, WA-1-IL and pipeline licences WA-16-PL and WA-17-PL. • Other titleholders' licence areas that overlap the Operational Area (that may be subject to Access Authority and Special Prospecting Authority): WA-3-IL, WA-49-L, WA-550-P, WA-554-P, WA-536- P, WA-46-L, WA-47-L, WA-48-L, WA-76-R, WA-5-R, WA-15-R WA-21-R, WA-23-R, WA-26-PL, WA-29-PL, WA-32-PL and WA-25-PL.
Location	In Commonwealth waters, approximately 28 km north-west of the Montebello Islands and 150 km north-west of Dampier.
Water depth	73 m - 1,185 m
Timing	Late December 2026 to early February 2027. As a contingency the EP covers the same period the subsequent year (i.e. Q4 2027 to Q1 2028).
Duration	• Approximately 40 days, which includes weather downtime and technical standby. • The survey data will be acquired over a 24-hour period, subject to required shutdowns.
Vessels	Key vessels include, but are not limited to: • A purpose-built seismic survey vessel. • A support vessel to provide logistical and operational support to the survey vessel. • A chase vessel to assist with survey operations and to manage interactions with third party vessels, as required.
Operational Area, Active Source Area and Survey Acquisition Area	• The Operational Area is approximately 3,860 km2. Within the Operational Area are two smaller areas defined as: 1. An Active Source Area (ASA) of approximately 1,540 km2, which is the maximum potential area within which seismic acoustic emissions may occur for the purpose of acquiring the survey data, including soft starts and source testing. 2. A Survey Acquisition Area (SAA) of approximately 780 km2, which is the area within which seismic recording will occur for the purposes of acquiring data for sub surface imaging. • The Operational Area includes a 15 km buffer around the SAA that has been extended to 20 km north and south for the purpose of vessel manoeuvring.

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Communication with mariners	• Marine notices will be issued prior to the commencement of activities within the Operational Area. • Other marine users are permitted to use the Operational Area. • A three nautical mile (3nm) radius safe navigation area will be in place around the survey vessel and towed equipment.

Environment that May Be Affected (EMBA)

The EMBA is the largest geographic area where an unplanned event could potentially have an environmental consequence. The broadest extent of the EMBA takes into consideration planned activities and unplanned events. The EMBA has been developed combining numerous modelling outputs based on highly unlikely releases of hydrocarbons to the environment. The modelling scenario that informs the EMBA is a vessel collision.

The EMBA does not represent the extent of the predicted impact of a highly unlikely hydrocarbon release. Rather, the EMBA represents the merged area of many possible paths that a highly unlikely hydrocarbon release could travel, which depends on the weather and ocean conditions at the time of a release. This means that in the highly unlikely event that a hydrocarbon release does occur, the whole EMBA will not be affected. The specific and minimal part of the EMBA that is affected will only be known if there is a release.

Commonwealth fisheries

Commonwealth fisheries active in the Operational Area:

- North West Slope Trawl Fishery

Commonwealth fisheries active in the EMBA:

- North West Slope Trawl Fishery
- Western Deepwater Trawl Fishery

Please note that Woodside has provided consultation information directly to licence holders it has assessed as ‘relevant persons’ for this EP, as well as relevant fishery representative bodies.

Potential impacts to fisheries

Modelling of underwater noise emissions from the seismic acoustic source for the proposed survey has been used to inform the potential impacts on sensitive receptors, including fish and crustacean species targeted by commercial fisheries.

The size of the Operational Area (3860 km2) represents a very small portion of the overall area of the commercial fisheries identified as overlapping it. Predicted noise emissions are not considered likely to cause injury or permanent hearing impairment for any commercial species that may be present within or adjacent to the Active Source Area during the proposed survey. Impacts to fish species will be restricted to temporary behavioural changes (e.g. avoidance, startle or alarm responses or change in swim speed) in individuals that are in close proximity to the operating seismic acoustic source. Predicted noise emissions are not anticipated to expose crustaceans, such as prawns, to noise levels that would result in adverse impact or viability of catch.

It should be noted that the survey vessel will be moving continuously when acquiring seismic data which limits the exposure of commercial species in close proximity to the operating seismic acoustic source to a very short duration such that injury or impairment are not considered likely.

The potential impacts of noise emissions from the seismic acoustic source on commercial species are considered to be localised and of no lasting effect. Impacts to the recruitment of key commercial species, including fish and crustaceans due underwater noise emissions from the proposed survey are not predicted.

Biosecurity

With respect to the biosecurity matters, please note the following information below:

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Environment description	
The proposed activity is within Woodside Burrup Pty Ltd Petroleum Licence Areas WA-34-L and WA-1-IL and other titleholders' adjacent Petroleum Licence Areas (as described in the table above), located within Commonwealth waters approximately 28 km north-west of the Montebello Islands and 150 km north-west of Dampier. Water depths range from 73 m to 1,185 m. The proposed activity has an overlap within the Montebello Australian Marine Park (AMP) – Multiple Use Zone (Cth). The south-eastern extent of the Operational Area for the activity overlaps this AMP. The Operational Area has been truncated to avoid shallow water <50 m nearer the Montebello Islands. Within the overlap with the AMP seismic data acquisition and vessel manoeuvring is planned to occur.	
Potential IMS risk	**IMS mitigation management**
Vessels are potential vectors for introducing invasive marine species (IMS) during the proposed activity. IMS introduction is highly unlikely, however may be introduced to the Operational Area through transfer of IMS.	Ballast water and biofouling will be managed according to the Australian Ballast Water Management Requirements and the Australian Biofouling Management Requirements, as applicable. Woodside's IMS risk assessment process will be applied to vessels and immersible equipment entering the Operational Area. Based on the outcomes of each IMS risk assessment, management measures commensurate with the risk (such as the treatment of internal systems, IMS inspection or cleaning) will be implemented to minimise the likelihood of introducing IMS.

Feedback

If you have feedback specific to the proposed activities, we welcome your feedback via email at consultation@feedback.woodside.com, via phone call at 1800 442 977 or via the feedback form on our website by **24 October 2025**. Alternatively, Woodside is willing to consider and accept your feedback via a means which suits you.

Your feedback and our response will be included in our EP, which will be submitted to the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA) for acceptance in accordance with the *Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2023 (Cth)*. Your feedback may also be used to support other regulatory processes associated with the planned activities (which may or may not be confidential).

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Regards

Woodside Energy Consultation

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6.1.16 Email sent to Director of National Parks (DNP) – 8 September 2025

Woodside is planning to submit the Pluto 4D M3 Marine Seismic Survey Environment Plan (EP). The Pluto 4D M3 (Monitor 3) Marine Seismic Survey (MSS) overlaps Petroleum Licence Area WA-34-L and WA-1-IL and other titleholders' adjacent Petroleum Licence Areas (described below), within Commonwealth waters approximately 28 km north-west of the Montebello Islands and 150 km north-west of Dampier.

If you would like to comment on the proposed activity, please provide feedback to Woodside by 24 October 2025 using the details below. Woodside would also like to propose a meeting with DNP to discuss this EP and other Woodside EPs. We will follow up with DNP in the coming week to confirm if this is convenient.

Overview

The Pluto 4D M3 MSS EP covers:

- Seismic data acquisition using a seismic survey vessel towing an acoustic source array and hydrophone cables (streamers).
- Support operations from a support vessel and chase vessel.

This four-dimensional (4D) MSS is a time-lapse monitor survey which forms part of the ongoing reservoir management and surveillance program for the Pluto reservoir. To obtain time lapse data, the seismic survey replicates as accurately as possible previous Pluto monitor surveys, undertaken in 2016 and 2020. This new seismic data is then compared to the previous data to observe subtle differences in fluid movement and pressure changes both within and surrounding the reservoir.

Consultation information

A Consultation Information Sheet is attached, which provides additional background on our approach to consultation, and the proposed activities including summaries of key impacts and risks and associated management measures. This is also available on our website.

Activity and location summary

Pluto 4D M3 Marine Seismic Survey Environment Plan	
Activity details	The proposed activity involves acquiring 4D seismic data using an acoustic source (dual array) and 12 solid streamers towed behind a survey vessel. The proposed activity is typical of seismic surveys conducted In Australian marine waters, in terms of technical methods and procedures.
Titles	Operational Area consists of: • Production/ infrastructure licences WA-34-L, WA-1-IL and pipeline licences WA-16-PL and WA-17-PL. • Other titleholders' licence areas that overlap the Operational Area (that may be subject to Access Authority and Special Prospecting Authority): WA-3-IL, WA-49-L, WA-550-P, WA-554-P, WA-536- P, WA-46-L, WA-47-L, WA-48-L, WA-76-R, WA-5-R, WA-15-R WA-21-R, WA-23-R, WA-26-PL, WA-29-PL, WA-32-PL and WA-25-PL.
Location	In Commonwealth waters, approximately 28 km north-west of the Montebello Islands and 150 km north-west of Dampier.
Water depth	73 m - 1,185 m
Timing	Late December 2026 to early February 2027. As a contingency the EP covers the same period the subsequent year (i.e. Q4 2027 to Q1 2028).

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Duration	• Approximately 40 days, which includes weather downtime and technical standby. • The survey data will be acquired over a 24-hour period, subject to required shutdowns.
Vessels	Key vessels include, but are not limited to: • A purpose-built seismic survey vessel. • A support vessel to provide logistical and operational support to the survey vessel. • A chase vessel to assist with survey operations and to manage interactions with third party vessels, as required.
Operational Area, Active Source Area and Survey Acquisition Area	• The Operational Area is approximately 3,860 km2. Within the Operational Area are two smaller areas defined as: 1. An Active Source Area (ASA) of approximately 1,540 km2, which is the maximum potential area within which seismic acoustic emissions may occur for the purpose of acquiring the survey data, including soft starts and source testing. 2. A Survey Acquisition Area (SAA) of approximately 780 km2, which is the area within which seismic recording will occur for the purposes of acquiring data for sub surface imaging. • The Operational Area includes a 15 km buffer around the SAA that has been extended to 20 km north and south for the purpose of vessel manoeuvring.
Communication with mariners	• Marine notices will be issued prior to the commencement of activities within the Operational Area. • Other marine users are permitted to use the Operational Area. • A three nautical mile (3nm) radius safe navigation area will be in place around the survey vessel and towed equipment.

Environment that May Be Affected (EMBA)

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The EMBA does not represent the extent of the predicted impact of a highly unlikely hydrocarbon release. Rather, the EMBA represents the merged area of many possible paths that a highly unlikely hydrocarbon release could travel, which depends on the weather and ocean conditions at the time of a release. This means that in the highly unlikely event that a hydrocarbon release does occur, the whole EMBA will not be affected. The specific and minimal part of the EMBA that is affected will only be known if there is a release.

Australian Marine Parks (AMPs)

We note Australian Government Guidance on consultation activities and confirm that:

- The south-eastern extent of the proposed marine seismic survey overlaps the Montebello Australian Marine Park (AMP) – Multiple Use Zone (Cth). Within this overlap seismic data acquisition and

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vessel manoeuvring is planned to occur. The Operational Area has been truncated to avoid shallow water <50 m nearer the Montebello Islands.

- The worst-case credible spill scenario assessed in this EP is a vessel collision. Through review of hydrocarbon spill modelling, and with consideration of a 50 ppb dissolved and 100 ppb entrained hydrocarbon threshold, the following AMPs may be contacted in the event of a spill:
    - Montebello
    - Ningaloo
    - Gascoyne
- 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 the values of any AMP.
- Woodside is aware of and will consider the 'Petroleum Activities and Australian Marine Parks' guidance note developed and published jointly by DNP and NOPSEMA, while preparing this EP to ensure that the EP:
    - Identifies and manages all impacts and risks on AMP values (including ecosystem values) to an acceptable level and has considered all options to avoid or reduce them to as low as reasonably practicable (ALARP).
    - Clearly demonstrates that the activities will not be inconsistent with the North-west Marine Parks Network Management Plan 2018.
    - If there is a change in activities which results in an overlap or new impact to a marine park, Woodside will notify DNP.

Feedback

If you have feedback specific to the proposed activities, we welcome your feedback via email at consultation@feedback.woodside.com, via phone call at 1800 442 977 or via the feedback form on our website by **24 October 2025**. Alternatively, Woodside is willing to consider and accept your feedback via a means which suits you.

Your feedback and our response will be included in our EP, which will be submitted to the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA) for acceptance in accordance with the *Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2023 (Cth)*. Your feedback may also be used to support other regulatory processes associated with the planned activities (which may or may not be confidential).

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6.1.17 Email sent to Department of Transport and Major Infrastructure (DTMI) – 8 September 2025

Woodside is planning to submit the Pluto 4D M3 Marine Seismic Survey Environment Plan (EP). The Pluto 4D M3 (Monitor 3) Marine Seismic Survey (MSS) overlaps Petroleum Licence Area WA-34-L and WA-1-IL and other titleholders' adjacent Petroleum Licence Areas (described below), within Commonwealth waters approximately 28 km north-west of the Montebello Islands and 150 km north-west of Dampier.

If you would like to comment on the proposed activity, please provide feedback to Woodside by 24 October 2025 using the details below.

Overview

The Pluto 4D M3 MSS EP covers:

- Seismic data acquisition using a seismic survey vessel towing an acoustic source array and hydrophone cables (streamers).
- Support operations from a support vessel and chase vessel.

This four-dimensional (4D) MSS is a time-lapse monitor survey which forms part of the ongoing reservoir management and surveillance program for the Pluto reservoir. To obtain time lapse data, the seismic survey replicates as accurately as possible previous Pluto monitor surveys, undertaken in 2016 and 2020. This new seismic data is then compared to the previous data to observe subtle differences in fluid movement and pressure changes both within and surrounding the reservoir.

Consultation information

A Consultation Information Sheet is attached, which provides additional background on our approach to consultation, and the proposed activities including summaries of key impacts and risks and associated management measures. This is also available on our website.

Activity and location summary

Pluto 4D M3 Marine Seismic Survey Environment Plan	
Activity details	The proposed activity involves acquiring 4D seismic data using an acoustic source (dual array) and 12 solid streamers towed behind a survey vessel. The proposed activity is typical of seismic surveys conducted In Australian marine waters, in terms of technical methods and procedures.
Titles	Operational Area consists of: • Production/ infrastructure licences WA-34-L, WA-1-IL and pipeline licences WA-16-PL and WA-17-PL. • Other titleholders' licence areas that overlap the Operational Area (that may be subject to Access Authority and Special Prospecting Authority): WA-3-IL, WA-49-L, WA-550-P, WA-554-P, WA-536- P, WA-46-L, WA-47-L, WA-48-L, WA-76-R, WA-5-R, WA-15-R WA-21-R, WA-23-R, WA-26-PL, WA-29-PL, WA-32-PL and WA-25-PL.
Location	In Commonwealth waters, approximately 28 km north-west of the Montebello Islands and 150 km north-west of Dampier.
Water depth	73 m - 1,185 m
Timing	Late December 2026 to early February 2027. As a contingency the EP covers the same period the subsequent year (i.e. Q4 2027 to Q1 2028).

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Duration	• Approximately 40 days, which includes weather downtime and technical standby. • The survey data will be acquired over a 24-hour period, subject to required shutdowns.
Vessels	Key vessels include, but are not limited to: • A purpose-built seismic survey vessel. • A support vessel to provide logistical and operational support to the survey vessel. • A chase vessel to assist with survey operations and to manage interactions with third party vessels, as required.
Operational Area, Active Source Area and Survey Acquisition Area	• The Operational Area is approximately 3,860 km2. Within the Operational Area are two smaller areas defined as: 1. An Active Source Area (ASA) of approximately 1,540 km2, which is the maximum potential area within which seismic acoustic emissions may occur for the purpose of acquiring the survey data, including soft starts and source testing. 2. A Survey Acquisition Area (SAA) of approximately 780 km2, which is the area within which seismic recording will occur for the purposes of acquiring data for sub surface imaging. • The Operational Area includes a 15 km buffer around the SAA that has been extended to 20 km north and south for the purpose of vessel manoeuvring.
Communication with mariners	• Marine notices will be issued prior to the commencement of activities within the Operational Area. • Other marine users are permitted to use the Operational Area. • A three nautical mile (3nm) radius safe navigation area will be in place around the survey vessel and towed equipment.

Environment that May Be Affected (EMBA)

The EMBA is the largest geographic area where an unplanned event could potentially have an environmental consequence. The broadest extent of the EMBA takes into consideration planned activities and unplanned events. The EMBA has been developed combining numerous modelling outputs based on highly unlikely releases of hydrocarbons to the environment. The modelling scenario that informs the EMBA is a vessel collision.

The EMBA does not represent the extent of the predicted impact of a highly unlikely hydrocarbon release. Rather, the EMBA represents the merged area of many possible paths that a highly unlikely hydrocarbon release could travel, which depends on the weather and ocean conditions at the time of a release. This means that in the highly unlikely event that a hydrocarbon release does occur, the whole EMBA will not be affected. The specific and minimal part of the EMBA that is affected will only be known if there is a release.

If there is a risk of a spill impacting State waters, Woodside will further consult the Department of Transport and Major Infrastructure as outlined in the Department of Transport and Major Infrastructure's Offshore Petroleum Industry Guidance Note – Marine Oil Pollution: Response and Consultation Arrangements (July 2020).

Feedback

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Woodside Energy Consultation

6.1.18 Email sent to Department of Primary Industry and Regional Development (DPIRD) – 8 September 2025

Woodside is planning to submit the Pluto 4D M3 Marine Seismic Survey Environment Plan (EP). The Pluto 4D M3 (Monitor 3) Marine Seismic Survey (MSS) overlaps Petroleum Licence Area WA-34-L and WA-1-IL and other titleholders' adjacent Petroleum Licence Areas (described below), within Commonwealth waters approximately 28 km north-west of the Montebello Islands and 150 km north-west of Dampier.

If you would like to comment on the proposed activity, please provide feedback to Woodside by 24 October 2025 using the details below.

Overview

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- Seismic data acquisition using a seismic survey vessel towing an acoustic source array and hydrophone cables (streamers).
- Support operations from a support vessel and chase vessel.

This four-dimensional (4D) MSS is a time-lapse monitor survey which forms part of the ongoing reservoir management and surveillance program for the Pluto reservoir. To obtain time lapse data, the seismic survey replicates as accurately as possible previous Pluto monitor surveys, undertaken in 2016 and 2020. This new seismic data is then compared to the previous data to observe subtle differences in fluid movement and pressure changes both within and surrounding the reservoir.

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Activity and location summary

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Pluto 4D M3 Marine Seismic Survey Environment Plan	
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Titles	Operational Area consists of: • Production/ infrastructure licences WA-34-L, WA-1-IL and pipeline licences WA-16-PL and WA-17-PL. • Other titleholders' licence areas that overlap the Operational Area (that may be subject to Access Authority and Special Prospecting Authority): WA-3-IL, WA-49-L, WA-550-P, WA-554-P, WA-536- P, WA-46-L, WA-47-L, WA-48-L, WA-76-R, WA-5-R, WA-15-R WA-21-R, WA-23-R, WA-26-PL, WA-29-PL, WA-32-PL and WA-25-PL.
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Operational Area, Active Source Area and Survey Acquisition Area	• The Operational Area is approximately 3,860 km2. Within the Operational Area are two smaller areas defined as: 1. An Active Source Area (ASA) of approximately 1,540 km2, which is the maximum potential area within which seismic acoustic emissions may occur for the purpose of acquiring the survey data, including soft starts and source testing. 2. A Survey Acquisition Area (SAA) of approximately 780 km2, which is the area within which seismic recording will occur for the purposes of acquiring data for sub surface imaging. • The Operational Area includes a 15 km buffer around the SAA that has been extended to 20 km north and south for the purpose of vessel manoeuvring.

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Communication with mariners	• Marine notices will be issued prior to the commencement of activities within the Operational Area. • Other marine users are permitted to use the Operational Area. • A three nautical mile (3nm) radius safe navigation area will be in place around the survey vessel and towed equipment.

Environment that May Be Affected (EMBA)

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State fisheries

State fisheries active in the Operational Area:

- Mackerel Managed Fishery (Area 2)
- Marine Aquarium Fish Managed Fishery
- Onslow Prawn Managed Fishery
- Pilbara Trap Managed Fishery
- Pilbara Line Fishery (Condition)
- West Coast Deep Sea Crustacean Managed Fishery

State fisheries active in the EMBA:

- West Australian Sea Cucumber Fishery
- Exmouth Gulf Prawn Managed Fishery
- Mackerel Managed Fishery
- 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 Trap Managed Fishery
- Pilbara Line Fishery (Condition)
- Specimen Shell Managed Fishery
- West Coast Deep Sea Crustacean Managed Fishery
- Aquaculture site in the Mackerel Islands

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Please note that Woodside has provided consultation information to the Western Australian Fishing Industry Council (WAFIC), Aquaculture Council of Western Australia (ACWA) and Recfishwest. Information provided to these bodies includes the planned timing and duration of the activities, and the spatial extent of the proposed activities (including any exclusion zones).

Woodside consults individual fishing license holders based on WAFIC's guidance and advice, whereby WAFIC:

- directly consults fishery licence holders that are assessed as having a potential for interaction in the Operational Area
- consults fisheries that are assessed as having a potential for interaction in the EMBA only in the event of an unplanned emergency scenario.

Woodside also consults with relevant Traditional Owners in the preparation of this EP.

Potential impacts to fisheries

Modelling of underwater noise emissions from the seismic acoustic source for the proposed survey has been used to inform the potential impacts on sensitive receptors, including fish and crustacean species targeted by commercial fisheries.

The size of the Operational Area (3860 km2) represents a very small portion of the overall area of the commercial fisheries identified as overlapping it. Predicted noise emissions are not considered likely to cause injury or permanent hearing impairment for any commercial species that may be present within or adjacent to the Active Source Area during the proposed survey. Impacts to fish species will be restricted to temporary behavioural changes (e.g. avoidance, startle or alarm responses or change in swim speed) in individuals that are in close proximity to the operating seismic acoustic source. Predicted noise emissions are not anticipated to expose crustaceans, such as prawns, to noise levels that would result in adverse impact or viability of catch.

It should be noted that the survey vessel will be moving continuously when acquiring seismic data which limits the exposure of commercial species in close proximity to the operating seismic acoustic source to a very short duration such that injury or impairment are not considered likely.

The potential impacts of noise emissions from the seismic acoustic source on commercial species are considered to be localised and of no lasting effect. Impacts to the recruitment of key commercial species, including fish and crustaceans due underwater noise emissions from the proposed survey are not predicted.

Spill Contingency Plans

Within Woodside's Oil Pollution First Strike Plan (FSP), Woodside commits to notifying Department of Transport and Major Infrastructure (DTMI) within 2 hours of becoming aware of a marine pollution incident that occurs in or may impact State waters. Woodside also consults DTMI in the development of the FSP.

Woodside commits to notify DPIRD within 24 hours of our reporting the incident to the appropriate authority. We have noted this contact as environment@dpird.wa.gov.au and placed this in the Notification section of the FSP.

In addition, within the FSP, Woodside commits to identify and notify additional relevant persons and organisations such as, but not limited to, commercial fishers or tourism operators that may be affected during a spill event. Woodside would, at the relevant time, engage with these parties as appropriate and will re-assess relevant persons and organisations throughout the response period.

Woodside mitigates the risk of spill events through the adoption of a range of preventative controls (including engineering design) that all contribute to reducing the likelihood of a spill event to an unlikely level. The potential for hydrocarbons to reach coastal regions would be further minimised in the event of a spill via appropriate response actions aimed at reducing hydrocarbon contact with sensitive coastal areas, including commercially important fish species' spawning and aggregation areas.

Woodside's oil spill Operational and Scientific Monitoring (OSM) Program is executed under the Joint Industry OSM Framework (AEP, 2021). In the event of a spill, the OSM Framework will guide the situational

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awareness and response as well as undertake a suite of comprehensive science-based monitoring programs to evaluate environmental impacts. One such program is dedicated to the impacts on fisheries. The fisheries impact assessment has two objectives – to assess any physiological impacts to important fish and shellfish species and to assess targeted fish and shellfish species for hydrocarbon contamination.

Biosecurity

Woodside contracts seismic survey and support vessel services for the petroleum activity described in the EP. Woodside works closely with contractors to ensure compliance with all requirements previously requested by DPIRD during consultation on other EP's including DPIRD's policy that marine pests or disease are reported within 24 hours. A 24-hour notification will be formally captured as a notification within the EP and communicated to vessel operators.

All 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 invasive marine species (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. Woodside's Invasive Marine Species Management Plan includes a risk assessment process that is applied to vessels undertaking activities. Based on the outcomes of each IMS risk assessment, management measures commensurate with the risk (such as the treatment of internal systems, IMS inspections or cleaning) will be implemented to minimise the likelihood of IMS being introduced.

Feedback

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Regards

Woodside Energy Consultation

6.1.19 Email sent to Marine Tourism WA, WA Game Fishing Association, Pilbara/Kimberley recreational marine users, Gascoyne recreational marine users – 8 September 2025

Woodside is planning to submit the Pluto 4D M3 Marine Seismic Survey Environment Plan (EP). The Pluto 4D M3 (Monitor 3) Marine Seismic Survey (MSS) overlaps Petroleum Licence Area WA-34-L and WA-1-IL

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and other titleholders' adjacent Petroleum Licence Areas (described below), within Commonwealth waters approximately 28 km north-west of the Montebello Islands and 150 km north-west of Dampier.

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Overview

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Activity and location summary

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Location	In Commonwealth waters, approximately 28 km north-west of the Montebello Islands and 150 km north-west of Dampier.
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6.1.19.1 Letter sent to Pilbara/Kimberley recreational marine users, Gascoyne recreational marine users – 8 September 2025

Please direct all responses/queries to:
Woodside Energy Feedback
t: +61 8 (1)800 442 977
e: consultation@feedback.woodside.com.au

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

08 September 2025

Dear Stakeholder

PLUTO 4D M3 MARINE SEISMIC SURVEY ENVIRONMENT PLAN

Woodside is planning to submit the Pluto 4D M3 Marine Seismic Survey Environment Plan (EP). The Pluto 4D M3 (Monitor 3) Marine Seismic Survey (MSS) overlaps Petroleum Licence Area WA-34-L and WA-1-IL and other titleholders' adjacent Petroleum Licence Areas (described below), within Commonwealth waters approximately 28 km north-west of the Montebello Islands and 150 km north-west of Dampier.

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Consultation information

A Consultation Information Sheet is enclosed, which provides additional background on our approach to consultation, and the proposed activities including summaries of potential key impacts and risks and associated management measures. This is also available on our website at www.woodside.com/what-we-do/consultation-activities.

Activity and location summary

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Water depth	73 m - 1,185 m
Timing	Late December 2026 to early February 2027. As a contingency the EP covers the same period the subsequent year (i.e. Q4 2027 to Q1 2028).
Duration	• Approximately 40 days, which includes weather downtime and technical standby. • The survey data will be acquired over a 24-hour period, subject to required shutdowns.
Vessels	Key vessels include, but are not limited to: • A purpose-built seismic survey vessel. • A support vessel to provide logistical and operational support to the survey vessel. • A chase vessel to assist with survey operations and to manage interactions with third party vessels, as required.
Operational Area, Active Source Area and Survey Acquisition Area	• The Operational Area is approximately 3,860 km². Within the Operational Area are two smaller areas defined as: – An Active Source Area (ASA) of approximately 1,540 km², which is the maximum potential area within which seismic acoustic emissions may occur for the purpose of acquiring the survey data, including soft starts and source testing. – A Survey Acquisition Area (SAA) of approximately 780 km², which is the area within which seismic recording will occur for the purposes of acquiring data for sub surface imaging. • The Operational Area includes a 15 km buffer around the SAA that has been extended to 20 km north and south for the purpose of vessel manoeuvring.
Communication with mariners	• Marine notices will be issued prior to the commencement of activities within the Operational Area. • Other marine users are permitted to use the Operational Area. • A three nautical mile (3nm) radius safe navigation area will be in place around the survey vessel and towed equipment.

Environment that May Be Affected (EMBA)

The EMBA is the largest geographic area where an unplanned event could potentially have an environmental consequence. The broadest extent of the EMBA takes into consideration planned activities and unplanned events. The EMBA has been developed combining numerous modelling outputs based on highly unlikely releases of hydrocarbons to the environment. The modelling scenario that informs the EMBA is a vessel collision.

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Feedback

If you have feedback specific to the proposed activities, we welcome your feedback via email at consultation@feedback.woodside.com, via phone call at 1800 442 977 or via the feedback form at www.woodside.com/what-we-do/consultation-activities by **24 October 2025**. Alternatively, Woodside is willing to consider and accept your feedback via a means which suit you.

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You may request that particular information you provide during consultation not be published in the Environment Plan made available on the NOPSEMA website. Please let us know if you request that particular information not be published, and we will make your request known to NOPSEMA.

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Regards

Woodside Energy Consultation

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www.woodside.com

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6.1.20 Email sent to Australian Institute of Marine Science (AIMS), Western Australian Marine Science Institute (WAMSI), University of Western Australia (UWA), Murdoch University, Edith Cowan University, Commonwealth Scientific and Industrial Research Organisation (CSIRO), Curtin University, – 8 September 2025

Woodside is planning to submit the Pluto 4D M3 Marine Seismic Survey Environment Plan (EP). The Pluto 4D M3 (Monitor 3) Marine Seismic Survey (MSS) overlaps Petroleum Licence Area WA-34-L and WA-1-IL and other titleholders' adjacent Petroleum Licence Areas (described below), within Commonwealth waters approximately 28 km north-west of the Montebello Islands and 150 km north-west of Dampier.

If you would like to comment on the proposed activity, please provide feedback to Woodside by 24 October 2025 using the details below.

Overview

The Pluto 4D M3 MSS EP covers:

- Seismic data acquisition using a seismic survey vessel towing an acoustic source array and hydrophone cables (streamers).
- Support operations from a support vessel and chase vessel.

This four-dimensional (4D) MSS is a time-lapse monitor survey which forms part of the ongoing reservoir management and surveillance program for the Pluto reservoir. To obtain time lapse data, the seismic survey replicates as accurately as possible previous Pluto monitor surveys, undertaken in 2016 and 2020. This new seismic data is then compared to the previous data to observe subtle differences in fluid movement and pressure changes both within and surrounding the reservoir.

Consultation information

A Consultation Information Sheet is attached, which provides additional background on our approach to consultation, and the proposed activities including summaries of key impacts and risks and associated management measures. This is also available on our website.

Woodside is seeking your advice regarding any research activities that your institution may be undertaking that may overlap with our proposed activities.

Activity and location summary

Pluto 4D M3 Marine Seismic Survey Environment Plan	
Activity details	The proposed activity involves acquiring 4D seismic data using an acoustic source (dual array) and 12 solid streamers towed behind a survey vessel. The proposed activity is typical of seismic surveys conducted In Australian marine waters, in terms of technical methods and procedures.
Titles	Operational Area consists of: • Production/ infrastructure licences WA-34-L, WA-1-IL and pipeline licences WA-16-PL and WA-17-PL. • Other titleholders' licence areas that overlap the Operational Area (that may be subject to Access Authority and Special Prospecting Authority): WA-3-IL, WA-49-L, WA-550-P, WA-554-P, WA-536- P, WA-46-L, WA-47-L, WA-48-L, WA-76-R, WA-5-R, WA-15-R WA-21-R, WA-23-R, WA-26-PL, WA-29-PL, WA-32-PL and WA-25-PL.

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Location	In Commonwealth waters, approximately 28 km north-west of the Montebello Islands and 150 km north-west of Dampier.
Water depth	73 m - 1,185 m
Timing	Late December 2026 to early February 2027. As a contingency the EP covers the same period the subsequent year (i.e. Q4 2027 to Q1 2028).
Duration	• Approximately 40 days, which includes weather downtime and technical standby. • The survey data will be acquired over a 24-hour period, subject to required shutdowns.
Vessels	Key vessels include, but are not limited to: • A purpose-built seismic survey vessel. • A support vessel to provide logistical and operational support to the survey vessel. • A chase vessel to assist with survey operations and to manage interactions with third party vessels, as required.
Operational Area, Active Source Area and Survey Acquisition Area	• The Operational Area is approximately 3,860 km2. Within the Operational Area are two smaller areas defined as: 1. An Active Source Area (ASA) of approximately 1,540 km2, which is the maximum potential area within which seismic acoustic emissions may occur for the purpose of acquiring the survey data, including soft starts and source testing. 2. A Survey Acquisition Area (SAA) of approximately 780 km2, which is the area within which seismic recording will occur for the purposes of acquiring data for sub surface imaging. • The Operational Area includes a 15 km buffer around the SAA that has been extended to 20 km north and south for the purpose of vessel manoeuvring.
Communication with mariners	• Marine notices will be issued prior to the commencement of activities within the Operational Area. • Other marine users are permitted to use the Operational Area. • A three nautical mile (3nm) radius safe navigation area will be in place around the survey vessel and towed equipment.

Environment that May Be Affected (EMBA)

The EMBA is the largest geographic area where an unplanned event could potentially have an environmental consequence. The broadest extent of the EMBA takes into consideration planned activities and unplanned events. The EMBA has been developed combining numerous modelling outputs based on highly unlikely releases of hydrocarbons to the environment. The modelling scenario that informs the EMBA is a vessel collision.

The EMBA does not represent the extent of the predicted impact of a highly unlikely hydrocarbon release. Rather, the EMBA represents the merged area of many possible paths that a highly unlikely hydrocarbon release could travel, which depends on the weather and ocean conditions at the time of a release. This

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means that in the highly unlikely event that a hydrocarbon release does occur, the whole EMBA will not be affected. The specific and minimal part of the EMBA that is affected will only be known if there is a release.

Feedback

If you have feedback specific to the proposed activities, we welcome your feedback via email at consultation@feedback.woodside.com, via phone call at 1800 442 977 or via the feedback form on our website by **24 October 2025**. Alternatively, Woodside is willing to consider and accept your feedback via a means which suits you.

Your feedback and our response will be included in our EP, which will be submitted to the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA) for acceptance in accordance with the *Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2023 (Cth*). Your feedback may also be used to support other regulatory processes associated with the planned activities (which may or may not be confidential).

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Regards

Woodside Energy Consultation

6.1.21 Email sent to Department of Climate Change, Energy, the Environment and Water (DCCEEW) – 8 September 2025

Woodside is planning to submit the Pluto 4D M3 Marine Seismic Survey Environment Plan (EP). The Pluto 4D M3 (Monitor 3) Marine Seismic Survey (MSS) overlaps Petroleum Licence Area WA-34-L and WA-1-IL and other titleholders' adjacent Petroleum Licence Areas (described below), within Commonwealth waters approximately 28 km north-west of the Montebello Islands and 150 km north-west of Dampier.

If you would like to comment on the proposed activity, please provide feedback to Woodside by 24 October 2025 using the details below.

Overview

The Pluto 4D M3 MSS EP covers:

- Seismic data acquisition using a seismic survey vessel towing an acoustic source array and hydrophone cables (streamers).
- Support operations from a support vessel and chase vessel.

This four-dimensional (4D) MSS is a time-lapse monitor survey which forms part of the ongoing reservoir management and surveillance program for the Pluto reservoir. To obtain time lapse data, the seismic survey replicates as accurately as possible previous Pluto monitor surveys, undertaken in 2016 and 2020. This new seismic data is then compared to the previous data to observe subtle differences in fluid movement and pressure changes both within and surrounding the reservoir.

Consultation information

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A Consultation Information Sheet is attached, which provides additional background on our approach to consultation, and the proposed activities including summaries of key impacts and risks and associated management measures. This is also available on our website.

Please also find attached the details of Commonwealth shipwrecks that are relevant for this EP.

Activity and location summary

Pluto 4D M3 Marine Seismic Survey Environment Plan	
Activity details	The proposed activity involves acquiring 4D seismic data using an acoustic source (dual array) and 12 solid streamers towed behind a survey vessel. The proposed activity is typical of seismic surveys conducted In Australian marine waters, in terms of technical methods and procedures.
Titles	Operational Area consists of: • Production/ infrastructure licences WA-34-L, WA-1-IL and pipeline licences WA-16-PL and WA-17-PL. • Other titleholders' licence areas that overlap the Operational Area (that may be subject to Access Authority and Special Prospecting Authority): WA-3-IL, WA-49-L, WA-550-P, WA-554-P, WA-536- P, WA-46-L, WA-47-L, WA-48-L, WA-76-R, WA-5-R, WA-15-R WA-21-R, WA-23-R, WA-26-PL, WA-29-PL, WA-32-PL and WA-25-PL.
Location	In Commonwealth waters, approximately 28 km north-west of the Montebello Islands and 150 km north-west of Dampier.
Water depth	73 m - 1,185 m
Timing	Late December 2026 to early February 2027. As a contingency the EP covers the same period the subsequent year (i.e. Q4 2027 to Q1 2028).
Duration	• Approximately 40 days, which includes weather downtime and technical standby. • The survey data will be acquired over a 24-hour period, subject to required shutdowns.
Vessels	Key vessels include, but are not limited to: • A purpose-built seismic survey vessel. • A support vessel to provide logistical and operational support to the survey vessel. • A chase vessel to assist with survey operations and to manage interactions with third party vessels, as required.

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Operational Area, Active Source Area and Survey Acquisition Area	• The Operational Area is approximately 3,860 km2. Within the Operational Area are two smaller areas defined as: 1. An Active Source Area (ASA) of approximately 1,540 km2, which is the maximum potential area within which seismic acoustic emissions may occur for the purpose of acquiring the survey data, including soft starts and source testing. 2. A Survey Acquisition Area (SAA) of approximately 780 km2, which is the area within which seismic recording will occur for the purposes of acquiring data for sub surface imaging. • The Operational Area includes a 15 km buffer around the SAA that has been extended to 20 km north and south for the purpose of vessel manoeuvring.
Communication with mariners	• Marine notices will be issued prior to the commencement of activities within the Operational Area. • Other marine users are permitted to use the Operational Area. • A three nautical mile (3nm) radius safe navigation area will be in place around the survey vessel and towed equipment.

Environment that May Be Affected (EMBA)

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Feedback

If you have feedback specific to the proposed activities, we welcome your feedback via email at consultation@feedback.woodside.com, via phone call at 1800 442 977 or via the feedback form on our website by **24 October 2025**. Alternatively, Woodside is willing to consider and accept your feedback via a means which suits you.

Your feedback and our response will be included in our EP, which will be submitted to the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA) for acceptance in accordance with the *Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2023 (Cth*). Your feedback may also be used to support other regulatory processes associated with the planned activities (which may or may not be confidential).

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Regards

Woodside Energy Consultation

6.1.22 Email sent to Department of Planning, Lands and Heritage (DPLH) – 8 September 2025

Woodside is planning to submit the Pluto 4D M3 Marine Seismic Survey Environment Plan (EP). The Pluto 4D M3 (Monitor 3) Marine Seismic Survey (MSS) overlaps Petroleum Licence Area WA-34-L and WA-1-IL and other titleholders' adjacent Petroleum Licence Areas (described below), within Commonwealth waters approximately 28 km north-west of the Montebello Islands and 150 km north-west of Dampier.

If you would like to comment on the proposed activity, please provide feedback to Woodside by 24 October 2025 using the details below.

Overview

The Pluto 4D M3 MSS EP covers:

- Seismic data acquisition using a seismic survey vessel towing an acoustic source array and hydrophone cables (streamers).
- Support operations from a support vessel and chase vessel.

This four-dimensional (4D) MSS is a time-lapse monitor survey which forms part of the ongoing reservoir management and surveillance program for the Pluto reservoir. To obtain time lapse data, the seismic survey replicates as accurately as possible previous Pluto monitor surveys, undertaken in 2016 and 2020. This new seismic data is then compared to the previous data to observe subtle differences in fluid movement and pressure changes both within and surrounding the reservoir.

Consultation information

A Consultation Information Sheet is attached, which provides additional background on our approach to consultation, and the proposed activities including summaries of key impacts and risks and associated management measures. This is also available on our website.

Please also find attached the details of WA shipwrecks that are relevant for this EP.

Given the proximity of the proposed activities to Marine Parks, Woodside is consulting with the Department of Biodiversity, Conservation and Attractions (DBCA) for this EP. Woodside is also consulting with the Western Australian Museum and has provided it with relevant shipwreck information for this EP.

Activity and location summary

Pluto 4D M3 Marine Seismic Survey Environment Plan	
Activity details	The proposed activity involves acquiring 4D seismic data using an acoustic source (dual array) and 12 solid streamers towed behind a survey vessel. The proposed activity is typical of seismic surveys conducted In Australian marine waters, in terms of technical methods and procedures.
Titles	• Operational Area consists of: • Production/ infrastructure licences WA-34-L, WA-1-IL and pipeline licences WA-16-PL and WA-17-PL. • Other titleholders' licence areas that overlap the Operational Area (that may be subject to Access Authority and Special Prospecting Authority): WA-3-IL, WA-49-L, WA-550-P, WA-554-P, WA-536- P,

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	WA-46-L, WA-47-L, WA-48-L, WA-76-R, WA-5-R, WA-15-R WA-21-R, WA-23-R, WA-26-PL, WA-29-PL, WA-32-PL and WA-25-PL.
Location	In Commonwealth waters, approximately 28 km north-west of the Montebello Islands and 150 km north-west of Dampier.
Water depth	73 m - 1,185 m
Timing	Late December 2026 to early February 2027. As a contingency the EP covers the same period the subsequent year (i.e. Q4 2027 to Q1 2028).
Duration	• Approximately 40 days, which includes weather downtime and technical standby. • The survey data will be acquired over a 24-hour period, subject to required shutdowns.
Vessels	Key vessels include, but are not limited to: • A purpose-built seismic survey vessel. • A support vessel to provide logistical and operational support to the survey vessel. • A chase vessel to assist with survey operations and to manage interactions with third party vessels, as required.
Operational Area, Active Source Area and Survey Acquisition Area	• The Operational Area is approximately 3,860 km2. Within the Operational Area are two smaller areas defined as: 1. An Active Source Area (ASA) of approximately 1,540 km2, which is the maximum potential area within which seismic acoustic emissions may occur for the purpose of acquiring the survey data, including soft starts and source testing. 2. A Survey Acquisition Area (SAA) of approximately 780 km2, which is the area within which seismic recording will occur for the purposes of acquiring data for sub surface imaging. • The Operational Area includes a 15 km buffer around the SAA that has been extended to 20 km north and south for the purpose of vessel manoeuvring.
Communication with mariners	• Marine notices will be issued prior to the commencement of activities within the Operational Area. • Other marine users are permitted to use the Operational Area. • A three nautical mile (3nm) radius safe navigation area will be in place around the survey vessel and towed equipment.

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Regards

Woodside Energy Consultation

6.1.23 Email sent to Western Australian Museum (WAM) – 8 September 2025

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Overview

The Pluto 4D M3 MSS EP covers:

- Seismic data acquisition using a seismic survey vessel towing an acoustic source array and hydrophone cables (streamers).
- Support operations from a support vessel and chase vessel.

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Consultation information

A Consultation Information Sheet is attached, which provides additional background on our approach to consultation, and the proposed activities including summaries of key impacts and risks and associated management measures. This is also available on our website.

Please also find attached the details of WA shipwrecks that are relevant for this EP.

As per the *Underwater Cultural Heritage Act 2018 (Cwth)*, Woodside will contact the Commonwealth regulator, the Department of Climate Change, Energy, the Environment and Water (DCCEEW), regarding this EP.

Woodside also refers to the Commonwealth Government's (2024) Assessing and Managing Impacts to Underwater Cultural Heritage in Australian Waters: Guidelines on the application of the *Underwater Cultural Heritage Act* 2018.

Activity and location summary

Pluto 4D M3 Marine Seismic Survey Environment Plan	
Activity details	The proposed activity involves acquiring 4D seismic data using an acoustic source (dual array) and 12 solid streamers towed behind a survey vessel. The proposed activity is typical of seismic surveys conducted In Australian marine waters, in terms of technical methods and procedures.
Titles	• Operational Area consists of: • Production/ infrastructure licences WA-34-L, WA-1-IL and pipeline licences WA-16-PL and WA-17-PL. • Other titleholders' licence areas that overlap the Operational Area (that may be subject to Access Authority and Special Prospecting Authority): WA-3-IL, WA-49-L, WA-550-P, WA-554-P, WA-536- P, WA-46-L, WA-47-L, WA-48-L, WA-76-R, WA-5-R, WA-15-R WA-21-R, WA-23-R, WA-26-PL, WA-29-PL, WA-32-PL and WA-25-PL.
Location	In Commonwealth waters, approximately 28 km north-west of the Montebello Islands and 150 km north-west of Dampier.
Water depth	73 m - 1,185 m
Timing	Late December 2026 to early February 2027. As a contingency the EP covers the same period the subsequent year (i.e. Q4 2027 to Q1 2028).
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Operational Area, Active Source Area and Survey Acquisition Area	• The Operational Area is approximately 3,860 km2. Within the Operational Area are two smaller areas defined as: 1. An Active Source Area (ASA) of approximately 1,540 km2, which is the maximum potential area within which seismic acoustic emissions may occur for the purpose of acquiring the survey data, including soft starts and source testing. 2. A Survey Acquisition Area (SAA) of approximately 780 km2, which is the area within which seismic recording will occur for the purposes of acquiring data for sub surface imaging. • The Operational Area includes a 15 km buffer around the SAA that has been extended to 20 km north and south for the purpose of vessel manoeuvring.
Communication with mariners	• Marine notices will be issued prior to the commencement of activities within the Operational Area. • Other marine users are permitted to use the Operational Area. • A three nautical mile (3nm) radius safe navigation area will be in place around the survey vessel and towed equipment.

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Your feedback and our response will be included in our EP, which will be submitted to the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA) for acceptance in accordance with

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the *Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2023 (Cth*). Your feedback may also be used to support other regulatory processes associated with the planned activities (which may or may not be confidential).

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Regards

Woodside Energy Consultation

6.1.24 Email sent to Shire of Ashburton – 8 September 2025

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If you would like to comment on the proposed activity, please provide feedback to Woodside by 24 October 2025 using the details below.

Overview

The Pluto 4D M3 MSS EP covers:

- Seismic data acquisition using a seismic survey vessel towing an acoustic source array and hydrophone cables (streamers).
- Support operations from a support vessel and chase vessel.

This four-dimensional (4D) MSS is a time-lapse monitor survey which forms part of the ongoing reservoir management and surveillance program for the Pluto reservoir. To obtain time lapse data, the seismic survey replicates as accurately as possible previous Pluto monitor surveys, undertaken in 2016 and 2020. This new seismic data is then compared to the previous data to observe subtle differences in fluid movement and pressure changes both within and surrounding the reservoir.

Consultation information

A Consultation Information Sheet is attached, which provides additional background on our approach to consultation, and the proposed activities including summaries of key impacts and risks and associated management measures. This is also available on our website.

Activity and location summary

Pluto 4D M3 Marine Seismic Survey Environment Plan	
Activity details	The proposed activity involves acquiring 4D seismic data using an acoustic source (dual array) and 12 solid streamers towed behind a survey vessel. The proposed activity is typical of seismic surveys conducted In Australian marine waters, in terms of technical methods and procedures.

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Titles	• Operational Area consists of: • Production/ infrastructure licences WA-34-L, WA-1-IL and pipeline licences WA-16-PL and WA-17-PL. • Other titleholders' licence areas that overlap the Operational Area (that may be subject to Access Authority and Special Prospecting Authority): WA-3-IL, WA-49-L, WA-550-P, WA-554-P, WA-536- P, WA-46-L, WA-47-L, WA-48-L, WA-76-R, WA-5-R, WA-15-R WA-21-R, WA-23-R, WA-26-PL, WA-29-PL, WA-32-PL and WA-25-PL.
Location	In Commonwealth waters, approximately 28 km north-west of the Montebello Islands and 150 km north-west of Dampier.
Water depth	73 m - 1,185 m
Timing	Late December 2026 to early February 2027. As a contingency the EP covers the same period the subsequent year (i.e. Q4 2027 to Q1 2028).
Duration	• Approximately 40 days, which includes weather downtime and technical standby. • The survey data will be acquired over a 24-hour period, subject to required shutdowns.
Vessels	Key vessels include, but are not limited to: • A purpose-built seismic survey vessel. • A support vessel to provide logistical and operational support to the survey vessel. • A chase vessel to assist with survey operations and to manage interactions with third party vessels, as required.
Operational Area, Active Source Area and Survey Acquisition Area	• The Operational Area is approximately 3,860 km2. Within the Operational Area are two smaller areas defined as: 1. An Active Source Area (ASA) of approximately 1,540 km2, which is the maximum potential area within which seismic acoustic emissions may occur for the purpose of acquiring the survey data, including soft starts and source testing. 2. A Survey Acquisition Area (SAA) of approximately 780 km2, which is the area within which seismic recording will occur for the purposes of acquiring data for sub surface imaging. • The Operational Area includes a 15 km buffer around the SAA that has been extended to 20 km north and south for the purpose of vessel manoeuvring.
Communication with mariners	• Marine notices will be issued prior to the commencement of activities within the Operational Area. • Other marine users are permitted to use the Operational Area. • A three nautical mile (3nm) radius safe navigation area will be in place around the survey vessel and towed equipment.

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Environment that May Be Affected (EMBA)

The EMBA is the largest geographic area where an unplanned event could potentially have an environmental consequence. The broadest extent of the EMBA takes into consideration planned activities and unplanned events. The EMBA has been developed combining numerous modelling outputs based on highly unlikely releases of hydrocarbons to the environment. The modelling scenario that informs the EMBA is a vessel collision.

The EMBA does not represent the extent of the predicted impact of a highly unlikely hydrocarbon release. Rather, the EMBA represents the merged area of many possible paths that a highly unlikely hydrocarbon release could travel, which depends on the weather and ocean conditions at the time of a release. This means that in the highly unlikely event that a hydrocarbon release does occur, the whole EMBA will not be affected. The specific and minimal part of the EMBA that is affected will only be known if there is a release.

Woodside is required to manage environmental impacts and risks to the EMBA by its proposed activities to As Low As Reasonably Practicable (ALARP) and to an acceptable level, as required by the Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2023 (Environment Regulations), through the implementation of the EP. Woodside will submit the proposed EP to the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA).

Preparedness and Response

In the course of developing the EP, Woodside will develop the oil spill preparedness and response position tailored to this activity including the drafting of the Oil Pollution First Strike Plan which details the potential impacts, notifications and response mitigations that may be executed to manage an emergency event. Woodside consults with the relevant jurisdictional authorities and controlling agencies, including the Western Australian Department of Transport and Major Infrastructure (DTMI), the Australian Maritime Safety Agency (AMSA) and, in some circumstances, relevant port authorities, during the plan drafting process to inform mitigation management measures in place for the proposed activities. Woodside may also consult with other relevant external emergency management agencies, including LEMC, to ensure emergency management plans are aligned with effective outcomes.

In addition to the jurisdictional authorities and controlling agencies, the plan includes standard emergency notifications to agencies including NOPSEMA, the Department of Climate Change, Energy, the Environment and Water (DCCEEW), the Director of National Parks (DNP), and the WA Department of Biodiversity, Conservation and Attractions (DBCA). Where applicable, notification information for relevant Shires is also included in the Oil Pollution First Strike Plan.

Cultural heritage

Woodside routinely utilises the Department of Planning, Land and Heritage Aboriginal Cultural Heritage Inquiry System as part of the EP development process and includes the results of these inquiry system searches as an appendix to each EP.

Feedback

If you have feedback specific to the proposed activities, we welcome your feedback via email at consultation@feedback.woodside.com, via phone call at 1800 442 977 or via the feedback form on our website by **24 October 2025**. Alternatively, Woodside is willing to consider and accept your feedback via a means which suits you.

Your feedback and our response will be included in our EP, which will be submitted to the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA) for acceptance in accordance with the *Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2023 (Cth*). Your feedback may also be used to support other regulatory processes associated with the planned activities (which may or may not be confidential).

You may request that particular information you provide during consultation not be published in the EP made available on the NOPSEMA website. Please let us know if you request that particular information not be published, and we will make your request known to NOPSEMA.

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NOPSEMA has published the brochure *Consultation on offshore petroleum environment plans – Information for the Community* to help community members understand consultation requirements for Commonwealth EPs and how to participate in consultation.

Personal information collected in the course of consultation will be handled in accordance with Woodside's Environment Plan Privacy Collection Notice. To understand how personal information will be handled, please visit our website.

Regards

Woodside Energy Consultation

6.1.25 Email sent to Western Australian Fishing Industry Council (WAFIC) – 8 September 2025

Please see below consultation information for the Pluto 4D M3 Marine Seismic Survey Environment Plan. The consultation period is due to close on 24 October 2025.

A Consultation Information Sheet is also attached.

Under the fee-for-service agreement, can WAFIC please provide the consultation information to the following fisheries based on active fishing (Fishcube data) in the Operational Area:

- Mackerel Managed Fishery (Area 2)
- Marine Aquarium Fish Managed Fishery
- Onslow Prawn Managed Fishery
- Pilbara Trap Managed Fishery
- Pilbara Line Fishery (Condition)
- West Coast Deep Sea Crustacean Managed Fishery

Following our meeting on 1 July 2025, Woodside would like to meet again with WAFIC to further discuss this EP. Please let us know if this is convenient and we will make arrangements.

Draft email for WAFIC to send to Individual Licence Holders

Dear Licence Holders

Woodside is planning to submit the Pluto 4D M3 Marine Seismic Survey Environment Plan (EP). The Pluto 4D M3 (Monitor 3) Marine Seismic Survey (MSS) overlaps Petroleum Licence Area WA-34-L and WA-1-IL and other titleholders' adjacent Petroleum Licence Areas (described below), within Commonwealth waters approximately 28 km north-west of the Montebello Islands and 150 km north-west of Dampier.

If you would like to comment on the proposed activity, please provide feedback to Woodside by 24 October 2025 using the details below.

Overview

The Pluto 4D M3 MSS EP covers:

- Seismic data acquisition using a seismic survey vessel towing an acoustic source array and hydrophone cables (streamers).
- Support operations from a support vessel and chase vessel.

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This four-dimensional (4D) MSS is a time-lapse monitor survey which forms part of the ongoing reservoir management and surveillance program for the Pluto reservoir. To obtain time lapse data, the seismic survey replicates as accurately as possible previous Pluto monitor surveys, undertaken in 2016 and 2020. This new seismic data is then compared to the previous data to observe subtle differences in fluid movement and pressure changes both within and surrounding the reservoir.

Consultation information

The table below provides a summary of the proposed activities under this EP. The attached Consultation Information Sheet provides additional information including a map of impacted areas, summaries of potential impacts and risks relating to the proposed activities, and associated management measures. This is also available on Woodside's website.

Activity and location summary

Pluto 4D M3 Marine Seismic Survey Environment Plan	
Activity details	The proposed activity involves acquiring 4D seismic data using an acoustic source (dual array) and 12 solid streamers towed behind a survey vessel. The proposed activity is typical of seismic surveys conducted In Australian marine waters, in terms of technical methods and procedures.
Titles	Operational Area consists of: • Production/ infrastructure licences WA-34-L, WA-1-IL and pipeline licences WA-16-PL and WA-17-PL. • Other titleholders' licence areas that overlap the Operational Area (that may be subject to Access Authority and Special Prospecting Authority): WA-3-IL, WA-49-L, WA-550-P, WA-554-P, WA-536- P, WA-46-L, WA-47-L, WA-48-L, WA-76-R, WA-5-R, WA-15-R WA-21-R, WA-23-R, WA-26-PL, WA-29-PL, WA-32-PL and WA-25-PL.
Location	In Commonwealth waters, approximately 28 km north-west of the Montebello Islands and 150 km north-west of Dampier.
Water depth	73 m - 1,185 m
Timing	Late December 2026 to early February 2027. As a contingency the EP covers the same period the subsequent year (i.e. Q4 2027 to Q1 2028).
Duration	• Approximately 40 days, which includes weather downtime and technical standby. • The survey data will be acquired over a 24-hour period, subject to required shutdowns.
Vessels	Key vessels include, but are not limited to: • A purpose-built seismic survey vessel. • A support vessel to provide logistical and operational support to the survey vessel. • A chase vessel to assist with survey operations and to manage interactions with third party vessels, as required.

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Operational Area, Active Source Area and Survey Acquisition Area	• The Operational Area is approximately 3,860 km2. Within the Operational Area are two smaller areas defined as: 1. An Active Source Area (ASA) of approximately 1,540 km2, which is the maximum potential area within which seismic acoustic emissions may occur for the purpose of acquiring the survey data, including soft starts and source testing. 2. A Survey Acquisition Area (SAA) of approximately 780 km2, which is the area within which seismic recording will occur for the purposes of acquiring data for sub surface imaging. • The Operational Area includes a 15 km buffer around the SAA that has been extended to 20 km north and south for the purpose of vessel manoeuvring.
Communication with mariners	• Marine notices will be issued prior to the commencement of activities within the Operational Area. • Other marine users are permitted to use the Operational Area. • A three nautical mile (3nm) radius safe navigation area will be in place around the survey vessel and towed equipment.

Potential impacts to fisheries

Modelling of underwater noise emissions from the seismic acoustic source for the proposed survey has been used to inform the potential impacts on sensitive receptors, including fish and crustacean species targeted by commercial fisheries.

The size of the Operational Area (3860 km2) represents a very small portion of the overall area of the commercial fisheries identified as overlapping it. Predicted noise emissions are not considered likely to cause injury or permanent hearing impairment for any commercial species that may be present within or adjacent to the Active Source Area during the proposed survey. Impacts to fish species will be restricted to temporary behavioural changes (e.g. avoidance, startle or alarm responses or change in swim speed) in individuals that are in close proximity to the operating seismic acoustic source. Predicted noise emissions are not anticipated to expose crustaceans, such as prawns, to noise levels that would result in adverse impact or viability of catch.

It should be noted that the survey vessel will be moving continuously when acquiring seismic data which limits the exposure of commercial species in close proximity to the operating seismic acoustic source to a very short duration such that injury or impairment are not considered likely.

The potential impacts of noise emissions from the seismic acoustic source on commercial species are considered to be localised and of no lasting effect. Impacts to the recruitment of key commercial species, including fish and crustaceans due underwater noise emissions from the proposed survey are not predicted.

Notifications

Please let WAFIC know if you require notification prior to and on completion of the proposed activities.

Feedback

Please provide feedback specific to the proposed activities described to [Individual 2] by 24 October 2025.

Your feedback and our response will be included in our EP, which will be submitted to the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA) for acceptance in accordance with the Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2023 (Cth). Your feedback may also be used to support other regulatory processes associated with the planned activities (which may or may not be confidential).

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6.1.26 Email sent to Mackerel Managed Fishery individual licence holders, Marine Aquarium Managed Fishery individual licence holders, Onslow Prawn Managed Fishery individual licence holders, Pilbara Line Fishery individual licence holders, Pilbara Trap Fishery individual licence holders, West Coast Deep Sea Crustacean Managed Fishery individual licence holders - 10 September 2025

Dear Licence Holders,

Woodside is planning to submit the **Pluto 4D M3 Marine Seismic Survey Environment Plan (EP)**. The Pluto 4D M3 (Monitor 3) Marine Seismic Survey (MSS) overlaps Petroleum Licence Area WA-34-L and WA-1-IL and other titleholders' adjacent Petroleum Licence Areas (described below), within Commonwealth waters approximately 28 km north-west of the Montebello Islands and 150 km north-west of Dampier.

If you would like to comment on the proposed activity, please provide feedback to Woodside by 24 October 2025 using the details below.

Overview

The Pluto 4D M3 MSS EP covers:

- Seismic data acquisition using a seismic survey vessel towing an acoustic source array and hydrophone cables (streamers).
- Support operations from a support vessel and chase vessel.

This four-dimensional (4D) MSS is a time-lapse monitor survey which forms part of the ongoing reservoir management and surveillance program for the Pluto reservoir. To obtain time lapse data, the seismic survey replicates as accurately as possible previous Pluto monitor surveys, undertaken in 2016 and 2020. This new seismic data is then compared to the previous data to observe subtle differences in fluid movement and pressure changes both within and surrounding the reservoir.

Consultation information

The table below provides a summary of the proposed activities under this EP. The attached Consultation Information Sheet provides additional information including a map of impacted areas, summaries of potential impacts and risks relating to the proposed activities, and associated management measures. This is also available on Woodside's website.

Activity and location summary

Pluto 4D M3 Marine Seismic Survey Environment Plan	
Activity details	The proposed activity involves acquiring 4D seismic data using an acoustic source (dual array) and 12 solid streamers towed behind a survey vessel. The proposed activity is typical of seismic surveys conducted In Australian marine waters, in terms of technical methods and procedures.

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Titles	Operational Area consists of: • Production/ infrastructure licences WA-34-L, WA-1-IL and pipeline licences WA-16-PL and WA-17-PL. • Other titleholders' licence areas that overlap the Operational Area (that may be subject to Access Authority and Special Prospecting Authority): WA-3-IL, WA-49-L, WA-550-P, WA-554-P, WA-536- P, WA-46-L, WA-47-L, WA-48-L, WA-76-R, WA-5-R, WA-15-R WA-21-R, WA-23-R, WA-26-PL, WA-29-PL, WA-32-PL and WA-25-PL.
Location	In Commonwealth waters, approximately 28 km north-west of the Montebello Islands and 150 km north-west of Dampier.
Water depth	73 m - 1,185 m
Timing	Late December 2026 to early February 2027. As a contingency the EP covers the same period the subsequent year (i.e. Q4 2027 to Q1 2028).
Duration	• Approximately 40 days, which includes weather downtime and technical standby. • The survey data will be acquired over a 24-hour period, subject to required shutdowns.
Vessels	Key vessels include, but are not limited to: • A purpose-built seismic survey vessel. • A support vessel to provide logistical and operational support to the survey vessel. • A chase vessel to assist with survey operations and to manage interactions with third party vessels, as required.
Operational Area, Active Source Area and Survey Acquisition Area	• The Operational Area is approximately 3,860 km2. Within the Operational Area are two smaller areas defined as: 1. An Active Source Area (ASA) of approximately 1,540 km2, which is the maximum potential area within which seismic acoustic emissions may occur for the purpose of acquiring the survey data, including soft starts and source testing. 2. A Survey Acquisition Area (SAA) of approximately 780 km2, which is the area within which seismic recording will occur for the purposes of acquiring data for sub surface imaging. • The Operational Area includes a 15 km buffer around the SAA that has been extended to 20 km north and south for the purpose of vessel manoeuvring.
Communication with mariners	• Marine notices will be issued prior to the commencement of activities within the Operational Area. • Other marine users are permitted to use the Operational Area. • A three nautical mile (3nm) radius safe navigation area will be in place around the survey vessel and towed equipment.

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Potential impacts to fisheries

Modelling of underwater noise emissions from the seismic acoustic source for the proposed survey has been used to inform the potential impacts on sensitive receptors, including fish and crustacean species targeted by commercial fisheries.

The size of the Operational Area (3860 km2) represents a very small portion of the overall area of the commercial fisheries identified as overlapping it. Predicted noise emissions are not considered likely to cause injury or permanent hearing impairment for any commercial species that may be present within or adjacent to the Active Source Area during the proposed survey. Impacts to fish species will be restricted to temporary behavioural changes (e.g. avoidance, startle or alarm responses or change in swim speed) in individuals that are in close proximity to the operating seismic acoustic source. Predicted noise emissions are not anticipated to expose crustaceans, such as prawns, to noise levels that would result in adverse impact or viability of catch.

It should be noted that the survey vessel will be moving continuously when acquiring seismic data which limits the exposure of commercial species in close proximity to the operating seismic acoustic source to a very short duration such that injury or impairment are not considered likely.

The potential impacts of noise emissions from the seismic acoustic source on commercial species are considered to be localised and of no lasting effect. Impacts to the recruitment of key commercial species, including fish and crustaceans due underwater noise emissions from the proposed survey are not predicted.

Notifications

Please let WAFIC know if you require notification prior to and on completion of the proposed activities.

Feedback

Please provide feedback specific to the proposed activities described to [Individual 2] @wafic.org.au by 24 October 2025.

Your feedback and our response will be included in our EP, which will be submitted to the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA) for acceptance in accordance with the Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2023 (Cth). Your feedback may also be used to support other regulatory processes associated with the planned activities (which may or may not be confidential).

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6.1.27 Email sent to Aquaculture Council of Western Australia (ACWA) – 8 September 2025

Woodside is planning to submit the Pluto 4D M3 Marine Seismic Survey Environment Plan (EP). The Pluto 4D M3 (Monitor 3) Marine Seismic Survey (MSS) overlaps Petroleum Licence Area WA-34-L and WA-1-IL and other titleholders' adjacent Petroleum Licence Areas (described below), within Commonwealth waters approximately 28 km north-west of the Montebello Islands and 150 km north-west of Dampier.

If you would like to comment on the proposed activity, please provide feedback to Woodside by 24 October 2025 using the details below.

Overview

The Pluto 4D M3 MSS EP covers:

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- Seismic data acquisition using a seismic survey vessel towing an acoustic source array and hydrophone cables (streamers).
- Support operations from a support vessel and chase vessel.

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Consultation information

A Consultation Information Sheet is attached, which provides additional background on our approach to consultation, and the proposed activities including summaries of key impacts and risks and associated management measures. This is also available on our website.

Activity and location summary

Pluto 4D M3 Marine Seismic Survey Environment Plan	
Activity details	The proposed activity involves acquiring 4D seismic data using an acoustic source (dual array) and 12 solid streamers towed behind a survey vessel. The proposed activity is typical of seismic surveys conducted In Australian marine waters, in terms of technical methods and procedures.
Titles	Operational Area consists of: • Production/ infrastructure licences WA-34-L, WA-1-IL and pipeline licences WA-16-PL and WA-17-PL. • Other titleholders' licence areas that overlap the Operational Area (that may be subject to Access Authority and Special Prospecting Authority): WA-3-IL, WA-49-L, WA-550-P, WA-554-P, WA-536- P, WA-46-L, WA-47-L, WA-48-L, WA-76-R, WA-5-R, WA-15-R WA-21-R, WA-23-R, WA-26-PL, WA-29-PL, WA-32-PL and WA-25-PL.
Location	In Commonwealth waters, approximately 28 km north-west of the Montebello Islands and 150 km north-west of Dampier.
Water depth	73 m - 1,185 m
Timing	Late December 2026 to early February 2027. As a contingency the EP covers the same period the subsequent year (i.e. Q4 2027 to Q1 2028).
Duration	• Approximately 40 days, which includes weather downtime and technical standby. • The survey data will be acquired over a 24-hour period, subject to required shutdowns.
Vessels	Key vessels include, but are not limited to: • A purpose-built seismic survey vessel. • A support vessel to provide logistical and operational support to the survey vessel. • A chase vessel to assist with survey operations and to manage interactions with third party vessels, as required.

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Operational Area, Active Source Area and Survey Acquisition Area	• The Operational Area is approximately 3,860 km2. Within the Operational Area are two smaller areas defined as: 1. An Active Source Area (ASA) of approximately 1,540 km2, which is the maximum potential area within which seismic acoustic emissions may occur for the purpose of acquiring the survey data, including soft starts and source testing. 2. A Survey Acquisition Area (SAA) of approximately 780 km2, which is the area within which seismic recording will occur for the purposes of acquiring data for sub surface imaging. • The Operational Area includes a 15 km buffer around the SAA that has been extended to 20 km north and south for the purpose of vessel manoeuvring.
Communication with mariners	• Marine notices will be issued prior to the commencement of activities within the Operational Area. • Other marine users are permitted to use the Operational Area. • A three nautical mile (3nm) radius safe navigation area will be in place around the survey vessel and towed equipment.

Environment that May Be Affected (EMBA)

The EMBA is the largest geographic area where an unplanned event could potentially have an environmental consequence. The broadest extent of the EMBA takes into consideration planned activities and unplanned events. The EMBA has been developed combining numerous modelling outputs based on highly unlikely releases of hydrocarbons to the environment. The modelling scenario that informs the EMBA is a vessel collision.

The EMBA does not represent the extent of the predicted impact of a highly unlikely hydrocarbon release. Rather, the EMBA represents the merged area of many possible paths that a highly unlikely hydrocarbon release could travel, which depends on the weather and ocean conditions at the time of a release. This means that in the highly unlikely event that a hydrocarbon release does occur, the whole EMBA will not be affected. The specific and minimal part of the EMBA that is affected will only be known if there is a release.

EMBA overlap

Woodside is providing this information to the Aquaculture Council of Western Australia as our mapping data shows the EMBA for this EP overlaps with pearl farm leases in the Montebello Islands and an aquaculture site in the Mackerel Islands.

Notifications

Please let us know if you require notification prior to and on completion of the proposed activities.

Feedback

If you have feedback specific to the proposed activities, we welcome your feedback via email at consultation@feedback.woodside.com, via phone call at 1800 442 977 or via the feedback form on our website by **24 October 2025**. Alternatively, Woodside is willing to consider and accept your feedback via a means which suits you.

Your feedback and our response will be included in our EP, which will be submitted to the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA) for acceptance in accordance with the *Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2023 (Cth*). Your feedback may also be used to support other regulatory processes associated with the planned activities (which may or may not be confidential).

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Regards

Woodside Energy Consultation

6.1.28 Email sent to Department of Biodiversity, Conservation and Attractions (DBCA) – 8 September 2025

Woodside is planning to submit the Pluto 4D M3 Marine Seismic Survey Environment Plan (EP). The Pluto 4D M3 (Monitor 3) Marine Seismic Survey (MSS) overlaps Petroleum Licence Area WA-34-L and WA-1-IL and other titleholders' adjacent Petroleum Licence Areas (described below), within Commonwealth waters approximately 28 km north-west of the Montebello Islands and 150 km north-west of Dampier.

If you would like to comment on the proposed activity, please provide feedback to Woodside by 24 October 2025 using the details below.

Overview

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- Support operations from a support vessel and chase vessel.

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Consultation information

A Consultation Information Sheet is attached, which provides additional background on our approach to consultation, and the proposed activities including summaries of key impacts and risks and associated management measures. This is also available on our website.

Activity and location summary

Pluto 4D M3 Marine Seismic Survey Environment Plan	
Activity details	• The proposed activity involves acquiring 4D seismic data using an acoustic source (dual array) and 12 solid streamers towed behind a survey vessel. The proposed activity is typical of seismic surveys conducted In Australian marine waters, in terms of technical methods and procedures.

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Titles	• Operational Area consists of:
	  ○ Production/ infrastructure licences WA-34-L, WA-1-IL and pipeline licences WA-16-PL and WA-17-PL.
	  ○ Other titleholders' licence areas that overlap the Operational Area (that may be subject to Access Authority and Special Prospecting Authority): WA-3-IL, WA-49-L, WA-550-P, WA-554-P, WA-536- P, WA-46-L, WA-47-L, WA-48-L, WA-76-R, WA-5-R, WA-15-R WA-21-R, WA-23-R, WA-26-PL, WA-29-PL, WA-32-PL and WA-25-PL.

Location	In Commonwealth waters, approximately 28 km north-west of the Montebello Islands and 150 km north-west of Dampier.
Water depth	73 m - 1,185 m
Timing	Late December 2026 to early February 2027. As a contingency the EP covers the same period the subsequent year (i.e. Q4 2027 to Q1 2028).
Duration	• Approximately 40 days, which includes weather downtime and technical standby. • The survey data will be acquired over a 24-hour period, subject to required shutdowns.
Vessels	Key vessels include, but are not limited to: • A purpose-built seismic survey vessel. • A support vessel to provide logistical and operational support to the survey vessel. • A chase vessel to assist with survey operations and to manage interactions with third party vessels, as required.

Operational Area, Active Source Area and Survey Acquisition Area	• The Operational Area is approximately 3,860 km2. Within the Operational Area are two smaller areas defined as:
	  ○ An Active Source Area (ASA) of approximately 1,540 km2, which is the maximum potential area within which seismic acoustic emissions may occur for the purpose of acquiring the survey data, including soft starts and source testing.
	  ○ A Survey Acquisition Area (SAA) of approximately 780 km2, which is the area within which seismic recording will occur for the purposes of acquiring data for sub surface imaging.
	• The Operational Area includes a 15 km buffer around the SAA that has been extended to 20 km north and south for the purpose of vessel manoeuvring.

Communication with mariners	• Marine notices will be issued prior to the commencement of activities within the Operational Area. • Other marine users are permitted to use the Operational Area. • A three nautical mile (3nm) radius safe navigation area will be in place around the survey vessel and towed equipment.

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Environment that May Be Affected (EMBA)

The EMBA is the largest geographic area where an unplanned event could potentially have an environmental consequence. The broadest extent of the EMBA takes into consideration planned activities and unplanned events. The EMBA has been developed combining numerous modelling outputs based on highly unlikely releases of hydrocarbons to the environment. The modelling scenario that informs the EMBA is a vessel collision.

The EMBA does not represent the extent of the predicted impact of a highly unlikely hydrocarbon release. Rather, the EMBA represents the merged area of many possible paths that a highly unlikely hydrocarbon release could travel, which depends on the weather and ocean conditions at the time of a release. This means that in the highly unlikely event that a hydrocarbon release does occur, the whole EMBA will not be affected. The specific and minimal part of the EMBA that is affected will only be known if there is a release.

Areas of ecological importance

Woodside maintains knowledge and an understanding of areas of ecological importance within and adjacent to the Operational Area. An information system to track current existing environment knowledge is regularly updated and covers the following topics:

- EPBC Act Matters of National Ecological Significance (MNES) including threatened and migratory listed species
- WA Biodiversity Conservation Act 2016 – threatened and priority fauna list, the Part 13 Instruments, i.e., threatened species recovery plans and Biodiversity Regulations 2018
- EPBC Act threatened Species, Recovery Plans and Conservation advice
- State protected areas information and management plans on the habitats and associated fish and benthic communities.

The sources of information include credible published scientific research, industry and research agencies (government and university) study reports including baseline and monitoring programs. Woodside is also committed to sharing knowledge and contributes to the Index of Marine Surveys for Assessment (IMSA) hosted by the Department of Water and Environmental Regulation (WA) and supported by WAMSI.

National Light Pollution Guidelines

The lighting associated with the Pluto 4D M3 Marine Seismic Survey EP activity vessels is required as a priority for safe operation. Woodside has considered the Commonwealth Department of Climate Change, Energy, the Environment and Water's National Light Pollution Guidelines for Wildlife (NLPG; Commonwealth of Australia 2023) with respect to vessel activities. The assessment of potential impacts to seabird and turtle behaviour, is based on recommendations in the NLPG. This impact assessment determined that the impacts of lighting are as low as reasonably practicable (ALARP).

Operational and Scientific Monitoring Program

Woodside's oil spill Operational and Scientific Monitoring (OSM) Program, executed under the Joint Industry OSM Framework (AEP, 2021), provides for a quantitative assessment of the overall environmental impacts in the event of an unplanned hydrocarbon release, or any release event with the potential to contact sensitive environmental receptors including but not limited to the Ningaloo Marine Park (M 2), Montebello Islands Marine Park (M 9) and the Barrow Island Nature Reserve (R 11648). The OSM comprises ten scientific monitoring programs (SMPs) and six operational monitoring programs (OMPs). The SMPs are targeted environmental monitoring programs to assess and quantify the environmental impact of a hydrocarbon spill range of physical-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 address a range of receptors most vulnerable to the impacts of a hydrocarbon release. The actual design and execution of the OSM program will be dependent on the nature and scale of the spill and the receptors predicted to be impacted. One of the priority focus areas in the early phase of an incident would be to identify and execute OSM at First Strike Monitoring Priorities.

Incidents and emergency response

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Woodside's Oil Pollution First Strike Plan for this activity includes a commitment that the DBCA will be notified via phone call as soon as practicable if there is potential for oiled wildlife or the spill is expected to contact land or waters managed by DBCA. Woodside has incorporated the DBCA Pilbara regional office phone number as part of the notifications as listed in the Oil Pollution First Strike Plan.

This plan describes the incident management structure, notification and reporting requirements, the Operational Area, activity specific credible spill scenarios, and the hydrocarbon spill response strategies available for the protection of priority receptors. Links are included in the plan to a suite of existing Operational Plans and Tactical Response Plans (TRPs) to commence the mobilisation of response resources immediately, including 'monitor and evaluate' services, operational and scientific monitoring, and shoreline clean-up where required. Woodside understands that DBCA will not implement an oiled wildlife management response on behalf of a petroleum operator.

Feedback

If you have feedback specific to the proposed activities, we welcome your feedback via email at consultation@feedback.woodside.com, via phone call at 1800 442 977 or via the feedback form on our website by **24 October 2025**. Alternatively, Woodside is willing to consider and accept your feedback via a means which suits you.

Your feedback and our response will be included in our EP, which will be submitted to the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA) for acceptance in accordance with the *Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2023* (Cth). Your feedback may also be used to support other regulatory processes associated with the planned activities (which may or may not be confidential).

You may request that particular information you provide during consultation not be published in the EP made available on the NOPSEMA website. Please let us know if you request that particular information not be published, and we will make your request known to NOPSEMA.

NOPSEMA has published the brochure *Consultation on offshore petroleum environment plans – Information for the Community* to help community members understand consultation requirements for Commonwealth EPs and how to participate in consultation.

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Regards

Woodside Energy Consultation

6.1.29 Email sent to Australian Fisheries Management Authority (AFMA) – 8 September 2025

Woodside is planning to submit the Pluto 4D M3 Marine Seismic Survey Environment Plan (EP). The Pluto 4D M3 (Monitor 3) Marine Seismic Survey (MSS) overlaps Petroleum Licence Area WA-34-L and WA-1-IL and other titleholders' adjacent Petroleum Licence Areas (described below), within Commonwealth waters approximately 28 km north-west of the Montebello Islands and 150 km north-west of Dampier.

If you would like to comment on the proposed activity, please provide feedback to Woodside by 24 October 2025 using the details below. Woodside would also welcome the opportunity to meet with AFMA to discuss this EP and other Woodside EPs. Please let us know if you would like to meet and we will make arrangements.

Overview

The Pluto 4D M3 MSS EP covers:

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- Seismic data acquisition using a seismic survey vessel towing an acoustic source array and hydrophone cables (streamers).
- Support operations from a support vessel and chase vessel.

This four-dimensional (4D) MSS is a time-lapse monitor survey which forms part of the ongoing reservoir management and surveillance program for the Pluto reservoir. To obtain time-lapse data, the seismic survey replicates as accurately as possible previous Pluto monitor surveys, undertaken in 2016 and 2020. This new seismic data is then compared to the previous data to observe subtle differences in fluid movement and pressure changes both within and surrounding the reservoir.

Consultation information

A Consultation Information Sheet is attached, which provides additional background on the proposed activities including summaries of key impacts and risks and associated management measures. This is also available on our website.

Activity and location summary

Pluto 4D M3 Marine Seismic Survey Environment Plan	
Activity details	The proposed activity involves acquiring 4D seismic data using an acoustic source (dual array) and 12 solid streamers towed behind a survey vessel. The proposed activity is typical of seismic surveys conducted In Australian marine waters, in terms of technical methods and procedures.
Titles	Operational Area consists of: • Production/ infrastructure licences WA-34-L, WA-1-IL and pipeline licences WA-16-PL and WA-17-PL. • Other titleholders' licence areas that overlap the Operational Area (that may be subject to Access Authority and Special Prospecting Authority): WA-3-IL, WA-49-L, WA-550-P, WA-554-P, WA-536- P, WA-46-L, WA-47-L, WA-48-L, WA-76-R, WA-5-R, WA-15-R WA-21-R, WA-23-R, WA-26-PL, WA-29-PL, WA-32-PL and WA-25-PL.
Location	In Commonwealth waters, approximately 28 km north-west of the Montebello Islands and 150 km north-west of Dampier.
Water depth	73 m - 1,185 m
Timing	Late December 2026 to early February 2027. As a contingency the EP covers the same period the subsequent year (i.e. Q4 2027 to Q1 2028).
Duration	• Approximately 40 days, which includes weather downtime and technical standby. • The survey data will be acquired over a 24-hour period, subject to required shutdowns.
Vessels	Key vessels include, but are not limited to: • A purpose-built seismic survey vessel. • A support vessel to provide logistical and operational support to the survey vessel.

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	• A chase vessel to assist with survey operations and to manage interactions with third party vessels, as required.
Operational Area, Active Source Area and Survey Acquisition Area	• The Operational Area is approximately 3,860 km2. Within the Operational Area are two smaller areas defined as: 1. An Active Source Area (ASA) of approximately 1,540 km2, which is the maximum potential area within which seismic acoustic emissions may occur for the purpose of acquiring the survey data, including soft starts and source testing. 2. A Survey Acquisition Area (SAA) of approximately 780 km2, which is the area within which seismic recording will occur for the purposes of acquiring data for sub surface imaging. • The Operational Area includes a 15 km buffer around the SAA that has been extended to 20 km north and south for the purpose of vessel manoeuvring.
Communication with mariners	• Marine notices will be issued prior to the commencement of activities within the Operational Area. • Other marine users are permitted to use the Operational Area. • A three nautical mile (3nm) radius safe navigation area will be in place around the survey vessel and towed equipment.

Environment that May Be Affected (EMBA)

The EMBA is the largest geographic area where an unplanned event could potentially have an environmental consequence. The broadest extent of the EMBA takes into consideration planned activities and unplanned events. The EMBA has been developed combining numerous modelling outputs based on highly unlikely releases of hydrocarbons to the environment. The modelling scenario that informs the EMBA is a vessel collision.

The EMBA does not represent the extent of the predicted impact of a highly unlikely hydrocarbon release. Rather, the EMBA represents the merged area of many possible paths that a highly unlikely hydrocarbon release could travel, which depends on the weather and ocean conditions at the time of a release. This means that in the highly unlikely event that a hydrocarbon release does occur, the whole EMBA will not be affected. The specific and minimal part of the EMBA that is affected will only be known if there is a release.

Commonwealth fisheries

Commonwealth fisheries active in the Operational Area:

- North West Slope Trawl Fishery

Commonwealth fisheries active in the EMBA:

- North West Slope Trawl Fishery
- Western Deepwater Trawl Fishery

Please note Woodside has also provided consultation information to the following fisheries (and their representative bodies) which have entitlement to fish in the EMBA:

- Southern Bluefin Tuna Fishery

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- Western Skipjack Fishery
- Western Tuna and Billfish Fishery

Potential impacts to fisheries

Modelling of underwater noise emissions from the seismic acoustic source for the proposed survey has been used to inform the potential impacts on sensitive receptors, including fish and crustacean species targeted by commercial fisheries.

The size of the Operational Area (3860 km2) represents a very small portion of the overall area of the commercial fisheries identified as overlapping it. Predicted noise emissions are not considered likely to cause injury or permanent hearing impairment for any commercial species that may be present within or adjacent to the Active Source Area during the proposed survey. Impacts to fish species will be restricted to temporary behavioural changes (e.g. avoidance, startle or alarm responses or change in swim speed) in individuals that are in close proximity to the operating seismic acoustic source. Predicted noise emissions are not anticipated to expose crustaceans, such as prawns, to noise levels that would result in adverse impact or viability of catch.

It should be noted that the survey vessel will be moving continuously when acquiring seismic data which limits the exposure of commercial species in close proximity to the operating seismic acoustic source to a very short duration such that injury or impairment are not considered likely.

The potential impacts of noise emissions from the seismic acoustic source on commercial species are considered to be localised and of no lasting effect. Impacts to the recruitment of key commercial species, including fish and crustaceans due underwater noise emissions from the proposed survey are not predicted.

Notifications

Please let us know if you require notification prior to and on completion of the proposed activities.

Feedback

If you have feedback specific to the proposed activities, we welcome your feedback via email at consultation@feedback.woodside.com, via phone call at 1800 442 977 or via the feedback form on our website by 24 October 2025. Alternatively, Woodside is willing to consider and accept your feedback via a means which suits you.

Your feedback and our response will be included in our EP, which will be submitted to the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA) for acceptance in accordance with the Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2023 (Cth). Your feedback may also be used to support other regulatory processes associated with the planned activities (which may or may not be confidential).

You may request that particular information you provide during consultation not be published in the EP made available on the NOPSEMA website. Please let us know if you request that particular information not be published, and we will make your request known to NOPSEMA.

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Regards

Woodside Energy Consultation

6.1.30 Email sent to Recfishwest – 8 September 2025

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Woodside is planning to submit the Pluto 4D M3 Marine Seismic Survey Environment Plan (EP). The Pluto 4D M3 (Monitor 3) Marine Seismic Survey (MSS) overlaps Petroleum Licence Area WA-34-L and WA-1-IL and other titleholders' adjacent Petroleum Licence Areas (described below), within Commonwealth waters approximately 28 km north-west of the Montebello Islands and 150 km north-west of Dampier.

If you would like to comment on the proposed activity, please provide feedback to Woodside by 24 October 2025 using the details below. Woodside will also reach out soon to arrange a meeting with Recfishwest regarding this EP and other Woodside EPs, as discussed during consultation for the GWF-4 Drilling and Subsea Installation EP.

Overview

The Pluto 4D M3 MSS EP covers:

- Seismic data acquisition using a seismic survey vessel towing an acoustic source array and hydrophone cables (streamers).
- Support operations from a support vessel and chase vessel.

This four-dimensional (4D) MSS is a time-lapse monitor survey which forms part of the ongoing reservoir management and surveillance program for the Pluto reservoir. To obtain time lapse data, the seismic survey replicates as accurately as possible previous Pluto monitor surveys, undertaken in 2016 and 2020. This new seismic data is then compared to the previous data to observe subtle differences in fluid movement and pressure changes both within and surrounding the reservoir.

Consultation information

A Consultation Information Sheet is attached, which provides additional background on our approach to consultation, and the proposed activities including summaries of key impacts and risks and associated management measures. This is also available on our website.

Activity and location summary

Pluto 4D M3 Marine Seismic Survey Environment Plan	
Activity details	The proposed activity involves acquiring 4D seismic data using an acoustic source (dual array) and 12 solid streamers towed behind a survey vessel. The proposed activity is typical of seismic surveys conducted In Australian marine waters, in terms of technical methods and procedures.
Titles	• Operational Area consists of: • Production/ infrastructure licences WA-34-L, WA-1-IL and pipeline licences WA-16-PL and WA-17-PL. • Other titleholders' licence areas that overlap the Operational Area (that may be subject to Access Authority and Special Prospecting Authority): WA-3-IL, WA-49-L, WA-550-P, WA-554-P, WA-536- P, WA-46-L, WA-47-L, WA-48-L, WA-76-R, WA-5-R, WA-15-R WA-21-R, WA-23-R, WA-26-PL, WA-29-PL, WA-32-PL and WA-25-PL.
Location	In Commonwealth waters, approximately 28 km north-west of the Montebello Islands and 150 km north-west of Dampier.
Water depth	73 m - 1,185 m
Timing	Late December 2026 to early February 2027. As a contingency the EP covers the same period the subsequent year (i.e. Q4 2027 to Q1 2028).

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Duration	• Approximately 40 days, which includes weather downtime and technical standby. • The survey data will be acquired over a 24-hour period, subject to required shutdowns.
Vessels	Key vessels include, but are not limited to: • A purpose-built seismic survey vessel. • A support vessel to provide logistical and operational support to the survey vessel. • A chase vessel to assist with survey operations and to manage interactions with third party vessels, as required.
Operational Area, Active Source Area and Survey Acquisition Area	• The Operational Area is approximately 3,860 km2. Within the Operational Area are two smaller areas defined as: 1. An Active Source Area (ASA) of approximately 1,540 km2, which is the maximum potential area within which seismic acoustic emissions may occur for the purpose of acquiring the survey data, including soft starts and source testing. 2. A Survey Acquisition Area (SAA) of approximately 780 km2, which is the area within which seismic recording will occur for the purposes of acquiring data for sub surface imaging. • The Operational Area includes a 15 km buffer around the SAA that has been extended to 20 km north and south for the purpose of vessel manoeuvring.
Communication with mariners	• Marine notices will be issued prior to the commencement of activities within the Operational Area. • Other marine users are permitted to use the Operational Area. • A three nautical mile (3nm) radius safe navigation area will be in place around the survey vessel and towed equipment.

Environment that May Be Affected (EMBA)

The EMBA is the largest geographic area where an unplanned event could potentially have an environmental consequence. The broadest extent of the EMBA takes into consideration planned activities and unplanned events. The EMBA has been developed combining numerous modelling outputs based on highly unlikely releases of hydrocarbons to the environment. The modelling scenario that informs the EMBA is a vessel collision.

The EMBA does not represent the extent of the predicted impact of a highly unlikely hydrocarbon release. Rather, the EMBA represents the merged area of many possible paths that a highly unlikely hydrocarbon release could travel, which depends on the weather and ocean conditions at the time of a release. This means that in the highly unlikely event that a hydrocarbon release does occur, the whole EMBA will not be affected. The specific and minimal part of the EMBA that is affected will only be known if there is a release.

Feedback

If you have feedback specific to the proposed activities, we welcome your feedback via email at consultation@feedback.woodside.com, via phone call at 1800 442 977 or via the feedback form on our website by **24 October 2025**. Alternatively, Woodside is willing to consider and accept your feedback via a means which suits you.

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Regards

Woodside Energy Consultation

6.1.31 Email sent to Chevron – 9 September 2025

Woodside is planning to submit the Pluto 4D M3 Marine Seismic Survey Environment Plan (EP). The Pluto 4D M3 (Monitor 3) Marine Seismic Survey (MSS) overlaps Petroleum Licence Area WA-34-L and WA-1-IL and other titleholders' adjacent Petroleum Licence Areas (described below), within Commonwealth waters approximately 28 km north-west of the Montebello Islands and 150 km north-west of Dampier.

If you would like to comment on the proposed activity, please provide feedback to Woodside by 24 October 2025 using the details below.

Overview

The Pluto 4D M3 MSS EP covers:

- Seismic data acquisition using a seismic survey vessel towing an acoustic source array and hydrophone cables (streamers).
- Support operations from a support vessel and chase vessel.

This four-dimensional (4D) MSS is a time-lapse monitor survey which forms part of the ongoing reservoir management and surveillance program for the Pluto reservoir. To obtain time lapse data, the seismic survey replicates as accurately as possible previous Pluto monitor surveys, undertaken in 2016 and 2020. This new seismic data is then compared to the previous data to observe subtle differences in fluid movement and pressure changes both within and surrounding the reservoir.

Consultation information

A Consultation Information Sheet is attached, which provides additional background on the proposed activities including summaries of key impacts and risks and associated management measures. This is also available on our website.

Please also find attached GIS Shape Files and an adjacent titles map.

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We would be grateful if you could please forward this consultation information to your Joint Venture participants Osaka Gas Gorgon, MidOcean Gorgon and JERA Gorgon for feedback.

Adjacent titles

The Operational Area for the activity extends into Chevron permits adjacent to Woodside permits WA-34-L and WA-1-IL (please see attached titles map). Activities covered by the EP which may overlap these permit areas include vessel turning, acquiring seismic data and/or conducting line turns and sail lines run-ins and run-outs.

To reduce the potential impact on adjacent titleholders, Woodside proposes to include Chevron in Start and End of Activity notifications for this activity.

Please note, the above notifications are in addition to other relevant authorisations Woodside requires to carry out activities in adjacent titles.

Activity and location summary

Pluto 4D M3 Marine Seismic Survey Environment Plan	
Activity details	The proposed activity involves acquiring 4D seismic data using an acoustic source (dual array) and 12 solid streamers towed behind a survey vessel. The proposed activity is typical of seismic surveys conducted In Australian marine waters, in terms of technical methods and procedures.
Titles	Operational Area consists of: • Production/ infrastructure licences WA-34-L, WA-1-IL and pipeline licences WA-16-PL and WA-17-PL. • Other titleholders' licence areas that overlap the Operational Area (that may be subject to Access Authority and Special Prospecting Authority): WA-3-IL, WA-49-L, WA-550-P, WA-554-P, WA-536- P, WA-46-L, WA-47-L, WA-48-L, WA-76-R, WA-5-R, WA-15-R WA-21-R, WA-23-R, WA-26-PL, WA-29-PL, WA-32-PL and WA-25-PL.
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Your feedback and our response will be included in our EP, which will be submitted to the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA) for acceptance in accordance with the Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2023 (Cth). Your feedback may also be used to support other regulatory processes associated with the planned activities (which may or may not be confidential).

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Regards

Woodside Energy Consultation

6.1.32 Email sent to KUFPEC, Exxon Mobil Australia, Kyushu Electric Wheatstone, PE Wheatstone – 9 September 2025

Woodside is planning to submit the Pluto 4D M3 Marine Seismic Survey Environment Plan (EP). The Pluto 4D M3 (Monitor 3) Marine Seismic Survey (MSS) overlaps Petroleum Licence Area WA-34-L and WA-1-IL and other titleholders' adjacent Petroleum Licence Areas (described below), within Commonwealth waters approximately 28 km north-west of the Montebello Islands and 150 km north-west of Dampier.

If you would like to comment on the proposed activity, please provide feedback to Woodside by 24 October 2025 using the details below.

Overview

The Pluto 4D M3 MSS EP covers:

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This four-dimensional (4D) MSS is a time-lapse monitor survey which forms part of the ongoing reservoir management and surveillance program for the Pluto reservoir. To obtain time lapse data, the seismic survey replicates as accurately as possible previous Pluto monitor surveys, undertaken in 2016 and 2020. This new seismic data is then compared to the previous data to observe subtle differences in fluid movement and pressure changes both within and surrounding the reservoir.

Consultation information

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Please also find attached GIS Shape Files and an adjacent titles map.

Adjacent titles

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To reduce the potential impact on adjacent titleholders, Woodside proposes to include adjacent titleholders in Start and End of Activity notifications.

Please note, the above notifications are in addition to other relevant authorisations Woodside requires to carry out activities in adjacent titles.

Activity and location summary

Pluto 4D M3 Marine Seismic Survey Environment Plan	
Activity details	The proposed activity involves acquiring 4D seismic data using an acoustic source (dual array) and 12 solid streamers towed behind a survey vessel. The

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	proposed activity is typical of seismic surveys conducted In Australian marine waters, in terms of technical methods and procedures.
Titles	Operational Area consists of: • Production/ infrastructure licences WA-34-L, WA-1-IL and pipeline licences WA-16-PL and WA-17-PL. • Other titleholders' licence areas that overlap the Operational Area (that may be subject to Access Authority and Special Prospecting Authority): WA-3-IL, WA-49-L, WA-550-P, WA-554-P, WA-536- P, WA-46-L, WA-47-L, WA-48-L, WA-76-R, WA-5-R, WA-15-R WA-21-R, WA-23-R, WA-26-PL, WA-29-PL, WA-32-PL and WA-25-PL.
Location	In Commonwealth waters, approximately 28 km north-west of the Montebello Islands and 150 km north-west of Dampier.
Water depth	73 m - 1,185 m
Timing	Late December 2026 to early February 2027. As a contingency the EP covers the same period the subsequent year (i.e. Q4 2027 to Q1 2028).
Duration	• Approximately 40 days, which includes weather downtime and technical standby. • The survey data will be acquired over a 24-hour period, subject to required shutdowns.
Vessels	Key vessels include, but are not limited to: • A purpose-built seismic survey vessel. • A support vessel to provide logistical and operational support to the survey vessel. • A chase vessel to assist with survey operations and to manage interactions with third party vessels, as required.

Operational Area, Active Source Area and Survey Acquisition Area	• The Operational Area is approximately 3,860 km2. Within the Operational Area are two smaller areas defined as:
	  ○ An Active Source Area (ASA) of approximately 1,540 km2, which is the maximum potential area within which seismic acoustic emissions may occur for the purpose of acquiring the survey data, including soft starts and source testing.
	  ○ A Survey Acquisition Area (SAA) of approximately 780 km2, which is the area within which seismic recording will occur for the purposes of acquiring data for sub surface imaging.
	• The Operational Area includes a 15 km buffer around the SAA that has been extended to 20 km north and south for the purpose of vessel manoeuvring.

Communication with mariners	• Marine notices will be issued prior to the commencement of activities within the Operational Area. • Other marine users are permitted to use the Operational Area.

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	• A three nautical mile (3nm) radius safe navigation area will be in place around the survey vessel and towed equipment.

Environment that May Be Affected (EMBA)

The EMBA is the largest geographic area where an unplanned event could potentially have an environmental consequence. The broadest extent of the EMBA takes into consideration planned activities and unplanned events. The EMBA has been developed combining numerous modelling outputs based on highly unlikely releases of hydrocarbons to the environment. The modelling scenario that informs the EMBA is a vessel collision.

The EMBA does not represent the extent of the predicted impact of a highly unlikely hydrocarbon release. Rather, the EMBA represents the merged area of many possible paths that a highly unlikely hydrocarbon release could travel, which depends on the weather and ocean conditions at the time of a release. This means that in the highly unlikely event that a hydrocarbon release does occur, the whole EMBA will not be affected. The specific and minimal part of the EMBA that is affected will only be known if there is a release.

Feedback

If you have feedback specific to the proposed activities, we welcome your feedback via email at consultation@feedback.woodside.com, via phone call at 1800 442 977 or via the feedback form on our website by 24 October 2025. Alternatively, Woodside is willing to consider and accept your feedback via a means which suits you.

Your feedback and our response will be included in our EP, which will be submitted to the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA) for acceptance in accordance with the Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2023 (Cth). Your feedback may also be used to support other regulatory processes associated with the planned activities (which may or may not be confidential).

You may request that particular information you provide during consultation not be published in the EP made available on the NOPSEMA website. Please let us know if you request that particular information not be published, and we will make your request known to NOPSEMA.

NOPSEMA has published the brochure Consultation on offshore petroleum environment plans – Information for the Community to help community members understand consultation requirements for Commonwealth EPs and how to participate in consultation.

Personal information collected in the course of consultation will be handled in accordance with Woodside's Environment Plan Privacy Collection Notice. To understand how personal information will be handled, please visit our website.

Regards

Woodside Energy Consultation

6.1.33 Email sent to Shell Australia – 9 September 2025

Woodside sent you the below consultation information yesterday regarding the Pluto 4D M3 Marine Seismic Survey Environment Plan.

In addition, please find attached an adjacent titles map, and the following information regarding adjacent titles:

The Operational Area for the activity extends into permits adjacent to Woodside permits WA-34-L and WA-1-IL. Activities covered by the EP which may overlap these permit areas include vessel turning, acquiring seismic data and/or conducting line turns and sail lines run-ins and run-outs.

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To reduce the potential impact on adjacent titleholders, Woodside proposes to include Shell in Start and End of Activity notifications for this activity.

Please note, the above notifications are in addition to other relevant authorisations Woodside requires to carry out activities in adjacent titles.

If you would like to comment on the proposed activity, please provide feedback to Woodside by 24 October 2025

Kind regards,

Woodside Energy Consultation

6.1.34 Email to Buurabalayji Thalanyji Aboriginal Corporation (BTAC) and Thalanyji / Nhuwala People – 8 September 2025

We are contacting you as the delegated representative for Buurabalayji Thalanyji Aboriginal Corporation (BTAC), as well as the primary contact for the Thalanyji / Nhuwala People.

Woodside would like to consult with BTAC and the Thalanyji / Nhuwala People about the Pluto 4D M3 Marine Seismic Survey (the activity) Environment Plan (EP).

Consultation for this activity opens on 8 September 2025 and closes on 24 October 2025.

The purpose of Woodside's consultation with BTAC and Thalanyji / Nhuwala People is to understand how the activities in the EP could potentially impact the groups' cultural values, interests and activities.

Woodside, in the course of developing the EP, will assess feedback, opinions and comments provided by the consultation closing date, and where relevant, consider appropriate control measures to include in the EP.

Your consultation correspondence with us, along with any appropriate control measures included in the EP are considered by the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA), when we submit the EP for assessment.

The purpose of this email is to:

* Inform you about our plans for the activity.

* Invite you to submit feedback about the activity.

* Provide an opportunity to discuss the activity.

* Discuss further ways to consult and engage with you about the activity.

Overview of the activity

The Pluto 4D M3 Marine Seismic Survey (MSS) EP covers:

* Seismic data acquisition using a survey vessel towing an acoustic source array and hydrophone cables (streamers).

* Support operations from a support vessel and chase vessel.

This MSS is a time-lapse survey which forms part of the ongoing reservoir management and surveillance program for the Pluto reservoir. To obtain this time-lapse data, the seismic survey replicates as accurately as

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possible previous Pluto monitor surveys, undertaken in 2016 and 2020, to detect changes such as pressure depletion and water movement within and surrounding the Pluto gas reservoir during production.

The attached Summary Consultation Information Sheet has been developed for a First Nations audience and provides a high-level overview of the activity, including the Environment that May Be Affected (EMBA) map.

We have also linked the Consultation Information Sheet here with further details including an assessment of the potential impacts and risks relevant to the activity, as well as mitigation and management measures.

Consultation with Woodside

We'd like to gather your feedback about:

* How the activity could impact your cultural values, interests, and activities.

* Protection of the environment and its relationship to your cultural values.

* Your concerns about the proposed activity.

* Other elements we should consider in the Environment Plan.

* Any other individuals, groups, or organisations we should talk to about this activity.

Cultural values

We have collated information in relation to BTAC's cultural values that have either been provided to Woodside during previous EP consultation or via publicly available literature. These are outlined in Appendix A.

If there are any changes or additional information about BTAC's cultural values that you would like Woodside to consider in the preparation of this EP; or any cultural values that the Thalanyji / Nhuwalal People would like to raise with us, please let us know by 24 October 2025. Please also get in touch if you'd like to know more about how we have collected this information.

Consultation preferences

Please let us know your preferred method of consultation including whether you would like to meet face-to-face. We welcome the opportunity to meet and speak with Board members, Elders, office holders and other interested parties about this activity.

Woodside provides various forms of assistance to organisations, Traditional Custodian groups and individuals to support participation in EP consultation. If you would like us to meet with you as part of Woodside's consultation on this activity, please contact me to discuss and confirm details.

How to contact us and further information

Information can be sent to feedback@woodside.com , via telephone on 1800 442 977 or directly to me.

Woodside manages gender-restricted or other culturally sensitive information carefully and will work with you to understand how you would like your information to be managed. If you would prefer to provide the information directly to NOPSEMA, please do so by phoning (08) 6188 8700 or via email at communications@nopsema.gov.au .

Further information about NOPSEMA

The following NOPSEMA publications may be of assistance to support understanding of the requirements to participate in consultation for Commonwealth EPs:

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* Brochure: Consultation on offshore petroleum environment plans brochure.pdf (nopsema.gov.au)

* Guideline: Guideline: Consultation in the course of preparing an environment plan (nopsema.gov.au)

* Policy: Draft policy for managing gender-restricted information PL2098.pdf (nopsema.gov.au) .

Ongoing Feedback

Feedback can continue to be provided during the life of an EP, including after consultation for the EP has closed, during EP assessment, and after an EP has been accepted by NOPSEMA. Woodside continues to receive, assess and respond to claims and objections from relevant persons throughout the life of the EP. Should a claim or objection be received following the acceptance of an EP that Woodside assesses, and which identifies a measure or control that Woodside considers requires implementation or updates to meet the intended outcome of consultation, Woodside will apply its Management of Change and Review process as appropriate.

Please feel free to forward this email and the attached document to members of BTAC and Thalanyji / Nhuwala People, Traditional Owners and other people and organisations who may be interested.

I look forward to your response and please feel free to call or send through guidance on next steps.

Kind regards

Appendix A – BTAC's Cultural Values

Cultural Values – Buurabalayji Thalanyji Aboriginal Corporation (BTAC)

Cultural Value	Source	
	Consultation	Literature review (publicly available)
Sea Country – connection to, access to and transfer of knowledge: • Enduring deep connection north of Onslow, extending out to Islands off the Pilbara coast including Montebello, Barrow and Mackerel Islands. • Cultural obligation to care for environment and values of Sea Country. • Resources including fish, shellfish, crabs, crustaceans, sea urchins, eggs, turtles, dugongs, flora and fauna associated with mangrove communities. • Artefacts and burials in coastal sand dunes. • Archaeological sites on Barrow and Montebello Islands. • Archaeological evidence of use of resources including fish, turtles, marine mammals, crocodiles, crabs and sea urchins. • Ceremonial sites (Thalu) for the increase of turtle, shark, ray, fish, squid, octopus, hill kangaroo and emu.	x	x

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6.1.35 Email to Kariyarra Aboriginal Corporation (KAC) – 8 September 2025

We are contacting you as the delegated representative for Kariyarra Aboriginal Corporation (KAC).

Woodside would like to consult with KAC about the Pluto 4D M3 Marine Seismic Survey (the activity) Environment Plan (EP).

Consultation for this activity opens on 8 September 2025 and closes on 24 October 2025.

The purpose of Woodside's consultation with KAC is to understand how the activities in the EP could potentially impact KAC's cultural values, interests and activities.

Woodside, in the course of developing the EP, will assess feedback, opinions and comments provided by the consultation closing date, and where relevant, consider appropriate control measures to include in the EP.

Your consultation correspondence with us, along with any appropriate control measures included in the EP are considered by the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA), when we submit the EP for assessment.

The purpose of this email is to:

* Inform you about our plans for the activity.
* Invite you to submit feedback about the activity.
* Provide an opportunity to discuss the activity.
* Discuss further ways to consult and engage with you about the activity.

Overview of the activity

The Pluto 4D M3 Marine Seismic Survey (MSS) EP covers:

* Seismic data acquisition using a survey vessel towing an acoustic source array and hydrophone cables (streamers).
* Support operations from a support vessel and chase vessel.

This MSS is a time-lapse survey which forms part of the ongoing reservoir management and surveillance program for the Pluto reservoir. To obtain this time-lapse data, the seismic survey replicates as accurately as possible previous Pluto monitor surveys, undertaken in 2016 and 2020, to detect changes such as pressure depletion and water movement within and surrounding the Pluto gas reservoir during production.

The attached Summary Consultation Information Sheet has been developed for a First Nations audience and provides a high-level overview of the activity, including the Environment that May Be Affected (EMBA) map.

We have also linked the Consultation Information Sheet here with further details including an assessment of the potential impacts and risks relevant to the activity, as well as mitigation and management measures.

Consultation with Woodside

We'd like to gather your feedback about:

* How the activity could impact your cultural values, interests, and activities.
* Protection of the environment and its relationship to your cultural values.
* Your concerns about the proposed activity.
* Other elements we should consider in the Environment Plan.
* Any other individuals, groups, or organisations we should talk to about this activity.

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Cultural values

We have collated information in relation to KAC's cultural values that have either been provided to Woodside during previous EP consultation or via publicly available literature. These are outlined in Appendix A.

If there are any changes or additional information about KAC's cultural values that you would like Woodside to consider in the preparation of this EP, please let us know by 24 October 2025. Please also get in touch if you'd like to know more about how we have collected this information.

Consultation preferences

Please let us know your preferred method of consultation including whether you would like to meet face-to-face. We welcome the opportunity to meet and speak with Board members, Elders, office holders and other interested parties about this activity.

Woodside provides various forms of assistance to organisations, Traditional Custodian groups and individuals to support participation in EP consultation. If you would like us to meet with you as part of Woodside's consultation on this activity, please contact me to discuss and confirm details.

How to contact us and further information

Information can be sent to feedback@woodside.com , via telephone on 1800 442 977 or directly to me.

Woodside manages gender-restricted or other culturally sensitive information carefully and will work with you to understand how you would like your information to be managed. If you would prefer to provide the information directly to NOPSEMA, please do so by phoning (08) 6188 8700 or via email at communications@nopsema.gov.au .

Further information about NOPSEMA

The following NOPSEMA publications may be of assistance to support understanding of the requirements to participate in consultation for Commonwealth EPs:

* Brochure: Consultation on offshore petroleum environment plans brochure.pdf (nopsema.gov.au)
* Guideline: Guideline: Consultation in the course of preparing an environment plan (nopsema.gov.au)
* Policy: Draft policy for managing gender-restricted information PL2098.pdf (nopsema.gov.au) .

Ongoing Feedback

Feedback can continue to be provided during the life of an EP, including after consultation for the EP has closed, during EP assessment, and after an EP has been accepted by NOPSEMA. Woodside continues to receive, assess and respond to claims and objections from relevant persons throughout the life of the EP. Should a claim or objection be received following the acceptance of an EP that Woodside assesses, and which identifies a measure or control that Woodside considers requires implementation or updates to meet the intended outcome of consultation, Woodside will apply its Management of Change and Review process as appropriate.

Please feel free to forward this email and the attached document to members of KAC, Traditional Owners and other people and organisations who may be interested.

We look forward to your response and please feel free to call or send through guidance on next steps.

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Kind regards

Appendix A – KAC's Cultural Values

Cultural Value	Source	
	Consultation	Literature review (publicly available)
Marine Animals • Turtles: management of and sea turtle nesting. • Whales: connection to Songlines, impacts to whale migration. • Shellfish, cockles, oysters, clam shells, con shells. • Mullets (fish). • Sea cow (dugong).	x	
Sea Country • Cultural obligations to care for Country. • Secret habitat totems. • Access for fishing, trapping, crabbing, catching turtle, hunting dugong, using stingray barbs for spears, collecting shellfish and visiting offshore islands at low tide.	x	x
Yinta • Significant cultural/spiritual sites, often a water source but possibly other features such as hills. • Cultural rights to land determine who can use or speak for an area.	x	x
Marine species as resources • Marine mammals including sea cow (dugong). • Fish including mullets. • Molluscs including bivalves, gastropods and cephalopods. • Shellfish, cockles, oysters, clam shells, con shells.	x	
Coastal landforms	x	
Coastal vegetation	x	
Heritage sites associated with the coast and ocean including the presence of mythical snakes. • Traditional knowledge recalls that a saltwater serpent lives in the sea and brings fish to shore.	x	x
Transfer of knowledge to future generations • Impacts to resources: species reduction • Temporary exclusion to areas in the case of an oil spill etc.	x	
Islands off the coast of Port Hedland are significant • Little Turtle • North Turtle • Bedout	x	
Importance of river systems as food chains.	x	

6.1.36 Email to Murujuga Aboriginal Corporation (MAC) – 8 September 2025

We are contacting you as the delegated representative for Murujuga Aboriginal Corporation (MAC).

Woodside would like to consult with MAC about the Pluto 4D M3 Marine Seismic Survey (the activity)

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Environment Plan (EP).

Consultation for this activity opens on 8 September 2025 and closes on 24 October 2025.

The purpose of Woodside's consultation with MAC is to understand how the activities in the EP could potentially impact MAC's cultural values, interests and activities.

Woodside, in the course of developing the EP, will assess feedback, opinions and comments provided by the consultation closing date, and where relevant, consider appropriate control measures to include in the EP.

Your consultation correspondence with us, along with any appropriate control measures included in the EP are considered by the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA), when we submit the EP for assessment.

The purpose of this email is to:
- Inform you about our plans for the activity.
- Invite you to submit feedback about the activity.
- Provide an opportunity to discuss the activity.
- Discuss further ways to consult and engage with you about the activity.

Overview of the activity

The Pluto 4D M3 Marine Seismic Survey (MSS) EP covers:
- Seismic data acquisition using a survey vessel towing an acoustic source array and hydrophone cables (streamers).
- Support operations from a support vessel and chase vessel.

This MSS is a time-lapse survey which forms part of the ongoing reservoir management and surveillance program for the Pluto reservoir. To obtain this time-lapse data, the seismic survey replicates as accurately as possible previous Pluto monitor surveys, undertaken in 2016 and 2020, to detect changes such as pressure depletion and water movement within and surrounding the Pluto gas reservoir during production.

The attached Summary Consultation Information Sheet has been developed for a First Nations audience and provides a high-level overview of the activity, including the Environment that May Be Affected (EMBA) map.

We have also linked the Consultation Information Sheet here with further details including an assessment of the potential impacts and risks relevant to the activity, as well as mitigation and management measures.

Consultation with Woodside

We'd like to gather your feedback about:
- How the activity could impact your cultural values, interests, and activities.
- Protection of the environment and its relationship to your cultural values.
- Your concerns about the proposed activity.
- Other elements we should consider in the Environment Plan.
- Any other individuals, groups, or organisations we should talk to about this activity.

Cultural values

We have collated information in relation to MAC's cultural values that have either been provided to Woodside during previous EP consultation or via publicly available literature. These are outlined in Appendix A.

If there are any changes or additional information about MAC's cultural values that you would like Woodside to consider in the preparation of this EP, please let us know by 24 October 2025. Please also get in touch if you'd like to know more about how we have collected this information.

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Consultation preferences
Please let us know your preferred method of consultation including whether you would like to meet face-to-face. We welcome the opportunity to meet and speak with Board members, Elders, office holders and other interested parties about this activity.

Woodside provides various forms of assistance to organisations, Traditional Custodian groups and individuals to support participation in EP consultation. If you would like us to meet with you as part of Woodside's consultation on this activity, please contact me to discuss and confirm details.

How to contact us and further information
Information can be sent to feedback@woodside.com, via telephone on 1800 442 977 or directly to me.

Woodside manages gender-restricted or other culturally sensitive information carefully and will work with you to understand how you would like your information to be managed. If you would prefer to provide the information directly to NOPSEMA, please do so by phoning (08) 6188 8700 or via email at communications@nopsema.gov.au.

Further information about NOPSEMA

The following NOPSEMA publications may be of assistance to support understanding of the requirements to participate in consultation for Commonwealth EPs:
- Brochure: Consultation on offshore petroleum environment plans brochure.pdf (nopsema.gov.au)
- Guideline: Guideline: Consultation in the course of preparing an environment plan (nopsema.gov.au)
- Policy: Draft policy for managing gender-restricted information PL2098.pdf (nopsema.gov.au).

Ongoing Feedback

Feedback can continue to be provided during the life of an EP, including after consultation for the EP has closed, during EP assessment, and after an EP has been accepted by NOPSEMA. Woodside continues to receive, assess and respond to claims and objections from relevant persons throughout the life of the EP. Should a claim or objection be received following the acceptance of an EP that Woodside assesses, and which identifies a measure or control that Woodside considers requires implementation or updates to meet the intended outcome of consultation, Woodside will apply its Management of Change and Review process as appropriate.

Please feel free to forward this email and the attached document to members of MAC, Traditional Owners and other people and organisations who may be interested.

I look forward to your response and please feel free to call or send through guidance on next steps.

Kind regards,

Appendix A – MAC's Cultural Values

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Cultural Values – Murujuga Aboriginal Corporation (MAC)

Cultural Value	Source	
	Consultation – identified during EP consultation	Literature review (publicly available)
The ecosystem and health of Mermaid Sound.		x
Marine species • Whales: totemic importance • Dolphins: cultural ceremonies • Dugongs: food source • Fish: cultural ceremonies • Sea Snakes: culturally important • Turtles: Songlines • Coral: attract fish and other species • Seagrass: provide protection for animals. Locations include Conzinc Island and between Angel and Gidley Islands. • Stingrays • Sharks • Crustaceans • Octopus • Sea stars • Sea urchins • Sponges • Molluscs	x	x
Marine eco-systems • Mangroves: would have provided shelter, crabbing, digging for shellfish and could be turtle nurseries. Locations include Conzinc Bay north end, Flying Foam Passage, Searipple Passage, North-East Bay of West Lewis Island. • Macroalgal (seaweed) communities: important habitats and food sources. • Subtidal soft bottom communities (ocean bottom): support invertebrate diversity. • Intertidal sand and mudflat communities: support invertebrate diversity and provide food for shorebirds. • Rocky shores: habitats for plants/animals and provide food for shorebirds.	x	x
Fish traps in Conzinc Bay and Angel and Gidley Islands.	x	x
Harvesting squid around Conzinc Bay		x
MAC is the appropriate cultural authority for Murujuga	x	
Submerged landscape: • Potential impact on Jinna (Songlines) • Potential impact to Aboriginal heritage, due to the submerged coastline at initial occupation of the region, landscape features that would have defined the first travel routes used to move through Country.	x	
Murujuga seasonal calendar: • Any change to the feeding, breeding or migratory behaviour of culturally significant species would impact significantly on subsistence, cultural and ceremonial activities.	x	

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6.1.37 Email to Ngarluma Aboriginal Corporation (NAC) – 8 September 2025

We are contacting you as the delegated representative for Ngarluma Aboriginal Corporation (NAC).

Woodside would like to consult with NAC about the Pluto 4D M3 Marine Seismic Survey (the activity) Environment Plan (EP).

Consultation for this activity opens on 8 September 2025 and closes on 24 October 2025.

The purpose of Woodside's consultation with NAC is to understand how the activities in the EP could potentially impact NAC's cultural values, interests and activities.

Woodside, in the course of developing the EP, will assess feedback, opinions and comments provided by the consultation closing date, and where relevant, consider appropriate control measures to include in the EP.

Your consultation correspondence with us, along with any appropriate control measures included in the EP are considered by the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA), when we submit the EP for assessment.

The purpose of this email is to:

* Inform you about our plans for the activity.
* Invite you to submit feedback about the activity.
* Provide an opportunity to discuss the activity.
* Discuss further ways to consult and engage with you about the activity.

Overview of the activity

The Pluto 4D M3 Marine Seismic Survey (MSS) EP covers:

* Seismic data acquisition using a survey vessel towing an acoustic source array and hydrophone cables (streamers).
* Support operations from a support vessel and chase vessel.

This MSS is a time-lapse survey which forms part of the ongoing reservoir management and surveillance program for the Pluto reservoir. To obtain this time-lapse data, the seismic survey replicates as accurately as possible previous Pluto monitor surveys, undertaken in 2016 and 2020, to detect changes such as pressure depletion and water movement within and surrounding the Pluto gas reservoir during production.

The attached Summary Consultation Information Sheet has been developed for a First Nations audience and provides a high-level overview of the activity, including the Environment that May Be Affected (EMBA) map.

We have also linked the Consultation Information Sheet here with further details including an assessment of the potential impacts and risks relevant to the activity, as well as mitigation and management measures.

Consultation with Woodside

We'd like to gather your feedback about:

* How the activity could impact your cultural values, interests, and activities.
* Protection of the environment and its relationship to your cultural values.
* Your concerns about the proposed activity.

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* Other elements we should consider in the Environment Plan.
* Any other individuals, groups, or organisations we should talk to about this activity.

Cultural values

We have collated information in relation to NAC's cultural values that have either been provided to Woodside during previous EP consultation or via publicly available literature. These are outlined in Appendix A.

If there are any changes or additional information about NAC's cultural values that you would like Woodside to consider in the preparation of this EP, please let us know by 24 October 2025. Please also get in touch if you'd like to know more about how we have collected this information.
Consultation preferences

Please let us know your preferred method of consultation including whether you would like to meet face-to-face. We welcome the opportunity to meet and speak with Board members, Elders, office holders and other interested parties about this activity.

Woodside provides various forms of assistance to organisations, Traditional Custodian groups and individuals to support participation in EP consultation. If you would like us to meet with you as part of Woodside's consultation on this activity, please contact me to discuss and confirm details.

How to contact us and further information

Information can be sent to feedback@woodside.com , via telephone on 1800 442 977 or directly to me.

Woodside manages gender-restricted or other culturally sensitive information carefully and will work with you to understand how you would like your information to be managed. If you would prefer to provide the information directly to NOPSEMA, please do so by phoning (08) 6188 8700 or via email at communications@nopsema.gov.au .

Further information about NOPSEMA

The following NOPSEMA publications may be of assistance to support understanding of the requirements to participate in consultation for Commonwealth EPs:

* Brochure: Consultation on offshore petroleum environment plans brochure.pdf (nopsema.gov.au)
* Guideline: Guideline: Consultation in the course of preparing an environment plan (nopsema.gov.au)
* Policy: Draft policy for managing gender-restricted information PL2098.pdf (nopsema.gov.au) .

Ongoing Feedback

Feedback can continue to be provided during the life of an EP, including after consultation for the EP has closed, during EP assessment, and after an EP has been accepted by NOPSEMA. Woodside continues to receive, assess and respond to claims and objections from relevant persons throughout the life of the EP. Should a claim or objection be received following the acceptance of an EP that Woodside assesses, and which identifies a measure or control that Woodside considers requires implementation or updates to meet the intended outcome of consultation, Woodside will apply its Management of Change and Review process as appropriate.

Please feel free to forward this email and the attached document to members of NAC, Traditional Owners and other people and organisations who may be interested.

We look forward to your response and please feel free to call or send through guidance on next steps.

Kind regards

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Appendix A – NAC's Cultural Values

Cultural Value	Source	
	Consultation	Literature review (publicly available)
Onshore heritage: interest in management of heritage sites.	x	
Potential submerged heritage.	x	
Manggan - (creative beings) used supernatural force to shape the hills, rivers, seas and landforms.		x

6.1.38 Email to Robe River Kuruma Aboriginal Corporation (RRKAC) – 8 September 2025

We are contacting you as the delegated representative for Robe River Kuruma Aboriginal Corporation (RRKAC).

Woodside would like to consult with RRKAC about the Pluto 4D M3 Marine Seismic Survey (the activity) Environment Plan (EP).

Consultation for this activity opens on 8 September 2025 and closes on 24 October 2025.

The purpose of Woodside's consultation with RRKAC is to understand how the activities in the EP could potentially impact RRKAC's cultural values, interests and activities.

Woodside, in the course of developing the EP, will assess feedback, opinions and comments provided by the consultation closing date, and where relevant, consider appropriate control measures to include in the EP.

Your consultation correspondence with us, along with any appropriate control measures included in the EP are considered by the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA), when we submit the EP for assessment.

The purpose of this email is to:

* Inform you about our plans for the activity.
* Invite you to submit feedback about the activity.
* Provide an opportunity to discuss the activity.
* Discuss further ways to consult and engage with you about the activity.

Overview of the activity

The Pluto 4D M3 Marine Seismic Survey (MSS) EP covers:

* Seismic data acquisition using a survey vessel towing an acoustic source array and hydrophone cables (streamers).
* Support operations from a support vessel and chase vessel.

This MSS is a time-lapse survey which forms part of the ongoing reservoir management and surveillance program for the Pluto reservoir. To obtain this time-lapse data, the seismic survey replicates as accurately as possible previous Pluto monitor surveys, undertaken in 2016 and 2020, to detect changes such as pressure depletion and water movement within and surrounding the Pluto gas reservoir during production.

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The attached Summary Consultation Information Sheet has been developed for a First Nations audience and provides a high-level overview of the activity, including the Environment that May Be Affected (EMBA) map.

We have also linked the Consultation Information Sheet here with further details including an assessment of the potential impacts and risks relevant to the activity, as well as mitigation and management measures.

Consultation with Woodside

We'd like to gather your feedback about:

* How the activity could impact your cultural values, interests, and activities.
* Protection of the environment and its relationship to your cultural values.
* Your concerns about the proposed activity.
* Other elements we should consider in the Environment Plan.
* Any other individuals, groups, or organisations we should talk to about this activity.

Cultural values

We have collated information in relation to RRKAC's cultural values that have either been provided to Woodside during previous EP consultation or via publicly available literature. These are outlined in Appendix A.

If there are any changes or additional information about RRKAC's cultural values that you would like Woodside to consider in the preparation of this EP, please let us know by 24 October 2025. Please also get in touch if you'd like to know more about how we have collected this information.

Consultation preferences

Please let us know your preferred method of consultation including whether you would like to meet face-to-face. We welcome the opportunity to meet and speak with Board members, Elders, office holders and other interested parties about this activity.

Woodside provides various forms of assistance to organisations, Traditional Custodian groups and individuals to support participation in EP consultation. If you would like us to meet with you as part of Woodside's consultation on this activity, please contact me to discuss and confirm details.

How to contact us and further information

Information can be sent to feedback@woodside.com , via telephone on 1800 442 977 or directly to me.

Woodside manages gender-restricted or other culturally sensitive information carefully and will work with you to understand how you would like your information to be managed. If you would prefer to provide the information directly to NOPSEMA, please do so by phoning (08) 6188 8700 or via email at communications@nopsema.gov.au .

Further information about NOPSEMA

The following NOPSEMA publications may be of assistance to support understanding of the requirements to participate in consultation for Commonwealth EPs:

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* Guideline: Guideline: Consultation in the course of preparing an environment plan (nopsema.gov.au)
* Policy: Draft policy for managing gender-restricted information PL2098.pdf (nopsema.gov.au) .

Ongoing Feedback

Feedback can continue to be provided during the life of an EP, including after consultation for the EP has

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closed, during EP assessment, and after an EP has been accepted by NOPSEMA. Woodside continues to receive, assess and respond to claims and objections from relevant persons throughout the life of the EP. Should a claim or objection be received following the acceptance of an EP that Woodside assesses, and which identifies a measure or control that Woodside considers requires implementation or updates to meet the intended outcome of consultation, Woodside will apply its Management of Change and Review process as appropriate.

Please feel free to forward this email and the attached document to members of RRKAC, Traditional Owners and other people and organisations who may be interested.

We look forward to your response and please feel free to call or send through guidance on next steps.

Kind regards

Appendix A – RRKAC's Cultural Values

Cultural Value	Source	
	Consultation	Literature review (publicly available)
Underwater heritage – concerns about impacts to heritage at shoreline.	x	
Coastline	x	

6.1.39 Email to Wirrawandi Aboriginal Corporation (WAC) – 8 September 2025

We are contacting you as the delegated representative for Wirrawandi Aboriginal Corporation (WAC).

Woodside would like to consult with WAC about the Pluto 4D M3 Marine Seismic Survey (the activity) Environment Plan (EP).

Consultation for this activity opens on 8 September 2025 and closes on 24 October 2025.

The purpose of Woodside's consultation with WAC is to understand how the activities in the EP could potentially impact WAC's cultural values, interests and activities.

Woodside, in the course of developing the EP, will assess feedback, opinions and comments provided by the consultation closing date, and where relevant, consider appropriate control measures to include in the EP.

Your consultation correspondence with us, along with any appropriate control measures included in the EP are considered by the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA), when we submit the EP for assessment.

The purpose of this email is to:

* Inform you about our plans for the activity.
* Invite you to submit feedback about the activity.
* Provide an opportunity to discuss the activity.
* Discuss further ways to consult and engage with you about the activity.

Overview of the activity

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The Pluto 4D M3 Marine Seismic Survey (MSS) EP covers:

* Seismic data acquisition using a survey vessel towing an acoustic source array and hydrophone cables (streamers).
* Support operations from a support vessel and chase vessel.

This MSS is a time-lapse survey which forms part of the ongoing reservoir management and surveillance program for the Pluto reservoir. To obtain this time-lapse data, the seismic survey replicates as accurately as possible previous Pluto monitor surveys, undertaken in 2016 and 2020, to detect changes such as pressure depletion and water movement within and surrounding the Pluto gas reservoir during production.

The attached Summary Consultation Information Sheet has been developed for a First Nations audience and provides a high-level overview of the activity, including the Environment that May Be Affected (EMBA) map.

We have also linked the Consultation Information Sheet here with further details including an assessment of the potential impacts and risks relevant to the activity, as well as mitigation and management measures.

Consultation with Woodside

We'd like to gather your feedback about:

* How the activity could impact your cultural values, interests, and activities.
* Protection of the environment and its relationship to your cultural values.
* Your concerns about the proposed activity.
* Other elements we should consider in the Environment Plan.
* Any other individuals, groups, or organisations we should talk to about this activity.

Cultural values

We have collated information in relation to WAC's cultural values that have either been provided to Woodside during previous EP consultation or via publicly available literature. These are outlined in Appendix A.

If there are any changes or additional information about WAC's cultural values that you would like Woodside to consider in the preparation of this EP, please let us know by 24 October 2025. Please also get in touch if you'd like to know more about how we have collected this information.

Consultation preferences

Please let us know your preferred method of consultation including whether you would like to meet face-to-face. We welcome the opportunity to meet and speak with Board members, Elders, office holders and other interested parties about this activity.

Woodside provides various forms of assistance to organisations, Traditional Custodian groups and individuals to support participation in EP consultation. If you would like us to meet with you as part of Woodside's consultation on this activity, please contact me to discuss and confirm details.

How to contact us and further information

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Further information about NOPSEMA

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Ongoing Feedback

Feedback can continue to be provided during the life of an EP, including after consultation for the EP has closed, during EP assessment, and after an EP has been accepted by NOPSEMA. Woodside continues to receive, assess and respond to claims and objections from relevant persons throughout the life of the EP. Should a claim or objection be received following the acceptance of an EP that Woodside assesses, and which identifies a measure or control that Woodside considers requires implementation or updates to meet the intended outcome of consultation, Woodside will apply its Management of Change and Review process as appropriate.

Please feel free to forward this email and the attached document to members of WAC, Traditional Owners and other people and organisations who may be interested.

I look forward to your response and please feel free to call or send through guidance on next steps.

Kind regards

Appendix A – WAC's Cultural Values

Cultural Value	Source	
	Consultation	Literature review (publicly available)
Marine Species • Whales: migration and potential impact of noise on whale communication • Turtles: general interest around management and monitoring.	x	
Rock art: potential impact of emissions from activities.	x	
Underwater heritage: impacts particularly given recent finding of artefacts.	x	
Onshore heritage: management of sites.	x	

6.1.40 Email to Yinggarda Aboriginal Corporation (YAC) – 8 September 2025

We are contacting you as the delegated representative for Yinggarda Aboriginal Corporation (YAC).

Woodside would like to consult with YAC about the Pluto 4D M3 Marine Seismic Survey (the activity) Environment Plan (EP).

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Consultation for this activity opens on 8 September 2025 and closes on 24 October 2025.

The purpose of Woodside's consultation with YAC is to understand how the activities in the EP could potentially impact YAC's cultural values, interests and activities.

Woodside, in the course of developing the EP, will assess feedback, opinions and comments provided by the consultation closing date, and where relevant, consider appropriate control measures to include in the EP.

Your consultation correspondence with us, along with any appropriate control measures included in the EP are considered by the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA), when we submit the EP for assessment.

The purpose of this email is to:

* Inform you about our plans for the activity.
* Invite you to submit feedback about the activity.
* Provide an opportunity to discuss the activity.
* Discuss further ways to consult and engage with you about the activity.

Overview of the activity

The Pluto 4D M3 Marine Seismic Survey (MSS) EP covers:

* Seismic data acquisition using a survey vessel towing an acoustic source array and hydrophone cables (streamers).
* Support operations from a support vessel and chase vessel.

This MSS is a time-lapse survey which forms part of the ongoing reservoir management and surveillance program for the Pluto reservoir. To obtain this time-lapse data, the seismic survey replicates as accurately as possible previous Pluto monitor surveys, undertaken in 2016 and 2020, to detect changes such as pressure depletion and water movement within and surrounding the Pluto gas reservoir during production.

The attached Summary Consultation Information Sheet has been developed for a First Nations audience and provides a high-level overview of the activity, including the Environment that May Be Affected (EMBA) map.

We have also linked the Consultation Information Sheet here with further details including an assessment of the potential impacts and risks relevant to the activity, as well as mitigation and management measures.

Consultation with Woodside

We'd like to gather your feedback about:

* How the activity could impact your cultural values, interests, and activities.
* Protection of the environment and its relationship to your cultural values.
* Your concerns about the proposed activity.
* Other elements we should consider in the Environment Plan.
* Any other individuals, groups, or organisations we should talk to about this activity.

Cultural values

We have collated information in relation to YAC's cultural values that have either been provided to Woodside during previous EP consultation or via publicly available literature. These are outlined in Appendix A.

If there are any changes or additional information about YAC's cultural values that you would like Woodside to consider in the preparation of this EP, please let us know by 24 October 2025. Please also get in touch if you'd like to know more about how we have collected this information.

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Consultation preferences

Please let us know your preferred method of consultation including whether you would like to meet face-to-face. We welcome the opportunity to meet and speak with Board members, Elders, office holders and other interested parties about this activity.

Woodside provides various forms of assistance to organisations, Traditional Custodian groups and individuals to support participation in EP consultation. If you would like us to meet with you as part of Woodside's consultation on this activity, please contact me to discuss and confirm details.

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Ongoing Feedback

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Please feel free to forward this email and the attached document to members of YAC, Traditional Owners and other people and organisations who may be interested.

I look forward to your response and please feel free to call or send through guidance on next steps.

Kind regards

Appendix A – Yinggarda's Cultural Value

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Cultural Value	Source	
	Consultation	Literature review (publicly available)
Right and responsibility to speak and care for Country		x
Contemporary use of Country for cultural activities • Fishing including for Shark Bay mullet. • Camping • Hunting and gathering	x	x
Ecosystem health • Plants, animals and the environment are inexorably linked to culture. • Seagrass important food source for dugongs.	x	
Marine Mammals • Dugongs • Whales: potential impact to migration patterns and potential collisions with vessels.	x	

6.1.41 Email to Kimberley Land Council (KLC) – 8 September 2025

I hope all is well for you. I am hoping to get one more Kimberley trip in before I head off on 3 months Long Service Leave, so I check in and see if you have time for a coffee if I can fit the trip in.

We are contacting you as the delegated representative for Kimberley Land Council (KLC).

Woodside would like to consult with KLC about the Pluto 4D M3 Marine Seismic Survey (the activity) Environment Plan (EP).

Consultation for this activity opens on 8 September 2025 and closes on 24 October 2025.

The purpose of Woodside's consultation with KLC is to understand how the activities in the EP could potentially impact KLC's cultural values, interests and activities.

Woodside, in the course of developing the EP, will assess feedback, opinions and comments provided by the consultation closing date, and where relevant, consider appropriate control measures to include in the EP.

Your consultation correspondence with us, along with any appropriate control measures included in the EP are considered by the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA), when we submit the EP for assessment.

The purpose of this email is to:

· Inform you about our plans for the activity.

· Invite you to submit feedback about the activity.

· Provide an opportunity to discuss the activity.

· Discuss further ways to consult and engage with you about the activity.

Overview of the activity

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The Pluto 4D M3 Marine Seismic Survey (MSS) EP covers:

· Seismic data acquisition using a survey vessel towing an acoustic source array and hydrophone cables (streamers).

· Support operations from a support vessel and chase vessel.

This MSS is a time-lapse survey which forms part of the ongoing reservoir management and surveillance program for the Pluto reservoir. To obtain this time-lapse data, the seismic survey replicates as accurately as possible previous Pluto monitor surveys, undertaken in 2016 and 2020, to detect changes such as pressure depletion and water movement within and surrounding the Pluto gas reservoir during production.

The attached Summary Consultation Information Sheet has been developed for a First Nations audience and provides a high-level overview of the activity, including the Environment that May Be Affected (EMBA) map.

We have also linked the Consultation Information Sheet here with further details including an assessment of the potential impacts and risks relevant to the activity, as well as mitigation and management measures.

Consultation with Woodside

We'd like to gather your feedback about:

· How the activity could impact your cultural values, interests, and activities.

· Protection of the environment and its relationship to your cultural values.

· Your concerns about the proposed activity.

· Other elements we should consider in the Environment Plan.

· Any other individuals, groups, or organisations we should talk to about this activity.

Consultation preferences

Please let us know your preferred method of consultation including whether you would like to meet face-to-face. We welcome the opportunity to meet and speak with Board members, Elders, office holders and other interested parties about this activity.

Woodside provides various forms of assistance to organisations, Traditional Custodian groups and individuals to support participation in EP consultation. If you would like us to meet with you as part of Woodside's consultation on this activity, please contact me to discuss and confirm details.

How to contact us and further information

Information can be sent to feedback@woodside.com, via telephone on 1800 442 977 or directly to me.

Woodside manages gender-restricted or other culturally sensitive information carefully and will work with you to understand how you would like your information to be managed. If you would prefer to provide the information directly to NOPSEMA, please do so by phoning (08) 6188 8700 or via email at communications@nopsema.gov.au.

Further information about NOPSEMA

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Ongoing Feedback

Feedback can continue to be provided during the life of an EP, including after consultation for the EP has closed, during EP assessment, and after an EP has been accepted by NOPSEMA. Woodside continues to receive, assess and respond to claims and objections from relevant persons throughout the life of the EP. Should a claim or objection be received following the acceptance of an EP that Woodside assesses, and which identifies a measure or control that Woodside considers requires implementation or updates to meet the intended outcome of consultation, Woodside will apply its Management of Change and Review process as appropriate.

Please feel free to forward this email and the attached document to members of KLC, Traditional Owners and other people and organisations who may be interested.

I look forward to your response and please feel free to call or send through guidance on next steps.

Kind regards,

6.1.42 Email to Yamatji Marlpa Aboriginal Corporation (YMAC), Nganhurra Thanardi Garrbu Aboriginal Corporation NTGAC and Nhuwala Claim Group – 8 September 2025

We are contacting you as the delegated representatives for Yamatji Marlpa Aboriginal Corporation (YMAC) and Nganhurra Thanardi Garrbu Aboriginal Corporation (NTGAC), as well as YMAC's role as the primary contact for the Nhuwala Claim Group.

Woodside would like to consult with YMAC, NTGAC and Nhuwala Claim Group about the Pluto 4D M3 Marine Seismic Survey (the activity) Environment Plan (EP).

Consultation for this activity opens on 8 September 2025 and closes on 24 October 2025.

The purpose of Woodside's consultation with YMAC, NTGAC and Nhuwala Claim Group is to understand how the activities in the EP could potentially impact the groups' cultural values, interests and activities.

Woodside, in the course of developing the EP, will assess feedback, opinions and comments provided by the consultation closing date, and where relevant, consider appropriate control measures to include in the EP.

Your consultation correspondence with us, along with any appropriate control measures included in the EP are considered by the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA), when we submit the EP for assessment.

The purpose of this email is to:

* Inform you about our plans for the activity.
* Invite you to submit feedback about the activity.

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* Provide an opportunity to discuss the activity.
* Discuss further ways to consult and engage with you about the activity.

Overview of the activity

The Pluto 4D M3 Marine Seismic Survey (MSS) EP covers:

* Seismic data acquisition using a survey vessel towing an acoustic source array and hydrophone cables (streamers).
* Support operations from a support vessel and chase vessel.

This MSS is a time-lapse survey which forms part of the ongoing reservoir management and surveillance program for the Pluto reservoir. To obtain this time-lapse data, the seismic survey replicates as accurately as possible previous Pluto monitor surveys, undertaken in 2016 and 2020, to detect changes such as pressure depletion and water movement within and surrounding the Pluto gas reservoir during production.

The attached Summary Consultation Information Sheet has been developed for a First Nations audience and provides a high-level overview of the activity, including the Environment that May Be Affected (EMBA) map.

We have also linked the Consultation Information Sheet here with further details including an assessment of the potential impacts and risks relevant to the activity, as well as mitigation and management measures.

Consultation with Woodside

We'd like to gather your feedback about:

* How the activity could impact your cultural values, interests, and activities.
* Protection of the environment and its relationship to your cultural values.
* Your concerns about the proposed activity.
* Other elements we should consider in the Environment Plan.
* Any other individuals, groups, or organisations we should talk to about this activity.

Cultural values

We have collated information in relation to NTGAC's cultural values that have either been provided to Woodside during previous EP consultation or via publicly available literature. These are outlined in Appendix A.

If there are any changes or additional information about NTGAC's cultural values that you would like Woodside to consider in the preparation of this EP; or any cultural values that the Nhuwala Claim Group would like to raise with us, please let us know by 24 October 2025. Please also get in touch if you'd like to know more about how we have collected this information.

Consultation preferences

Please let us know your preferred method of consultation including whether you would like to meet face-to-face. We welcome the opportunity to meet and speak with Board members, Elders, office holders and other interested parties about this activity.

Woodside provides various forms of assistance to organisations, Traditional Custodian groups and individuals to support participation in EP consultation. If you would like us to meet with you as part of Woodside's consultation on this activity, please contact me to discuss and confirm details.

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Please feel free to forward this email and the attached document to members of YMAC, NTGAC and Nhuwala Claim Group, Traditional Owners and other people and organisations who may be interested.

We look forward to your response and please feel free to call or send through guidance on next steps.

Kind regards

Appendix A – NTGAC's Cultural Values

Cultural Value	Source	
	Consultation	Literature review (publicly available)
Marine ecosystems and species • Interest in invasive marine species • Interest in chemicals released into water – ballast water discharge • Marine parks – risks • Whales • Whale Sharks	x	

6.1.43 Email to Ngarluma Yindjibarndi Foundation Ltd (NYFL) and Yindjibarndi Aboriginal Corporation – 8 September 2025

We are contacting you as the delegated representative for Yindjibarndi Aboriginal Corporation and Ngarluma Yindjibarndi Foundation Ltd (NYFL).

Woodside would like to consult with Yindjibarndi Aboriginal Corporation and NYFL about the Pluto 4D M3

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Marine Seismic Survey (the activity) Environment Plan (EP).

Consultation for this activity opens on 8 September 2025 and closes on 24 October 2025.

The purpose of Woodside's consultation with Yindjibarndi Aboriginal Corporation and NYFL is to understand how the activities in the EP could potentially impact the groups' cultural values, interests and activities.

Woodside, in the course of developing the EP, will assess feedback, opinions and comments provided by the consultation closing date, and where relevant, consider appropriate control measures to include in the EP.

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* Invite you to submit feedback about the activity.
* Provide an opportunity to discuss the activity.
* Discuss further ways to consult and engage with you about the activity.

Overview of the activity

The Pluto 4D M3 Marine Seismic Survey (MSS) EP covers:

* Seismic data acquisition using a survey vessel towing an acoustic source array and hydrophone cables (streamers).
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Consultation with Woodside

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* Protection of the environment and its relationship to your cultural values.
* Your concerns about the proposed activity.
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* Any other individuals, groups, or organisations we should talk to about this activity.

Consultation preferences

Please let us know your preferred method of consultation including whether you would like to meet face-to-face. We welcome the opportunity to meet and speak with Board members, Elders, office holders and other interested parties about this activity.

Woodside provides various forms of assistance to organisations, Traditional Custodian groups and

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individuals to support participation in EP consultation. If you would like us to meet with you as part of Woodside's consultation on this activity, please contact me to discuss and confirm details.

How to contact us and further information

Information can be sent to feedback@woodside.com , via telephone on 1800 442 977 or directly to me.

Woodside manages gender-restricted or other culturally sensitive information carefully and will work with you to understand how you would like your information to be managed. If you would prefer to provide the information directly to NOPSEMA, please do so by phoning (08) 6188 8700 or via email at communications@nopsema.gov.au .

Further information about NOPSEMA

The following NOPSEMA publications may be of assistance to support understanding of the requirements to participate in consultation for Commonwealth EPs:

* Brochure: Consultation on offshore petroleum environment plans brochure.pdf (nopsema.gov.au)
* Guideline: Guideline: Consultation in the course of preparing an environment plan (nopsema.gov.au)
* Policy: Draft policy for managing gender-restricted information PL2098.pdf (nopsema.gov.au) .

Ongoing Feedback

Feedback can continue to be provided during the life of an EP, including after consultation for the EP has closed, during EP assessment, and after an EP has been accepted by NOPSEMA. Woodside continues to receive, assess and respond to claims and objections from relevant persons throughout the life of the EP. Should a claim or objection be received following the acceptance of an EP that Woodside assesses, and which identifies a measure or control that Woodside considers requires implementation or updates to meet the intended outcome of consultation, Woodside will apply its Management of Change and Review process as appropriate.

Please feel free to forward this email and the attached document to members of Yindjibarndi Aboriginal Corporation and NYFL, Traditional Owners and other people and organisations who may be interested.

I look forward to your response and please feel free to call or send through guidance on next steps.

Kind regards

6.1.44 Email to Save Our Songlines (SOS) (via legal representative) – 8 September 2025

We are contacting you as the delegated representative for Save Our Songlines.

Woodside would like to consult with Save Our Songlines about the Pluto 4D M3 Marine Seismic Survey (the activity) Environment Plan (EP).

Consultation for this activity opens on 8 September 2025 and closes on 24 October 2025.

The purpose of Woodside's consultation with Save Our Songlines is to understand how the activities in the EP could potentially impact Save Our Songlines's cultural values, interests and activities.

Woodside, in the course of developing the EP, will assess feedback, opinions and comments provided by the consultation closing date, and where relevant, consider appropriate control measures to include in the EP.

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Your consultation correspondence with us, along with any appropriate control measures included in the EP are considered by the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA), when we submit the EP for assessment.

The purpose of this email is to:

* Inform you about our plans for the activity.
* Invite you to submit feedback about the activity.
* Provide an opportunity to discuss the activity.
* Discuss further ways to consult and engage with you about the activity.

Overview of the activity

The Pluto 4D M3 Marine Seismic Survey (MSS) EP covers:

* Seismic data acquisition using a survey vessel towing an acoustic source array and hydrophone cables (streamers).
* Support operations from a support vessel and chase vessel.

This MSS is a time-lapse survey which forms part of the ongoing reservoir management and surveillance program for the Pluto reservoir. To obtain this time-lapse data, the seismic survey replicates as accurately as possible previous Pluto monitor surveys, undertaken in 2016 and 2020, to detect changes such as pressure depletion and water movement within and surrounding the Pluto gas reservoir during production.

The attached Summary Consultation Information Sheet has been developed for a First Nations audience and provides a high-level overview of the activity, including the Environment that May Be Affected (EMBA) map.

We have also linked the Consultation Information Sheet here with further details including an assessment of the potential impacts and risks relevant to the activity, as well as mitigation and management measures.

Consultation with Woodside

We'd like to gather your feedback about:

* How the activity could impact your cultural values, interests, and activities.
* Protection of the environment and its relationship to your cultural values.
* Your concerns about the proposed activity.
* Other elements we should consider in the Environment Plan.
* Any other individuals, groups, or organisations we should talk to about this activity.

We note your previously stated preference for consultation to occur in written format (as set out in an email dated 10 April 2024). Woodside also welcomes the opportunity to meet face to face.

How to contact us and further information

Information can be sent to feedback@woodside.com , via telephone on 1800 442 977 or directly to me.

Woodside manages gender-restricted or other culturally sensitive information carefully and will work with you to understand how you would like your information to be managed. If you would prefer to provide the information directly to NOPSEMA, please do so by phoning (08) 6188 8700 or via email at communications@nopsema.gov.au .

Further information about NOPSEMA

The following NOPSEMA publications may be of assistance to support understanding of the requirements to participate in consultation for Commonwealth EPs:

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* Brochure: Consultation on offshore petroleum environment plans brochure.pdf (nopsema.gov.au)
* Guideline: Guideline: Consultation in the course of preparing an environment plan (nopsema.gov.au)
* Policy: Draft policy for managing gender-restricted information PL2098.pdf (nopsema.gov.au) .

Ongoing Feedback

Feedback can continue to be provided during the life of an EP, including after consultation for the EP has closed, during EP assessment, and after an EP has been accepted by NOPSEMA. Woodside continues to receive, assess and respond to claims and objections from relevant persons throughout the life of the EP. Should a claim or objection be received following the acceptance of an EP that Woodside assesses, and which identifies a measure or control that Woodside considers requires implementation or updates to meet the intended outcome of consultation, Woodside will apply its Management of Change and Review process as appropriate.

Please feel free to forward this email and the attached document to members of Save Our Songlines, Traditional Owners and other people and organisations who may be interested.

I look forward to your response and please feel free to call or send through guidance on next steps.

Kind regards

6.2 Follow-up consultation

6.2.1 Email sent to Australian Border Force (ABF), Australian Communications and Media Authority (ACMA), Vocus, Australian Maritime Safety Authority (AMSA) Marine Pollution, Pilbara Ports, Department of Primary Industries and Development (DPIRD), Department of Mines, Petroleum and Exploration (DMPE), Department of Industry, Science and Resources (DISR), Beagle No 1, Carbon CQ, INPEX Alpha, JX Nippon O&G Exploration Australia, Longreach Capital Investments, KATO Energy / KATO Corowa / KATO NWS / KATO Amulet, Melbana Exploration, OMV Australia / Sapura OMV Upstream, Pelsart Resources, Shell Australia, SK Earthon, Skye Napoleon / Skye Resources, Tanami Energy, Vermilion Energy, Western Gas, Australian Energy Producers (AEP), Exmouth Chamber of Commerce and Industry, Karratha and Districts Chamber of Commerce and Industry, Onslow Chamber of Commerce and Industry, Exmouth Community Liaison Group (CLG), Karratha Community Liaison Group (CLG), City of Karratha, Shire of Exmouth, Australian Conservation Foundation (ACF), Australian Marine Conservation Society (AMCS), Conservation Council of Western Australia (CCWA), Greenpeace Australia Pacific (GAP), International Fund for Animal Welfare (IFAW), World Wildlife Fund (WWF) Australia, Sea Shepherd Australia (SSA), Minderoo Foundation, The Wilderness Society (TWS), Cape Conservation Group (CCG), Protect Ningaloo, Ningaloo Coast World Heritage Advisory Committee (NCWHAC), Department of Defence (DoD), Commonwealth Fisheries Association (CFA), North West Slope Trawl Fishery individual licence holders, Western Deepwater Trawl Fishery individual licence holders, Tuna Australia, Western Tuna and Billfish Fishery individual licence holders, Australian Southern Bluefin Tuna Industry Association (ASBTIA), Southern Bluefin Tuna Fishery individual licence holders, Western Skipjack Fishery individual licence holders, Department of Agriculture, Fisheries and Forestry (DAFF) Biosecurity and DAFF Fisheries, Department of Transport and Major Infrastructure (DTMI), Department of Primary Industry and Regional Development (DPIRD), Marine Tourism WA, WA Game Fishing Association,

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Gascoyne Recreational Marine Users, Pilbara/Kimberley Recreational Marine Users, Australian Institute of Marine Science (AIMS), Western Australian Marine Science Institute (WAMSI), University of Western Australia (UWA), Murdoch University, Edith Cowan University, Commonwealth Scientific and Industrial Research Organisation (CSIRO), Curtin University, Department of Climate Change, Energy, the Environment and Water (DCCEEW), Email sent to Department of Planning, Lands and Heritage (DPLH), Western Australian Museum (WA Museum), Shire of Ashburton, Aquaculture Council of Western Australia (ACWA), Department of Biodiversity, Conservation and Attractions (DBCA), Chevron, KUFPEC, Exxon Mobil Australia, Kyushu Electric Wheatstone, PE Wheatstone, Shell Australia – 8 October 2025

Woodside previously consulted you on its plans to submit the Pluto 4D M3 Marine Seismic Survey Environment Plan (EP). The Pluto 4D M3 (Monitor 3) Marine Seismic Survey (MSS) overlaps Petroleum Licence Area WA-34-L and WA-1-IL and other titleholders' adjacent Petroleum Licence Areas, within Commonwealth waters approximately 28 km north-west of the Montebello Islands and 150 km north-west of Dampier.

If you would like to comment on the proposed activity, please provide feedback to Woodside by 24 October 2025 using the details below.

Overview

The Pluto 4D M3 MSS EP covers:

- Seismic data acquisition using a seismic survey vessel towing an acoustic source array and hydrophone cables (streamers).
- Support operations from a support vessel and chase vessel.

This four-dimensional (4D) MSS is a time-lapse monitor survey which forms part of the ongoing reservoir management and surveillance program for the Pluto reservoir. To obtain time-lapse data, the seismic survey replicates as accurately as possible previous Pluto monitor surveys, undertaken in 2016 and 2020. This new seismic data is then compared to the previous data to observe subtle differences in fluid movement and pressure changes both within and surrounding the reservoir.

Additional information on the EP is provided in the email below and in the Consultation Information Sheet, which is available on Woodside's website.

Feedback

If you would like to provide feedback specific to the proposed activities, we welcome your feedback via email at consultation@feedback.woodside.com, via phone call at 1800 442 977 or via the feedback form on our website by 24 October 2025. Alternatively, Woodside is willing to consider and accept your feedback via a means which suit you.

Your feedback and our response will be included in our EP, which will be submitted to the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA) for acceptance in accordance with the Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2023 (Cth). Your feedback may also be used to support other regulatory processes associated with the planned activities (which may or may not be confidential).

You may request that particular information you provide during consultation not be published in the Environment Plan made available on the NOPSEMA website. Please let us know if you request that particular information not be published, and we will make your request known to NOPSEMA.

Personal information collected in the course of consultation will be handled in accordance with Woodside's Environment Plan Privacy Collection Notice. To understand how personal information will be handled, please visit our website.

Regards,

Woodside Energy Consultation

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6.2.2 Letter sent to Gascoyne recreational marine users and Pilbara Kimberley recreational marine users – 8 October 2025

Please direct all responses/queries to:
Woodside Energy Consultation
t: 1800 442 977
e: consultation@feedback.woodside.com.au

Woodside Energy

08 October 2025

001 - 4

Woodside Energy Group Ltd
ACN 004 898 962
Mia Yellagonga
11 Mount Street
Perth WA 6000
Australia
T: +61 8 9348 4000
www.woodside.com

Dear Stakeholder

PLUTO 4D M3 MARINE SEISMIC SURVEY ENVIRONMENT PLAN

Woodside previously consulted you on its plans to submit the Pluto 4D M3 Marine Seismic Survey Environment Plan (EP).

The Pluto 4D M3 (Monitor 3) Marine Seismic Survey (MSS) overlaps Petroleum Licence Area WA-34-L and WA-1-IL and other titleholders' adjacent Petroleum Licence Areas, within Commonwealth waters approximately 28 km north-west of the Montebello Islands and 150 km north-west of Dampier.

If you would like to comment on the proposed activity, please provide feedback to Woodside by 24 October 2025 using the details below.

Overview

The Pluto 4D M3 MSS EP covers:

- Seismic data acquisition using a seismic survey vessel towing an acoustic source array and hydrophone cables (streamers).
- Support operations from a support vessel and chase vessel.

This four-dimensional (4D) MSS is a time-lapse monitor survey which forms part of the ongoing reservoir management and surveillance program for the Pluto reservoir. To obtain time lapse data, the seismic survey replicates as accurately as possible previous Pluto monitor surveys, undertaken in 2016 and 2020. This new seismic data is then compared to the previous data to observe subtle differences in fluid movement and pressure changes both within and surrounding the reservoir.

Further information on the proposed activities is provided in the Consultation Information Sheet which is available via the QR code below:

If you have feedback specific to the activities and the proposed EP, Woodside welcomes it at consultation@feedback.woodside.com or via phone call at 1800 442 977 by **24 October 2025**.

Your feedback and our response will be included in our EP which will be submitted to the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA) for acceptance in accordance with the *Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2023* (Cth). Your feedback may also be used to support other regulatory processes associated with the planned activities (which may or may not be confidential).

Please let us know if you request that particular information that you provide in the consultation not be published. If so, we will make your request known to NOPSEMA.

Personal information collected in the course of consultation will be handled in accordance with Woodside's Environment Plan Privacy Collection Notice. To understand how personal information will be handled, please visit www.woodside.com/what-we-do/consultation-activities.

Regards

Woodside Consultation

Woodside Energy
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6.3 Newspaper advertisements

6.3.1 Initial consultation

6.3.1.1 The Australian – 8 September 2025

THE AUSTRALIAN MONDAY, SEPTEMBER 8, 2025

4 THE NATION

Divisions arise as Ley tests migrant vote

NOAH YIM

Divisions within the Coalition have escalated, with frontbencher Jacinta Nampijinpa Price accusing manager of opposition business Alex Hawke of "cowardly and inappropriate conduct" and of berating one of her staff members.

Senator Price made the claims as Sussan Ley attempted to mop up her frontbencher's claim last week that the Albanese government was prioritising Indian migrants because they voted Labor.

The Opposition Leader was in Parramatta in Sydney's west on Sunday meeting with Indian community leaders to manage fallout from Senator Price's comment about the voting preferences of migrants from the world's most populous country.

Senator Price has since admitted the comment was a "mistake" but has not apologised for it.

Ms Ley on Sunday morning said Senator Price was "wrong" but refused to say whether she had counselled her over the comment.

"The comments were wrong, they were not correct, they should not have taken place, and corrections have been made," Ms Ley told the ABC's Insiders program.

"They will not be repeated.

"We retain, respect and love our Indian community, as we do all of our migrant communities."

Ms Ley also said high migration was hurting "Australia's way of life" by applying stresses on infrastructure and the housing market. "The pressures I'm hearing about are about the total number of migrants," she said.

"This is not about any migrant or any migrant community. We value every single one of them and what they bring to this country.

"This is not a failure of migrants or migration, this is a failure of government policy to build the infrastructure, to build the services, to have the roads, to have the amenities in our cities. So those pressures are being reflected wherever we go."

Shortly after, Senator Price accused fellow frontbencher Mr Hawke of "cowardly and inappropriate conduct", of having "berat[ed]" one of her staff members, and suggested his behaviour was an example of an obstacle to solving the "woman problem" in the Liberal Party.

Responding to a Sky News report that Mr Hawke had phoned and counselled her over the comments, Senator Price said Mr Hawke had initially contacted her office and warned a staff member there would be consequences if she did not do as asked.

"If people want to talk about a so called 'woman problem' in the Liberal Party, then it's this we don't stand up for women when they are mistreated by our own colleagues," she said on X.

"Let me be absolutely clear: Alex Hawke did not call me, text me, or WhatsApp me at that point.

"What actually happened is that Alex Hawke first rang my office – not my direct number – the following morning on Thursday.

"After claiming he couldn't reach me, he chose instead to berate one of my staff. He even pressed my staff that if I did not comply with his requests, I may end up like another female team-mate of the Coalition, who I won't name. I sent him a WhatsApp message to call out his cowardly and inappropriate conduct."

Mr Hawke later on Sunday said he had "spoken with Senator Price and accepted her explanation of how her comments have been misinterpreted and subsequently weaponised by Labor" but did not address her accusations.

Ms Ley later declined to weigh into the struggle, saying "issues between colleagues will be resolved in the normal way". She said the party had to "move on" from Senator Price's comment about Indian migrants "They were wrong, they've been corrected, they won't be repeated, we move on now."

Australia's top Hindu community leader last week called on Senator Price to apologise after her "disappointing" comment.

On Sunday, the Executive Council of Australian Jewry called on "political and community leaders to speak up and unite in supporting the Australian Indian and Hindu communities".

"The Indian and Hindu communities have made an outsize contribution to Australia's economy and society for generations", ECAJ president Daniel Aghion said. "They are hardworking, family-oriented and peace-loving communities, it is a national disgrace they have been publicly vilified from any quarter."

Hanson sees One Nation ruling the nation in 15 years

EXCLUSIVE

RHIANNON DOWN

One Nation leader Pauline Hanson says she sees the ultra conservative party leading the government within 15 years, as she ruled out that her daughter Lee or chief of staff, James Ashby, would be selected to fill a Senate vacancy.

Conceding that the minor party she founded would not ascend to running a state government or the federal parliament "in my time", Senator Hanson said One Nation would not be the "bridesmaid constantly".

After the party increased its numbers to four Senate seats at the May 3 election, Senator Hanson said the outcome was the beginning of the far-right party's political ascent after a long period of rebuilding.

"I don't want to be the bridesmaid constantly all the time, and I'm not just there to keep the bastards honest, as (former Australian democrat politician) Don Chipp said, I want to get rid of the bastards," Senator Hanson said.

"I'm sick and tired of seeing the decline of this country."

Senator Hanson said she believed the road from minor party to government of a state or dominating federal parliament would take between 10 and 15 years, but declined to set a timeline on her own retirement.

"I won't be around in 15 years time, I can tell you that," she said. "You have to be realistic. I'm 71 now. I'm in fantastic health but I have to be realistic about it – I want the young ones coming through (to have a go).

"I will be standing at the next election, there's no doubt about that, and I'll be standing with my daughter. "She'll be standing in Tasmania for the Senate. And ... I'd like to be able to spend a bit of time on the floor of parliament with my daughter, working together."

After one of the party's new senators, Warwick Blacoy, resigned from parliament three months after the election from to health reasons, Senator Hanson denied the exit was a continuation of a long-term trend of resignations and infighting within One Nation.

She also ruled out that she would install her daughter or Mr Ashby to fill the vacancy. "It definitely will not be my daughter, it's definitely not going to be James Ashby."

When asked if she was planning for her daughter to one day take over the leadership of the party, Senator Hanson said: "I don't believe in nepotism."



DOMINIQUE RAMSAY

Sussan Ley meets local business owners during a visit to the 'Little India' precinct in Harris Park in Sydney's west

China 'gives the orders' in Honiara

Continued from Page 1

the home of the Prime Minister after last year's national election.

Mr Kenilorea, the son of Solomon Islands first prime minister, Sir Peter Kenilorea, a the leader of the United Party, the only party that has vowed to terminate Solomon Islands' secretive 2022 security pact with China.

The outspoken former diplomat is also a member of the Inter-Parliamentary Alliance on China, a group of legislators from around the world demanding accountability from an increasingly authoritarian China.

While Mr Manele's government came under threat during a no-confidence vote in Parliament in May, Mr Kenilorea helped him stay in office, using his bloc of votes as head of the UP to prevent the even more rabidly pro Beijing former prime minister Mannasch Sogavare returning to power.

Mr Kenilorea offered to join Mr Manele's government, hoping to help steer it away from its pro-China stance.

But Beijing had other ideas, and its orders, says Mr Kenilorea, came directly from the Prime Minister.

"Right after the (no confidence) motion got withdrawn on the floor of Parliament, Manele invited me to his house, his residence, and he just told me straight out that the Chinese ambassador told him not to take me, Mr Kenilorea said.

"It is extraordinary, but it's just the norm these days. I'd suspected that was the deal, but it was still shocking to hear the Prime Minister say that, too."

Mr Kenilorea and Mr Manele had been long-time friends, serving together in New York at the Solomon Islands mission to the UN.

"We were the only Solomon Island families in New York, so I know him very well – his children call me uncle," Mr Kenilorea said. "So it was really, really weird to hear him say that the Chinese ambassador told him not to take me."

Mr Kenilorea says he made it clear that he was happy to be a backbencher, so long as he did not have to toe a pro-Beijing line.

Mr Manele, he says, told him that would only happen if the left his party and given a press conference praising Beijing.

"And then he says, 'and you have to take a trip to China'. And I was like, 'what for – a conference?' He said, 'no, just go and just go and visit'. I was like, oh, man, it's OK, I'll just stay.

"For China, it means a lot that I have capitulated to them. I'm not willing to do that."

It's not the first time China has intervened to silence critics and consolidate its influence in Solomon Islands, Mr Kenilorea said. The only other Solomon Islands member of the pro-Taiwan IPAC was Mr Kenilorea's fellow MP Daniel Wanoreo, who accepted a place in Mr Manele's national government as Minister for Rural Development. But there's come with a catch.

"Danny got a personal dressing down by the Chinese Ambassador in Honiara to pretty much leave IPAC as a condition to join the government," Mr Kenilorea said. "They summoned him to the embassy and gave the conditions on what he must do, so it was direct political interference."

Mr Wanoreo resigned from IPAC soon after, saying he had done so "in the interest of fostering stability and signing with a collective national vision".

Mr Wanoreo could not be reached for comment, but Mr Kenilorea said he suspected that threats of withdrawing aid projects from the MP's electorate may have been part of the pressure campaign.

As the behind-the-scenes manoeuvring with Mr Kenilorea and others was taking place, Mr Manele was also taking steps to exclude Taiwan from the Pacific.

China, the US and other "delegational partners" will also likely be excluded but the move is seen as a ploy to specifically remove Taiwan, which has participated for more than 30 years.

Mr Kenilorea said he fully expected to see China flex its muscle at the forum beginning on Monday – with plenty of help from Solomon Islands.

"In Honiara we have a government that's clearly beat the knee to Beijing," he said.

"So it will definitely play the host card, with the prerogatives that come with that, to try and bulldoze something through."

'Lower taxes? Let's do business'

Continued from Page 1

companies, which pay more than half the corporate tax.

While Labor to release a 2035 emissions reduction target within a fortnight, Mr Albanese will label the act zero transition as a "profound economic opportunity" that can set up Australia for a "new era of growth and prosperity". The Climate Change Authority has been consulting on a target between 65 and 75 per cent, despite many experts warning Labor is not on track to meet its existing target to lower emissions by 43 per cent of 2005 levels by 2030.

While business groups backed Labor's 2030 target, the Australian Chamber of Commerce and Industry has warned the CCA's target range is too ambitious while the BCA last week released modelling claiming the cost of the higher end of that target would be more than $500bn.

The BCA report claimed a 60 per cent emissions-reduction goal compared with 2005 levels would cost between $395bn and $480bn in capital investment. A target of 70 per cent or higher would drive up investment costs to a range of $435bn to $590bn.

Leaping on the BCA report, Mr Albanese will say "this is exactly what this is all about".

"That is Australia's best opportunity to build an economy that is more resilient, more diversified and more decentralised, because regional Australia has so much to gain," he will say.

"All of this is within reach but only if we back ourselves. Only if we invest in our people and their capacity, our businesses and their ideas. And only if we move together, with ambition and urgency. Because the world is not waiting for us."

Mr Albanese will declare the BCA's backing of Labor's 43 per cent 2030 target was "critical" for it winning public support, breaking Australia from "a decade in which energy policy became untethered from reality".

Despite using the last election campaign to walk away from the Repatec modelling that underpinned Labor's targets for 2030, the Prime Minister will talk up the process of deciding on that target as being a "framework we would build and must get there".

"Business has seen, first-hand, the damage done to Australia's international relationships and to our economy by the ideological conflict of the climate wars," Mr Albanese will say.

"Business and industry don't have that luxury of pretending change is not occurring.

"You have to deal with the real world and you have to be able to plan for the long term.

"That's what the framework we have built is all about.

"We have one energy policy and we are delivering it."

Mr Albanese's speech comes after the Treasurer signalled he would launch yet another "Medicare" campaign against the opposition. Dr Chalmers was counselling on Sussan Ley's vow to tackle the "culture of dependency" while saying it was problematic more than half of Australians received the bulk of their income from the government. "Here they go again, describing Medicare as wasteful spending," Dr Chalmers said.

Australia's effective corporate tax rate is among the highest in the OECD, higher than that of the US, Britain and Canada.

In the US, Donald Trump has recently signed into law a bill that provides 100 per cent immediate deductions for new factories and expansions of existing ones, as well as domestic manufacturing incentives for the likes of sports stars such as Australian packaging king Anthony Pratt.

The President has proposed lowering the US corporate tax rate to 15 per cent for companies that produce in the US, down from the existing 21 per cent.

Plan to put burden on employers comes with flaws



MATTHEW CRANSTON
COMMENT

Anthony Albanese is seeking to reset relations with Australian business in his second term by giving them more responsibility for economic growth with few new incentives.

"The private sector is resuming its rightful place as the driver of growth in our economy," the Prime Minister will tell a crowd of chief executives at the Business Council of Australia in Sydney on Monday night.

But if taken by some to mean private investment, that is not really the driver of growth in our economy.

Private investment had no impact on GDP growth in the June quarter. Instead, total private business investment slipped 0.1 per cent.

Overall business investment was soft in the June quarter and accounted for just 12.3 per cent of GDP according to IV, whose Oceania chief executive, David Larocca, said last week: "Many of our clients have been pausing or delaying new capital expenditure."

Business investment in the June quarter accounted for a lower part of GDP than even the March quarter result and is not far above the pandemic low of 11.1 per cent.

Most of the private sector "driver of growth" in quarterly GDP came from household spending. Dad's mums and dads eating into their savings and taking advantage of lower interest rates and some personal tax relief.

It is not, for example, retailer Wolworths making bigger investments – its total capex contracted $70m or about 3 per cent in the 2025 financial year.

The hope is that greater consumer spending might lead to greater business investment.

Albanese knows he has to say something on Monday night to allay concerns about investment levels. He will say: "We want to keep that dialogue going ... in tax reform, looking at fair and affordable ways to incentivise greater business investment and capital deepening."

Yet he will temper the hopes around that. "We have to prove that measures which boost productivity, drive business investment and cut red tape bring real and lasting benefits to our nation as a whole," he will say.

He will mention the other things he thinks will boost investment such as introducing new environmental legislation to make project assessments more efficient, and talk about incentives to investment in renewable energy. But where the rubber hits the road will be on broader and more certain tax reform for business.

Australia's effective corporate tax rate ranks among the highest in the OECD and that will have to change if the government is serious about lifting business's role in economic growth.

Albanese and Jim Chalmers might be able to get away without major Hawke-Keating era reform, but weaker investment and growth will end up costing jobs and votes.

Pluto 4D M3 Marine Seismic Survey Environment Plan

Woodside has led the development of the LNG industry in Australia and today aims to thrive through the global energy transition.

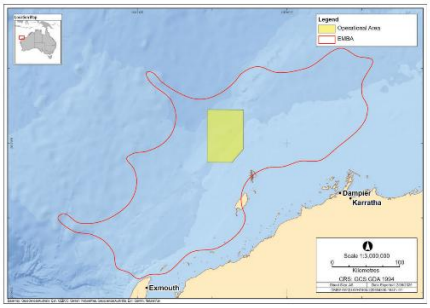
Woodside consults with relevant persons to gather feedback to inform its Commonwealth Environment Plans.

Pluto 4D M3 (Monitor 3) Marine Seismic Survey Environment Plan

Woodside plans to undertake a 4D (time lapse) monitor marine seismic survey as part of a reservoir management and surveillance program of the Pluto reservoir, approximately 150 km north-west of Dampier. The EP covers seismic data acquisition using a survey vessel towing an acoustic source array and hydrophone cables (streamers), with operations assisted by a support vessel and chase vessel. Previous Pluto monitor surveys were undertaken in 2016 and 2020.

Environment that May Be Affected (EMBA)

The EMBA is the largest ecological area where any credible activities could potentially have an environmental consequence. The wider EMBA will not be affected.



We would like to hear from you

You are an individual, organisation or community group who believes your functions, interests or activities may be impacted by the activities undertaken for Monitor 3 then we want to hear from you by 26 October 2025.

To find out more go to:

www.woodside.com/what-we-do/consultation-activities

You can also subscribe via our website to receive future information on upcoming activities.

consultation@feedback.woodside.com
Toll free: 1800 442 977
woodside.com

Woodside Energy

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6.3.1.2 The West Australian – 8 September 2025

Probe starts into flat fire

Police are investigating after an apartment went up in flames in Perth's south.

Emergency services responded to reports a third-storey apartment, on Flourish Loop, in Atwell, was engulfed in flames about 7.40am on Sunday.

The blaze — which was controlled by about 8.40am — was contained to one unit and fought by 14 firefighting crews.

Everyone in the apartment was evacuated.

One man was taken to hospital with smoke inhalation by St John WA. The cause of the blaze has not been determined.

Teen dies after pursuit

A teenage boy has been killed and four others injured, after a stolen car crashed during a police pursuit in New South Wales.

Police said a speeding car was spotted by highway patrol officers and after a chase, the car — which is believed to have been stolen — crashed in Scone.

Police said the car was being driven by a 14-year-old boy, who was taken to hospital, as were three back-seat passengers — two boys aged 14 and 17 and a 25-year-old woman. A 17-year-old boy who was in the passenger seat died at the scene.

'TROUBLEMAKERS

Jewish groups take aim at 'outsiders' behind Sydney

KIMBERLEY BRADDISH



Protesters on both sides were spoken to by police after rival demonstrations came to a head.

Tensions have flared as pro-Palestine and pro-Israel groups faced off on Sydney's Bondi Beach — with some protesters coming to blows.

Tense footage captured the moment police were forced to intervene after the scuffle broke out on Sunday morning among the rival protests.

People can be heard in the video, uploaded to Facebook, shouting "deport the lot of them" and "you're the terrorist here".

Hundreds of pro-Palestine protesters earlier converged on the iconic beach on Father's Day for a paddle-out in support of Gaza and the Sumud Flotilla — the convoy of vessels trying to break the Israeli blockade of the Gaza Strip.

The event was organised by Jews Against the Occupation, a Jewish-led pro-Palestine group who called on "local boardriders" to take part in the "peaceful event".

Despite a heavy police presence, video from the event showed punches being thrown on the steps outside the Bondi Pavilion.

A NSW Police spokesperson said no arrests had been recorded as of Sunday afternoon, but that officers were still investigating reports of a scuffle at the beach.

"Officers attached to Eastern Suburbs Police Area Command attended Bondi Beach about 8am today in response to unauthorised protests," police said in a statement.

"To ensure community safety, local police managed these protests with assistance from the public order and riot squad, Operation Odin, and the Central Metropolitan Region high visibility patrol unit before crowds dispersed without incident.

"Police intervened in a scuffle between two groups; there were no reports of injuries and no arrests have been made at this time.

"Inquiries into the incident are ongoing."

Police said the protests concluded without further incident, and that crowds had dispersed by about 12pm.

The event was criticised by the conservative Australian

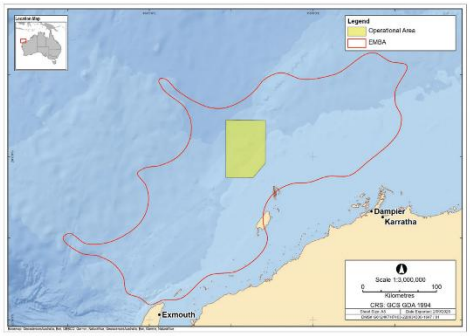
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6.3.1.3 Pilbara News – 10 September 2025

Pilbara NEWS
Wednesday, September 10, 2025
pilbaranews.com.au

Nine vying for a shire seat

MADELIN HAYES

The candidates for the Exmouth local government election have been announced, with nine residents vying for a spot on the council.

David Gillespie, Gary Mounsey, Jackie Brooks, Craig Heron, Jade Bowra, James Penfold, Amanda Kallis, Matthew Thorburn and Jacqueline Hine have thrown their hats in the ring for the October 18 election.


David Gillespie


Gary Mounsey


Jackie Brooks


Craig Heron


Jade Bowra


James Penfold


Amanda Kallis


Matthew Thorburn


Jacqueline Hine

David Gillespie

Mr Gillespie, a long-time Exmouth business owner and resident since 2009, said he has been consistent in lobbying State and Federal governments to ensure Exmouth receives the investment it deserves while working closely with the shire president and other councillors.

He noted tourism as a key growth area and believes investing in workers' housing, supporting local businesses and developing facilities to meet increasing demand will make Exmouth thrive.

Gary Mounsey

Mr Mounsey, previously on council for four years from 2018-2021 — two as deputy president — said he was willing to put his hand back up to ensure what he loves about the community keeps intact.

Mr Mounsey has resided in Exmouth with his family for over 15 years and said he would advocate on what the community needs, rather than individual wants and needs.

Jackie Brooks

Calling Exmouth home for 27 years, Ms Brooks has worn a number of hats in the community, including deputy shire president, Exmouth Chamber of Commerce and Industry secretary, Australia's Coral Coast chair and more.

Ms Brooks said these roles have given her the practical knowledge of government processes, policy development and advocacy. She said her vision for Exmouth was to ease the financial burden on ratepayers by developing new strategic ways to attract external funding.

Craig Heron

Mr Heron has lived in Exmouth for 10 years and is proud to call the town home. He said he has built strong connections with young families, youth and long-term locals, giving him a broad understanding of the community's needs. If elected as councillor, Mr Heron said he would advocate for sustainable growth and development that caters to the needs of the community.

Jade Bowra

Ms Bowra, who has lived in Exmouth with her husband and two kids for 14 years, said she is putting her hand up to contribute to the town's growth and wellbeing. Ms Bowra has volunteered for many organisations over the years for various sporting clubs and corporations, including teaching life-saving skills.

James Penfold

With a background in law and a qualification in work health and safety, Mr Penfold said he is dedicated to creating a safe working environment for all employees at the shire. Growing up in Exmouth, Mr Penfold said he is dedicated to preserving the North West Cape, believing that modern innovations can be used to ensure that decisions are made to preserve the natural environment. Mr Penfold is also passionate about advocating for better mental health resources.

Amanda Kallis

Having a deep connection to the region due to an early childhood at Learmonth, Ms Kallis said she has returned with her husband to once again call Exmouth home. If elected, Ms Kallis said she would focus on key priorities including minimising future rate increases, promoting sustainable development that respects the natural environment and advocating for urgent infrastructure upgrades such as housing. She brings a background in private law and government, understanding how State and local governments operate.

Matthew Thorburn

Mr Thorburn has resided in Exmouth for the past 12 years as a local business owner with his wife and daughter. If elected, he said he hopes to make a difference by establishing career pathways for the younger community. Mr Thorburn has volunteered through the Exmouth Eagles Football Club for the past 10 years, umpires kids' basketball and helps out at the school P&C when available.

Jacqueline Hine

An Exmouth resident for 23 years, Ms Hine has worked locally as a nurse while raising three children. She said she is actively involved in the community through volunteering in various positions across sport, health and community at a local, State and Federal level and wants to shape a future for the shire that supports local families and respects the natural environment.

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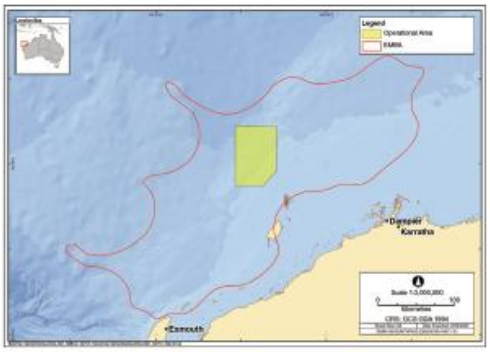
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6.3.1.4 Midwest Times – 10 September 2025

Midwest Times
Wednesday, September 10, 2025
midwesttimes.com.au

Homegrown author to headline book festival

KATE CAMPBELL

Acclaimed actor and author, Geraldton-raised Tasma Walton, is returning home next month to be a headline special guest at the 20th annual Big Sky Readers and Writers Festival.

An impressive line-up of literary luminaries was announced this week for the weekend full of words, whimsy and wisdom, including Walton, novelists Catherine Greer and Stefanie Koens as well as musician and crime author Dave Warner to name just a few.

Walton released her second novel, I Am Nannertgarrook, this year, which is based on the true story of her ancestor and shines a light on a dark side of Australia's colonial history.

The actor has built up a stellar CV on the screen in the past three decades, including roles in Blue Heelers, Mystery Road, How To Please A Woman and The Twelve.

Koens' debut novel Daughters Of Batavia, which delves into the grim and haunting history of the Abrolhos Islands, won the 2023 Banjo Prize.

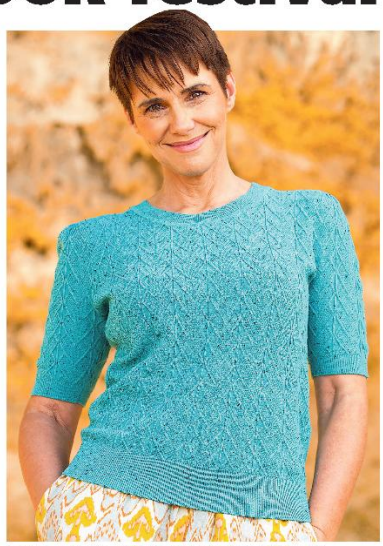
The festival's 20th anniversary kicks off on Friday October 24, with this year's theme being A Celebration of Stories.

City of Greater Geraldton mayor Jerry Clune said the event was not to be missed.

"We are extremely proud to be celebrating 20 years of the Big Sky Readers and Writers Festival, which remains one of our most loved locally grown events," he said. "This year is a special milestone and to celebrate, there is an amazing program of events and brilliant guests to look forward to."

A series of events and sessions will be on offer for book lovers of all ages, including a substantial pre-festival program featuring Perth Symphony Orchestra, Sisters In Crime WA and the Irwin Districts Historical Society. Six local writers are in the running for the 2025 Short Story Prize — Adrian Doyle, Carrie Puzzar, Annie Chandler, Serena Moss, Courtney Evans and Lorraine Lambert. The winner will be announced at the festival's opening night on October 24 at Geraldton Regional Library. The event runs until Sunday, October 26.

Ticket and program information will be released in coming weeks.



Actor and author Tasma Walton. Picture: Ross Swanborough

Plane race a fundraising win for RFDS

An outback air race designed to raise funds for the Royal Flying Doctor Service smashed its ambitious $750,000 target, reaching $850,000 when the event was only halfway complete.

The race, which takes place every three years, started in Uluru on August 22, stopping at Alice Springs, Tennant Creek, Daly Waters, Katherine, Kununurra, Broome, Onslow and Exmouth, and ended in Carnarvon on Monday.

Race manager and participant Stuart Payne, speaking from Katherine, said the pilots involved felt a strong connection to the RFDS' mission.

"Everybody feels the need for the RFDS, everybody has got the greatest respect for them," he said.

"We set what we thought was an ambitious target of $750,000 and we're already at $850,000, and of course the event is only halfway through," he said.

The funds raised will support the RFDS' work providing medical care to remote and regional communities across Australia.

For more information or to donate, visit outbackairrace.com.au.



Dr Jacques Scholtz and Phil Hines, otherwise known as the Race Villains.

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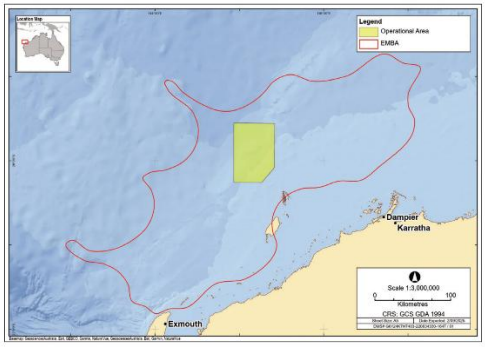
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6.3.1.5 Koori Mail – 10 September 2025

Reimagining Trade: Indigenous exports and the Asian opportunity

EARLY this year, Melanie Harris took on a new and unprecedented role: Austrade's first Head of Indigenous Engagement and Export.

Harris is an Aboriginal woman from Yuin Country, whose professional experience has bridged the realms of trade, capability development and cultural diplomacy.

Previously Australia's Trade Commissioner for Malaysia and Brunei, Harris is energised by the potential she sees for creating market opportunities for Indigenous Australian exporters.

"Austrade redefined our approach to supporting Indigenous exporters and created the role especially," says Harris.

"Being Indigenous myself also helps as my role is very much about building the capability of Indigenous businesses, as well as building the capability of Austrade to support those businesses into export markets."

Harris describes the Indigenous export sector as a 'sleeping giant' whose potential has been under-estimated despite the long history of First Nations trading across the Asia region, which is now primed for growth.

"There are a lot of great businesses out there that are innovative and great exporters, and they just happen to be Indigenous-owned," she says.

Part of her role is to help those businesses build the commercial and cultural capabilities they need to tap into growing export markets, of which Asia is a priority.

Harris' appointment is timely as the Australian government sharpens its strategic and economic focus on Southeast Asia.

In 2025, she embarked on a national roadshow, exploring overseas markets, targeting Indigenous entrepreneurs, helping them to build their Asia capabilities and build their awareness of Southeast Asian market opportunities.

Harris advocates deeper engagement not just between governments and businesses, but also between cultures.

In particular, she wants to see Indigenous Australians build closer people-to-people links throughout the region.

Asia, she believes, offers both opportunity and alignment.

"It's not necessarily about the Indigenous component," she explains. "For example, we have some great Indigenous businesses in the tech space".

She said what resonates in Southeast Asia is the cultural aspect; it's about the message behind why they're doing things the way they do.

"Indigenous businesses often come at something with a different view, for example, protecting the earth, protecting culture and protecting family," Harris said.

This message, she says, "resonated well" in Malaysia, where there is a similar emphasis on cultural preservation and environmental stewardship.

"Malaysian people want to protect their cultures and their physical country, but also the economy, their people and their languages. So that does resonate," she said.

Harris' workplace project as part of the Asialink Leaders Program focused on building Asia capability among Indigenous people.

But she soon discovered that "Australia needed to build its Indigenous capability first."

According to Harris, the gap often lies in perceptions, both of Asia and Indigenous businesses themselves.

"People tell me all the time that Indigenous businesses aren't ready to export, that they're not capable or don't have the capacity," she said.

" I tell them, 'You can't say that about a whole business sector."

Looking back, Harris reflects on how different her experience might have been if she'd discovered Asia earlier.

"If you'd asked 20-year-old me where I was heading, I would have said the US or the UK or New Zealand, we think they're similar to us because they're English-speaking countries," Harris said.

"But there are more similarities with Asia that we're missing, [compared to] some of those other countries."

She believes that Southeast Asia offers Australia enormous economic, social and cultural opportunities.

"We're neighbours with similar time zones and can get there so quickly," she notes. The only thing that has been missing is the mindset.

Melanie Harris is Austrade's inaugural Head of Indigenous Engagement and Export. She served as Australia's Trade Commissioner for Malaysia and Brunei between 2021-2024 and now champions Indigenous business exports globally. Melanie participated in the Asialink Leaders Program in 2022.



Melanie Harris, Austrade's first Head of Indigenous Engagement and Export.

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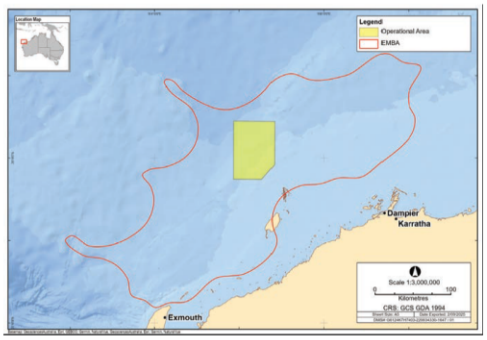
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6.3.1.6 National Indigenous Times – 24 September 2025

Tussle over stadium site



The site of the proposed Tasmanian AFL stadium at Macquarie Point. Picture: AAP

CALLAN MORSE

The Tasmanian Aboriginal Centre has welcomed the Tasmanian Planning Commission's recommendation to not proceed with Hobart's Macquarie Point stadium.

The commission cited size and location, poor urban planning and the cost — with limited returns — in its advice against the $1.13 billion project.

Following the final report's release, the TAC said the advice creates "a once-in-a-generation opportunity for truth, justice, and Aboriginal land return" in the heart of Hobart.

In a statement, TAC campaign manager Nala Mansell said the Country of Macquarie Point has deep cultural ties to the Mumirimina people of the Oyster Bay nation.

"It was here that the British first invaded lutruwita/Tasmania in 1804," Ms Mansell said.

"It was here our ancestors were driven from their homelands, massacred at Risdon Cove, and forced into exile. And it is here that we continue to fight for justice today."

The TAC labelled the rejection of the stadium not just a planning decision in isolation, "but a chance to correct more than two centuries of injustice".

"For too long, governments have spoken of reconciliation while denying land return, spoken of truth-telling while erasing our voices, and spoken of culture while excluding our people from decision-making," Ms Mansell said. "This decision provides the opportunity for Macquarie Point to become a landmark of Aboriginal justice; a turning point toward real Treaty and truth-telling in Tasmania. But that can only happen if the land is returned to its rightful owners."

Tasmanian senator and Palawa woman Jacqui Lambie criticised the State Government's deal with the AFL needing a stadium at Macquarie Point.

"My message to the crossbench (Upper House independents) is to find the courage the Premier can't," Senator Lambie told the ABC.

"They need to block this stadium and pressure the government to go back to the AFL and renegotiate this shocking deal.

"Tasmania deserves an AFL team — we should have had one years ago — but we don't deserve to be bankrupted by a stadium that we don't actually need. According to the TPC (Tasmanian Planning Commission) report, the government will have to raise taxes by $50 million a year to pay for it."

Following the report's release, Premier Jeremy Rockliff doubled down on the Government's intention to go against the commission's advice and build the roofed, 38,000-seat stadium at Macquarie Point.

He said many issues raised in the report, such as noise and access, could be overcome.

The report's release prompted the Greens, who remain against the stadium, to warn of future budget blowouts which they say will significantly impact the state's bottom line.

In an alternative proposal, the TAC called for the full return of Macquarie Point to Aboriginal ownership, an end to all major developments at the site until Aboriginal land return is negotiated, and the opportunity for the Aboriginal community to shape a vision for the site which could include a cultural centre.

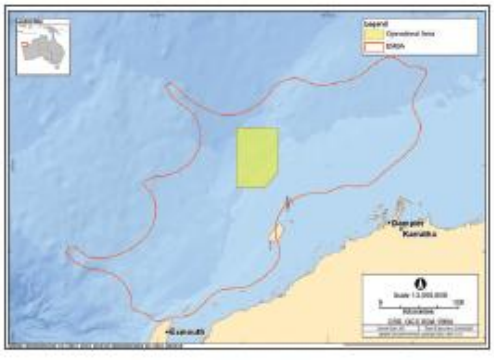
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6.3.2 Public comment period

6.3.2.1 The Australian – 6 February 2026

THE AUSTRALIAN FRIDAY, FEBRUARY 6, 2026

Iran 'should be very worried', Trump warns

LARA SPIRIT
WASHINGTON

Donald Trump has warned that Iran's Supreme Leader "should be very worried" ahead of planned negotiations about Tehran's nuclear program on Friday.

During a tense build up to the talks, both American and Iranian officials are said to have made demands which risked the negotiations being cancelled.

Abbas Araghchi, the Iranian Foreign Minister, said on Wednesday (Thursday AEDT) that the talks would take place as planned in Oman on Friday morning, following reports of a last-minute standoff over the format and venue.

The impasse threatened attempts to find a diplomatic alternative to US military action, after the Pentagon amassed thousands of troops, an aircraft carrier and a host of warships in the Middle East in recent weeks.

"Nuclear talks with the United States are scheduled to be held in Muscat on about [9am Friday," said Mr Araghchi in an X post.

Mr Trump has expressed hope that a deal can be reached but has declined to rule out military action, referring to what he called a "massive armada" within range of Iran.

On Wednesday he repeated his veiled threats to Ayatollah Khamenei.

"I would say he should be very worried, yeah, he should be," Mr Trump said in an interview with the US broadcaster NBC News. "As you know, they are negotiating with us."

Mr Trump also claimed that Iran was looking to build a new nuclear facility after the US strikes last June. "They were thinking about starting a new site in a different part of the country," he said. "We found out about it. I said, 'You do that, we're going to do very bad things to you'."

Under the original plan, Mr Trump's special envoy Steve Witkoff and other US officials were scheduled to hold talks with Mr Araghchi in Istanbul.

Other Middle Eastern countries were also expected to be present for wider discussions beyond nuclear issues, including the violent crackdown on recent protests against Iran's theocratic regime.

Secretary of State Marco Rubio said he had seen conflicting reports about the format of the talks but that the US hoped to discuss a range of questions with Iran including the "treatment of their own people".

However, Tehran insisted that the talks remain focused on nuclear capabilities only. A senior US official told Axios that the White House had initially rejected the demand.

"We told them it is this or nothing, and they said, 'OK, that month-ing'," the official said. However, the outlet reported that at least nine countries from the region subsequently requested the Americans go ahead with Friday's meetings, in an attempt to cool tensions which have grown since the protests.

Ayatollah Khamenei has admitted that "several thousands" have been killed since the protests began in December, blaming demonstrators and labelling them "footsoldiers of the United States".

At least 6872 people have died, according to the Human Rights Activists News Agency, with most killed by security forces. Some analysts say the death toll could be far higher.

Despite an ongoing internet and communications blackout imposed by the authorities, video footage and testimony has described the mass killings and arrests of those taking part in the demonstrations.

They include one video where an armoured car with flashing police lights appeared to deliberately run into protesters in the northwestern city of Ardabil.

The incident, reported to have taken place on January 8, killed at least one woman and injured three others, according to Iran International, an independent news channel.

Mr Trump has repeatedly threatened to intervene and has encouraged protesters, promising them that "help is on its way" and coming close to launching strikes last month.

But he has also demanded Iran curtail its nuclear programme, or face a larger attack than that seen last June, when American B-2 stealth bombers struck the country's uranium enrichment facilities in support of Israel during a 12-day war.

THE TIMES





A 'drone' pigeon fitted with an electrode and camera thanks to Neiry, a company linked to Katerina Tikhonova

Putin girl controls minds, and pigeons

MARC BENNETTS

Mind control has long been the dream of dictators as well as a staple of dystopian novels. So far, it has proved elusive. But in Russia, a neurotechnology company with links to President Vladimir Putin's daughter is starting small, focusing on pigeons that it claims can be turned into living drones with the help of computer chips implanted in their brains.

The Neiry company in Moscow started initial tests in November. It says the birds can be steered remotely by stimulating their brains with electrodes to make them turn left or right. They are fitted with a small controller, solar panels on their backs and a video camera. "Unlike traditional UAVs [drones], biological carriers do not require battery swaps or frequent landings, and their natural flight behaviour makes them suitable for long-duration routes – up to 400km without stops daily," Neiry wrote.

Although several countries, including China and the United States, have carried out research into controlling birds through neural interfaces, Neiry says it has moved to large-scale production.

"Our current focus is pigeons, but different species may be used depending on the environment or payload," Alexander Panov, founder and chief executive, said. "For transporting heavier payloads we plan to use ravens."

Mr Panov is a supporter of the war in Ukraine and has said that Russia's troops are "too gentle". Although Neiry says the birds are intended for peaceful purposes such as search and rescue and the monitoring of industrial facilities, they could potentially be adapted for military surveillance and reconnaissance missions. The company has also experimented with using electrodes to control cows and rats.

Despite doubts about the feasibility of the project, as well the ethical issues, Neiry has received funding "on a scale Russian neuroscience has never seen", a neurologist told Times Variant, a website run by exiled Russian scientists and science journalists that has investigated the Kremlin-backed company.

Among Neiry's supporters is the National Technology Initiative fund, which was set up on Putin's orders in 2014, and the Voskhod venture fund, which was founded by Vladimir Potanin, a Russian oligarch.

Neiry's generous funding is likely to be related to its partnership with the artificial intelligence institute at Moscow State University, led by Katerina Tikhonova, Putin's 20 year old second daughter. They carry out joint projects, and the head of the AI institute's research into the "development of invasive neural interfaces" took part in Neiry's rat experiments.

Although Putin has never publicly acknowledged that Ms Tikhonova, or her elder sister, Maria Vorontsova, are his daughters, both have stepped out of the shadows in recent years. Ms Tikhonova has previously spoken to state television in front of a computer graphic of a head wired up to electrodes. Anyone plugged into neuro devices, Ms Tikhonova said, "realises the potential of technology, and himself". No mention was made of her relationship to Russia's leader.

Mr Panov, the Neiry boss, has said his aim is to create a new stage of humanity that he describes as Homo superior. He has written on social media about the prospect of "reprogramming" people, including Ukrainians. "It is much cheaper than creating and raising a person of our own culture," he wrote.

A video released by Neiry shows female researchers releasing pigeons into an enclosed space. The pigeon is flying to the base location, one says, as the bird lands on a cage. She then "instructs" it to fly to the right or the left, as a man at a computer sends remote commands. The bird appears to change direction. There has been no independent verification of the experiments.

During the Cold War, the CIA wired up the brains of six dogs in an attempt to turn them into remote-controlled assassins. The experiment was a failure.

THE TIMES

Vance in pitch for critical alliance

JOE KELLY
WASHINGTON
CORRESPONDENT

US Vice President JD Vance has sketched out a plan for a new preferential trading bloc for critical minerals among America's allies and partners, including enforceable price floors via adjustable tariffs to guard against market distortion and diversify supply away from China.

Speaking to a critical minerals summit in Washington, Mr Vance said securing reliable access to critical minerals was just as important for the US as securing access to oil and urged the representatives of more than 50 nations in attendance to join a new "agreement on trade and critical minerals".

He warned the international market for critical minerals was failing and had not created domestic markets, US jobs or served American geostrategic interests. He warned that depressed commodity prices and over-production had made it much harder to get domestic mining projects off the ground.

"This morning, the Trump administration is proposing a concrete mechanism to return the global critical minerals market to a healthier, more competitive state, a preferential trade zone for critical minerals protected from external disruptions through enforceable price floors," Mr Vance said.

"We will establish reference prices for critical minerals at each stage of production, pricing that reflects real-world fair market value, and for members of the preferential zone these reference prices will operate as a floor maintained through adjustable tariffs to uphold pricing integrity.

"We want to eliminate that problem of people flooding into our markets with cheap critical minerals to undercut our domestic manufacturers."

Mr Vance said he wanted a "trading block among allies and partners" that would secure "immediate and durable" bonds, regardless of how much material flowed into the global market.

"Prices within the preferential trade zone will remain consistent over time. Our goal within that zone is to create diverse centres of production, stable investment conditions and supply chains that are immune to the kind of external disruptions that we've already talked about," he said.

"For those of you who join, we offer you a necessary foundation for private financing and secure access to the critical mineral supplies your nation would require in an emergency or some other contingency."

Mr Vance said those in the room were "all on the same team, and we need to create the economic incentives that reward people for investing and building in our countries".

"I believe that in this room, we have close to two thirds of the world's GDP represented. And, so, we have the capacity to make ourselves more independent, more self-reliant, and that's what we should be doing now we know that, today, the international market for critical minerals is failing," he said.

Hosting the summit, Secretary of State Marco Rubio said critical minerals were "vital to the devices that we use every single day. They power our infrastructure, our industry and our national defence which is something that's not talked about enough.

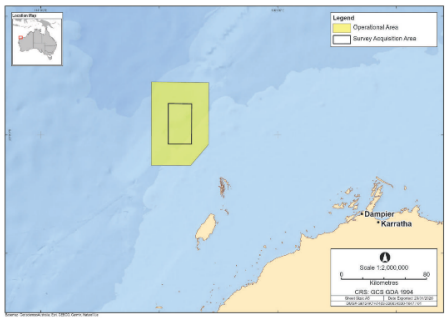
"And, so our goal is to have a global market that's secure, a global supply that's enduring and is available to everyone, every nation, at an affordable price. That's a top priority for this administration."

He said Donald Trump believed "economic security is national security" and referenced the critical minerals framework inked with Australia, noting that, "in October alone, the United States secured over $US80bn in critical mineral agreements across five countries".

Mr Rubio said mistakes had been made in the past, and that America had found itself at the mercy of "whoever controlled supply chains for these minerals".

His hope was to rectify the mistakes and "bring together our collective talent for innovation", so that mines could be reopened in the United States and in "all the partner nations represented here today".

Pluto 4D M3 Marine Seismic Survey Notice



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Woodside Energy

Bracing for the fallout as Japan's Iron Lady shows some mettle



YONI BASHAN
NORTH ASIA
CORRESPONDENT



An outspoken Sanae Takaichi has rattled Sino relations

When Japanese voters head to the polls on Sunday, they won't just decide who governs Japan. They'll shape a security landscape that Australia must navigate for years to come – and in all likelihood, they'll do so by electing an Iron Lady of Japanese politics who wants the country to grow a spine in a dangerous neighbourhood.

The woman almost certain to win – by a landslide – is Sanae Takaichi. Google her if you must. She's a Japanese version of Margaret Thatcher in full Maggie cosplay: skirt suits, a power palette of blues and navies, sensible pearls, and an uncompromising nationalist rhetoric.

Takaichi is gambling her entire political career on this election, vowing to resign if her Liberal Democratic Party doesn't secure a majority of the Japanese parliament's 465 seats. The polls suggest she'll storm home with around 300 alongside the LDP's coalition partner, the Japan Innovation Party.

Takaichi called this snap election in January because she wants a proper mandate for sweeping reforms to freeze consumption taxes for two years, crack down on illegal immigration, bump up defence spending to 2 per cent of GDP and – the big one – transform Japan into what she terms "a normal country capable of war".

The backdrop to all this is grim: the yen's tanking, food prices are punishing, birth rates are in freefall, the population's ageing rapidly, and bond yields are elevated to the point where investors are anxious about lending the government money.

If these sound like internal Japanese affairs that shouldn't matter to Australians, or that can be dismissed as the calculations of obscure Japanese psephology, here's one word to change your mind: China.

Within a month of taking office last October, Takaichi managed to set Sino-Japanese relations ablaze. Bold as brass, she stood up in parliament and declared that a Chinese attack on Taiwan could constitute "an existential crisis for Japan" and that Tokyo would consider military action in response.

Beijing's fury was Vesuvian. So was its retaliation: Chinese tourists were told to stay away from Japan; bans were slapped on Japanese seafood; restrictions were imposed on rare earth materials. From Beijing's perspective, Takaichi looks more like a warmonger. No surprise, then, that China's preferred outcome this weekend is for Takaichi to lose resoundingly.

"Takaichi's foreign policy is a shadowy military imperialism, a denial to the post WWII order," said Li Chao, dean of the Institute of American and East Asian Studies at Liaoning University. "Countries in the Asia-Pacific, including Australia, which fought against Japan's aggression in WWII, should be cautious."

But a win does appear probable for Takaichi, as Professor Chao conceded. Should it happen in a landslide, Takaichi will have the numbers to pursue two cornerstone constitutional amendments that stand to upend Japan's long-standing postwar identity.

The first would formally recognise Japan's Self Defence Forces and rename them the National Defence Army, ending nearly eight decades of constitutional ambiguity over whether Japan is even permitted to maintain one. It's a vestige of what was drafted under General Douglas MacArthur following Japan's 1945 defeat – a legal fiction prohibiting military forces that has persisted even as Japan built one of Asia's most capable militaries.

The second amendment would insert an emergency clause granting sweeping government powers during wars, disasters and terrorist attacks – powers the constitution currently lacks.

Tobias Harris, a Japan analyst and founder of Japan Foresight, said these were aspirational reforms that – pending the numbers on Sunday – would need to pass the lower house, the upper house, and clear further barriers that proved insurmountable under the leadership of Takaichi's other nationalist hero, the late former prime minister Shinzo Abe.

"This is not going to be a near term thing," Mr Harris said. "Abe was as strong a prime minister as anyone, he was as committed to reviving the issue as she is – and he wasn't able to do it. I don't think she'll have an easier time."

For Beijing, these constitutional amendments represent the kind of military swagger that once led to some unpleasant business in Manchuria, Korea and everywhere else within marching distance. For Takaichi, it's a matter of backbone and perhaps survival in a contingency.

Which brings us to Australia.

Japan is our closest defence partner in Asia. We're allied through the Quad and increasingly joined at the hip on regional security, including through AUKUS. A militarily assertive Japan offers genuine benefits: a capable ally willing to share security burdens, precisely when Washington is demanding everyone pull their weight.

But there are pressing questions: how does Australia align with Tokyo's posture when China is our biggest trading partner? How do we balance security commitments against an economic reality in which China has proven it'll weaponise trade at the drop of a hat – and may well do so over the Port of Darwin dispute?

These aren't hypotheticals anymore.

Sunday's votes will be counted in Tokyo, but the bill will come due in Canberra.

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6.3.2.2 The West Australian – 6 February 2026

Full story needed on alleged terror act

The West Australian
EDITORIAL

Those gathered in Forrest Place in the city on January 26 were there to express a view.

To have their voices heard. As is the long-cherished right of citizens in a democratic society. They were there to voice their opposition to Australia Day celebrations on that date, and they gathered under the banner of Invasion Day.

What took place was shocking. Authorities allege a 31-year-old man hurled a device filled with a combination of liquids designed to detonate on impact, wrapped in ball bearings and screws, into a crowd of 2500 demonstrators. The device failed to detonate.

The man was initially charged with intent to harm and making or possessing explosives under suspicious circumstances. But for 10 days the public was in the dark about the details.

On Thursday something more emerged. Police alleged the incident was an act of terror. WA's Joint Counter Terrorism Team said investigations had shown the incident was ideologically driven and Premier Roger Cook said there were allegations of a "hateful, racist ideology".

WA Police Commissioner Col Blanch said it would be alleged the man was self-radicalised and the case involved online access to "pro-white male, pro-white material".

"I'm mindful the matter's before the court, but to reach that threshold of having racist nationalist ideologies, it was self-radicalised, acting alone, access to white, pro-white male, pro-white material online," he said.

The 31-year-old will now also be formally charged with engaging in a terrorist act at his next court appearance, and faces up to life in prison if found guilty.

The charge is a first for the State, and is the most serious terror-related charge, according to Australian Federal Police Commissioner Krissy Barrett.

Mr Blanch also underlined how lucky demonstrators were to not have the device explode. "Whatever (higher beings) anyone believes in happened on that day, it (the explosive) should have gone off," he said.

"It had a fuse that was allegedly lit, whether it fell out or failed.

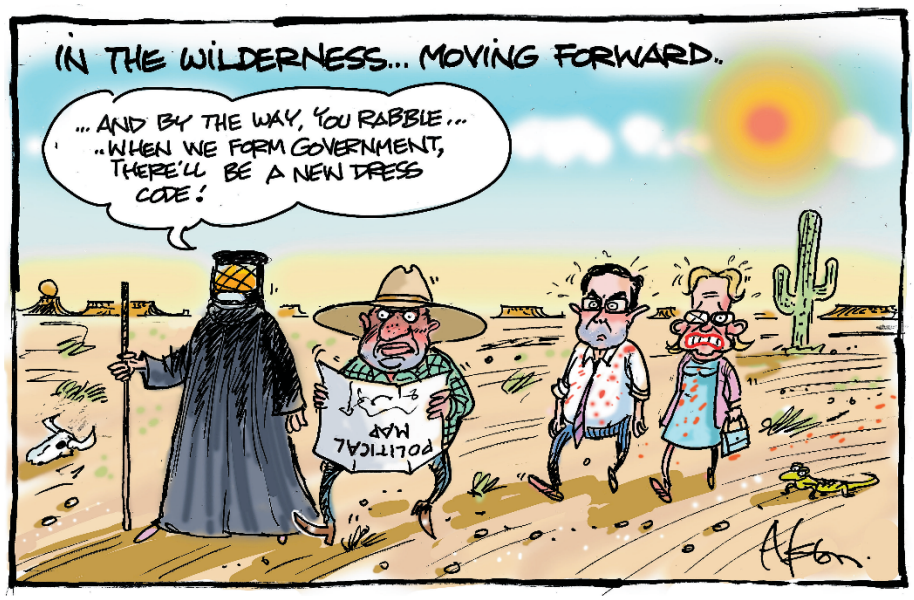
"Whatever was looking over the people in that rally that day stopped it from going off and we should all be thankful that we don't have deceased or seriously injured people," he said.

The identity of the charged man remains hidden due to a suppression order. The 31-year-old had his identity suppressed to protect his safety when he fronted Perth Magistrates Court on January 27.

Under the suppression order — which is in place until further order of the court — it is prohibited to disclose the name, address, photograph or "any other particular" which would identify the man or the prison he is being held at.

But such is the seriousness of this that the public needs to be told the full story. Who is the man? What is the exact nature of the material which allegedly radicalised him? What about those behind that material? Are they a threat? There are so many questions. West Australians need answers. They need open justice.

Responsibility for the editorial comment is taken by WAN Editor-in-Chief Christopher Dore



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Powerball **8**
Draw date 05/02/2026
Numbers subject to confirmation
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0, 6, 2 Draw date 05/02/2026
For official results, see www.lotterywest.wa.gov.au

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FuelWatch

TODAY'S REGIONAL ULP PRICES

	AVERAGE PRICE	TREND
Albany	170.7	DOWN
Bunbury	168.3	UP
Busselton	168.4	SAME
Esperance	171.1	SAME
Geraldton	167.7	SAME
Kalgoorlie-Boulder	176.1	UP
Karratha	186.6	SAME
Port-South Hedland	195.5	UP

TODAY'S METROPOLITAN ULP PRICES
LOWEST: 145.3 **AVERAGE: 164.5**
HIGHEST: 183.9

	AVERAGE PRICE	TREND
Vibe	157.8	DOWN
Others	159.5	DOWN
United	164.7	DOWN
EG Ampol	165.0	DOWN
7-Eleven	165.2	DOWN
Ampol	165.5	DOWN
Reddy Express	165.5	SAME
BP	167.9	DOWN
Caltex	168.1	DOWN

Pluto 4D M3 Marine Seismic Survey Notice

Woodside Energy

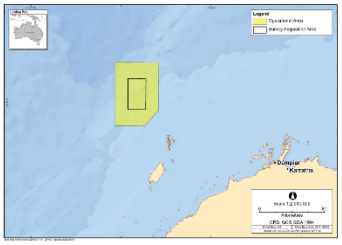
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6.3.2.3 Pilbara News – 11 February 2026

Pilbara NEWS
Wednesday, February 11, 2026
pilbaranews.com.au



HOW IT UNFOLDED

- **7.19pm:** PHI International Australia-operated Sikorsky S92-A takes off from Exmouth heading to drilling rig Transocean Endurance, 71km away to the north-west.
- **7.33pm:** Helicopter approaches the rig as last light fades. It begins its descent to lowest safe altitude of 1500 feet.
- **7.39pm:** Helicopter descends below pre-set height of 660 feet without the crew noticing.
- **7.40pm:** Crew receives a terrain caution alert and a terrain warning alert. They initiate emergency climb to 1500 feet. Recording data reveals the helicopter got as low as 152 feet above the ocean before taking corrective action.
- **10.08pm:** Helicopter arrives safely back at Exmouth after each crew member completes three take-offs and landings from the rig, as per the original plan.

SOURCE: AUSTRALIAN TRANSPORT SAFETY BUREAU

Seconds from disaster

ADRIAN RAUSO

Overworked pilots with limited experience flying at night nearly crashed their helicopter close to a Woodside Energy drill rig off the North West, an investigation by the Australian Transport Safety Bureau has found.

Disaster was narrowly averted during the evening of February 1 last year when three pilots working for PHI International Australia flew a Sikorsky S-92A from Exmouth to the Transocean Endurance rig about 71 km north-north-west off the coast.

As the helicopter approached the rig, the captain set its radar altitude hold mode to 660ft.

"The intent of this setting was for the helicopter to descend from its 1500ft cruise altitude to the circuit height, and then for it to automatically hold there," ATSB director of transport safety Stuart Godley said.

"However, during the descent the captain inadvertently misselected the vertical speed mode while attempting to select the helicopter's autopilot heading hold mode. "This selection error, which was not recognised by either flight crew member, cancelled the original radar altitude hold order, and instead inadvertently commanded the helicopter to descend at a continuous 500ft per minute."

Dr Godley said the incident also highlighted the potential hazard that exists with differing display versions of the automatic flight control system mode select panel on a S-92A.

"Due to the lighting of the panel, distinguishing between hard and soft keys is more difficult at night," he said. "More recent versions of the mode select panel include a tactile white finger barrier installed between the rows of hard and soft keys, reducing — but not eliminating — the risk of a mode selection error."

The pilots were saved by the helicopter's warning system, which indicated a terrain caution alert when the helicopter was 220ft above the ocean.

The helicopter descended as low as 152ft before it climbed out of danger, the report said.

The ATSB found both the pilot flying and pilot monitoring at the time of the incident had "limited experience" on the S-92A at night, and were experiencing a "higher than normal" workload.

"The vast majority of the flight crew's experience in the S-92A was from daytime passenger transfer flights, which involved flying first from Exmouth to Learmonth, to collect passengers before flying out to an offshore rig," Dr Godley said.

"The recency flight, which departed from Exmouth directly to the rig, was therefore shorter than usual, reducing the copilot's time to complete the required cockpit administration and plan the approach, and resulting in the flight crew experiencing a higher-than-normal workload, at night."

Woodside and PHI were contacted for comment.

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HON. JULIE FREEMAN MLC
MEMBER FOR WESTERN AUSTRALIA



Pluto 4D M3 Marine Seismic Survey Notice

Woodside Energy

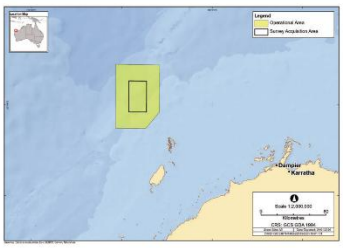
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6.3.2.4 MidWest Times – 11 February 2026

Times
Wednesday, February 11, 2026
midwesttimes.com.au

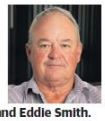

Storm damage to Doriana Mangili's banana crop.

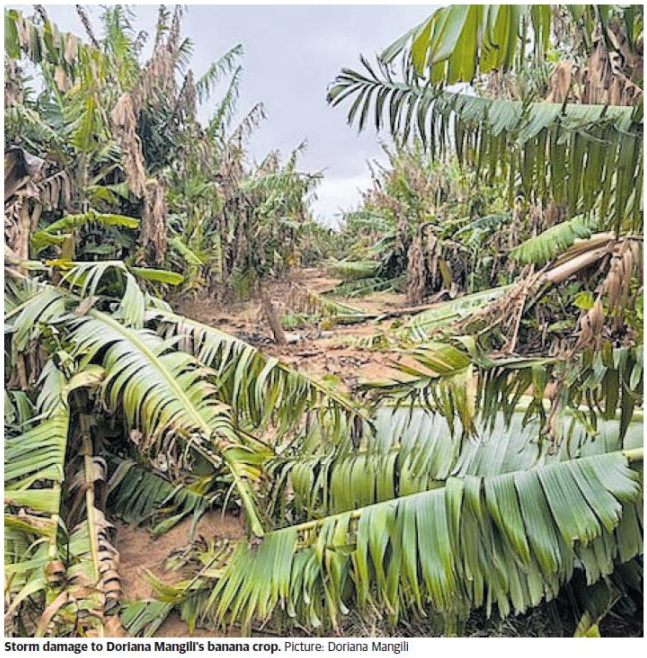

Preparations for the storm in Exmouth. Picture: 7NEWS


Storm damage in Carnarvon. Picture: Facebook

Crops cop a battering as Mitchell pays a visit

SALLY Q DAVIES



Doriana Mangili and Eddie Smith.


Storm damage to Doriana Mangili's banana crop. Picture: Doriana Mangili

Carnarvon and Shark Bay were some of the hardest hit on Monday night as ex-tropical cyclone Mitchell made its crossing as a weakened system, with no serious damage left in its wake.

But as communities along the Gascoyne and Pilbara coasts start their clean-up, some growers have reported significant losses after strong winds pummelled their crops.

Carnarvon had some of the highest wind gusts in the Mid West-Gascoyne region, with speeds reaching 107km/h.

The highest wind speed in the region on Monday was 169km/h on Legendre Island.

Shark Bay had one of the highest rainfalls in the region with 103.6mm.

"The system weakened just as it moved down the coast, south of Carnarvon and to the east of Denham, and weakened out and crossed the coast at around 1am this morning as a tropical low," Bureau of Meteorology WA manager James Ashley said on Tuesday morning.

"So it was downgraded just before crossing the coast."

The Department of Fire and Emergency Services had received eight calls for help in the Mid West-Gascoyne region since Monday — six in Carnarvon, one in Shark Bay, and one in Greater Geraldton — mostly related to roof damage and fallen trees.

Despite the large amount of rain, Shire of Shark Bay president Peter Stubberfield said the town had not had any major issues.

"There's some fences down and there's some water leaks, but there appears to be no real damage," he said.

Mr Stubberfield said there had been power outages and some damage done to homes in Monkey Mia.

"I do have to commend the emergency services," he said.

"I've been sitting in on meetings with the emergency services all day yesterday, and they were amazingly well prepared."

Shire of Carnarvon president Eddie Smith said as far as he was aware, there had been no major structural damage in town but there had been significant loss to growers.

He said some growers were already struggling after three days of temperatures above 40C a few weeks ago, but he stressed "our growers are pretty tough".

Carnarvon banana grower Doriana Mangili reported a 40-50 per cent loss to her crop.

"Growers are just out this morning assessing the sort of loss and harvesting what we can. But I think it'll be an impact on the banana industry for the next 18 months to two years here in Carnarvon," she said.

"Because our trees take about 15-to 18 months to go to harvest when we plant them. So once you get an event like this, you've got to take trees out and replant."

Ms Mangili said the damage could often take time to assess, because trees that appeared fine might not be able to grow fruit later in the season due to ongoing damage caused by the high winds.

Carnarvon Growers Association chair Paul Frzop said he had not seen much damage and his own farm had lost "a bit of net and stuff like that, but not a great deal".

Growers say they will be using the next few days to assess the damage and clean up.

Residents are advised to check the Main Roads website before travelling, because some travel routes are closed because of flooding.

Pluto 4D M3 Marine Seismic Survey Notice

Woodside Energy

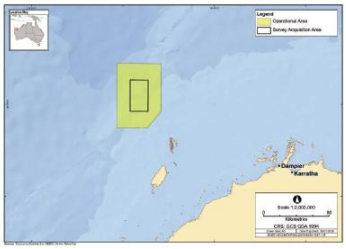
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6.3.2.5 Koori Mail – 11 February 2026

news

‘Don’t give up’, MLK Jr’s son tells First Nations people

THE oldest son of US civil rights leader Martin Luther King Jr has urged Australians not to give up on First Nations justice after the failed voice referendum dealt a blow to the movement.

The federal push towards other tenets of the Uluru Statement from the Heart has struggled to regain momentum since Australia voted against enshrining an Indigenous voice into its constitution in 2023.

But Martin Luther King III says the rejection of the voice should not halt progress. He pointed to the countless setbacks faced by his father, a pivotal figure in advocating for Black Americans, before they were given the right to vote.

“There are many battles my dad, his team and my mother engaged in where it didn’t happen until it happened,” Mr King said in Sydney last week.

“I hope young people and the population would not give up just because it didn’t happen on that vote a few years ago.

“You have to desire to bring it back again and again, because progress is not always immediate ... it’s sad it’s taken this long, but it does not mean that progress can’t happen.”

Recent progress includes Victoria striking a nation-first treaty agreement with its First Nations people in September and South Australia legislating a voice to parliament in 2023.

But Indigenous community groups continue to protest the high number of deaths in custody and other aspects of entrenched disadvantage.

Meanwhile, police concerns over community safety after the December 14 Bondi terror attack has restricted public rallies in Sydney since Christmas.

The King family are perhaps best known for their advocacy of peaceful protest in pursuit of civil rights, and Mr King said he remained concerned about violence generally.

“Picking up guns and shooting innocent people is unacceptable,” he said.

“You’ve got to figure out: where is the balance? Where is it that people can protest peacefully?

“You shouldn’t just disallow protesting, I don’t think that’s ever productive.”

Mr King is in Australia to advocate for Indigenous economic participation, highlighting the benefits of shared prosperity and inclusive companies.

Census data shows one in eight Indigenous workers is employed in professional roles, half the number of non-Indigenous workers.

The gap is more stark in senior leadership roles with only four Indigenous people sitting on ASX200 company boards.

CareerTrackers, which offers pathways to professional careers for Aboriginal and Torres Strait Islander students, said Mr King’s father reminded the world that people had to work for decades to create and keep doors open.

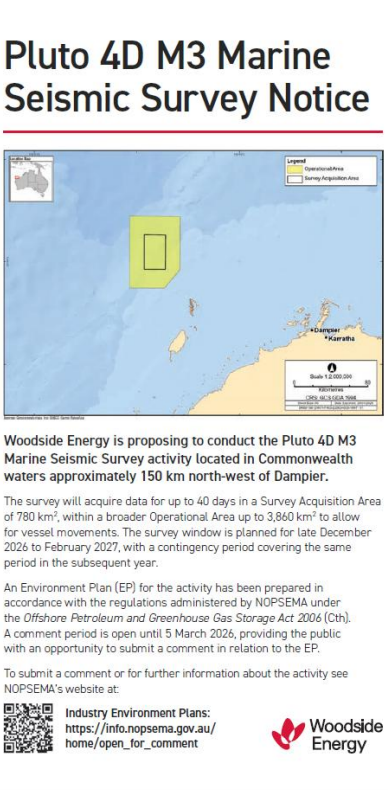
“Civil rights and racial equality and access to the economy are absolutely intertwined,” chief executive Adam Davids said.

– AAP



Martin Luther King III during a visit to the Sydney Opera House. *Picture: AAP.*



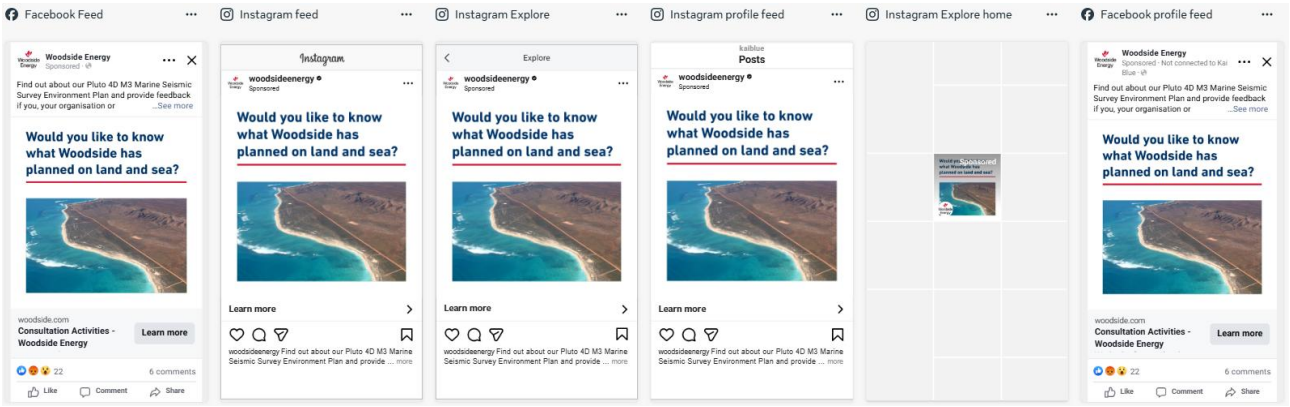


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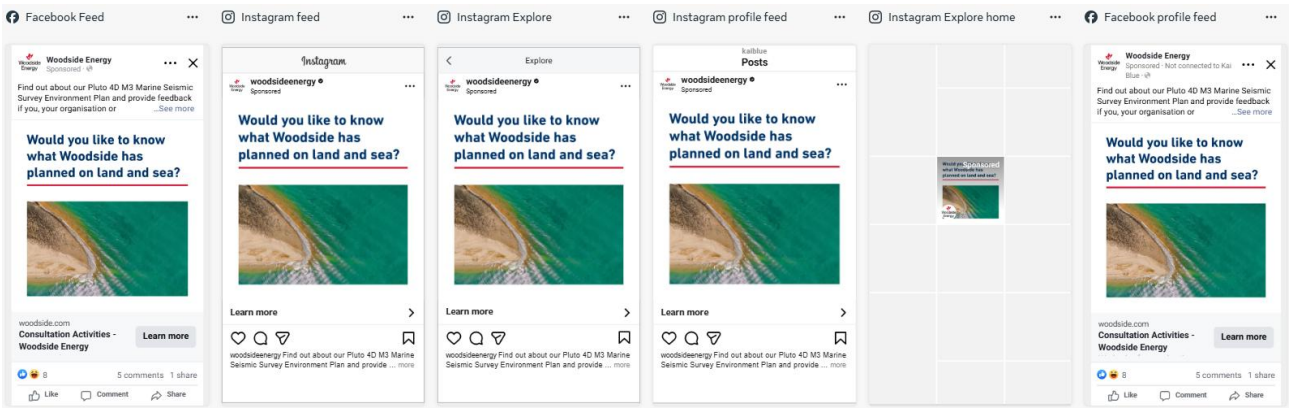
6.4 Social media and website

6.4.1 Social media – EP targeted campaign

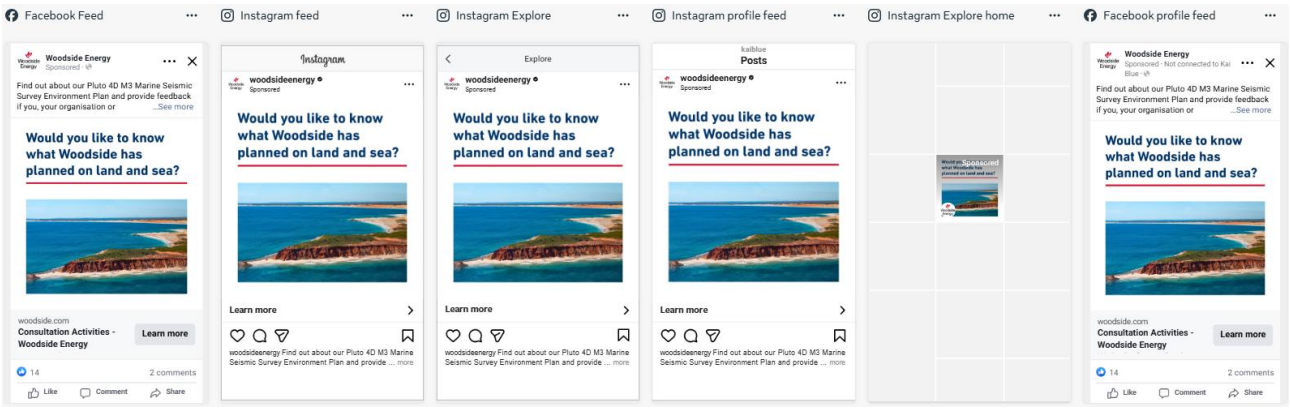
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Tile design 2

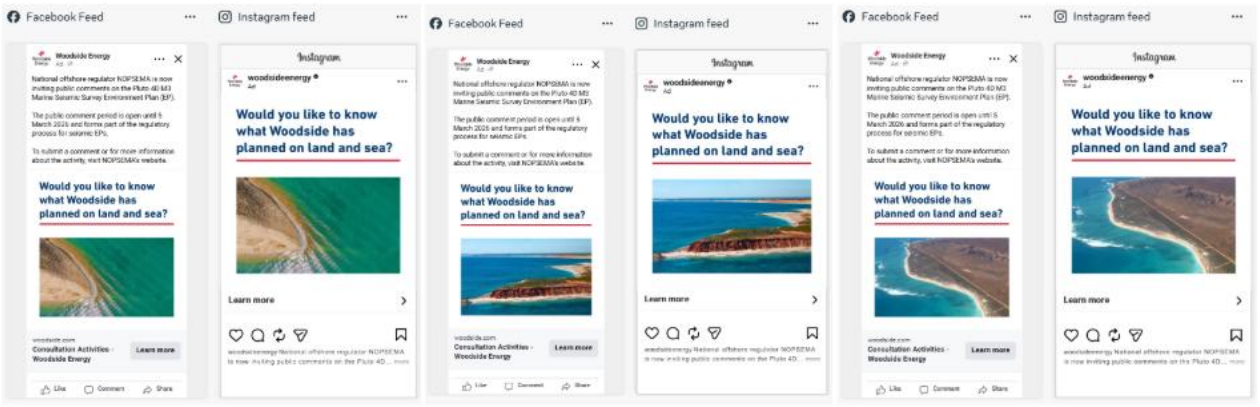


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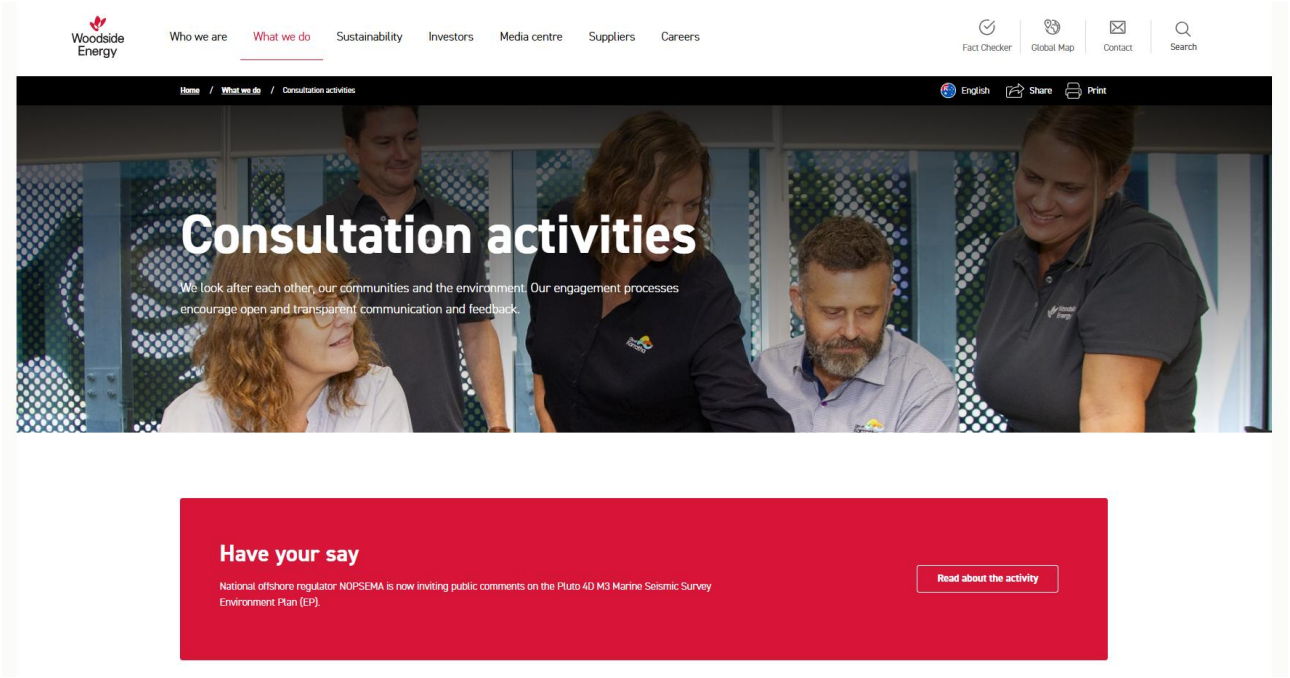
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6.4.2 Social media – Public comment period



6.4.3 Website – Public comment alert banner

Accessed 6 February 2026: https://www.woodside.com/what-we-do/consultation-activities



6.5 Community information sessions

The community information sessions that Woodside has conducted are captured below:

6.5.1 Pilbara Region

6.5.1.1 Dampier Beachside Markets – 18 October 2025

	Location: Dampier
Activity	Dampier Beachside Markets
Date	Saturday, 18 October 2025

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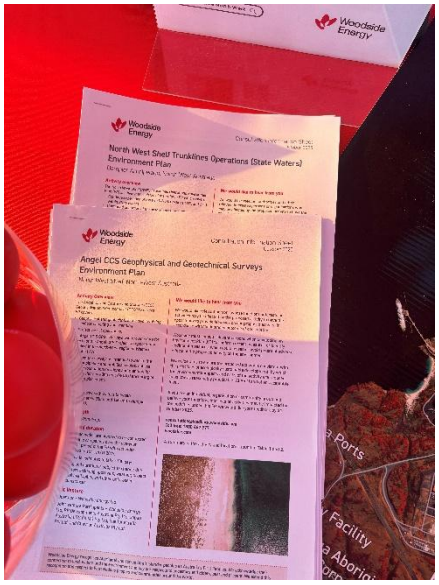
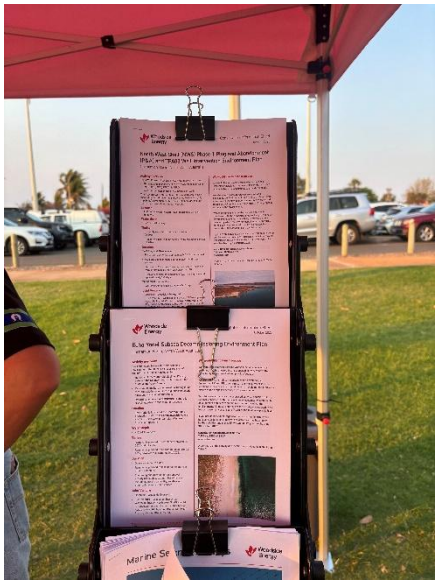
Description of the consultation	Woodside hosted a stand at the Dampier Beachside Markets, a community event bringing together local businesses selling local products, a variety of food vendors and community groups. The stand was staffed by members of Woodside's Corporate Affairs team. Woodside displayed a QR code at the stand linking to the 'Consultation activities' page of the Woodside website. Woodside displayed and made available printed Consultation Information Sheets on the Pluto 4D M3 Marine Seismic Survey EP.
Advertising and invitations	Woodside advertised the event to enable individuals to self-identify, become aware of the community consultation, and to allow individuals to provide feedback on proposed activities, through the following: • An advertisement published in the Pilbara News on 15 October 2025 (see below). • A social media post Dampier Community Association Facebook page advising that Woodside would be in attendance at the event (see below). • A social media post via Woodside North West Facebook account advising that Woodside would be in attendance at the event (see below). • An advertisement displayed on community noticeboards at Lo's Karratha, and IGA Good Grocer Karratha. • An EP consultation display with QR code (linked to the 'Consultation activities' page on Woodside's website) displayed at Woodside's stand. • EP consultation banner with QR code (linked to 'Consultation activities' page on Woodside website), displayed at Woodside's stand along with current EP consultation information sheets (see table below)
Estimated number of individuals / organisations consulted	Over 500 community members attended the event. Woodside spoke to many community members, recording 5 conversations.
Summary of Feedback, Objection or Claim	
• Queries around employment opportunities. • General interest in the Scarborough Energy Project progress and Pluto Train 2 and Train 1 modifications projects. • Conversation on the North West Shelf Project Extension; pro approval. • Patrons shared their views on future of gas in the energy transition and how this compares to alternative power options; solar and nuclear. • Interest in Woodside's supply of DOMGAS to WA. • Environment Plan community consultation and approval process discussed and why we want to talk to community. No concerns raised. • Discussions with children about what Woodside does and where gas comes from. • Pleasant interactions with Woodside, Woodside contractor company and near neighbour employees.	
Woodside's Assessment of Merits of Feedback, Objection or Claim and its Response	
Whilst feedback was received, there were no objections or claims. The community information sessions were part of Woodside's broader consultation approach to enable self-identification and provide relevant persons with the opportunity to assess any impacts on their functions, interests or activities, and provide feedback on proposed activities, which is consistent with the intended outcome of consultation (see Section 5.2).	

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Evidence of promotion and event

Advertisement **Pilbara News − 15 October 2025**	**Social media** **Dampier Beachside Markets Facebook post –** **17 October 2025**
	
Advertisement **IGA Good Grocer notice board − 15 October 2025**	**Social Media – Woodside North West Facebook post – 18 October 2025**
	

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Advertisement - Lo's Cafe, Karratha community notice board − 15 October 2025	Banner at event – 18 October 2025
	
Consultation Information Sheets at event	**Consultation Information Sheets at event**
	

Social media campaign results

Platform	Date	Description	Interactions
Woodside North West Facebook page	October 18 6:13 PM	Post with text: Are you interested in Woodside's work in the North West? Let's Talk about our Community Grants Program, proposed activities and operations and Environment Plans	52 reactions

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		at the Dampier Beachside Markets. We'll be here from 5:30pm - 8:30pm this evening. We welcome your input and wish to provide you with the opportunity to share information and discuss your functions, activities or interests which may be affected by our proposed Environment Plan activities. Can't make it? Visit https://bit.ly/3JeWnG9 to get in touch.	

6.5.2 Gascoyne Region

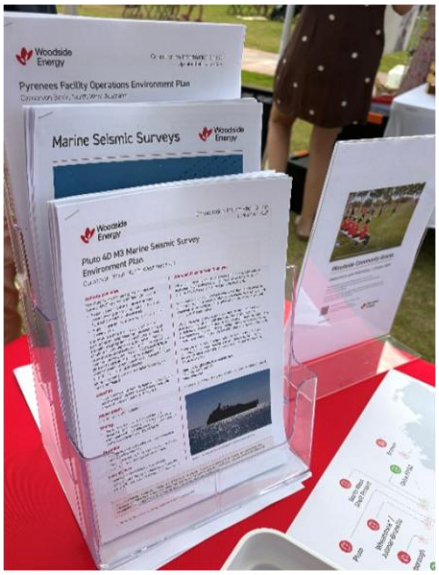
6.5.2.1 Exmouth Community Markets – 5 October 2025

	Location: Exmouth
Activity	Exmouth Community Markets
Date	5 October 2025
Description of consultation	Woodside hosted a stall at the Exmouth Community Markets to engage community members on our activities. The stand was staffed by Woodside Environment and Corporate Affairs representatives. Information on Woodside's activities in the Exmouth region, details of Woodside's community grants program, and fact sheets about marine seismic surveys were available. Woodside also made available printed consultation information sheets on the Pluto 4D M3 Marine Seismic Survey EP.
Advertising and invitations	Woodside promoted the market stall on its North West Facebook page.
Estimated number of individuals / organisations consulted	Over 200 community members attended the event. Woodside spoke to many community members, recording approximately 20 conversations.
Summary of Feedback, Objection or Claim	
• Interest in Woodside's social contribution activities in Exmouth and potential support for health services infrastructure. • Conversations about Woodside's approach to cultural heritage management • Query about Woodside's tax contribution. • Conversation about Woodside's approach to the energy transition and investment in new energy products and lower carbon services. • Interest in industry's political influence. • General queries about Woodside's footprint in Exmouth and the two facilities visible from the coast (Pyrenees and Ngujima-Yin FPSOs). • General conversations about Woodside's activities in Western Australia, including the North West Shelf. • Questions relating to the current status of the Browse project and considerations for Scott Reef. • General interest in Woodside's health, safety and environmental management measures and mitigations, particularly in relation to seismic activities and potential impacts to fauna.	
Woodside's Assessment of Merits of Feedback, Objection or Claim and its Response	
Whilst feedback was received, there were no objections or claims.	

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The community information sessions were part of Woodside's broader consultation approach to enable self-identification and provide relevant persons with the opportunity to assess any impacts on their functions, interests or activities, and provide feedback on proposed activities, which is consistent with the intended outcome of consultation (see Section 5.2).

Woodside stand	Facebook promotion
	

Information sheets


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6.6 Community newsletters

6.6.1 Let's Talk – Our Plans, Your Say

6.6.1.1 Let's Talk – October 2025

Woodside Energy

Let's Talk

Our Plans, Your Say

Edition 6 | October 2025



Goodwyn A Platform approximately 140 km north-west of Karratha.

The rundown

Goodwyn Area Infill Development Offshore Project Proposal gets the green light

Following NOPSEMA's acceptance of the Goodwyn Area Infill Development Offshore Project Proposal (GWA OPP), Woodside is planning to develop new gas wells about 140 km north-west of Karratha.

The development will make better use of space at the Goodwyn A platform by bringing in extra gas and condensate from up to 8 new wells.

This is a phased development expected to deliver first gas in 2027-2028.

Environment Plans (EPs) supporting the development include:

- Goodwyn Alpha Geophysical and Geotechnical Surveys (Rev 2)
- Greater Western Flank Phase 4 (GWF-4) Drilling and Subsea Installation – consultation closed 27 August 2025.

We currently anticipate consulting on a revision for the GWA Operations EP that will include the proposed new wells in the first half of 2026.

Upcoming engagement opportunities

Woodside is consulting with local community members at events, making it easy to speak to us about our operations, decommissioning activities and proposed projects.

If you're interested in what Woodside has planned on land and sea, come and chat to our friendly teams at the locations below, follow the Woodside North West Facebook page or email us at consultation@feedback.woodside.com

Dampier

- Dampier Beachside Markets Saturday, 18 October and 8 November 5:30pm to 8:30pm Hampton Oval, Dampier, WA, 6713

Exmouth

- Exmouth Community Markets Sunday, 5 October 8:00 am to 12:00 noon Federation Park, Exmouth, WA, 6707

Follow us on Facebook by **clicking here**



Come and speak to our friendly team.

To stay updated, subscribe for future editions at **woodside.com/what-we-do/consultation-activities**

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Community conversations


Ningaloo Sky Festival drone show.

The way we engage is based on building trust and understanding to support long-term relationships.

We emphasise open and accessible communication and feedback on our activities. One way we do this is by inviting community to engage with Woodside at popular community events.

Woodside and our joint venture partners were pleased again to sponsor the City of Karratha's Red Earth Arts Festival (REAF) at The Quarter where we helped activate and transform the area into a hub of artistic and cultural activity.

This year's festival featured over 100 performances, workshops, and experiences. Over 9,200 people attended the four-day festival, with 90% of programming free to the community.

The main attraction was 'The Whale' installation, which invited viewers to operate the strings of a large whale puppet and its sea friends while listening to whale vocalisations – an immersive experience enjoyed by all ages.

Artists from Yinjaa-Barni Art Group painted and displayed art, welcoming the public to watch the creation of several pieces and engage in conversations.

A community concert featured roving entertainment, stage performances, music, food trucks and markets.

At our Woodside tent, we engaged with the Karratha community discussing Woodside's work in the North West, our EPs, current and proposed projects and we listened to community feedback.

Woodside, on behalf of the Scarborough Joint Venture, was also proud to support the new biennial Ningaloo Sky Festival in Exmouth recently. The three-day event showcased the region's vibrant culture, food and community.

A key event was a market day at Talanjee Oval featuring local artists and makers, roving entertainers, a kite show, animal petting farm and food trucks.

At our Woodside stand, we chatted with visitors about our EPs and Woodside's activities in the Exmouth region, and listened to people's feedback.

A drone show highlighting stories of the region's Traditional Owners and a free community concert by iconic Aussie rock band Eskimo Joe capped off the day.

Other events included astronomy talks highlighting the star-filled Ningaloo night sky, unique dining experiences, sunrise yoga, cultural talks and a community movie night.

Woodsiders also met with the Exmouth Community Liaison Group to provide updates on relevant projects and activities.

Talking point

Pygmy blue whales: feeding discovery


Photo credit: Grace Russell, Centre for Whale Research.

In an Australian first, scientists have recorded where and when pygmy blue whales feed as they migrate along the WA coast, thanks to research co-funded by Woodside Energy.

Every year, many whale species and thousands of individual whales migrate through the offshore waters of WA's north-west.

Luke Smith, Woodside Head of Biodiversity and Science, says collaboration with researchers is helping us better understand these whale species and their annual migration.

"In recent years, we – together with our joint venture partners – have invested heavily in numerous whale research programs," Luke points out.

"We continue to deepen our understanding of these magnificent animals and their natural habitat."

One of our research programs focuses on pygmy blue whales, a species that belies its name and can measure up to 24 metres long and weigh 90 tonnes. They undertake an annual northern migration from south-east Australia up through offshore waters of WA to Indonesia before returning five to six months later.

The research led by the Australian Institute of Marine Science and the Centre for Whale Research, found the whales aren't just migrating but also feeding enroute to their Indonesian breeding grounds – something never previously recorded with telemetry in the north-west waters of WA.

Unlike humpback whales, commonly seen as they play and frolic near to shore on their annual migration along the WA coast, pygmy blues spend little time at the surface and migrate in deeper offshore waters. To understand this species we've turned to the latest technology.

Using satellite tags and dive loggers (think Fitbits for whales), scientists tracked nine pygmy blues as they searched for prey.

Previously, it was thought feeding only occurred at the Perth Canyon and Ningaloo but researchers documented them snacking on the go, too.

The whales were recorded performing deep dives with lunge feeding – a high-speed move where they engulf dense swarms of krill.

The findings are helping researchers deepen their understanding of the species' annual migration, while providing us with more knowledge to include in EPs, improving how we avoid or minimise potential impacts.

"As whale species continue to recover and whale numbers migrating through north-west Australia increase, we'll continue to develop technology and approaches to improve our management of whale interactions," reports Luke.

"It's crucial we further reduce potential impacts, support future project approvals and contribute to science along the way."

Luke believes we can continue to successfully co-exist in the marine environment while simultaneously contributing to the study of these complex, remarkable mammals.

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Consultation opportunities

Environment Plan	Activity Type	Location	Consultation Dates
Angel CCS Geophysical and Geotechnical Surveys - Update	Survey	~ 35 km from Dampier	October 2025
Echo Yodel Subsea Decommissioning	Decommissioning	~ 140 km north-west of Dampier	October 2025
NWS Phase 1 P&A and TPA03 Well Intervention EP - Update	Decommissioning	Closest well to shore is ~ 125 km north of Dampier	September to October 2025
Pluto 4D M3 Marine Seismic Survey	Survey	~ 28 km north-west of the Montebello Islands and 150 km north-west of Dampier	September to October 2025
Julimar & Brunello P&A	Decommissioning	~ 185 km west north-west of Karratha	August 2025
GWF-4 Drilling and Subsea Installation	Drilling and installation	~140 km north-west of Dampier	July to August 2025

Progress snapshot

Environment Plan	Activity Type	Date Accepted	Activity Status
Julimar Operations	Operations	7 July 2025	In progress
Pluto Operations	Operations	5 May 2025	In progress
Minerva Plug and Abandonment	Decommissioning	9 January 2025	In progress
Macedon Operations	Operations	24 December 2024	In progress
Ngujima-Yin Floating Production Storage and Offtake (FPSO) Operations	Operations	19 December 2024	In progress
Minerva Decommissioning and Field Management (State)	Decommissioning	27 November 2024	In progress
Minerva Decommissioning and Field Management (Commonwealth)	Decommissioning	14 October 2024	In progress
NWS and Julimar Exploration Wellhead Decommissioning	Decommissioning	3 July 2024	In progress
Goodwyn-Alpha Geophysical and Geotechnical (Rev 2)	Survey	30 May 2024	In progress

Have your say

Woodside consults relevant persons while preparing our Environment Plans to notify them, obtain their input and to assist Woodside to confirm current measures or identify additional measures, if any, that may be taken to lessen or avoid potential adverse impacts of the proposed activity on the environment.

We welcome your input so please contact us if you'd like to discuss your functions, interests or activities which may be affected by our proposed activities.

You can access our consultation information, provide feedback and subscribe for updates by **clicking here**



Right: Woodsiders keen to chat with community at the Ningaloo Sky Festival.

You can view Commonwealth Environment Plans for approved activities and operations by visiting:
info.nopsema.gov.au/home/approved_projects_and_activities

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Okha FPSO, approximately 115 kilometres north-west of Dampier.

Let's talk about... FPSOs

Woodside has been producing oil from its Australian assets through Floating Production Storage and Offloading (FPSO) facilities since 1995. Woodside currently has three FPSOs in operation in North West Western Australia.

An FPSO facility is a vessel used in offshore oil and gas production, processing hydrocarbons from subsea wells, storing the oil onboard, and offloading it to tankers for transport. During normal operations, an FPSO is operated by 50 to 100 personnel onboard at any given time. These roles include production operators, marine crew, engineers, safety officers, catering staff, and support personnel.

Moored approximately 115 kilometres north-west of Dampier, the Okha FPSO has been producing oil and gas from the Cossack, Wanaea, Lambert, and Hermes oil fields. Crude oil is offloaded to bulk tankers, and LPG-rich gas is exported to the North Rankin Complex before being processed at the Karratha Gas Plant.

Woodside operates two offshore assets off Exmouth: the Ngujima-Yin and Pyrenees FPSO facilities.

The Ngujima-Yin FPSO is located over the Vincent oil field, 50 kilometres north-west of Exmouth. Ngujima-Yin is a Thalanjyi word meaning "to dream". The Greater Enfield Project, completed in 2018, involved developing several oil accumulations through a subsea tie-back to Ngujima-Yin. This project included a major refit of the FPSO, installation of subsea infrastructure, and the drilling of 12 development wells.

The Pyrenees FPSO commenced operations in 2010 and consists of six conventional oil fields located 45 kilometres north-west of Exmouth.

The Ningaloo region is recognised for its high ecological importance, boasting unique environmental, social, and cultural values, extending across 280 kilometers of coastline between Exmouth and Carnarvon. It is a global biodiversity hotspot and was inscribed on the World Heritage List in 2011.

To better understand and manage the environmental features of the region, Woodside has supported a range of multi-year projects through its environmental partnerships program.

These projects focus on iconic species and habitats across different ecosystems along the Ningaloo Reef and Exmouth Gulf. Woodside's social investment and science-funded projects contribute to conservation efforts, biodiversity education, and community engagement at local and regional scales.

You can read more about this significant region by **clicking here**

Scarborough's subsea infrastructure now in place

The Scarborough Energy Project has reached another exciting milestone–this time beneath the waves. The team has successfully completed the penultimate subsea installation campaign, marking a significant step toward first LNG cargo in the second half of 2026.

Approximately 375 km off the Pilbara coast, over 400 pieces of subsea equipment have now been assembled and installed in the Scarborough field, including the impressive 305-tonne Riser Base Manifold. With all critical infrastructure in place and tested, the project is now more than 86% complete (excluding Pluto Train 1 modifications) and ready for the hook-up and commissioning of the floating production unit (FPU) upon its arrival.

The Scarborough Offshore Facility and Trunkline (Operations) Environment Plan (EP) is now approved, setting out how Woodside will manage environmental risks and impacts associated with offshore operations. The EP covers activities such as FPU installation, commissioning, and ongoing operations, as well as inspection, maintenance, and repair of subsea infrastructure.

Read more about the Scarborough Energy Project by **clicking here**



This is the 80m long, 32" diameter rigid pipe spool which weighs approximately 230 tonnes and was fabricated in Henderson, Western Australia.

Join the conversation at **woodside.com/what-we-do/consultation-activities**

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REAF reflections

This year saw the continuation of Woodside's support for the City of Karratha's Red Earth Arts Festival (REAF). We were proud to once again sponsor 'REAF at The Quarter,' offering a suite of free, family-friendly activities, activating and transforming the area into a hub of artistic and cultural activity.

The main attraction of REAF at The Quarter was 'The Whale' installation; inviting viewers to interact with a large whale puppet and its sea friends while listening to whale vocalisations – an immersive experience enjoyed by all ages.

REAF is moving towards becoming a destination festival for the region, and Woodside and its joint venture partners are proud to support the continued provision of important and much-loved community events, livability initiatives and significant local government projects.

Artists from Yinjaa-Barni Art Group painted and displayed art on site, welcoming the public to watch the creation of several pieces and engage in conversations.

A community concert featured roving entertainment, stage performances, music, food trucks and the Karratha District Chamber of Commerce and Industry markets.

Attendees were treated to Maori cultural displays, Brazilian samba and Chinese dance while enjoying face painting, elaborately costumed stilt artists, Dr Hubble's bubble display, jazz music from the Perth Symphony Orchestra and a calming space at The Inclusive Movement's sensory tent.

Woodsiders enjoyed engaging with the diverse Karratha community discussing Woodside's work in the North West and listening to community feedback on our activities.

The festival finale featured First Lights - Bunggaliyarra Munggu, presented by Fremantle Biennale in collaboration with Juluwarlu Art Group and supported by Woodside and its Pluto Train 2 Joint Venture partners. Woodside is proud to support events like REAF, bringing the community together, strengthening local connections, and fostering a sense of collective pride.







Karratha Volunteer Fire & Rescue Service were Woodside Community Grant recipients, 2024

Woodside Community Grants

Applications open Wednesday, 1 October 2025

The Woodside Community Grants program is part of our commitment to help build local capacity and develop opportunities for community wellbeing.

If your club or organisation has a great idea or needs extra support, Woodside wants to hear from you. Grants of up to $5,000 are available to support community initiatives in the City of Karratha and the Shire of Exmouth.

Applications close Friday, 31 October 2025 and can be completed online at woodside.com/social-contribution

For more information, please email northwestcommunities@woodside.com

woodside.com

Woodside Energy

Let's Talk

Our plans, Your say

Scan the QR code or head to woodside.com/consultation-activities to read our latest edition and Environment Plan consultation information.

We welcome feedback on your relevant functions, activities or interests. Alternatively, you can contact us at consultation@feedback.woodside.com or on 1800 442 977.

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6.6.2 Karratha Community Update

6.6.2.1 Edition Q3, October 2025

Karratha Community Update

October 2025

Woodside Energy

Woodside welcomes approval of North West Shelf Project Extension

The Australian Government's final decision to grant environmental approval for the North West Shelf Project Extension is positive news for Woodside Energy and Karratha as our host community.

The decision provides certainty for the ongoing operation of the North West Shelf Project.

For Karratha and surrounds, this has meant sustained employment, meaningful social contributions, a legacy built on responsible energy development and a deep-rooted connection with the local community.

Over its lifetime, the North West Shelf Project has paid more than A$40 billion in royalties and excise, supported thousands of Australian jobs and contributed over A$300 million to social investment initiatives and infrastructure support in the City of Karratha.

Importantly, the approval follows an extensive environmental assessment and appeal process and includes rigorous conditions to manage the protection of cultural heritage.

This includes conditions that require additional monitoring and management of air emissions to protect the Dampier Archipelago (including Burrup Peninsula or Murujuga).

Woodside is committed to protecting the Murujuga Cultural Landscape and we were a proud supporter of the World Heritage nomination and assessment process, led by Ngarda Ngarli, the Traditional Custodians of Murujuga, on the World Heritage listing.

The internationally peer-reviewed, best-practice science conducted by the Murujuga Rock Art Monitoring Program, led by Murujuga Aboriginal Corporation and Western Australian Department of Water and Environmental Regulation, confirms that with the right controls and collaboration, co-existence of industry and cultural heritage is not only possible, but already happening.



"Over its lifetime, the North West Shelf Project has paid more than A$40 billion in royalties and excise, supported thousands of Australian jobs and contributed over A$300 million to social investment initiatives and infrastructure support in the City of Karratha."

As we shape the future of the North West Shelf alongside our Pluto LNG operations and the development of the Scarborough Energy Project, our commitment to collaboration and consultation remains strong.

We will continue to work closely with our colleagues, partners, and neighbours.

I'm looking forward to supporting Woodside's future in Karratha, reflecting the values and aspirations of the place we have proudly called home for over four decades.

Derek Paulgaard
Asset Manager North West Shelf Onshore



Inspiring futures through work experience

We recently had the pleasure of hosting Programmed work experience students from Karratha Senior High School, Roebourne District High School and St Luke's College Karratha at Pluto LNG and Karratha Gas Plant.

The students had the opportunity to shadow our teams, gaining insights into day-to-day operations and exploring the diverse career pathways available right here in the Pilbara.

Thank you all participating students, we hope the experience sparked some new ideas for your future pathways.

Stay up to date on our continued contribution to the local community Woodside North West

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Woodside Energy recognises Aboriginal and Torres Strait Islander peoples as Australia's first peoples.

We acknowledge the unique connection of the Traditional Custodians to land, waters and the environment where we operate in the City of Karratha. We extend this recognition and respect to First Nations peoples and communities around the world.

Community partnerships valued

On the evening of 13 August 2025, we had the privilege of celebrating the incredible contributions of our community partners at our annual Community Partner Sundowner, held at The Shelf, Red Earth Arts Precinct.

Our sundowner event was a heartfelt tribute to the people and organisations making a real difference across the Pilbara.

Hosted by Derek Paulgaard, Asset Manager – North West Shelf Onshore, the event featured inspiring reflections from Sophie Martin, One Tree Community Services Inc. sharing information about our award-winning Roebourne Pathways Program partnership and its impact on local youth and Stacey Giles, Reach Us Pilbara, highlighting vital cancer support services available to families in the region.

Thank you to everyone who joined us to recognise the incredible work happening across the City of Karratha.

The Woodside Community Grant Program opens in October, providing funding of up to $5,000 to community groups and not-for-profit organisations in the City of Karratha to support health, liveability, sustainability and environmental outcomes.













Building community connections: repurposing for a brighter future

Yurra and Woodside Energy made a collaborative contribution to the Roebourne Work Camp by donating 34 tonnes of scaffold boards.

During supplier visits, Local Content Manager, Julie Attwood, realised there was an opportunity to re-purpose redundant scaffold materials, no longer being used at Karratha Gas Plant.

The materials were welcomed by the men at the Department of Justice Roebourne Work Camp. They were used to make furniture for not-for-profit organisations and local community groups, helping participants develop employable skills, as well as providing benefits to Pilbara regional communities.

Some of the projects completed using these repurposed materials include; timber picnic benches for the Roebourne District Hospital, outdoor seating and cubby houses for local schools and daycares, and tables to display the work of local Aboriginal artists. These projects improve community spaces and connectivity, while providing a platform for artists to gain recognition and income.

Read more about the collaboration between Yurra, Woodside, and the Department of Justice and the positive impact on community by scanning the QR code.

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Woodside is building for the future: 30 new homes in Karratha

Woodside Energy (Karratha Services) Pty Ltd, has awarded contracts for the construction of an additional 30 new homes in Karratha for Woodside's residential employees. Under the award, 20 new homes will be built by Thomas Building and 10 by Traditional Owner business, Yurra Building, both locally based contractors.

Expected to be completed from mid-2026, the new houses will be owned by Woodside and are additional to the recent construction of 20 new homes under a 15-year build-to-lease agreement with Karratha Housing, a subsidiary of Yurra Building.

Awarding the construction contracts to Thomas Building and Yurra Building is part of Woodside's ongoing commitment to delivering business opportunities that boost jobs and support the local economy. The contracts include provisions for the employment of local apprentices and trainees.

Woodside Pluto Asset Manager Kate Bardill said the new contracts were part of the company's Karratha housing approach, which aimed to providing quality housing options for employees while balancing the needs of the local housing market.

"Woodside's approach to housing includes investment in new builds, the sale of older housing stock on the open market and support for local housing affordability initiatives such as the City of Karratha's Service Worker Accommodation program," said Kate.

Under Woodside's predominantly residential frontline workforce policy, approximately 75% of the company's employees working at its Karratha operations live locally.

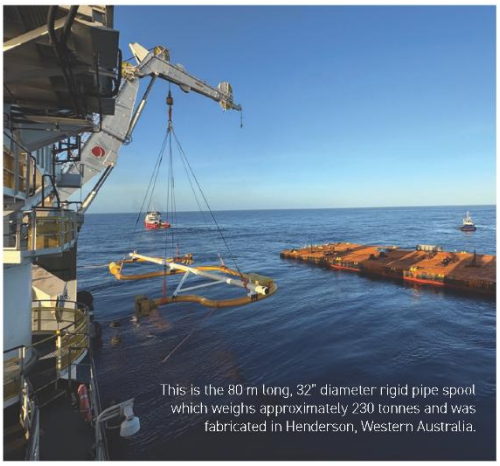
Scarborough's subsea infrastructure now in place

The Scarborough Energy Project has reached another exciting milestone–this time beneath the waves. The team has successfully completed the penultimate subsea installation campaign, marking a significant step toward first LNG cargo in the second half of 2026.

Approximately 375 km off the Pilbara coast, over 400 pieces of subsea equipment have now been assembled and installed in the Scarborough field, including the impressive 305-tonne Riser Base Manifold. With all critical infrastructure in place and tested, the project is now more than 86% complete (excluding Pluto Train 1 modifications) and ready for the hook-up and commissioning of the floating production unit (FPU) upon its arrival.

The Scarborough Offshore Facility and Trunkline (Operations) Environment Plan (EP) is now approved, setting out how Woodside will manage environmental risks and impacts associated with offshore operations. The EP covers activities such as FPU installation, commissioning, and ongoing operations, as well as inspection, maintenance, and repair of subsea infrastructure.

Scan the QR code to read more about the Scarborough Energy Project.


This is the 80 m long, 32" diameter rigid pipe spool which weighs approximately 230 tonnes and was fabricated in Henderson, Western Australia.

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APPENDIX G OIL SPILL PREPAREDNESS AND RESPONSE MITIGATION ASSESSMENT

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Woodside Energy

Oil Spill Preparedness and Response Mitigation Assessment for Pluto 4D Monitor 3 Marine Seismic Survey

Corporate HSE

Hydrocarbon Spill Preparedness

March 2026
Revision 0a

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EXECUTIVE SUMMARY

Woodside Burrup Pty. Ltd (Woodside) has developed its oil spill preparedness and response position for the Pluto 4D Monitor 3 Marine Seismic Survey, hereafter known as the Petroleum Activity.

This document demonstrates that the risks and impacts from an unplanned hydrocarbon release, and the associated response operations, are controlled to As Low as Reasonably Practicable (ALARP) and an acceptable level. It achieves this by evaluating response options to address the potential environmental impacts resulting from an unplanned loss of hydrocarbon containment associated with the Petroleum Activity described in the Environment Plan (EP). This document then outlines Woodside's decisions and techniques for responding to a hydrocarbon release event and the process for determining its level of hydrocarbon spill preparedness.

A summary of the key facts and references to additional detail within this document are presented below.

Table 0-1: Summary of the key details for assessment

Key details of assessment	Summary	Reference to additional detail
Worst Case Credible Scenario	Credible Scenario-02 (CS-02): Surface release of marine diesel oil (MDO) due to vessel collision at 19° 49′ 59.820″ S 115° 37′ 14.440″ E.[1] Instantaneous release of 350 m^3 5% residual component of 17.5 m^3	Section 2.2
Hydrocarbon Properties	**Marine Diesel Oil** Marine diesel oil (MDO) is a mixture of volatile and persistent hydrocarbons with low proportions of highly volatile and residual components. In general, about 6% of the oil mass should evaporate within the first 12 hours (BP < 180 °C); a further 35% should evaporate within the first 24 hours (180 °C < BP < 265 °C); and a further 54% should evaporate over several days (265 °C < BP < 380 °C). Approximately 5% of the oil is shown to be persistent. The aromatic content of the oil is approximately 3%.	Section 6.9.1.1.1 of the EP Appendix A of the First Strike Plan
Modelling Results	**Stochastic modelling** A quantitative, stochastic assessment has been undertaken for credible spill scenarios to help assess the environmental risk of a hydrocarbon spill. A total of 200 replicate simulations were completed for the scenario to test for trends and variations in the trajectory and weathering of the spilled oil, with an even number of replicates completed using samples of metocean data that commenced within each calendar quarter (50 simulations per quarter).	Section 2.3
Net Environmental Benefit Analysis	Monitor and evaluate, source control, oiled wildlife response, are all identified as potentially having a net environmental benefit and carried forward for further assessment.	Section 4
ALARP evaluation of selected response techniques	The evaluation of the selected response techniques shows the proposed controls reduced the risk to an ALARP and acceptable level for the risk presented in Section 2, without the implementation of considered additional, alternative or improved control measures.	Section 7

[1] Existing modelling for a 500 m^3 instantaneous release of MDO was selected as an analogue for the worst-case spill scenario for this location (RPS, 2022). This surrogate release scenario is considered appropriate as it is located in close proximity to the Pluto Operational Area (~20 km east), is closer to sensitive receptors and is a larger volume and is therefore considered conservative.

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1 INTRODUCTION

1.1 Overview

Woodside Burrup Pty. Ltd (Woodside) has developed its oil spill preparedness and response position for the Pluto 4D Monitor 3 Marine Seismic Survey, hereafter known as the Petroleum Activity. This document outlines Woodside's decisions and techniques for responding to a hydrocarbon loss of containment event and the process for determining its level of hydrocarbon spill preparedness.

1.2 Purpose

This document, together with the documents listed below, meet the requirements of the Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2023 (Environment Regulations) relating to hydrocarbon spill response arrangements.

- The Pluto 4D Monitor 3 Marine Seismic Survey Environment Plan (EP)
- Hydrocarbon Spill Australia Regulatory Framework[2]
- The Pluto 4D Monitor 3 Marine Seismic Survey Oil Pollution Emergency Plan (OPEP) including
  - Oil Pollution First Strike Plan (FSP)
  - Operational and Scientific Monitoring Bridging Implementation Plan (OSM BIP)[3]
  - Relevant Operations Plans
  - Relevant Tactical Response Plans (TRPs)
  - Relevant Supporting Plans
  - Data Directory.

1.3 Scope

This document demonstrates that the risks and impacts from an unplanned hydrocarbon release, and the associated response operations, are controlled to ALARP and an acceptable level. It achieves this by evaluating response options to address the potential environmental risks and impacts resulting from an unplanned loss of hydrocarbon containment associated with the Petroleum Activity described in the EP. This document then outlines Woodside's decisions and techniques for responding to a hydrocarbon release event and the process for determining its level of hydrocarbon spill preparedness. It should be read in conjunction with the documents listed in Table 1-1. The location of the Petroleum Activity is shown in Figure 3-1 of the EP.

1.4 Oil spill response document overview

The documents outlined in Table 1-1 and Figure 1-1 are collectively used to manage the preparedness and response for a hydrocarbon release.

The Oil Pollution First Strike Plan (FSP) contains a pre-operational Net Environmental Benefit Analysis (NEBA) summary, outlining the selected response techniques for this Petroleum Activity. Relevant Operational Plans to be initiated for associated response techniques are identified in the FSP and relevant forms to initiate a response are appended to the FSP.

The process to develop an Incident Action Plan (IAP) begins once the oil pollution FSP is underway. The IAP includes inputs from monitor and evaluate and operational monitoring activities and the operational NEBA (Section 4). Planning, coordination and resource management are initiated by the Corporate Incident

[2] In accordance with Regulation 56 of the Environmental Regulations, references to the Hydrocarbon Spill Australia Regulatory Framework within this document refer to the document submitted with the accepted North West Shelf Phase 1 Plug and Abandonment and TPA03 Well Intervention Environment Plan, which is available on NOPSEMA's website using the following link: https://docs.nopsema.gov.au/A1282743

[3] In accordance with Regulation 56 of the Environmental Regulations, references to the Operational and Scientific Monitoring Bridging Implementation Plan (OSM-BIP) within this document refer to the OSM-BIP submitted with the accepted North West Shelf Phase 1 Plug and Abandonment and TPA03 Well Intervention Environment Plan, which is available on NOPSEMA's website using the following link: https://docs.nopsema.gov.au/A1282743

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Management Team (CIMT). In some instances, technical specialists may be utilised to provide expert advice. The planning may also involve liaison officers from supporting government agencies.

During each operational period, field reports are continually reviewed to evaluate the effectiveness of response operations. In addition, the operational NEBA is continually reviewed and updated to confirm the response techniques implemented continue to result in a net environmental benefit (Section 4).

The response will continue as described in Section 5 until the response termination criteria have been met.

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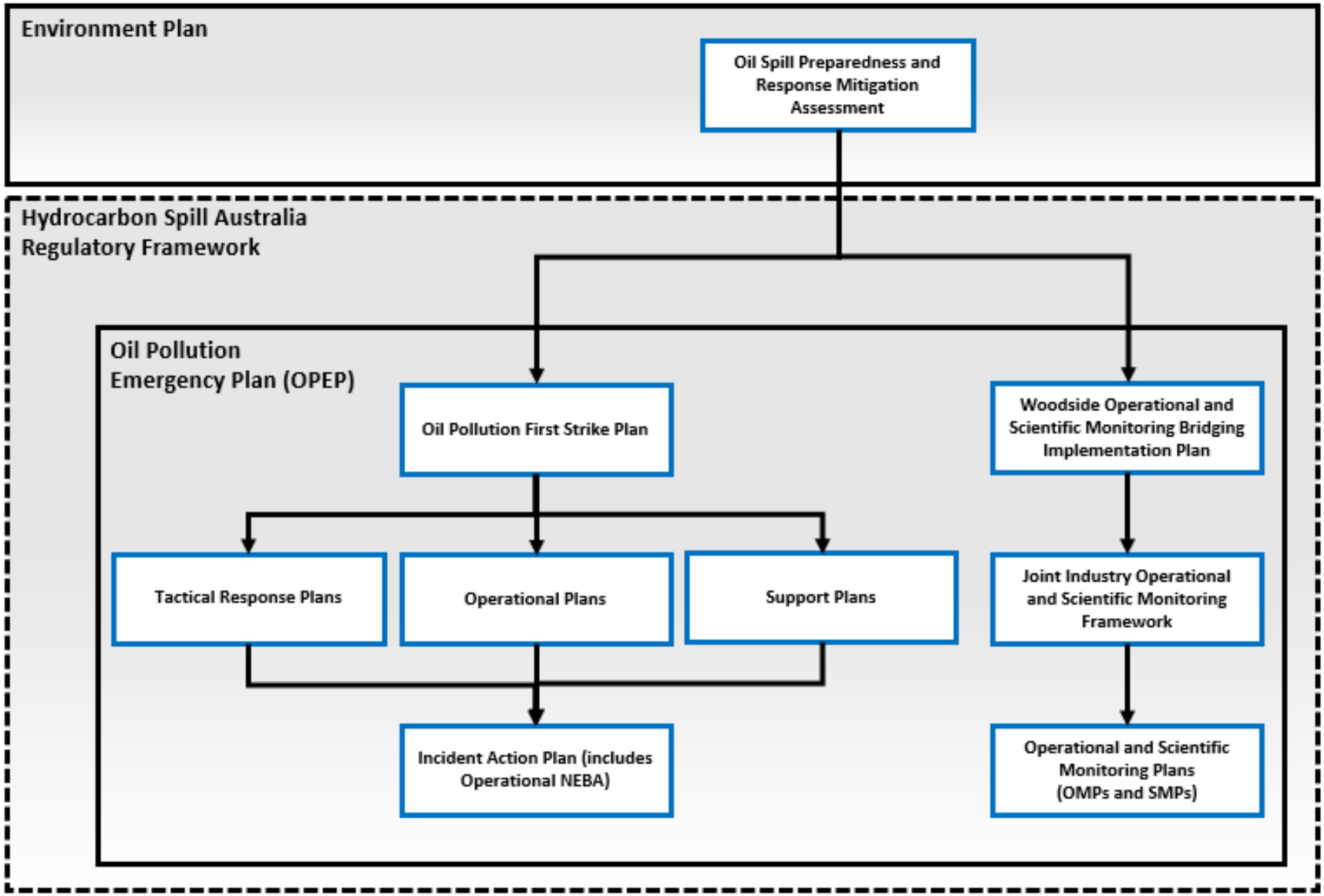


Figure 1-1: Woodside hydrocarbon spill document structure

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Table 1-1: Hydrocarbon Spill preparedness and response – document references

Document	Document overview	Stakeholders	Relevant information	Document subsections (if applicable)
Pluto 4D Monitor 3 Marine Seismic Survey Environment Plan (EP)	Demonstrates that potential adverse impacts on the environment associated with the Pluto 4D Monitor 3 Marine Seismic Survey (during both routine and non-routine operations) are mitigated and managed to As Low As Reasonably Practicable (ALARP) and will be of an acceptable level.	NOPSEMA Woodside internal	EP Section 6 (Identification and evaluation of environmental risks and impacts, including credible spill scenarios) EP Section 6 (Performance outcomes, standards and measurement criteria) EP Section 7 (Implementation strategy – including emergency preparedness and response, and Reporting and compliance)	
Hydrocarbon Spill Australia Regulatory Framework[2]	Describes the arrangements and processes adopted by Woodside when responding to a hydrocarbon spill from a petroleum activity.	Regulatory agencies Woodside internal	All	
Oil Spill Preparedness and Response Mitigation Assessment for the Pluto 4D Monitor 3 Marine Seismic Survey (this document)	Evaluates response options to address the potential environmental impacts resulting from an unplanned loss of hydrocarbon containment associated with the Petroleum Activity described in the EP.	Regulatory agencies Corporate Incident Management Team (CIMT): Control function in an ongoing spill response for activity-specific response information.	All Performance outcomes, standards and measurement criteria related to hydrocarbon spill preparedness and response are included in this document.	
Pluto 4D Monitor 3 Marine Seismic Survey Oil Pollution First Strike Plan	Facility specific document providing details and tasks required to mobilise a first strike response. Primarily applied to the first 24 hours of a response until a full Incident Action Plan (IAP) specific to the event is developed. Oil Pollution First Strike Plans are intended to be the first document used to provide immediate	Site-based IMT for initial response, activation and notification. CIMT for initial response, activation and notification. CIMT: Control function in an ongoing spill response for activity-specific response information.	Initial notifications and reporting required within the first 24 hours of a spill event. Relevant spill response options that could be initiated for mobilisation in the event of a spill. Recommended pre-planned tactics. Details and forms for use in immediate response. Activation process for oil spill trajectory	

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Document	Document overview	Stakeholders	Relevant information	Document subsections (if applicable)
	guidance to the responding Incident Management Team (IMT).		modelling, aerial surveillance and oil spill tracking buoy details.	
Operational Plans	Lists the actions required to activate, mobilise and deploy personnel and resources to commence response operations. 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. 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.	CIMT: Operations and Logistics Sections for first strike activities. CIMT: Planning Section to help inform the IAP on resources available.	Locations from where resources may be mobilised. How resources will be mobilised. Details of where resources may be mobilised to and what facilities are required once the resources arrive. Details on how to implement resources to undertake a response.	Operational Monitoring Operational Plan Vessel SOPEP Oiled wildlife response
Operational and Scientific Monitoring (OSM) Bridging Implementation Plan[3]	Describes a program of monitoring oil pollution that will be adopted in the event of a hydrocarbon spill incident (Level 2–3) to marine waters. It is aligned to the Joint Industry Operational and Scientific Monitoring Framework (APPEA, 2021) and describes how this Framework applies to Woodside's activities and spill risks in Australian waters.	Site-based IMT for initial activation and notification. OSM Service Providers Regulatory agencies	Mobilisation and notification process for OSM, including activation of OSM Service Providers Information on scientific monitoring priorities OSM arrangements and capability Permitting and access requirements for OSM	

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Document	Document overview	Stakeholders	Relevant information	Document subsections (if applicable)
Tactical Response Plans	Provides options for response techniques in selected RPAs. Provides site, access and deployment information to support a response at the location.	CIMT: Planning Section to help develop IAPs, and Logistics Section to assist with determining resources required.	Indicative response techniques. Access requirements and/or permissions. Relevant information for undertaking a response at that site. Where applicable, may include equipment deployment locations and site layouts.	For full list of relevant Tactical Plans for the Pluto 4D Monitor 3 Marine Seismic Survey oil spill response, refer to Tactical Response Plans (TRP).
Support Plans	Support Plans detail Woodside's approach to resourcing and the provision of services during a hydrocarbon spill response.	CIMT: Operations, Logistics and Planning Sections.	Technique for mobilising and managing additional resources outside of Woodside's immediate preparedness arrangements.	Logistics Support Plan Aviation Support Plan Marine Support Plan Accommodation & Catering Plan – Australia Transport Management Plan – Australia Waste Management Plan – Australia Health and Safety Support Plan Hydrocarbon Spill Responder Health Monitoring Guidelines People and Global Capability (Surge Labour Requirements) Support Plan (Land Based) Security Support Plan Stakeholder Engagement Support Plan Guidance for Hydrocarbon Spill Claims Management Communications Support Plan – Australia

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2 RESPONSE PLANNING PROCESS

This document details Woodside's process for identifying potential response options for the hydrocarbon release scenarios, identified in the EP. Figure 2-1 outlines the interaction between Woodside's response, planning, preparedness and selection process.

This structure has been used because it shows how the planning and preparedness activities inform a response and provides indicative guidance on what activities would be undertaken, in sequential order, if a real event were to occur. The process also evaluates alternative, additional and/or improved control measures specific to the Petroleum Activity.

The Pluto 4D Monitor 3 Marine Seismic Survey First Strike Plan (FSP) then summarises the outcome of the response planning process and provides initial response guidance and a summary of ongoing response activities if an incident were to occur.

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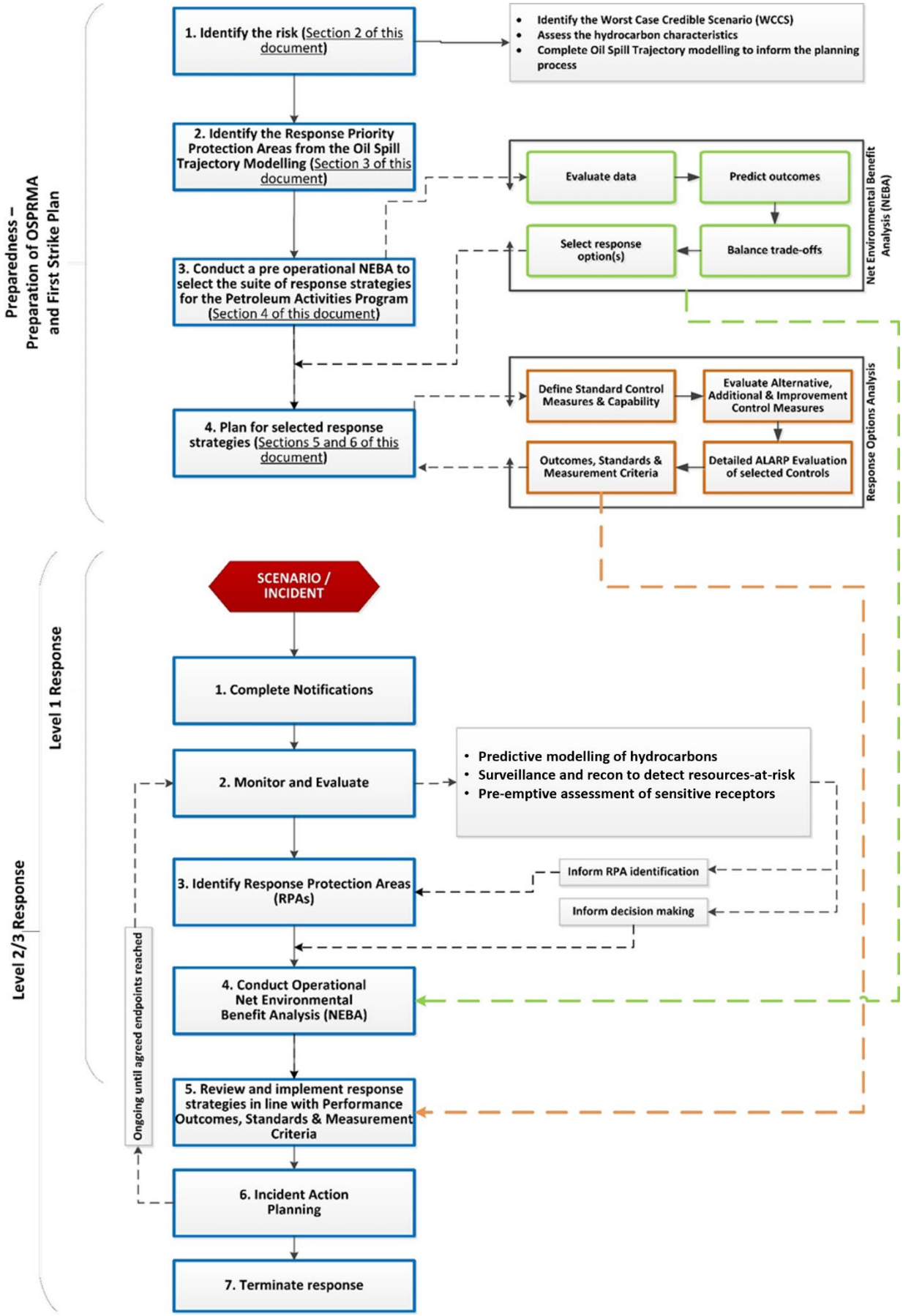


Figure 2-1: Response planning and selection process

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2.1 Response planning process outline

This document is expanded below to provide additional context on the key steps in determining capability, evaluating ALARP and hydrocarbon spill response requirements.

Section 1. INTRODUCTION

Section 2. RESPONSE PLANNING PROCESS

- identification of worst-case credible scenario(s) (WCCS)
- spill modelling for WCCS.

Section 3. IDENTIFY RESPONSE PROTECTION AREAS (RPAs)

- areas predicted to be contacted at concentration >100 g/m^2.

Section 4. NET ENVIRONMENTAL BENEFIT ANALYSIS (NEBA)

- pre-operational NEBA (during planning/ALARP evaluation): this must be reviewed during the initial response to an incident to confirm its accuracy
- selected response techniques prioritised and carried forward for ALARP assessment.

Section 5. HYDROCARBON SPILL ALARP PROCESS

- determines the response need based on predicted consequence parameters.
- details the environmental performance of the selected response options based on need.
- sets the environmental performance outcomes, environmental performance standards and measurement criteria.

Section 6. ALARP EVALUATION

- evaluates alternative, additional, and improved options for each response technique to demonstrate the risk has been reduced to ALARP.
- provides a detailed ALARP assessment of selected control measure options against:
  - predicted cost associated with implementing the option
  - predicted change to environmental benefit
  - predicted effectiveness / feasibility of the control measure.

Section 7. ENVIRONMENTAL RISK ASSESSMENT OF SELECTED RESPONSE TECHNIQUES

- evaluation of impacts and risks from implementing selected response options.

Section 8. ALARP CONCLUSION

Section 9. ACCEPTABILITY CONCLUSION

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2.1.1 Response Planning Assumptions

Figure 2-2 illustrates the initial steps of a response to an oil spill event and, where available, the indicative timing. For the latter stages, the timing will be specific to the selective response option.

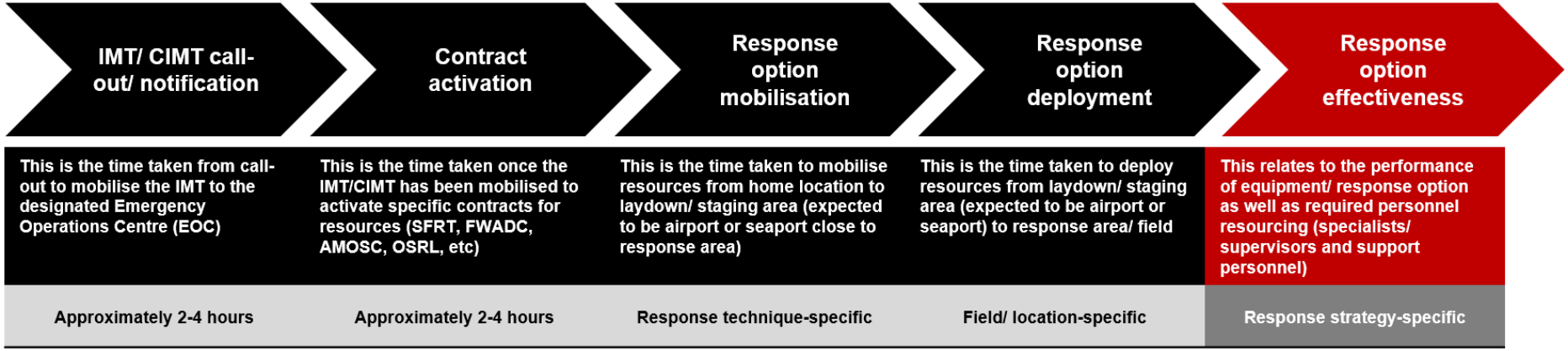


Figure 2-2: Response planning assumption – timing, resourcing and effectiveness

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2.2 Environment plan risk assessment (credible spill scenarios)

Potential hydrocarbon release scenarios from the Petroleum Activity have been identified during the risk assessment process (Section 6 of the EP). Further descriptions of risk, impacts and mitigation measures (which are not related to hydrocarbon preparedness and response) are provided in Section 6 of the EP. One unplanned event or credible spill scenario for the Petroleum Activity been selected as representative across types, sources and incident/response levels, up to and including the WCCS.

Table 2-1 presents the credible scenarios for the Petroleum Activity. The WCCS for the activity is then used for response planning purposes, as all other scenarios are of a lesser scale and extent. By demonstrating capability to manage the response to the WCCS, Woodside assumes other scenarios that are smaller in nature and scale can also be managed by the same capability. Response performance measures have been defined based on a response to the WCCS.

Four credible scenarios were considered for the activities:

1. Instantaneous surface release of 350 m^3 of MDO cause by a vessel collision – survey vessels
2. Instantaneous surface release of 105 m^3 of MDO cause by a vessel collision – support vessels and third-party vessels
3. Instantaneous surface release of 8 m^3 of MDO caused by bunkering loss of containment
4. Small hydrocarbon release (5-25L) caused by loss of containment during equipment transfer, storage or use

The survey vessel collision scenario causing an instantaneous release of 350 m^3 of MDO is considered the WCCS for response planning purposes given that it is the credible scenario with the largest release volume.

Spill modelling of a 500m^3 instantaneous release of MDO was undertaken by RPS in 2022 (RPS 2022) based on a vessel collision at the nearby Lady Nora 2 well and will be used as a surrogate release location. This surrogate release scenario (labelled as CS-02 to be consistent with the scenario description in the modelling report) is considered appropriate as it is located in close proximity to the Pluto Operational Area (~20 km east), is closer to sensitive receptors e.g. Rankin Bank, and is a larger volume and is therefore considered conservative. The results of the modelling can be used to demonstrate that a spill of a larger volume, closer to sensitive receptors and still near to the Operational Area is predicted to result in an EMBA that is not expected to include any surface slicks above response threshold volumes entering WA state waters, or any shoreline contact or accumulation above response threshold levels of 100 g/m^2 at any site. Basing the impact assessment for a vessel collision scenario on this modelling is considered representative of the spill risk.

The location of CS-02 is shown in Figure 2-3.

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Table 2-1: Petroleum Activities Program credible spill scenarios

Credible Spill Scenarios	Scenario selected for planning purposes	Scenario description	Maximum credible volume released (liquid m^3)[1]	Incident level	Hydrocarbon type	Residual proportion	Residual volume (m^3)
Credible Spill Scenario- 02 (CS-02[4]) – WCCS	Yes	Instantaneous surface release cause by a vessel collision – survey vessels	350 m^3 [5]	2	MDO	5 %	17.5 m^3
Credible Spill Scenario-03 (CS-03)	No	Instantaneous surface release cause by a vessel collision – support vessels and third-party vessels	105 m^3	2	MDO	5 %	5.25 m^3
Credible Spill Scenario-04 (CS-04)	No	Instantaneous surface release caused by bunkering loss of containment	8 m^3	1	MDO	5 %	<1 m^3
Credible Spill Scenario –05 (CS-05)	No	Small hydrocarbon release caused by loss of containment during equipment transfer, storage or use	5-25L	1	MDO	NA	NA

[4] labelled as CS-02 to be consistent with the scenario description in the modelling report

[5] Existing modelling for a 500m^3 instantaneous release of MDO was selected as an analogue for the worst-case spill scenario for this location (RPS, 2022). This surrogate release scenario is considered appropriate as it is located in close proximity to the Pluto Operational Area (~20 km east), is closer to sensitive receptors e.g. Rankin Bank, and is a larger volume and is therefore considered conservative.

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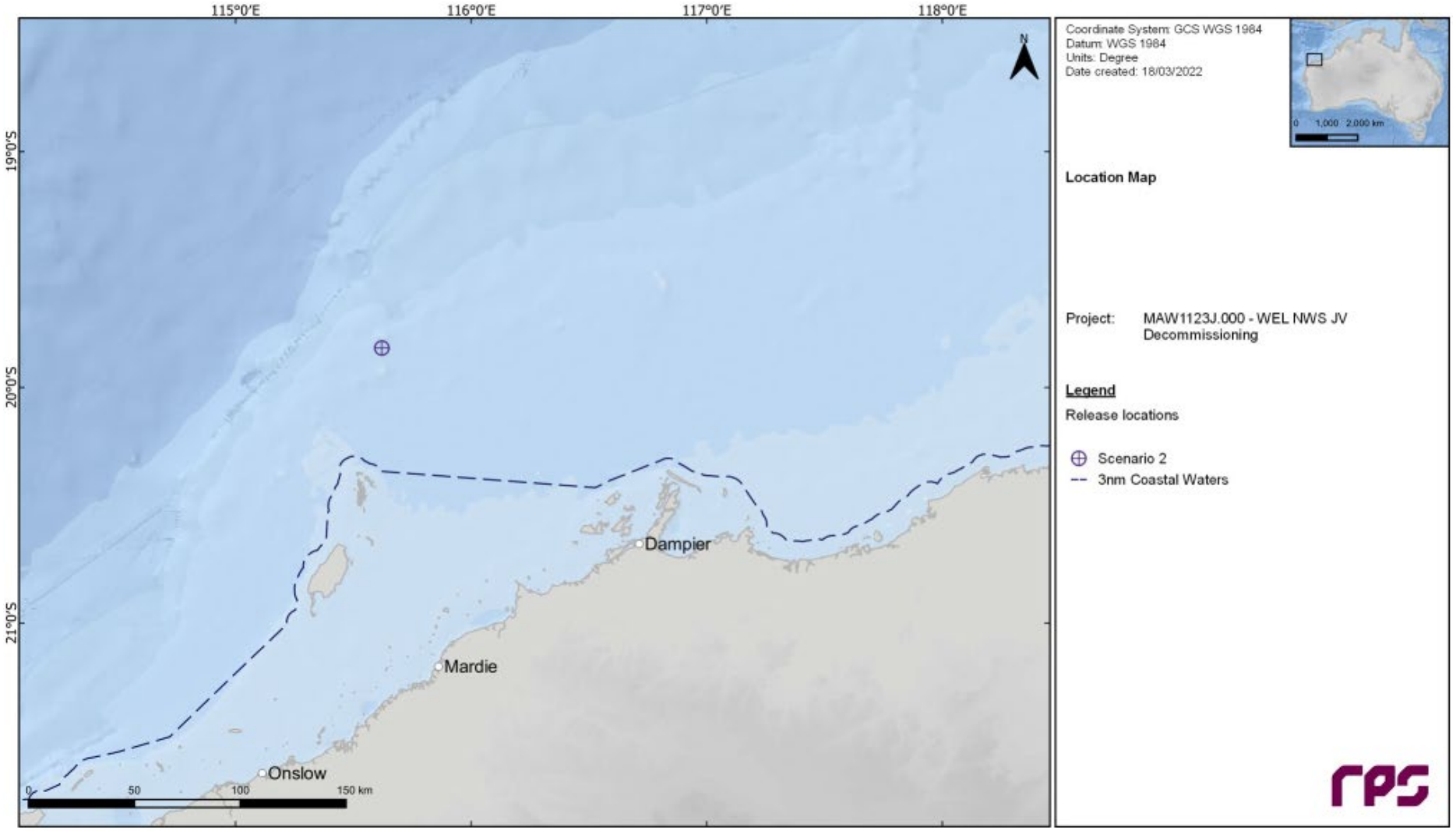


Figure 2-3: Modelled location of Credible Scenario 2

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2.2.1 Hydrocarbon characteristics

Hydrocarbon characteristics, including modelled weathering data and ecotoxicity, are included in Section 6.9.1.1.1 of the EP.

Marine Diesel Oil

MDO is typically classed as an International Tanker Owners Pollution Federation (ITOPF) Group I/II oil. Group I oils are non-persistent and tend to dissipate completely through evaporation within a few hours and do not normally form emulsions.

MDO is a mixture of volatile and persistent hydrocarbons with low proportions of highly volatile and residual components. In general, about 6% of the oil mass should evaporate within the first 12 hours (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% (i.e. approximately 25 m^3) of the oil is shown to be persistent. The aromatic content of the oil is approximately 3%.

2.3 Hydrocarbon spill modelling

Oil spill trajectory modelling (OSTM) tools are used for environmental impact assessment and during response planning to understand spatial scale and timeframes for response operations. Woodside recognises there is a degree of uncertainty related to the use of modelling data and has subsequently utilised conservative approaches to volumes, weathering, spatial areas, timing and response effectiveness to scale capability to need.

The Oil Spill Model and Response System (OILMAP) and Integrated Oil Spill Impact Model System (SIMAP) models are both used for stochastic and deterministic trajectory modelling. They have been developed over three decades of planning, exercises, actual responses, several peer reviews, and validation studies. OILMAP was originally derived from the United States Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) Type A model (French et al. 1996), for assessing marine transport, biological impact and economic damage that was also used under the United States Oil Pollution Act 1990 Natural Resource Damage Assessment (NRDA) regulations. Notable spills where the model has been used and validated against actual field observations include, Exxon Valdez (French McCay 2004), North Cape Oil Spill (French McCay 2003), along with an assessment of 20 other spills (French McCay and Rowe, 2004). In addition, test spills designed to verify fate, weathering and movement algorithms have been conducted regularly and in a range of climate conditions (French and Rines 1997; French et al. 1997; Payne et al. 2007; French McCay et al. 2007).

Further to this, the algorithms have been updated using the latest findings from the Macondo/Deepwater Horizon well blowout in the Gulf of Mexico and validated according to the Deepwater Horizon (DWH) oil spill in support of the NRDA (Spaulding et al. 2015; French McCay et al. 2015, 2016). Finally, the OILMAP and SIMAP models have been used extensively in Australia to prosecute pollution offences, predict discharge locations and likely spill volumes based on weathering and surveillance observations, and has been used as expert witness evidence in Australian court proceedings, aiding the prosecution to determine spill quantum estimates.

2.3.1 Stochastic modelling

Quantitative, stochastic assessments have been undertaken for the credible spill scenarios (refer to Table 2-1) to help assess the environmental consequences of a hydrocarbon spill.

A total of 200 replicate simulations were completed for the scenario to test for trends and variations in the trajectory and weathering of the spilled oil, with an even number of replicates completed using samples of metocean data that commenced within each calendar quarter (50 simulations per quarter). Further details relating to the assessments for the scenarios can be found in Section 6 of the EP.

2.3.1.1 Environmental impact thresholds – Environment that May Be Affected (EMBA) and hydrocarbon exposure

The outputs of the stochastic spill modelling are used to assess the potential environmental impact from the credible scenarios. The stochastic modelling results are used to delineate areas of the marine and shoreline environment that could be exposed to hydrocarbon levels exceeding environmental impact threshold concentrations. The summary of all the locations where hydrocarbon thresholds could be exceeded by any of

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the simulations modelled is defined as the EMBA and is discussed further in Section 6 of the EP. As the weathering of different fates of hydrocarbons (surface, entrained and dissolved) differs due to the influence of the metocean mechanism of transportation, a different EMBA is presented for each fate within the EP.

A conservative approach – adopting accepted accumulation thresholds for impacts on the marine environment – is used to define the EMBA. These hydrocarbon thresholds are presented in Table 2-2 below and described in Section 6 of the EP.

Table 2-2: Summary of thresholds applied to the stochastic hydrocarbon spill modelling to determine the EMBA and inform operational and scientific monitoring

Hydrocarbon	Surface hydrocarbon (g/m^2)	Dissolved hydrocarbon (ppb)	Entrained hydrocarbon (ppb)	Accumulated hydrocarbon (g/m^2)
Diesel	10	50	100	100
Operational and scientific monitoring assessment (see ANNEX C)				
All hydrocarbon types	1	10	10	10

2.3.2 Deterministic modelling

Deterministic modelling is undertaken where initial stochastic modelling has indicated that floating oil is present at a response threshold of 50 g/m^2 and/or where there are shoreline accumulations at a response threshold of 100 g/m^2. The deterministic modelling outputs are then used to scale the required capability for the offshore (surface dispersant and containment and recovery) and/or shoreline responses.

Stochastic modelling for CS-02 does not predict shoreline contact at either the 100 g/m^2 shoreline response threshold or the floating hydrocarbon threshold of 50 g/m^2 in open ocean. Deterministic modelling was, therefore, not required and stochastic modelling has thus been used to scale the response in this assessment.

2.3.3 Response planning thresholds for surface and shoreline hydrocarbon exposure

Thresholds to determine the EMBA and inform operational and scientific monitoring (OSM) are used to predict and assess environmental impacts, however they do not appropriately represent the thresholds at which an effective response can be implemented. Additional response thresholds are used for response planning and to determine areas where response techniques would be most effective. The deterministic modelling is then used to assess the nature and scale of a response.

In the event of an actual response, existing deterministic modelling would be reviewed for suitability and additional modelling would be conducted using real-time data and field information to inform IMT decisions.

The deterministic spill modelling outputs are presented at response planning thresholds for surface hydrocarbons for the WCCS. Surface spill concentrations are expressed as grams per square metre (g/m^2) (Section 2.2). The thresholds used are derived from oil spill response planning literature and industry guidance and are summarised below.

2.3.3.1 Surface hydrocarbon concentrations

Table 2-3: Surface hydrocarbon thresholds for response planning

Surface hydrocarbon threshold (g/m^2)	Description	Bonn Agreement Oil Appearance Code	Mass per area (m^3/km^2)
>10	Predicted minimum threshold for commencing monitor and evaluate[6]	Code 3 – Dull metallic colours	5 to 50

[6] Operational monitoring will be undertaken from the outset of a spill whether or not this response threshold has been reached. Monitoring is needed throughout the response to assess the nature of the spill, track its location and inform the need for any additional monitoring and/or response techniques. It also informs when the spill has entered State Waters and control of the incident passes to statutory authorities e.g. Western Australia Department of Transport and Major Infrastructure (WA DTMI) or AMSA.

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Surface hydrocarbon threshold (g/m^2)	Description	Bonn Agreement Oil Appearance Code	Mass per area (m^3/km^2)
50	Predicted minimum floating oil threshold for containment and recovery and surface dispersant application [7]	Code 4 – Discontinuous true oil colour	50 to 200
100	Predicted optimum floating oil threshold for containment and recovery and surface dispersant application	Code 5 – Continuous true oil colour	>200
Shoreline hydrocarbon threshold (g/m^2)	**Description**	**National Plan Guidance on Oil Contaminated Foreshores**	**Mass per area (m^3/km^2)**
100	Predicted minimum shoreline accumulation threshold for shoreline assessment operations	Stain	>100
250	Predicted minimum threshold for commencing shoreline clean-up operations	Level 3 – Thin Coating	200 to 1000

The surface thickness of oil at which dispersants are typically effective is approximately 100 g/m^2. However, substantial variations occur in the thickness of the oil within the slick, and most fresh crude oils spread within a few hours, so overall the average thickness is 0.1 mm (or approx. 100 g/m^2 ITOPF 2011). Additionally, the recommended rate of application for surface dispersant is typically one part dispersant to 20 or 25 parts of spilled oil. These figures assume a 0.1 mm slick thickness, averaged over the thickest part of the spill, to calculate a litres/hectare application rate from vessels and aircraft. In practice this can be difficult to achieve as it is not possible to accurately assess the thickness of the floating oil.

Some degree of localised over-dosage and under-dosage is inevitable in dispersant response. An average oil layer thickness of 0.1 mm is often assumed, although the actual thickness can vary over a wide range (from less than 0.0001 mm to more than 1 mm) over short distances (International Petroleum Industry Environment Conservation Association [IPIECA] 2015).

Guidance from the Australian Maritime Safety Authority (AMSA, 2020) indicates spreading of spills of Group II or III products will rapidly decrease slick thickness over the first 24 hours of a spill resulting in the potential requirement of up to a ten (10) fold increase in capability on day 2 to achieve the same level of performance.

Further guidance from the European Maritime Safety Authority (EMSA) states spraying the 'metallic' looking area of an oil slick (Bonn Agreement Oil Appearance Code [BAOAC] 3, approx. 5 – 50 µm) with dispersant from spraying gear designed to treat an oil layer 0.1 mm (100 µm) thick, will inevitably cause dispersant over-treatment by a factor of 2 to 20 times (EMSA 2012).

Therefore, dispersant application should be concentrated on the thickest areas of an oil slick and Woodside intends on applying surface dispersants to only BAOAC 4 and 5. Spraying areas of oil designated as BAOAC Code 4 (Discontinuous true oil colour) with dispersant will, on average, deliver approximately the recommended treatment rate of dispersant.

Spraying areas of oil designated as BAOAC Code 5 with dispersant (Continuous true oil colour and more than 0.2 mm thick) will, on average, deliver approximately half the recommended treatment rate of dispersant. Repeated application of these areas of thicker oil, or increased dosage ratios, will be required to achieve the recommended treatment rate of dispersant (EMSA 2012).

Guidance from NOAA in the United States is found in the document: *Characteristics of Response Strategies: A Guide for Spill Response Planning in Marine Environments 2013 (NOAA 2013).* This guide outlines advice for response planning across all common techniques, including surface dispersant spraying and containment and recovery. It states oil thickness can vary by orders of magnitude within distinct areas of a slick, thus the actual slick thickness and oil distribution of target areas are crucial for determining response method feasibility. Further to this, ITOPF also states in terms of oil spill response, sheen can be disregarded as it represents a

[7] At 50 g/m^2, containment and recovery and surface dispersant application operations are not expected to be particularly effective. This threshold represents a conservative approach to planning response capability and containing the spread of surface oil.

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negligible quantity of oil, cannot be recovered or otherwise dealt with to a significant degree by existing response techniques, and is likely to dissipate readily and naturally (ITOPF, 2014a, 2014b).

Figure 2-4 below from AMSA's Identification of Oil on Water – Aerial Observation and Identification Guide (AMSA, 2014) shows expected percent coverage of surface hydrocarbons as a proportion of total surface area. Wind-rows, heavy oil patches and tar balls, for example, must be considered, as they influence oil encounter rates, chemical dosages and ignition potential. Each method has different thickness thresholds for effective response.

From this information and other relevant sources (Allen and Dale, 1996, EMSA, 2012, Spence, 2018) the surface threshold of 50 g/m^2 was chosen as an average/equilibrium thickness for offshore response operations (50 g/m^2 is an average of 50% coverage of 0.1 mm Bonn Agreement Code 4 – discontinuous true oil colour, or 25% coverage of 0.2 mm Bonn Agreement Code 5 – continuous true oil colour which would represent small patches of thick oil or wind-rows).

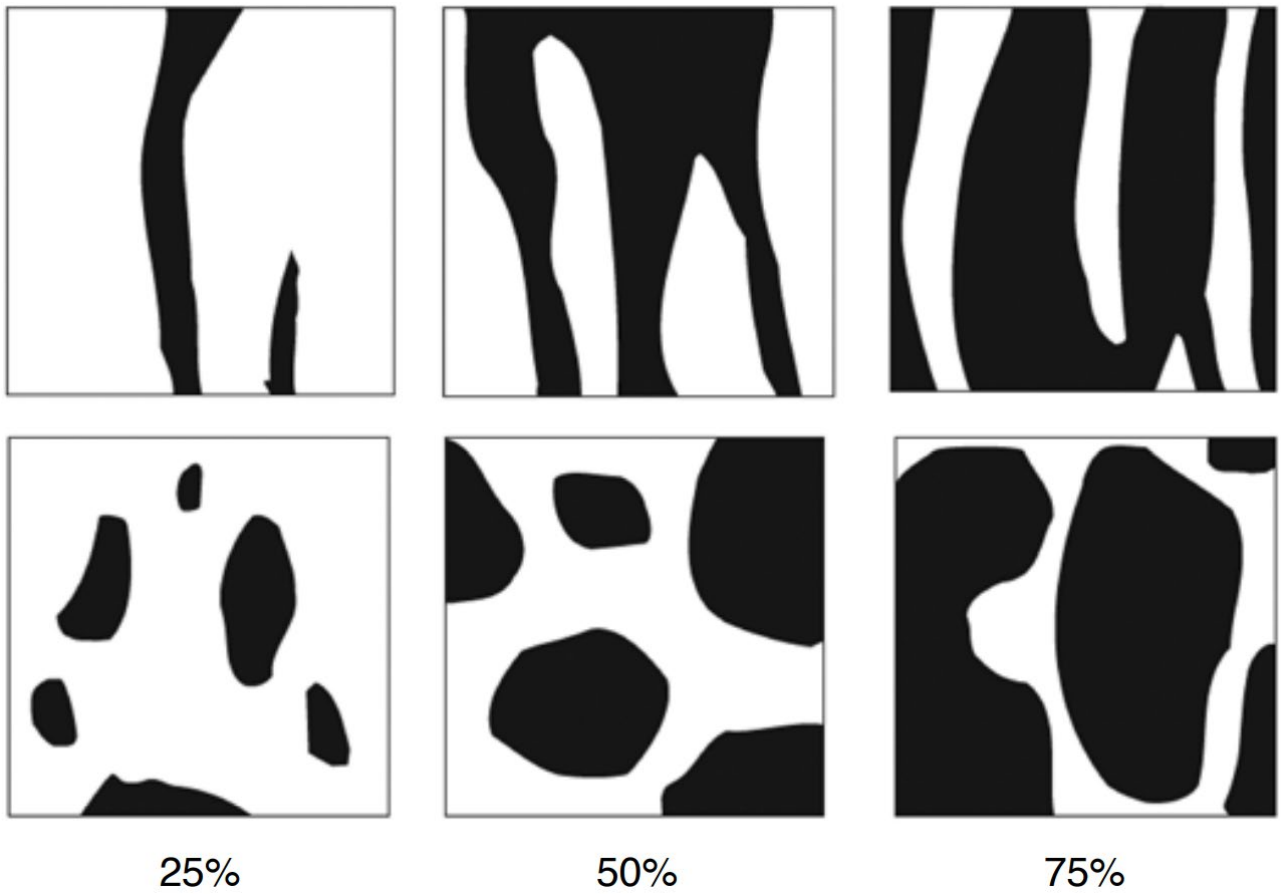


Figure 2-4: Proportion of total area coverage (AMSA, 2014)

Figure 2-5 illustrates the general relationships between on-water response techniques and slick thickness. Wind-rows, heavy oil patches and tar balls, for example, must be considered, as they influence oil encounter rates, chemical dosages and ignition potential. Each method has different thickness thresholds for effective response.

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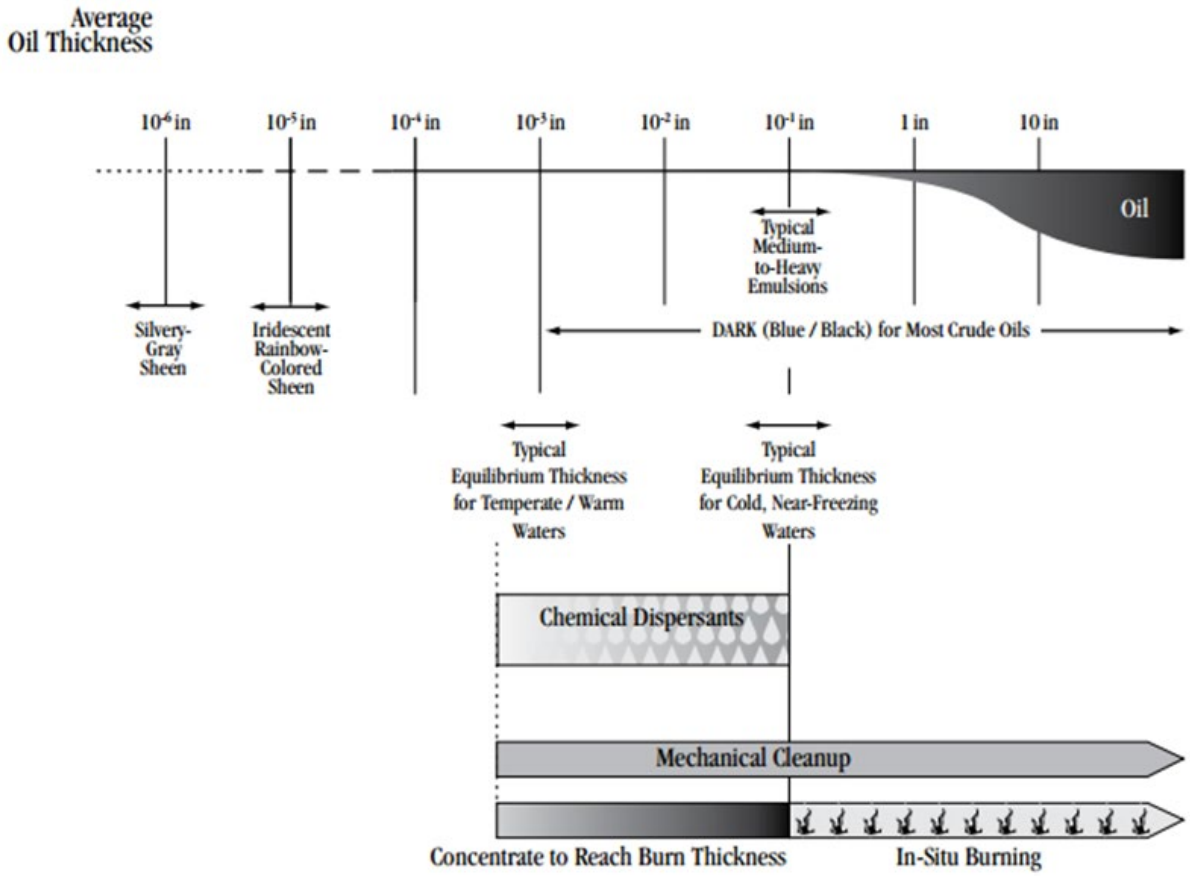


Figure 2-5: Oil thickness versus potential response options (from Allen & Dale 1996)

Wind and wave influence on the feasibility of response operations are also considered below (adapted from NOAA 2013):

- Mechanical Clean-up: Effectiveness drops significantly because of entrainment and/or splash-over as short period waves develop beyond 2–3 ft. (0.6–0.9m) in height. The ability to contain and recover oil decreases rapidly as the slick thickness becomes less than a thousandth of an inch (0.025 mm) (i.e., very low oil encounter rates). Waves and wind can also be limiting factors for the safe operation of vessels and aircraft.
- Dispersants: Effective dispersion requires a threshold amount of surface mixing energy (typically a few knots of wind and a light chop) to be effective. At higher wind and sea conditions, dispersant evaporation and wind-drift will limit chemical dispersion application effectiveness; and, there is a point (~25-kt winds, 10-ft waves) where natural dispersion forces become greater, particularly for light oils. Because of droplet size versus slick thickness constraints and application dose-rate limitations, dispersants work best on slick thicknesses of a few thousandths (approx. 50 g/m^2) to hundredths of an inch (approx. 250 g/m^2). Improved dispersants, higher dose rates, and multiple-pass techniques may extend the thickness limitation to 0.1 inch (2.5 mm) or more.

As offshore response operations (surface dispersant and containment and recovery) are intended to be undertaken at the thickest part of the slick, 50 g/m^2 and 100 g/m^2 (aligning with the lower limit of BAOAC 4 and midpoint of BAOAC 5) have been utilised by Woodside in deterministic modelling to identify the most likely locations for surface dispersant application and containment and recovery operations.

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2.3.3.2 Surface hydrocarbon viscosity

Table 2-4: Surface hydrocarbon viscosity thresholds

Surface viscosity threshold (cSt)	Description	European Maritime Safety Authority (EMSA)	Viscosity at sea temperature (cSt)
5,000*	Predicted optimum viscosity for surface dispersant operations	Generally possible to disperse	500-5,000
10,000*	Predicted maximum viscosity for effective surface dispersant operations	Sometimes possible to disperse	5,000-10,000

*Measured at sea surface temperature

Further to the required thickness for surface dispersant application and containment and recovery to be deployed effectively as outlined above, changes to viscosity will also limit the treatment of offshore response techniques. As outlined in the EMSA Manual on the Applicability of Oil Spill Dispersants (EMSA, 2012), guidance around changes to viscosity and likely effectiveness of surface dispersant application is provided.

This includes the following statements: “It has been known for many years that it is more difficult to disperse a high viscosity oil than a low or medium viscosity oil. Laboratory testing had shown that the effectiveness of dispersants is related to oil viscosity, being highest for modern ‘Concentrate, UK Type 2/3’ dispersants at an oil viscosity of about 1,000 or 2,000 mPa (1,000 – 2,000 cSt) and then declining to a low level with an oil viscosity of 10,000 mPa (10,000 cSt). It was considered that some generally applicable viscosity limit, such as 2,000 or 5,000 mPa (2,000 – 5,000 cSt), could be applied to all oils.”

However, modern oil spill dispersants are generally effective up to an oil viscosity of 5,000 mPa (5,000 cSt) or more, and their performance gradually decreases with increasing viscosity; oils with a viscosity of more than 10,000 cSt are in most cases, no longer dispersible. Guidance from CEDRE (EMSA, 2012) also indicates products with a range of 500 – 5,000 cSt at sea temperature are generally possible to disperse, while 5,000 – 10,000 cSt at sea temperature above pour point are sometimes possible to disperse, with products beyond 10,000 cSt at sea temperature below pour point are generally impossible to disperse.

To support decision making and response planning, a threshold of 10,000 cSt at sea temperature was chosen as a conservative estimate of maximum viscosity for surface dispersant spraying operations.

The thresholds described above are compared with the modelling results for the WCCS (Table 2-5).

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2.3.4 Spill modelling results

Details of the scenario and modelling inputs are included along with stochastic results in Table 2-5.

Table 2-5: Worst case credible scenario modelling results

Scenario description	Results
	CS-02[8]
WCCS – total volume released Refer to Section 2.2.1 for detailed hydrocarbon characteristics	Instantaneous surface release of 350 m^3 of MDO due to vessel collision.
WCCS – residual volume remaining post-weathering	5% residue or 25 m^3
Location	19° 49′ 59.820″ S 115° 37′ 14.440″ E
Stochastic modelling results	
Surface area of hydrocarbons (>50 g/m^2)	No floating hydrocarbons at response thresholds.
Surface area of hydrocarbons (>50 g/m^2 and <10,000 cSt)	No floating hydrocarbons at response thresholds.
Minimum time to floating hydrocarbon contact with the offshore edge(s) of any shoreline receptor polygon (at a concentration of 10 g/m^2)	No contact at any shoreline receptors. Floating oil at 10 g/m^2 is present at Montebello MP in 1.5 days (37 hours)
Minimum time to commencement of hydrocarbon accumulation at any shoreline receptor (at a concentration of 100 g/m^2)	NA - stochastic modelling confirmed no shoreline accumulation at or above 100 g/m² for credible spill scenario
Maximum cumulative hydrocarbon volume accumulated at any individual shoreline receptor (at a concentration of 100 g/m^2).	NA - stochastic modelling confirmed no shoreline accumulation at or above 100 g/m² for credible spill scenario
Maximum cumulative hydrocarbon volume accumulated across all shoreline receptors contacted by accumulated hydrocarbons (at a concentration of 100 g/m^2)	NA - stochastic modelling confirmed no shoreline accumulation at or above 100 g/m² for credible spill scenario
Minimum time to entrained/dissolved hydrocarbon contact with the offshore edges of any receptor polygon (at a threshold of 100 ppb)	22 hours (0.92 days) until Montebello MP is contacted above 100 ppb.

Modelling results have been analysed and results have been used as the basis for response planning and are included in Section 4.2

As shown from analysis of the stochastic results, modelling predicts the following:

2.3.4.1 Instantaneous surface release of 500 m^3 of MDO due to vessel collision (CS-02)

- Floating oil concentrations equal to or greater than the 1 g/m^2, 10 g/m^2 and 50 g/m^2 thresholds could potentially be found, in the form of slicks, up to 63 km, 47 km and 16 km from the spill site, respectively.

[8] *Release location for the modelled spill site is located approximately 20 km east of the Operational Area and is closer to sensitive receptors e.g. Rankin Bank. The results of the modelling data can be used to demonstrate that a spill of a larger volume and closer to sensitive receptors is a conservative approach and representative of the spill risk. As such, modelling data is considered an appropriate surrogate for the Petroleum Activity and therefore additional modelling was not required. Modelling data was originally undertaken in 2022 using NOPSEMA's contemporary modelling thresholds.*

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- Floating oil at concentrations equal to or greater than 1 g/m^2 are not predicted to contact any shoreline receptors.
- No receptors are predicted to be contacted by shoreline oil concentrations at or greater than 10 g/m^2.
- The worst-case accumulated concentration is predicted as 2.5 g/m^2 at the Barrow Island, Boodie Island, Middle Island and Muiron Islands receptors.
- Entrained oil concentrations equal to or greater than the 10 ppb and 100 ppb thresholds are predicted to be found up to 437 km and 303 km from the spill site, respectively.
- The greatest probabilities of contact by entrained oil concentrations equal to or greater than the 10 ppb threshold are predicted at Montebello Marine Park (51.5%) and Rankin Bank (29%), as well as several other sensitive receptors with probabilities of, or less than 12.5%.
- The maximum entrained oil concentration forecast for any receptor is predicted to be 466 ppb at Montebello Marine Park.
- Dissolved aromatic hydrocarbon concentrations equal to or greater than the 10 ppb and 50 ppb thresholds are predicted to be found up to around 386 km and 208 km from the spill site, respectively.
- The greatest probabilities of contact by dissolved aromatic hydrocarbon concentrations equal to or greater than 10 ppb are predicted at Montebello Marine Park (19.5%) and Rankin Bank (8.5%), as well as several other sensitive receptors with probabilities of, or less than 2.5%.
- The maximum dissolved aromatic hydrocarbon concentration forecast for any receptor is predicted as 658 ppb at Montebello Marine Park.
- Response operations cannot be implemented if the safety of response personnel cannot be guaranteed. Safety circumstances that limit the execution of this control measure include volatile concentrations of hydrocarbons in the atmosphere, high winds (>20 knots), waves and/or sea states (>1.5m waves) and high ambient temperatures.

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3 IDENTIFY RESPONSE PROTECTION AREAS (RPAs)

In a response, monitor and evaluate – including trajectory modelling and vessel/aerial observations – would be used to predict RPAs that may be impacted. For the purposes of planning and appropriately scaling a response, modelling has been used to identify RPAs as outlined below in Figure 3-1.

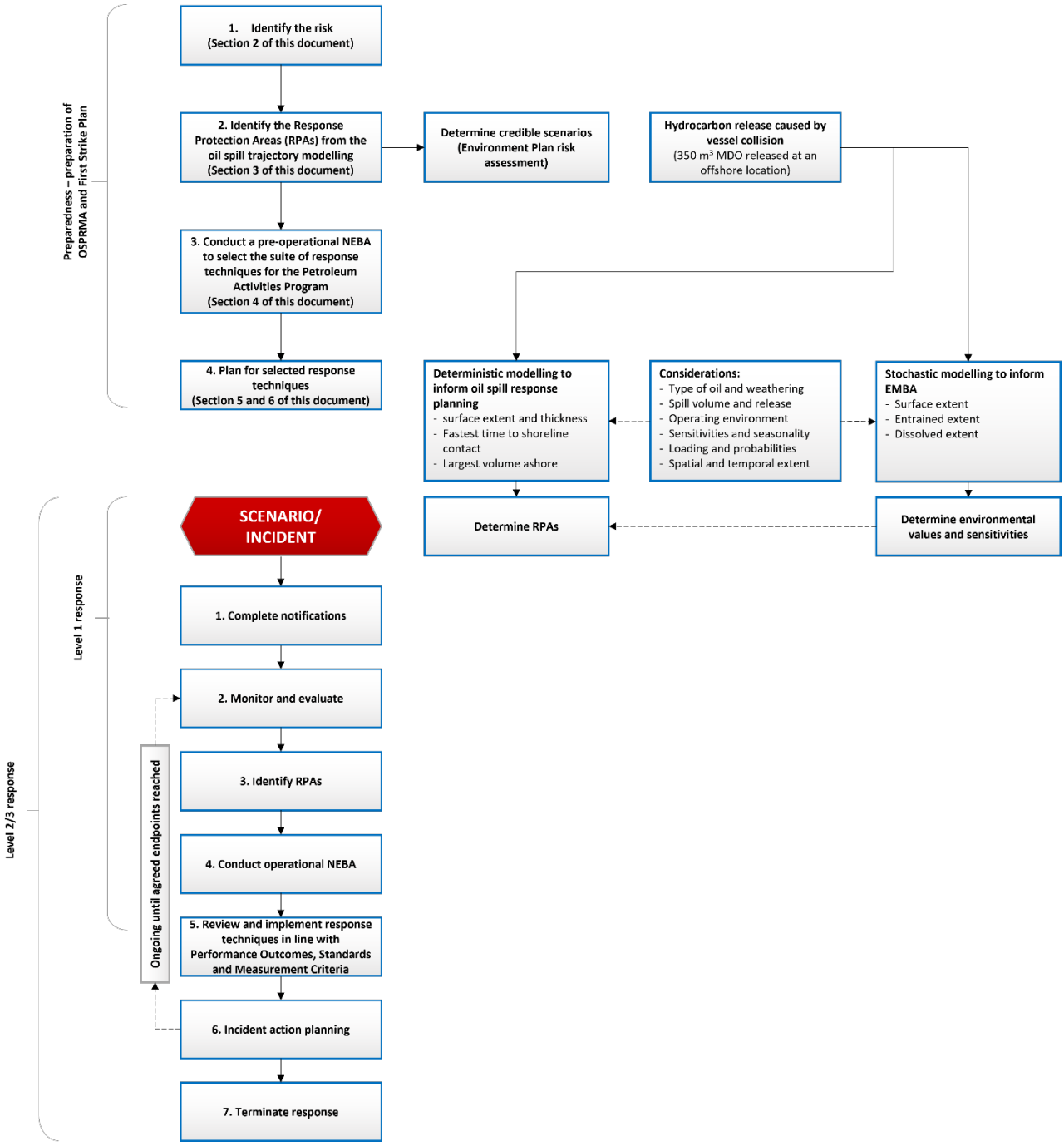


Figure 3-1: Identify Response Protection Areas (RPAs) flowchart

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3.1 Identified sensitive receptor locations

Section 4 of the EP includes the list of sensitive receptor locations that have been identified by stochastic modelling as meeting the requirements outlined below:

- receptors with the potential to incur surface, entrained or shoreline accumulation contact above environmental impact thresholds
- receptors within the EMBA which meet the following:
  - a number of priority protection criteria/categories
  - International Union of Conservation of Nature (IUCN) marine protected area categories
  - high conservation value habitat and species
  - important socio-economic/heritage value.

3.2 Identify Response Protection Areas (RPAs)

Response Protection Areas (RPAs) are selected on the basis of their environmental (ecological, social, economic, cultural and heritage) values and sensitivities and considering the minimum response thresholds (detailed in Section 2.3.3.1) together with the ability to conduct a response.

Based on the stochastic modelling selected for this activity, floating hydrocarbons above 50 g/m^2 are predicted within 2 hours at Rankin Bank (submerged receptor in open ocean location) from the spill location. No shoreline accumulation above 100 g/m² is expected and therefore no shoreline RPAs selected for this activity. The worst-case concentration of accumulated hydrocarbons is predicted to be 2.5 g/m^2 at the Barrow Island, Boodie Island, Middle Island and Muiron Islands receptors.

Therefore, no RPAs are defined for this activity. Monitor and evaluate will, however, be undertaken from the outset of a spill to assess the nature of the spill, track its location and inform the need for any additional monitoring and/or response techniques. It will also inform if or when the spill enters State Waters and/or control of the incident passes to statutory authorities e.g. WA DTMI or AMSA. If monitor and evaluate does identify RPAs at risk of impact during a real spill event, TRPs for a shoreline response will be drafted in advance for any RPAs with a contact time of <14 days.

Sensitive receptors are presented in the existing environment description and impact assessment section of the EP (Section 4 and Section 6 respectively) for the spill scenarios. The pre-operational NEBA (Section 4) considers the results from the stochastic modelling so all feasible response techniques are considered in the planning phase.

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4 NET ENVIRONMENTAL BENEFIT ANALYSIS (NEBA)

A Net Environmental Benefit Analysis (NEBA) is a structured process to consider which response techniques are likely to provide the greatest net environmental benefit.

The NEBA process typically involves four key steps outlined in Figure 4-1: evaluate data, predict outcomes, balance trade-offs, and select response options. These steps are followed in the planning/preparedness process and would also be followed in a response.

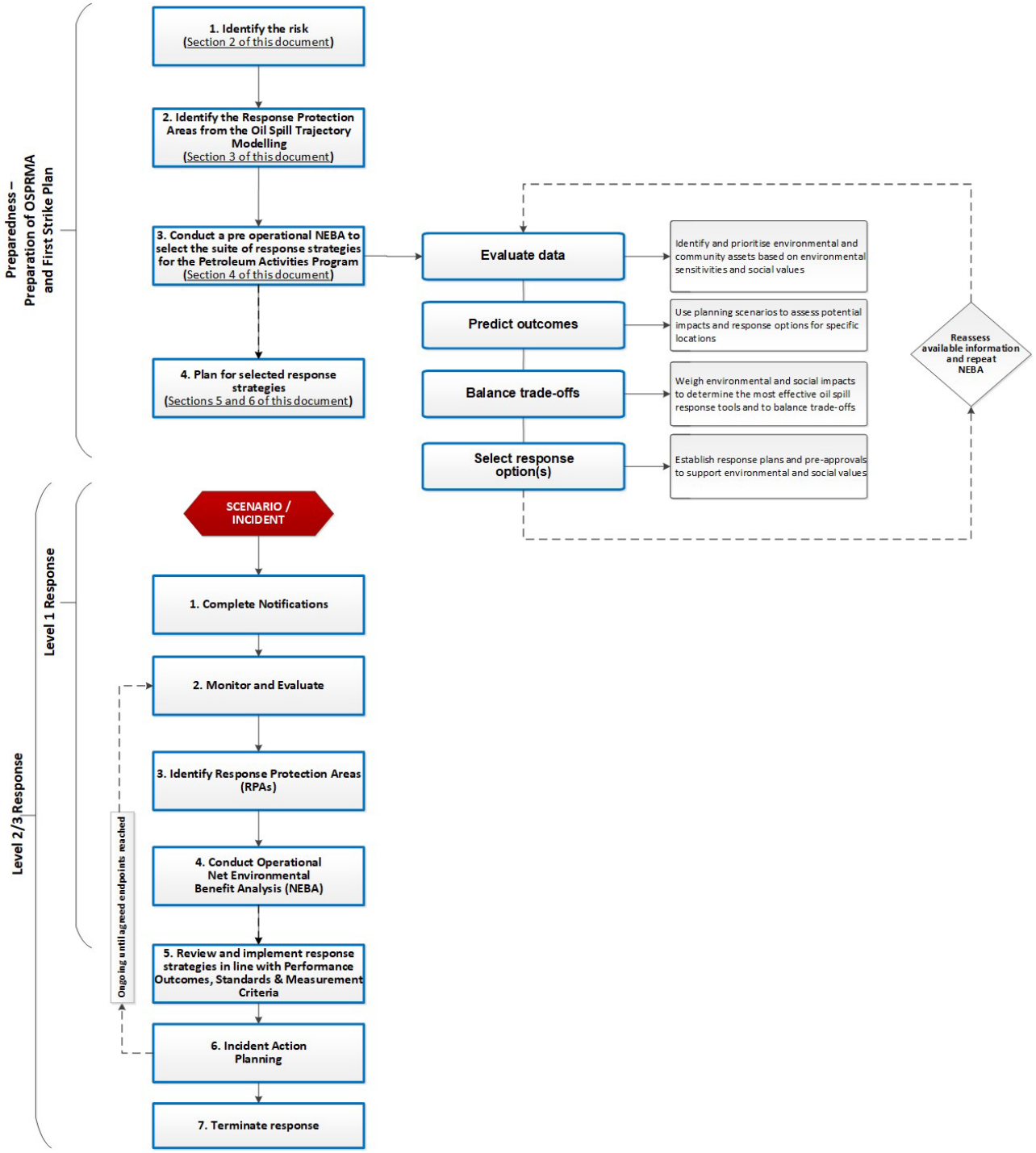


Figure 4-1: Net Environmental Benefit Analysis flowchart

4.1 Pre-operational / Strategic NEBA

The pre-operational NEBA identifies positive and negative impacts to sensitive receptors from implementing the response techniques. Feasibility is considered by assessing the receptors potentially impacted above

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response thresholds (Section 2.3.2) and the surface concentrations (Section 2.3.3.1) from the deterministic modelling.

Completing a pre-operational NEBA is a key response planning control that reduces the environmental risks and impacts of implementing the selected response techniques. Comprehensive details of the pre-operational NEBA for this Petroleum Activity are contained in **ANNEX A**: Net Environmental Benefit Analysis detailed outcomes.

4.2 Stage 1: Evaluate data

Woodside identifies and prioritises environmental and community assets based on environmental sensitivities and social values, informed through the use of trajectory modelling. Interpretation of stochastic oil spill modelling determines the EMBA for the release, which defines the spatial area that may be potentially impacted by the Petroleum Activity.

4.2.1 Define the scenario(s)

Woodside uses scenarios identified from the risk assessment in the EP to assess potential impacts and response options for specific locations. The overall WCCS is then used for this pre-operational NEBA. Outlier locations with potential environmental impacts, selected from the stochastic modelling may also be included for assessment. Response thresholds and deterministic modelling are then used to assess the feasibility/effectiveness and scale of the response. Modelling results are available in **Table 2-5.**

4.3 Stage 2: Predict Outcomes

Woodside uses planning scenarios to assess potential impacts and response options for specific locations. Locations with potential environmental impacts, selected from the stochastic modelling are included for assessment. Response thresholds and deterministic modelling are then used to assess the feasibility/ effectiveness of a response.

4.4 Stage 3: Balance trade-offs

Woodside considers environmental impacts and response effectiveness/ feasibility to determine the most effective oil spill response tools and balance trade-offs, using an automated NEBA tool. The tool considers potential benefits and impacts associated with a response at sensitive receptors and then considers the effectiveness/ feasibility of the response to select the response techniques carried forward to the ALARP assessment. The NEBA can be found in **ANNEX A: Net Environmental Benefit Analysis detailed outcomes**.

4.5 Stage 4: Select Best Response Options

To select the response technique, all the other stages in the NEBA process are considered and used to establish response plans and any pre-approvals to support protection of identified environmental and social values.

The response techniques implemented may vary according to a particular spill. The hydrocarbon type released and the sensitivities of the receptors (both ecological and socio-economic) may influence the response. The pre-operational NEBA broadly evaluates each response technique and supports decisions on whether they are feasible and of net environmental benefit. Response techniques that are not feasible or beneficial are rejected at this stage and not progressed to planning.

Further risks and impacts from implementing these selected response options are outlined in Section 7.

4.5.1 Determining potential response options

The available response techniques based on current technology can be summarised under the following headings:

- Monitor and evaluate
- Source control via vessel SOPEP
- Surface dispersant application:
  - aerial dispersant application
  - vessel dispersant application

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- Mechanical dispersion
- In-situ burning
- Containment and recovery
- Shoreline protection and deflection:
  - protection
  - deflection
- Shoreline clean-up:
  - Phase 1 – mechanical clean-up
  - Phase 2 – manual clean-up
  - Phase 3 – final polishing
- Oiled wildlife response (including hazing)

Support functions may include:

- Waste management
- Operational and scientific monitoring

Table 4-1 include scenario-specific assessments of feasible response options and justification for the exclusion of inappropriate options. These options are evaluated against the scenario parameters including oil type, volume, characteristics, prevailing weather conditions, logistical support, and resource availability to determine deployment feasibility.

A shortlist of the feasible response options is then carried forward for the ALARP assessment. This assessment will typically result in a range of available options, that are deployed at different areas (at-source, offshore, nearshore and onshore) and different times during the response. The NEBA process assists in prioritising which options to use where and when, and timings throughout the response.

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Table 4-1: Response technique evaluation – vessel collision

Response Technique	Effectiveness	Feasibility	Decision	Rationale for the decision
Hydrocarbon: MDO				
Operational Monitoring	Will be effective in tracking the location of the spill, informing when it has entered State Waters, predicting potential impacts and triggering further monitoring and response techniques as required. Monitoring techniques include: • Predictive modelling of hydrocarbons – used throughout spill. 'Ground-truthed' using the outputs of all other monitoring techniques. • Surveillance and reconnaissance to detect hydrocarbons and resources at risk – from outset of spill. • Pre-emptive assessment of sensitive receptors at risk – triggered once operational monitoring informs likely RPAs at risk.	Monitoring of a MDO spill is a feasible response technique and outputs will be used to guide decision making on the use of other monitoring/response techniques and providing information to regulatory agencies including AMSA and WA DTMI. Practicable techniques that could be used for this scenario include predictive modelling, surveillance and reconnaissance and monitoring of hydrocarbon presence in water. Modelling does not predict impact of any shoreline receptors at threshold, however, pre-emptive assessment of sensitive receptors at risk and monitoring of contaminated resources would be utilised if any sensitive receptors are deemed to be at risk of impact.	Yes	Monitoring the spill will be necessary to: • validate trajectory and weathering models • determine the location and state of the slick • provide forecasts of spill trajectory • determine appropriate response techniques • determine effectiveness of response techniques • confirm impact pathways to receptors provide regulatory agencies with required information
Source control via vessel SOPEP	Controlling the spill of diesel at source would be the most effective way to limit the quantity of hydrocarbon entering the marine environment.	A spill of diesel from a vessel collision will be instantaneous and source control will be limited to what the vessel or facility can safely achieve whilst responding to the incident.	Yes	Ability to stop the spill at source will be dependent upon the specific spill circumstances and whether or not it is safe for response personnel to access/isolate the source of the spill.
Surface dispersant application	Application of surface dispersant would likely 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, which otherwise may have been unaffected.	Whilst modelling of a 500 m^3 spill of MDO for this activity predicts that floating oil will reach the required minimum threshold of 50 g/m^2 threshold in open ocean (up to 16 km southwest from the spill site), surface dispersant application is not deemed to be a feasible response technique for spills of MDO as dispersant droplets tend to pass through the thin surface films without binding to the hydrocarbon. Additionally, the volatility of MDO would make it prone to rapid spreading and evaporation and therefore the use of surface dispersant would not provide an environmental benefit. It may increase dispersed/entrained hydrocarbon levels which can potentially have higher toxicity to biota in shallow water than naturally dispersed hydrocarbons. Furthermore, this technique may be prevented from being undertaken due to personnel safety issues arising from predicted high local concentrations of atmospheric volatiles.	No	The application of dispersant to MDO is unnecessary as the diesel will rapidly evaporate and would thus unnecessarily introduce additional chemical substances to the marine environment. The additional entrainment would also increase exposure of subsea species and habitats to hydrocarbons.
Mechanical dispersion	Mechanical dispersion involves the use of a vessel's prop wash and/or fire hose to target surface hydrocarbons to achieve dispersion into the water column. However, this technique is of limited benefit in an open ocean environment where wind and wave action are likely to deliver similar advantages.	Although the technique is feasible, highly volatile hydrocarbons are likely to weather, spread and evaporate quickly. The volatile nature of the oil likely to lead to unsafe conditions in the vicinity of fresh hydrocarbon. Additionally, any vessel used for mechanical dispersion activities would be contaminated by the hydrocarbon and could potentially cause secondary contamination of unimpacted areas when exiting the spill area. The decontamination of a vessel used for mechanical dispersion activities would result in additional quantities of oily waste requiring appropriate handling and treatment.	No	Given the limited benefit of mechanical dispersion over natural wind and wave action, secondary contamination and waste issues, and the associated safety risk of implementing the response for this activity, this strategy is deemed unsuitable.
In-situ burning	In-situ burning is only effective where minimum slick thickness can be achieved.	Use of in-situ burning as a response technique for MDO is unfeasible as the minimum slick thickness cannot be attained due to rapid spreading. In addition, there is a limited window of opportunity in which this technique can be applied (prior to evaporation of the volatiles) which is unlikely to be achieved. Furthermore, entering a volatile environment to undertake this technique would be unsafe for response personnel and its used would unnecessarily cause an increase the release of atmospheric pollutants.	No	Diesel characteristics are not appropriate for the use of in-situ burning and would unnecessarily cause an increase the release of atmospheric pollutants.
Containment and recovery	Containment and recovery has an effective recovery rate of 5-10% when a hydrocarbon encounter rate of 25-50% is achieved at BAOAC 4 and 5 with a 50-100% coverage of 100 g/m^2 to 200 g/m^2.	MDO is prone to rapid spreading and evaporation and does not tend to form emulsions. Additionally, whilst modelling of a 500 m^3 spill of MDO for this activity predicts that there may be some hydrocarbons present at the 50 g/m^2 threshold in open ocean	No	Containment and recovery would be an inappropriate response technique for a spill of MDO. Corralling a volatile hydrocarbon such as MDO is deemed unsafe for response personnel thus this response strategy is not considered feasible. In addition to the safety issues, most of the spilled

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Response Technique	Effectiveness	Feasibility	Decision	Rationale for the decision
		(up to 16 km southwest from the spill site) containment and recovery operations is not deemed to be a feasible response technique for spills of MDO. Furthermore, the volatile nature of MDO is also likely to lead to unsafe conditions in the vicinity of the hydrocarbon thus this response technique is deemed unsuitable for this activity, particularly with the predicted residue of 25m^3.		diesel would have been subject to rapid evaporation prior to the commencement of containment and recovery operations.
Shoreline protection and deflection	Shoreline protection and deflection can be effective at preventing contamination of at-risk areas.	A MDO spill would be prone to rapid spreading and evaporation and modelling predicts that no shoreline receptors are at risk of contact at response threshold – maximum predicted contact is 2.5 g/m^2. Monitor and evaluate will, however, be deployed from the outset of a spill to track the spill location and fate in real-time.	No	Stochastic modelling confirmed no shoreline contact at or above response threshold levels. Therefore protection and deflection would provide no additional environmental benefit.
Shoreline clean-up	Shoreline clean-up is an effective means of hydrocarbon removal from contaminated shorelines where coverage is at an optimum level of 250 g/m2.	A MDO spill would be prone to rapid spreading and evaporation and the modelling predicts that no shoreline receptors will be contacted at threshold – any minor contact is significantly below any threshold concentration that would allow a response to be feasible. Monitor and evaluate will, however, be deployed from the outset of a spill to track the spill location and fate in real-time.	No	Stochastic modelling confirmed no shoreline contact at or above response or impact threshold levels. Therefore shoreline cleanup would provide no additional environmental benefit.
Oiled wildlife response	Oiled wildlife response is an effective response technique for reducing the overall impact of a spill on wildlife. This is mostly achieved through hazing to prevent additional wildlife from being contaminated and through rehabilitation of those already subject to contamination.	Due to the likely volatile atmospheric conditions surrounding a diesel spill, response options may be limited to hazing to ensure the safety of response personnel. The modelling undertaken predicts that no sensitive areas will be impacted thus it is unlikely that this technique would be required. Monitor and evaluate will, however, be deployed from the outset of a spill to track the spill location and fate in real-time. Thus, in the event that wildlife are at risk of contamination, oiled wildlife response will be undertaken in accordance with the Wildlife Response Operational Plan as and where required. In addition, any rehabilitation could only be undertaken by trained specialists.	Yes	The modelling undertaken predicts that no sensitive areas will be impacted thus it is unlikely that this technique would be required. However, in the event that wildlife are at risk of contamination, oiled wildlife response will be undertaken as and where required.

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5 HYDROCARBON SPILL ALARP PROCESS

Woodside's hydrocarbon spill ALARP process is aligned with guidance provided by NOPSEMA in *ALARP Guidance Note N-04300-GN0166* (2022) and *Oil Spill Risk Management Guidance Note N-04750-GN1488 A382148* (2024) and is set out in the 'Woodside Oil Spill Preparedness and Response Mitigation Assessment (OSPRMA) Guidelines'.

From the identified response planning need and pre-operational NEBA/SIMA, Woodside conducts a structured, semi-quantitative hydrocarbon spill process which has the following steps:

- considers the Response Planning Need identified in terms of surface area (km^2) and available surface hydrocarbon volumes (m^3) against existing Woodside capability
- considers alternative, additional, and improved options for each response technique/control measure by providing an initial and, if required, detailed evaluation of:
    - predicted cost associated with adopting the control measure
    - predicted change/environmental benefit
    - predicted effectiveness/feasibility of the control measure.
- evaluates the risks and impacts of implementing the proposed response techniques, and any further control measures with associated environmental performance to manage these additional risks and impacts.

Woodside considers the risks and impacts from a hydrocarbon spill to have been reduced to ALARP when:

- a structured process for identifying and considering alternative, additional, and improved options has been completed for each selected response technique
- the analysis of alternate, additional, and improved control measures meets one of the following criteria:
    - all identified, reasonably practicable control measures have been adopted; or
    - no identified reasonably practicable additional, alternative and/or improved control measures would provide further overall increased proportionate environmental benefit; or
    - no reasonably practical additional, alternative, and/or improved control measures have been identified.
- where an alternative, additional and/or improved control measure is adopted, a measurable level of environmental performance has been assigned
- higher order impacts/ risks have received more comprehensive alternative, additional, and improved control measure evaluations and do not just compare the cost of the adopted control measures to the costs of an extreme or clearly unreasonable control measure
- cumulative effects have been analysed when considered in combination across the whole activity.

The response technique selection is based on the risk assessment conducted in the EP. The risk assessment identifies the type of oil, volume of release, duration of release, predicted fate, weathering and the EMBA (along with other requirements such as time to impact and predicted volumes ashore). Modelling is then used to inform the NEBA and the prioritisation of suitable response options. The scale of the response techniques selected in the pre-operational NEBA is informed through the assessment of results from deterministic modelling.

For the purpose of the ALARP assessment, the following terms and definitions have been used:

- Response techniques are considered the control measures that reduce consequences from hydrocarbon spill events. The terms 'response technique' and 'control measure' are used interchangeably.
- Cost is defined as the time, effort and/or trouble taken in financial, safety, design/storage/installation, capital/lease, and/or operations/maintenance terms to adopt a control measure.

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- Where the predicted change to environmental impact is compared against standard environmental values and sensitivities impacts using positive or negative criteria from the NEBA Impact Ranking Classification Guidance in Annex A.

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5.1 Monitor and evaluate

Monitor and evaluate includes the gathering and evaluation of data to inform the oil spill response planning and operations. It includes fate and trajectory modelling, spill tracking, weather updates and field observations. This response option is deployed in some capacity for every event.

Techniques may include:

- Predictive modelling of hydrocarbons to assess resources at risk
- Surveillance and reconnaissance to detect hydrocarbons and resources at risk
- Pre-emptive assessment of sensitive receptors at risk

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 Dampier, Onslow and Exmouth to the spill event location means that multiple logistical options are available to monitor the spill in relatively short timeframes. The primary mobilisation base for initial monitoring activities would be Dampier. However, in the unlikely event of an extended spill with potential to impact receptors further afield, monitoring activities may also be mobilised from Exmouth, Onslow, Karratha and Port Hedland.

5.1.1 Response need based on predicted consequence parameters

The following statements identify the key parameters upon which a response need can be based:

- Floating surface oil in sufficient concentrations for effective operational monitoring (>10 g/m^2) is expected to be present after 37 hours at Montebello MP.
- No shoreline contact above response threshold (>100 g/m^2) is predicted at any locations.
- The time to contact for oil at concentrations of entrained hydrocarbons greater than 100 ppb at shoreline receptors is 131 hours (5.5 days) at Barrow Island.
- Arrangements for support organisations who provide specialist services or resources should be tested regularly.
- Plans, procedures and support documents need to be in place for Operational and Support Sections. These should be reviewed and updated regularly.
- The duration of the spill would be instantaneous with response operations extending until hydrocarbon discharge has ceased, surface hydrocarbons are no longer visible, and no additional response or clean-up of wildlife or habitats is predicted.

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5.1.2 Environmental performance based on need

Table 5-1: Environmental Performance – Monitor and evaluate

		To gather information from multiple sources to establish an accurate common operating picture as soon as possible and predict the fate and behaviour of the spill to validate planning assumptions and adjust response plans as appropriate to the scenario.		
Control measure		**Performance Standard**		**Measurement Criteria (Section 5.7)**
1	Oil spill trajectory modelling	1.1	Initial modelling available within 6 hours using the Rapid Assessment Tool	1, 3B, 3C, 4
		1.2	Detailed modelling available within 4 hours of RPS receiving information from Woodside	
		1.3	Detailed modelling service available for the duration of the incident upon contract activation	
2	Tracking buoy	2.1	Tracking buoy located on facility/ lead vessel and ready for deployment 24/7.	1, 3A, 3C, 4
		2.2	Deploy tracking buoy from vessel within 2 hours as per the First Strike Plan.	1, 3A, 3B, 4
		2.3	Contract in place with service provider to allow data from tracking buoy to be received 24/7 and processed.	1, 3B, 3C, 4
		2.4	Data received to be uploaded into Woodside Common Operating Picture (COP) daily to improve the accuracy of other monitor and evaluate techniques.	1, 3B, 4
3	Satellite imagery	3.1	Contract in place with 3rd party provider to enable access and analysis of satellite imagery. Imagery source/type requested on activation of service.	1, 3C, 4
		3.2	3rd party provider will confirm availability of an initial acquisition within 2 hours.	1, 3B, 3C, 4
		3.3	First image received with 24 hours of Woodside confirming to 3rd party provider its acceptance of the proposed acquisition plan.	1
		3.4	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
		3.5	Data received to be uploaded into Woodside COP daily to improve accuracy of other monitor and evaluate techniques.	1, 3B, 4
		3.6	Satellite Imagery services available and employed during response	1, 3C, 4
4	Aerial surveillance	4.1	Two trained aerial observers available to be deployed by day 1 from resource pool.	1, 2, 3B, 3C, 4
		4.2	One aircraft available for two sorties per day, available for the duration of the response from day 1	1, 3C, 4
		4.3	Observer to compile report during flight as per First Strike Plan. Observers report available to the IMT within 2 hours of landing after each sortie.	1, 2, 3B, 4
		4.4	Unmanned Aerial Vehicles/Systems (UAV/UASs) to support pre-emptive assessments as contingency if required.	1, 2
5	Pre-emptive assessment of sensitive receptors	5.1	10 days prior to any impact predicated, and in agreement with WA DTMI (for Level 2/3 incidents), deployment of 2 specialists from resource pool in establishing the status of sensitive receptors.	1, 2, 3B, 3C, 4
		5.2	Daily reports provided to IMT on the status of the receptors to prioritise Response Protection Areas (RPAs) and maximise effective utilisation of resources.	1, 3B, 4

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The control measures and capability of Woodside and its third-party service providers are shown to support monitor and evaluate activities up to and including the identified WCCS. This is demonstrated by the following:

- Woodside has a documented, structured and tested capability for monitor and evaluate operations including internal trajectory modelling capabilities, tracking buoys located offshore and contracted aerial observation platforms with access to trained observers.
- Woodside and its third-party service providers seek to maintain sufficient capability for the duration of the response.
- Woodside has assessed the existing capability available and considered potential alternative, additional and improved control measures. Where control measures have been selected and implemented, they are included in Section 6.1.

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5.2 Source Control via Vessel SOPEP

Vessel source control will be conducted, where feasible and in accordance with MARPOL 73/78 Annex I, by the Vessel Master under the Shipboard Oil Pollution Emergency Plan (SOPEP) triggered by any loss of containment from the Petroleum Activity vessels.

The SOPEP provides guidance to the Master and Officers on board the vessel with respect to the extra steps to be taken when an unexpected pollution incident has occurred or is likely to occur. The SOPEP contains all information and operational instructions required by IMO Resolution MEPC.54 (32) adopted on 6 March 1992, as amended by resolution MEPC.86 (44) adopted on 13 March 2000.

Its purpose is to set in motion the necessary actions to stop or minimise oil discharge and mitigate its effects and outlines responsibilities, pollution reporting requirements, procedures and resources needed in the event of a hydrocarbon spill from vessel activities.

In the event of the WCCS vessel collision event, the vessel master may engage precautionary marine manoeuvres to avoid collision or commence pumping operations to transfer MDO and thus minimise the release.

5.2.1 Environmental performance based on need

Woodside has established control measures, environmental performance outcomes, performance standards and measurement criteria to be used for vessel-source oil spill response during the Petroleum Activity which are detailed in Section 6.9.6 of the EP. The vessel master's roles and responsibilities are described in EP Section 7.3.

Performance standards for each contracted Petroleum Activity vessel are detailed in the vessel's specific SOPEP.

These standards maintain availability of sufficient resources and are adequately tested for successful implementation of the SOPEP in the event of a hydrocarbon spill.

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5.3 Oiled wildlife response (including hazing)

Oiled wildlife response (OWR) includes wildlife surveillance/reconnaissance, wildlife hazing, pre-emptive capture, and the capture, cleaning, treatment, and rehabilitation of animals that have been oiled. In addition, it includes the collection, post-mortem examination, and disposal of deceased animals that have succumbed to the effects of oiling.

For a petroleum activity spill in Commonwealth waters, Woodside will act as the Control Agency and will be responsible for the wildlife response. In such circumstances, Woodside would implement a response in accordance with the *Oiled Wildlife Operational Plan*, the WA Oiled Wildlife Response Plan (WAOWRP) (DBCA, 2022a) and the WA OWR Manual (DBCA, 2022b). The *Oiled Wildlife Operational Plan* includes the process for the IMT to mobilise resources depending on the nature and scale of the spill. Oiled wildlife operations would be implemented with advice and assistance from the Oiled Wildlife Advisor from the Department of Biodiversity, Conservation and Attractions (DBCA, 2022b).

The key plan for OWR in WA is the Western Australian Oiled Wildlife response Plan (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 DTMI *State Hazard Plan – Maritime Environmental Emergencies* (SHP-MEE). It is the responsibility of DBCA to administer the WAOWRP under the direction of the DTMI. The WA OWR Manual (DBCA, 2022b) supports, and should be used in conjunction with, the WAOWRP. The purpose of the WA OWR Manual is to standardise the operating procedures, protocols and processes for an OWR during a spill event in WA waters, and to create alignment between the wildlife response processes and the overall incident response (DBCA, 2022b).

If a spill occurs in WA State waters or enters State waters, DBCA is the Jurisdictional Authority for wildlife, for level 2/3 spills, and will also lead the oiled wildlife response under the control of the DTMI. DBCA is the State Government agency responsible for administering the *Biodiversity Conservation Act 2016 (BC Act)* which has provisions for authorising activities that affect wildlife.

For level 1 spills in State waters, Woodside will be the Control Agency, including for wildlife response. It is, however, also an expectation that for level 2/3 petroleum activity spills, Woodside will conduct the initial first-strike response actions for wildlife response and continue to manage those operations until DBCA is activated as the lead agency for wildlife response and formal handover occurs. Following formal handover, Woodside will function as a support organisation for the OWR and will be expected to continue to provide planning and resources as required.

Woodside retains specialist personnel to support and manage oiled wildlife operations, including trained and competent responders for deployment in Exmouth and Dampier. Additional personnel would be sourced through Woodside's arrangements to support an oiled wildlife response as required.

5.3.1 Response need based on predicted consequence parameters

Wildlife response priority areas and assessment of wildlife impact

French-McCay et al. (2002), based on a review of existing literature at the time, determined lethal thresholds for floating and shoreline oil for the external coating of wildlife to be 10 g/m^2 for floating, and 100 g/m^2 for shoreline accumulation. It should however be noted that toxicity thresholds for wildlife are likely to be highly variable due to differences in species sensitivity, type of hydrocarbon, type of exposure (ingestion or external oiling), life-stage, and on-water versus land habitat.

For planning purposes, determination of wildlife priority protection areas is based on stochastic modelling of the worst-case spill scenarios at 10 g/m^2 for floating, and 100 g/m^2 for shoreline accumulation (acknowledging that impacts to wildlife may occur at lower concentrations), the known presence of wildlife, and in consideration of the following:

- Presence of high densities of wildlife, threatened species, and/or endemic species with high site fidelity
- Greatest probability of shoreline accumulation
- Shortest timeframe to contact

Table 5-2 outlines the wildlife response areas for this activity. Modelling of a 500 m^3 spill of MDO for this activity predicts no shoreline accumulation above the response threshold so that wildlife RPAs are limited to the open ocean environment.

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At the time of a spill, identification and allocation of wildlife RPA's should also take into consideration any key biological activities. Additional detail regarding species and their key biological activities within the vicinity of the Petroleum Activity are described in Section 4 of the EP.

For WA, although somewhat outdated, the Pilbara and Kimberley Regional Oiled Wildlife Plans (DBCA [formerly Department of Parks and Wildlife), 2014) provide useful information relating to wildlife priority response areas in their respective regions.

Table 5-2: Key at-risk species potentially in Response Protection Areas and open ocean

Species	Open ocean	Montebello MP
Marine turtles	✓	✓
Whale sharks	✓	✓
Seabirds and/or migratory shorebirds	✓	✓
Cetaceans – migratory whales	✓	✓
Cetaceans – dolphins and porpoises	✓	✓
Dugongs	x	x
Sharks and rays	✓	✓

The following statements identify the key parameters upon which a wildlife response need can be based:

- Floating oil at >10 g/m^2 is predicted at Montebello MP within 37 hours.
- There is no shoreline accumulation at response thresholds (>100 g/m^2).
- At sea there are likely to be low numbers of at risk or impacted wildlife, and limited opportunities to rescue wildlife, given the distribution and behaviour of animals in the open marine environment. At sea, continued wildlife reconnaissance, carcass recovery, sampling of carcasses that cannot be retrieved and operational and scientific monitoring are more likely to be the focus of response efforts.
- It is estimated that the wildlife impact would be between low and medium, as defined in the WAOWRP (DBCA, 2022a) (Table 5-3).

Table 5-3: WAOWRP Guide for rating wildlife impact of an oil spill (DBCA, 2022)

Wildlife Impact Rating	Low	Medium	High
What is the likely duration of the wildlife response?	<3 days	3-10 days	>10 days
What is the likely total intake of animals?	<10	11-25	>25
What is the likely daily intake of animals?	0-2	2-5	>5
Are threatened species, or species protected by treaty, likely to be impacted, either directly or by pollution of habitat or breeding areas?	No	Yes – possible	Yes – likely
Is there likely to be a requirement for building primary care facility for treatment, cleaning and rehabilitation?	No	Yes – possible	Yes – likely

Tactics

Where there is imminent or actual impact to wildlife, Woodside will activate the Wildlife Division and follow the oiled wildlife incident management framework and implementation plan outlined in the Woodside *Oiled Wildlife Operational Plan*.

In Commonwealth waters, Woodside will be responsible for the planning and implementation of the OWR in its entirety. Noting that at sea, and in comparison to the shoreline, there are likely to be less wildlife impacted by an oil spill and limited opportunities to rescue wildlife, given the distribution and behaviour of animals in the open marine environment. At sea, continued wildlife reconnaissance, carcass recovery, sampling of carcasses that cannot be retrieved and integration with operational and scientific monitoring are more likely to be the focus of the OWR.

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In State waters, Woodside will conduct the initial first-strike response actions for wildlife and continue to manage those operations until DBCA is activated as the lead agency for wildlife response and formal handover occurs. Following formal handover, Woodside will function as a support organisation for the OWR and will be expected to continue to provide planning and resources as required.

If a protracted response requiring preventative actions and/or wildlife rescue is likely, and formal hand over to the Control Agency (in State waters) has not yet occurred, the Wildlife Division will be responsible for the development of the Wildlife Division portion of the IAP. Preventative actions, such as hazing, 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).

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5.3.2 Environmental performance based on need

Table 5-4: Environmental Performance – Oiled Wildlife Response (OWR)

Environmental Performance Outcome		OWR is conducted in accordance with the Western Australian Oiled Wildlife Response Plan (WAOWRP, 2022) to meet legislative requirements to house, release or euthanise wildlife under the *Biodiversity Conservation Act 2016*.		
Control measure		**Performance Standard**		**Measurement Criteria (Section 5.7)**
6	Wildlife response arrangements	6.1	Oiled Wildlife Operational Plan in place and utilised during a response to plan, coordinate, implement and terminate operations	1, 3A, 4
		6.2	Initiate a wildlife first strike response within 2 days of confirmed or imminent wildlife contact as directed by OMP: Marine Fauna Assessment and in liaison with DBCA.	1
7	Wildlife response equipment	7.1	Maintain contract with AMOSC for immediate access to oiled wildlife response equipment.	1, 3C, 4
		7.2	Maintain contract with OSRL to access additional oiled wildlife response equipment.	1, 3C, 4
8	Wildlife responders	8.1	Two Oiled Wildlife Team Members to supervise the oiled wildlife operations who have completed an OWR Management course.	1, 2, 3B
		8.2	Maintain contract with AMOSC for immediate access to trained oiled wildlife response specialists	1, 3B, 3C
		8.3	Maintain contract with OSRL to access additional trained OWR specialists	1, 3B, 3C
		8.4	Open communication line to be maintained between IMT and infield operations to ensure awareness of progress against plan(s).	1, 3A, 3B
9	Management of environmental impacts of response risks	9.1	Oiled wildlife operations (including hazing) would be implemented with advice and assistance from the Oiled Wildlife Advisor from the DBCA, and in accordance with the processes and methodologies described in the WA OWRP and the relevant regional plan.	1

The resulting wildlife response capability has been assessed against the WCCS (scenario CS-02). The range of techniques provide an ongoing approach to response at identified RPAs.

Under optimal conditions, during the subsea or surface release, the capability available meets the need identified. It indicates that, the wildlife response capability has the following expected performance:

- OWR first strike response undertake including mobilisation of monitor and evaluate and OMP: Marine Fauna Assessment to identify wildlife and RPAs contacted or at imminent risk of contact by hydrocarbons.
- confirm availability and mobilisation of trained OWR personnel to supervise OWR activities.
- access wildlife resources (personnel and equipment) to meet the needs where there are medium or high levels of wildlife impact.

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5.4 Waste Management

Waste management is considered a support technique to wildlife response. Waste generated and collected during the response that will require handling, management and disposal may consist of:

- Liquids (hydrocarbons and contaminated liquids) collected during wildlife response, and/or
- Solids/semi-solids (oily solids, garbage, contaminated materials) and debris (e.g. seaweed, sand, woods, and plastics) collected during wildlife response.

Expected waste volumes during an event are likely to vary depending on oil type, volume released, response techniques employed and how weathering of hydrocarbons. Waste management, handling and capacity should be scalable to maintain continuous response operations can be maintained.

All waste management activities will follow the *Environment Protection (Controlled Waste) Regulations 2004* (WA) and the waste will be managed to minimise final disposal volumes. Waste treatment techniques will consider contaminated solids treatment to allow disposal to landfill and solids with high concentrations of hydrocarbon will be treated and recycled where possible or used in clean fill if suitable.

The waste products would be transported from response locations to the nearest suitable staging area/waste transfer station for treatment, disposal or recycling. Waste will be transferred with appropriately licensed vehicles. Containers will be available for temporary waste storage and will be:

- labelled with the waste type
- provided with appropriate lids to prevent waste being blown overboard
- bunded if storing liquid wastes.
- processes will be in place for transfers of bulk liquid wastes and include:
  - inspection of transfer hose undertaken prior to transfer
  - watchman equipped with radio visually monitors loading hose during transfer
  - tank gauges monitored throughout operation to prevent overflow.

The *Oil Spill Preparedness Waste Management Support Plan* details the procedures, capability and capacity in place between Woodside and its primary waste services contractor to manage waste volumes generated from response activities.

5.4.1 Response need based on predicted consequence parameters

Table 5-5: Response Planning Assumptions – Waste Management

Response planning assumptions: Waste management	
Waste loading per m^3 oil recovered (multiplier)	OWR – approximately 1 m^3 of oily solid and liquid waste generated for each wildlife unit cleaned

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5.4.2 Environmental performance based on need

Table 5-6: Environmental Performance – Waste Management

Environmental Performance Outcome		To minimise further impacts, waste will be managed, tracked and disposed of in accordance with laws and regulations.		
Control measure		**Performance Standard**		**Measurement Criteria (Section 5.7)**
10	Waste Management	10.1	Contract with waste management services for transport, removal, treatment and disposal of waste	1, 3A, 3B, 3C, 4
		10.2	Access to at least 213 m^3 of solid and liquid waste storage available within 2 days upon activation of 3rd party contract.	
		10.3	Recovered hydrocarbons and wastes will be transferred to licensed treatment facility for reprocessing or disposal.	
		10.4	Waste management provider support staff available year-round to assist in the event of an incident with waste management as detailed in contract.	
		10.5	Open communication line to be maintained between IMT and waste management services to facilitate the reliable flow of accurate information between parties.	1, 3A, 3B
		10.6	Waste management to be conducted in accordance with Australian laws and regulations	1, 3A, 3B, 3C, 4
		10.7	Waste management services available and employed during response	
11	Management of environmental impacts of response risks	11.1	Teams will segregate liquid and solid wastes at the earliest opportunity.	1, 3A, 3B, 3C, 4

The resulting waste management capability has been assessed against the WCCS (scenario CS-02). The range of techniques provide an ongoing approach to waste management at identified RPAs.

Given that the modelling predicts that there will be no floating oil at recoverable threshold concentrations and no shoreline accumulation at response threshold concentrations, the only waste management requirements will be for oiled wildlife response and the capability available therefore exceeds the need identified.

It indicates that the waste management capability has the following expected performance:

- OWR operations may generate up to 1 m^3 per wildlife unit.
- Woodside has assessed the existing capability available and considered potential alternative, additional and improved control measures. Where control measures have been selected and implemented, they are included in Section 6.36.4.
- Woodside's waste contractor has access to approximately 120,000 m^3 of waste storage to treat overall waste volumes. The waste management requirements are within Woodside's and its service providers existing capacity.

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5.5 Operational and Scientific monitoring

Operational and scientific monitoring (OSM) is a key component of the environmental management document framework for offshore petroleum activities, which includes activity EPs and OPEPs. The key elements and differences between operational monitoring and scientific monitoring include:5.1

- **Operational Monitoring (OM)** – undertaken during the course of the spill and includes any physical. chemical and biological assessments that may guide operational decisions such as selecting the appropriate response and mitigation methods and/or to determine a response activity. This monitoring is additional to the activities (aerial/vessel surveillance, tracking buoys, oil spill trajectory modelling and satellite tracking) performed as part of the Monitor and Evaluate Strategy (Section 5.1). Information needs to be collected and processed rapidly to suit response needs, with a lower level of sampling and accuracy needed than for scientific purposes. For the OMP initiation and termination criteria during a Level 2-3 spill event refer to Table 9-1 of the Joint Industry OSM Framework.
- **Scientific Monitoring (SM)** – the principal tool for determining the extent, severity and persistence of possible environmental impacts from a hydrocarbon spill and for informing resultant remediation activities. Consequently, such studies are required to account for natural or sampling variation, and study designs must be robust and produce defensible data. Scientific monitoring is typically conducted over a wider study area, extending beyond the spill footprint, and a longer time period, extending beyond the spill response. For the SMP initiation and termination criteria during a Level 2-3 spill event refer to Table 9-2 of the Joint Industry OSM Framework.

Woodside has developed a Woodside OSM Bridging Implementation Plan (OSM-BIP)[3], which describes a program of monitoring oil pollution that will be adopted in the event of a hydrocarbon spill incident (Level 2–3) to marine waters. It aligns with the Joint Industry OSM Framework (AEP, 2021) and describes how this Framework applies to Woodside activities and spill risks.

A series of Operational Monitoring Plans (OMPs) and Scientific Monitoring Plans (SMPs) form part of the Joint Industry OSM Framework and provide detail on monitoring design, standard operating procedures, data management, quality assurance and quality control and reporting.

Table 5-7 lists the Joint Industry OMPs and SMPs that are relevant to the Petroleum Activity. The aims/objectives of each OMP and SMP are listed in Tables 5-1 and 6-1 of the Joint Industry OSM Framework respectively. Woodside confirms it has reviewed these aims/objectives and determined they are all appropriate to address the potential impacts, risks and response activities of this Petroleum Activity, noting that dispersant application is not a suitable response strategy for this activity.

The OSM-BIP is structured so that it can provide a flexible framework that can be adapted to individual spill incidents. The Combined OSM Planning Area (refer to section 2.1 of the OSM-BIP), derived from all Woodside worst-case scenarios, represents the geographical extent of the Woodside OSM-BIP.

The OSM requirements for Petroleum Activity credible spill scenarios, including monitoring priorities, implementation timeframes and capability is provided in ANNEX C: Petroleum Activity OSM Activity Specific Assessment.

Woodside will review the initiation criteria for OMPs and SMPs (provided in Table 9-1 [OMPs] and Table 9-2 [SMPs] of the Joint Industry OSM Framework (AEP, 2021)) during the preparation of the initial IAPs, and subsequent IAPs. If any initiation criteria are met, then that relevant OMP and/or SMP will be activated via the OSM Services Provider.

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Table 5-7: Joint industry OSM plans relevant to the Petroleum Activity

Operational Monitoring	Relevant for the activity	Scientific Monitoring	Relevant for the activity
OM1: Hydrocarbon Characterisation	✓	SM1: Water Quality Impact Assessment	✓
OM2: Hydrocarbon in Water Assessment	✓	SM2: Sediment Quality Impact Assessment	✓
OM3: Hydrocarbon in Sediment Assessment	✓	SM3: Intertidal & Coastal Habitat Assessment	✓
OM4a: Dispersant Effectiveness Monitoring (Subsea)	×	SM4: Seabirds and Shorebirds Assessment	✓
OM04b: Dispersant Effectiveness Monitoring (Surface)	×	SM5: Marine mega-fauna Assessment	✓
OM5: Rapid Marine Fauna Surveillance	✓	SM6: Benthic habitat Assessment	✓
OM6: Shoreline Clean-up Assessment (SCAT)	×	SM7: Marine fish and elasmobranch assemblages assessment	✓
		SM8: Fisheries Impact Assessment	✓
		SM9: Heritage Features Assessment	✓
		SM10: Social Impact Assessment	✓

5.5.1 Summary – operational and scientific monitoring

A detailed OSM preparedness assessment is provided in ANNEX C: Petroleum Activity OSM Activity Specific Assessment .

The ALARP assessment for operational and scientific monitoring (Section 6.5) considers alternate, additional, and/or improved control measures on each selected response technique.

Known, reasonably practicable control measures have been adopted with the cost and organisational complexity of these options determined to be moderate and the overall delivery effectiveness determined to be medium. The OSM program's main objectives can be met, with no additional, alternative or improved control measures providing further benefit.

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5.5.2 Environmental performance based on need

Table 5-8: Operational and scientific monitoring

Environmental Performance Outcome		Implement OSM programs to assess and report on the impact, extent, severity, persistence and recovery of sensitive receptors contacted by a spill or affected by spill response.		
Control measure		**Performance Standard**		**Measurement Criteria (Section 5.7)**
12	OSM arrangements	12.1	Maintain access to OSM expertise qualified to fulfil OSM Implementation Lead role during a Level 2/3 spill event per Joint Industry OSM Framework requirements.	3A, 3B, 3C, 4
		12.2	OSM Implementation Lead responsible for overseeing implementation of OMP and SMP components in accordance with the Woodside OSM Bridging Implementation Plan (OSM-BIP)[3].	
13	Access to adequate OSM capability to provide both initial and ongoing monitoring	13.1	Maintain contract with third-party OSM Services Provider to provide access to suitably qualified and competent personnel and equipment to assist in the implementation of monitoring in accordance with the capability and resourcing requirements described in Section 8-10 of the OSM-BIP and the activity-specific capability assessment in Table C - 7 and **Error! Reference source not found.**.	3A, 3B, 3C, 4
		13.2	Obtain monthly capability reports from OSM Service Provider to demonstrate the capability described in Section 10 of the OSM-BIP is available throughout the activity	
		13.3	Annual testing of OSM Service Provider standby arrangements and activation process	
14	Baseline studies assurance	14.1	Annual review of environmental baseline data for all receptors where spill modelling has predicted contact at relevant hydrocarbon thresholds within 7 days.	3C
15	OSM-BIP maintenance	15.1	Annual review of the OSM-BIP will be conducted according to the criteria in Section 11 of the OSM-BIP	3A, 3B, 3C, 4
16	OSM response	16.1	OMPs and SMPs will be activated in accordance with the initiation criteria provided in Tables 9-1 and 9-2 of the Joint Industry OSM Framework (AEP, 2021)	1
		16.2	Initiation criteria of OMPs and SMPs will be reviewed during the preparation of the initial Incident Action Plan (IAPs) and subsequent IAPs; and if any criteria are met, relevant OMPs and SMPs will be activated	
		16.3	If the OSM Implementation Lead identifies that additional monitoring capability is required beyond that described in Section 10 of the OSM-BIP, the need for these resources will be identified as soon as practicable and mobilised through the OSM Services Provider Contract, which includes provisions for scaling up personnel to meet monitoring program requirements	
		16.4	Decisions regarding co-mobilisation of monitoring teams will be determined following a spill event, as part of the Incident Action Planning process. These decisions will be made by the CIMT in consultation with the OSM Services Provider and relevant stakeholders, with due consideration given to safety, access to sensitive receptors, timing, and data quality requirements	
		16.5	OSM to be conducted in accordance with the Woodside OSM-BIP and, where relevant to the activity, the assessment detailed in ANNEX C: Petroleum Activity OSM Activity Specific Assessment	
		16.6	Monitoring prioritisation will be undertaken in accordance with the process and checklist provided in Table 13-1 of the OSM-BIP, informed by the guidance in Section C.2 of the OSPRMA	

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		16.7	Mobilisation and implementation of OMPs and SMPs will be undertaken in accordance with the indicative timeframes and sequencing described in Section C.3 of the OSPRMA and Part B of the OSM-BIP	
		16.8	Implementation of OSM will comply with the minimum standards listed in Appendix A of the Joint Industry OSM Framework	
		16.9	Once Scientific Monitoring data reports are drafted they will be peer reviewed by an expert panel for data integrity	
		16.10	OMPs and SMPs will be terminated in accordance with the termination criteria provided in Table 9-1 and 9-2 of the Joint Industry OSM Framework (AEP, 2021)	
17	Management of Environmental Impact of the response risks	17.1	If vessels are required for access, anchoring locations will be selected to minimise disturbance to benthic primary producer habitats. Where existing fixed anchoring points are not available, locations will be selected to minimise impact to nearshore benthic environments with a preference for areas of sandy seabed where they can be identified	1
		17.2	Shallow draft vessels will be used to access remote shorelines to minimise the impacts associated with seabed disturbance on approach to the shorelines	

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5.6 Incident Management System (IMS)

The Incident Management System (IMS) is both a control measure and a measurement criteria. As a control measure the IMS function is to prompt, facilitate and record the completion of three key response planning processes detailed below. As a measurement criteria the IMS records the evidence of the timeliness of all response actions included in the environmental performance standards and the plans used of the Petroleum Activity.

As the IMS does not directly remove hydrocarbons spilt into the marine environment there is no direct relationship to the response planning need.

5.6.1 Incident action planning

The CIMT will be required to collect and interpret information from the scene of the incident to determine support requirements to the site-based IMT, develop an IAP and assist the IMT with the execution of that plan. The site-based IC may request the CIMT to complete notifications internally within Woodside, to relevant persons/ organisations and government agencies as required. Depending on the type and scale of the incident the CIMT IC will be responsible for ensuring the development of the IAP. Incident Action Planning is an ongoing process that involves continual review to confirm the appropriateness of techniques to control the incident for the situation at the time.

5.6.2 Operational NEBA process

In the event of a response Woodside will confirm that the response techniques adopted at the time of Environment Plan/ Oil Pollution Emergency Plan (EP/ OPEP) acceptance remain appropriate to reduce the consequences of the spill. This process verifies that there is a continuing net environmental benefit associated with continuing the response technique through the operational NEBA process. This process manages the environmental risks and impacts of response techniques during the spill response, an operational NEBA will be undertaken throughout the response, for each operational period.

The operational NEBA will consider the risks and benefits of conducting and response activity. For example, if vessels are required for access to nearshore or onshore areas, anchoring locations will be selected to minimise disturbance to benthic habitats. Vessel cleanliness would be commensurate with the receiving environment. The operational NEBA will consider the risks and benefits of conducting other response techniques.

The operational NEBA process is also used to terminate a response. Using data from operational and scientific monitoring activities the response to a hydrocarbon spill will be terminated in accordance with the termination process outlined in the Oil Pollution Emergency Arrangements (Australia). In effect the operational NEBA will determine whether there is net environmental benefit to continue response operations.

5.6.3 Consultation engagement process

Woodside will consult relevant persons/ organisations are engaged during the spill response in accordance with internal standards. This process requires that Woodside will:

- Undertake all required notifications (including government notifications) for relevant persons/ organisations in the region (identified in the First Strike Plan). This includes notification to mariners to communicate navigational hazards introduced through response equipment and personnel.
- In the event of a response, identify and engage with relevant persons/ organisations and continually assess and review.

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5.6.4 Environmental performance based on need

Table 5-9: Environmental Performance – Incident Management System

Environmental Performance Outcome		To support the effectiveness of all other control measures and monitor/record the performance levels achieved.		
Control measure		**Performance Standard**		**Measurement Criteria (Section 5.7)**
18	Operational SIMA	18.1	Confirm that the response techniques adopted at the time of acceptance remain appropriate to reduce the consequences of the spill within 24 hours.	1, 3A
		18.2	Record the evidence and justification for any deviation from the planned response activities.	
		18.3	Record the information and data from operational and scientific monitoring activities used to inform the SIMA.	
19	Stakeholder engagement	19.1	Prompt and record all notifications (including government notifications) for persons/ organisations in the region are made	
		19.2	In the event of a response, identification of relevant persons/ organisations will be re-assessed throughout the response period.	
		19.3	Undertake communications in accordance with: • Functional Support Team Guideline – Reputation • External Communication and Continuous Disclosure Procedure	
20	Personnel required to support any response	20.1	Action planning is an ongoing process that involves continual review to confirm techniques to control the incident are appropriate to the situation at the time.	1, 3B
		20.2	A duty roster of trained and competent people will be maintained to confirm that minimum manning requirements are met all year round.	3C
		20.3	Immediately activate the CIMT with personnel filling one or more of the following roles: • CIMT Incident Commander • CIMT Deputy Incident Commander • Operations Section Chief • Planning Section Chief • Logistics Section Chief • Documentation Unit Leader • Safety Officer • Environment Unit Leader • Human Resources Officer • Public Information Officer • Situation Unit Leader • Finance Section Chief • Source Control Section Chief	1, 2, 3B, 3C, 4
		20.4	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.	
		20.5	S&EM advisors will be integrated into CIMT to monitor performance of all functional roles.	
		20.6	Continually communicate the status of the spill and support Woodside to determine the most appropriate response by delivering on the responsibilities of their role.	
		20.7	Follow the Hydrocarbon Spill Australia Regulatory Framework[2], Operational Plans, FSPs, support plans and the IAPs developed.	1, 2, 3A, 4
		20.8	Contribute to Woodside's response in accordance with the aims and objectives set by the Incident Commander.	1, 2, 3B, 3C, 4

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5.7 Measurement criteria for all response techniques

Woodside measures compliance with environmental performance outcomes and standards through four primary mechanisms. The aforementioned performance tables identify which of these four mechanisms monitors the readiness and records the effectiveness and performance of the control measures adopted.

1. The Incident Management System

The Incident Management System (IMS) supports the implementation of the Crisis and Emergency Management Procedure Standard. 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 Crisis and Emergency and Crisis Management Procedure Standard defines the management framework, including roles and responsibilities, to be applied to any size incident (including hydrocarbon spills). The organisational structure required to manage an incident is developed in a modular fashion and is based on the specific requirements of each incident. The structure can be scaled up or down.

The IAP process formally documents and communicates the:

- Incident objectives
- Status of assets
- Operational period objectives
- Response techniques (defined during response planning)
- The effectiveness of response techniques.

The information captured in the IMS (including information from personal logs and assigned tasks/close outs) confirms the response techniques implemented remain appropriate to reduce the consequences of the spill. The system also records all information and data that can be used to support the site-based IMT, development and the execution of the IAP.

2. The CEM Competency Dashboard

The CEM Competency Dashboard records the number of trained and competent responders that are available across Woodside to participate in a response.

This number varies dependent on expiry of competency certificates, staff attrition, internal rotations, leave and other absences. As such the Dashboard is designed to identify the minimum manning requirements and to identify sufficient redundancy to cater for the variances listed above.

Figure 5-1 shows the minimum manning numbers for the different hydrocarbon spill response roles and the number of qualified persons against those roles.

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Figure 5-1: Example screenshot of the CEM dashboard

The Dashboard is one of Woodside's key means of monitoring its readiness to respond. It also demonstrates Woodside's ability to meet the requirements of the environmental performance standards that relate to certain response roles.

Figure 5-2 shows an example of the SCAT role and the training modules required to show competence.

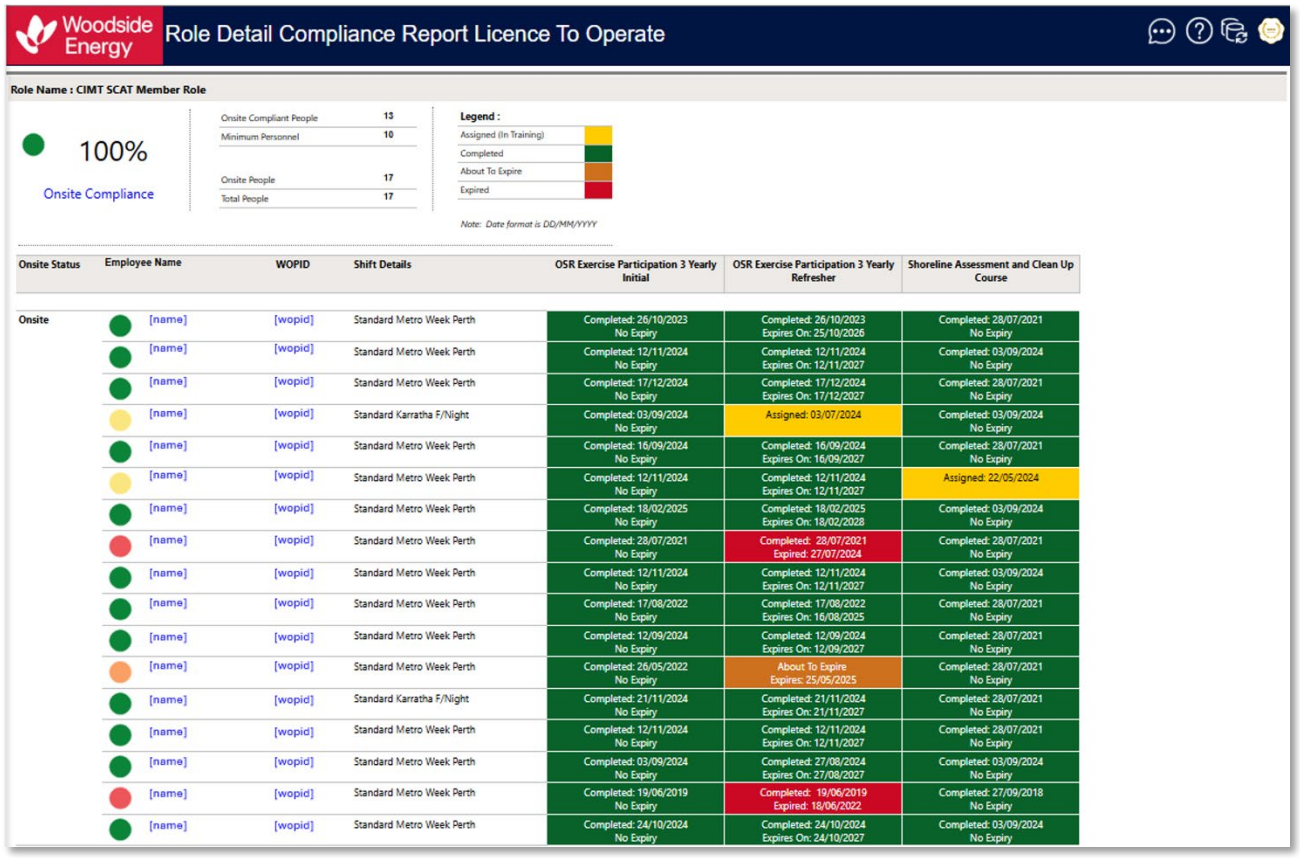


Figure 5-2: Example screenshot for the SCAT role

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Woodside also maintains a pool of trained responders which is composed of but not limited to personnel from the following organisations:

- Australian Marine Oil Spill Centre (AMOSC) core group
- AMOSC
- Oil Spill Response Limited (OSRL)
- Marine Spill Response Corporation (MSRC)
- Woodside contracted workforce

3. The Hydrocarbon Spill Preparedness Assurance Process

The Hydrocarbon Spill Response Team uses Woodside's assurance process to track compliance over four key control areas:

a) **Plans** – confirms all plans (including: Hydrocarbon Spill Australia Regulatory Framework[2], first strike plans, operational plans, support plans and tactical response plans) are current and in line with regulatory and internal requirements.

b) **Competency (personnel and testing)** – confirms the competency dashboard is up to date and there are the minimum numbers across CIMT, CMT and hydrocarbon spill response roles. The hydrocarbon spill training plan and exercise schedule, including testing of arrangements is also tracked. The Testing of Arrangements (TOA) register tracks the testing of all hydrocarbon spill response arrangements, key contracts and agreements in place with internal and external parties to ensure compliance.

c) **Capability (equipment and contracts)** – tracks and monitors capability that could be required in a hydrocarbon incident, including but not limited to: integrated fleet[9] vessel schedule, dispersant availability, rig/vessels monitoring, equipment stockpiles, tracking buoy locations and the CIMT duty roster.

The assurance process records how each commitment listed in the performance tables above is managed for ongoing compliance monitoring. The level of compliance can be reviewed in real time and is reported on a monthly basis through the CEM Function.

4. The Hydrocarbon Spill Planning Standard, Hydrocarbon Spill Planning Work Instruction (Australia), Hydrocarbon Spill Capability and Competency Standard, and Hydrocarbon Spill Response Standard

The Hydrocarbon Spill Planning Standard sets out how to plan and prepare for a liquid hydrocarbon spill to the marine environment. (Note, this standard does not apply to scenarios relating to gas releases in the marine environment). This standard details the requirement for an Oil Pollution Emergency Plan (OPEP) to be developed, maintained, reviewed, and approved by appropriate regulators (where applicable).

The Hydrocarbon Spill Planning Work Instruction (Australia) details planning for hydrocarbon spill response preparedness including:

- Developing OPEPs.
- Defining how spill scenarios are developed on an activity specific basis
- Priority response receptor determination.
- ALARP determination.

The Hydrocarbon Spill Capability and Competency Standard details:

- Developing spill training requirements and ongoing maintenance of training and competency for personnel
- Developing requirements for spill exercising / testing of spill response arrangements
- Maintaining access to identified equipment, personnel and contracts.
- Ensuring compliance and assurance is undertaken in accordance with external and internal requirements.

[9] 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.

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The Hydrocarbon Spill Response Standard details requirements for appropriate hydrocarbon spill response standards including:

- Safeguarding the safety and health of people (and responders and communities)
- Stopping the source of the spill as quickly as possible
- Minimising the environmental and community impact

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6 ALARP EVALUATION

This Section should be read in conjunction with Section 5 which is the capability planned for this activity.

6.1 Monitor and evaluate – ALARP Assessment

Alternative, additional and improved options have been identified and assessed against the base capability described in Section 5 with those that have been selected for implementation highlighted in green. Items highlighted in red have been considered and rejected on the basis that they are not feasible, the costs are clearly disproportionate to the environmental benefit, and/or the option is not reasonably practical. Control measures where there is not a clear justification for their inclusion or exclusion may be subject to a detailed ALARP assessment.

6.1.1 Monitor and evaluate – Control Measure Options Analysis

6.1.1.1 Alternative Control Measures

Alternative Control Measures considered
Alternative control measures including potentially more effective and/or novel control measures are evaluated as replacements for an adopted control

Option considered	Environmental consideration	Feasibility	Approximate Cost	Assessment conclusions	Implemented
Aerostat (or similar inflatable observation platform) for localised aerial surveillance.	Lead time to Aerostat surveillance is disproportionate to the environmental benefit. The system also provides a very limited field of visibility around the vessel it is deployed from.	Long lead time to access (>10 days). Each system would require an operator to interpret data and direct vessels accordingly. Requires multiple systems for shoreline use.	Purchase cost per system is approximately A$300,000.	This option is not adopted as the minimal environmental benefit gained is disproportionate to the cost and complexity of its implementation.	**No**

6.1.1.2 Additional Control Measures

Additional Control Measures considered
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
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 approximately A$25,000.	This option is not adopted as the current capability meets the need.	**No**
Additional satellite tracking buoys to enable greater area coverage.	Increased capability does not provide an environmental benefit compared to the disproportionate cost in having an additional contract in place.	Tracking buoy on location at manned facility and additional needs are met from Woodside-owned stocks in King Bay Support Facility (KBSF) and Exmouth or can be provided by service provider.	Cost for an additional satellite tracking buoy would be A$200 per day or A$6000 to purchase.	This option is not adopted as the current capability meets the need, but additional units are available if required.	**No**
Additional trained aerial observers.	Current capability meets need. WEL has access to a pool of trained, competent observers at strategic locations to allow timely and sustainable response. Additional observers are available through current contracts with AMOSC and OSRL.	Current capability meets need. Woodside has a pool of trained, competent observers at strategic locations for timely and sustainable contracts with AMOSC and OSRL. Aviation standards and guidelines confirm all aircraft crews are competent for their roles. Woodside maintains a pool of trained and competent aerial observers with various home base locations to be called upon at the time of an incident. Regular audits of oil spill response organisations maintain training and competency.	Cost for additional trained aerial observers would be A$2000 per person per day.	This option is not adopted as the current capability meets the need, but additional observers are available via response contractors if required.	**No**

6.1.1.3 Improved Control Measures

Improved Control Measures considered
Improved control measures are evaluated for improvements they could bring to the effectiveness of adopted control measures in terms of functionality, availability, reliability, survivability, independence and compatibility

Option considered	Environmental consideration	Feasibility	Approximate Cost	Assessment conclusions	Implemented
Faster turnaround time from modelling contractor.	Improved control measure does not provide an environmental benefit compared to the	External contractor on CIMT roster to be called as soon as required. However initial information needs to be gathered by CIMT team to request an accurate	Modelling service with a faster activation time would be achieved via membership of an alternative	This option is not adopted as the minimal environmental benefit gained is disproportionate to the cost and complexity of its implementation.	**No**

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	disproportionate cost in having an additional contract in place.	model. External contractor has person on call to respond from their own location.	modelling service at an annual cost of A$50,000 for 24hr access plus an initial A$5000 per modelling run.		
Nighttime aerial surveillance.	The risk of undertaking the aerial observations at night is disproportionate to the limited environmental benefit. The images would be of low quality and as such the variable is not adopted.	Flights will only occur when deemed safe by the pilot. The risk of night operations is disproportionate to the benefit gained, as images from sensors (IR, UV, etc). will be low quality. Flight time limitations will be adhered to.	No improvement can be made without risk to personnel health and safety and breaching Woodside's Golden Safety Rules.	This option is not adopted as the safety considerations outweigh any environmental benefit gained.	**No**

6.1.2 Selected Control Measures

Following review of alternative, additional and improved control measures as outlined above, the following controls were selected for implementation for the Petroleum Activity:

- alternative
  - none selected
- additional
  - none selected
- improved
  - none selected.

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6.2 Source Control via Vessel SOPEP – ALARP Assessment

Alternative, additional and improved options have been identified and assessed against the base capability described in Section 5 with those that have been selected for implementation highlighted in green. Items highlighted in red have been considered and rejected on the basis that they are not feasible, the costs are clearly disproportionate to the environmental benefit, and/or the option is not reasonably practical. Control measures where there is not a clear justification for their inclusion or exclusion may be subject to a detailed ALARP assessment.

6.2.1 Source Control via Vessel SOPEP – Control Measure Options Analysis

6.2.1.1 Alternative Control Measures

Alternative Control Measures considered
Alternative control measures including potentially more effective and/or novel control measures are evaluated as replacements for an adopted control

Option considered	Environmental consideration	Feasibility	Approximate Cost	Assessment conclusions	Implemented
No reasonably practical alternative control measures identified					

6.2.1.2 Additional Control Measures

Additional Control Measures considered
Additional control measures are evaluated in terms of them reducing an environmental impact or an environmental risk when added to the existing suite of control measures

Option considered	Environmental consideration	Feasibility	Approximate Cost	Assessment conclusions	Implemented
No reasonably practical additional control measures identified					

6.2.1.3 Improved Control Measures

Improved Control Measures considered
Improved control measures are evaluated for improvements they could bring to the effectiveness of adopted control measures in terms of functionality, availability, reliability, survivability, independence and compatibility

Option considered	Environmental consideration	Feasibility	Approximate Cost	Assessment conclusions	Implemented
No reasonably practical improved control measures identified					

6.2.2 Selected control measures

Following review of alternative, additional and improved control measures, the following controls were selected for implementation for the Petroleum Activity:

- alternative
  - none selected
- additional
  - none selected
- improved
  - none selected.

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6.3 Oiled Wildlife Response – ALARP Assessment

Alternative, additional and improved options have been identified and assessed against the base capability described in Section 5 with those that have been selected for implementation highlighted in green. Items highlighted in red have been considered and rejected on the basis that they are not feasible, the costs are clearly disproportionate to the environmental benefit, and/or the option is not reasonably practical. Control measures where there is not a clear justification for their inclusion or exclusion may be subject to a detailed ALARP assessment.

6.3.1 Existing Capability – Wildlife Response

Woodside's existing level of capability is based on internal and third-party resources that are available 24 hours, 7 days per week. The capability presented below is displayed as ranges to incorporate operational factors such as weather, crew/vessel/aircraft/vehicle location and duties, survey or classification society inspection requirements, overflight/port/quarantine permits and inspections, crew/pilot duty and fatigue hours, refuelling/re-stocking provisions, and other similar logistic and operational limitation that are beyond Woodside's direct control.

6.3.2 Oiled Wildlife Response - Control Measure Options Analysis

6.3.2.1 Alternative Control Measures

Alternative Control Measures considered
Alternative control measures including potentially more effective and/or novel control measures are evaluated as replacements for an adopted control

Option considered	Environmental consideration	Feasibility	Approximate Cost	Assessment conclusions	Implemented
Direct contracts with service providers	This option duplicates the capability accessed through AMOSC and OSRL and would compete for the same resources. Does not provide a significant increase in environmental benefit.	These delivery options provide increased effectiveness through more direct communication and control of specialists. However, no significant net benefit is anticipated.	Duplication of capability – already subscribed to through contracts with AMOSC and OSRL	This option is not adopted as the existing capability meets the need.	**No**

6.3.2.2 Additional Control Measures

Additional Control Measures considered
Additional control measures are evaluated in terms of them reducing an environmental impact or an environmental risk when added to the existing suite of control measures

Option considered	Environmental consideration	Feasibility	Approximate Cost	Assessment conclusions	Implemented
Additional wildlife treatment systems	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. 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. 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. Current capability meets the needs required and there is no additional environmental benefit in adopting the improvements.	Although hydrocarbon contact above wildlife response threshold concentrations (>10 g/m^2) with offshore waters is expected from day one, 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 provides sufficient opportunity for the ongoing monitoring and surveillance operations to inform the scale of the response. 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. Oiled wildlife response capacity would be addressed for open Commonwealth waters through the AMOSC arrangements, as informed by operational monitoring, and under the direction of DBCA in nearshore areas. The cost and organisational complexity of this approach is moderate, and the overall delivery effectiveness is high.	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	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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		and maybe sourced via existing contracts with OSROs. Materials for holding facilities, portable pools, enclosures and rehabilitation areas would be sourced as required.			

6.3.2.3 Improved Control Measures

Improved Control Measures considered *Improved control measures are evaluated for improvements they could bring to the effectiveness of adopted control measures in terms of functionality, availability, reliability, survivability, independence and compatibility*					
Option considered	**Environmental consideration**	**Feasibility**	**Approximate Cost**	**Assessment conclusions**	**Implemented**
Faster mobilisation time for wildlife response	Response time is limited by specialist personnel mobilisation time. Current timing is sufficient for expected as there is no predicted shoreline contact. This control measure provides increased effectiveness through faster mobilisation of specialists. However, no significant net environmental benefit is expected due to there being no shoreline stranding predicted.	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**

6.3.3 Selected control measures

Following review of alternative, additional and improved control measures, the following controls were selected for implementation for the Petroleum Activity”

- alternative
  - none selected
- additional
  - none selected
- improved
  - none selected.

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6.4 Waste Management – ALARP Assessment

Alternative, additional and improved options have been identified and assessed against the base capability described in Section 5 with those that have been selected for implementation highlighted in green. Items highlighted in red have been considered and rejected on the basis that they are not feasible, the costs are clearly disproportionate to the environmental benefit, and/or the option is not reasonably practical. Control measures where there is not a clear justification for their inclusion or exclusion may be subject to a detailed ALARP assessment.

6.4.1 Existing Capability – Waste Management

Woodside's existing level of capability is based on internal and third-party resources that are available 24 hours, 7 days per week. The capability presented below is displayed as ranges to incorporate operational factors such as weather, crew/vessel/aircraft/vehicle location and duties, survey or classification society inspection requirements, overflight/port/quarantine permits and inspections, crew/pilot duty and fatigue hours, refuelling/restocking provisions, and other similar logistic and operational limitation that are beyond Woodside's direct control.

6.4.2 Waste Management - Control Measure Options Analysis

6.4.2.1 Alternative Control Measures

Alternative Control Measures considered
Alternative control measures including potentially more effective and/or novel control measures are evaluated as replacements for an adopted control

Option considered	Environmental consideration	Feasibility	Approximate Cost	Assessment conclusions	Implemented
No reasonably practical alternative control measures identified					

6.4.2.2 Additional Control Measures

Additional Control Measures considered
Additional control measures are evaluated in terms of them reducing an environmental impact or an environmental risk when added to the existing suite of control measures

Option considered	Environmental consideration	Feasibility	Approximate Cost	Assessment conclusions	Implemented
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 Petroleum Activity.	Cost for increased waste disposal capability would be approx. A$1,300 per m^3. Cost for increased onshore temporary waste storage capability would be approx. A$40 per unit per day.	This option is not adopted as the existing capability meets the need.	**No**

6.4.2.3 Improved Control Measures

Improved Control Measures considered
Improved control measures are evaluated for improvements they could bring to the effectiveness of adopted control measures in terms of functionality, availability, reliability, survivability, independence and compatibility

Option considered	Environmental consideration	Feasibility	Approximate Cost	Assessment conclusions	Implemented
Faster response time	The access to Veolia waste storage options provides the resources to store and transport waste, permitting the wastes to be stockpiled and gradually processed within the regional waste handling facilities. Bulk transport to Veolia's licensed waste management facilities would be undertaken via controlled-waste-licensed vehicles and in accordance with Environmental Protection (Controlled Waste) Regulations 2004. The environmental benefit from successful waste storage will reduce pressure on the treatment and disposal facilities reducing ecological consequences by safely securing waste. In addition, waste storage	Woodside already maintains an equipment stockpile in Exmouth to enable shorter response times to incidents. This stockpile includes temporary waste storage equipment. Woodside has access to stockpiles of waste storage and equipment in Dampier and Exmouth through existing contracts and arrangements.	The incremental benefit of having a dedicated local Woodside owned stockpile of waste equipment and transport is considered minor and cost is considered disproportionate to the benefit gained given predicted shoreline contact times.	This option is not adopted as the existing capability meets the need.	**No**

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	and transport will allow continuous response operations to occur. This delivery option would increase known available storage, eliminating the risk of additional resources not being available at the time of the event. However, the environmental benefit of Woodside procuring additional waste storage is considered minor as the risk of additional storage not being available at the time of the event is considered low and existing arrangements provide adequate storage to support the response.				

6.4.3 Selected control measures

Following review of alternative, additional and improved control measures as outlined above, the following controls were selected for implementation for the Petroleum Activity:

- alternative
  - none selected
- additional
  - none selected
- improved
  - none selected.

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6.5 Operational and Scientific Monitoring – ALARP Assessment

Alternative, additional and improved options have been identified and assessed against the base OSM capability described in Section 5 with the Woodside OSM-BIP with those that have been selected for implementation which are highlighted in green. Items highlighted in red have been considered and rejected on the basis that they are not feasible, the costs are clearly disproportionate to the environmental benefit, and/or the option is not reasonably practical. Control measures where there is not a clear justification for their inclusion or exclusion may be subject to a detailed ALARP assessment.

6.5.1 Existing Capability – Operational and Scientific Monitoring

Woodside's existing level of capability is based on internal and third-party resources that are available 24 hours, 7 days per week. The capability for operational and scientific monitoring is detailed in Section 5.5 and is adequate for the response required for the modelled MDO spill scenario (CS-02)

6.5.2 Operational and Scientific Monitoring – Control Measure Options Analysis

6.5.2.1 Alternative Control Measures

Alternative Control Measures considered
Alternative control measures including potentially more effective and/or novel control measures are evaluated as replacements for an adopted control

Option considered	Environmental consideration	Feasibility	Approximate Cost	Assessment conclusions	Implemented
Dedicated contracted OSM vessel (exclusive to Woodside)	Would provide marginally faster mobilisation time of initial monitoring resources. However, the timescale difference would be limited when compared to the availability of in-field support vessels which are equipped with quality sampling equipment, meaning it would result in very minor to no environmental benefit.	Chartering and equipping additional vessels on standby for operational and scientific monitoring has been considered. The option is reasonably practicable but the sacrifice (charter costs and organisational complexity) is significant, particularly when existing contracted support vessels can be equipped with water quality sampling equipment. Additionally, vessels are not the limiting factor in deployment times, as the majority of operational and scientific monitoring components require trained specialists, who can take > 72 hours to mobilise.	The cost and organisational complexity of contracting a dedicated response vessel is considered disproportionate to the marginal environmental benefit by adopting these delivery options.	This control measure is not adopted as the costs and complexity are considered disproportionate to any environmental benefit that might be realised.	**No**

6.5.2.2 Additional control measures

Additional Control Measures considered
Additional control measures are evaluated in terms of them reducing an environmental impact or an environmental risk when added to the existing suite of control measures

Option considered	Environmental consideration	Feasibility	Approximate Cost	Assessment conclusions	Implemented
Pre-position a team of trained scientific monitoring personnel on standby in Dampier	Pre-positioning a team of trained scientific monitoring personnel closer to the spill location would result in quicker mobilisation times for one or two priority OMPs or SMPs to be implemented.	A trained team of scientific monitoring personnel positioned in Dampier could result in a more rapid deployment of first strike monitoring. However, this option is reliant on suitable vessels being readily available in Dampier and not requiring relocation from nearby ports or adjacent offshore locations.	The costs of having a small team of trained scientific monitoring personnel available on standby in Dampier would be in excess of $3-4M / annum and would be an associated cost to the activity whether there was a spill or not.	The cost of maintaining a team of trained scientific monitoring personnel on standby in Dampier is considered disproportionate, as multiple teams of trained personnel are required to implement multiple OMPs and SMPs. It is considered more cost effective and feasible to pre-position first strike sampling kits on support vessels (see below).	**No**
Contract additional OSM Service Providers to increase availability of monitoring personnel in the first 2 weeks of the spill	The availability of additional monitoring personnel could theoretically increase the number of receptors and locations able to be monitored, however, the ability to deploy personnel would be subject to a range of feasibility considerations.	This option has been considered and evaluated; however, it has been discounted on the basis that deploying a significantly larger number of monitoring teams concurrently with response operations would introduce additional safety, environmental, and operational risks. The current resource assessment within Section C.4 indicates that up to 20 monitoring teams may be required during the initial two weeks of the response. Expanding this effort further by engaging additional contracted monitoring teams would likely result in increased simultaneous operations (SIMOPs), elevating the potential for vessel interactions, collision risks, anchoring impacts, and waste discharges, thereby increasing the overall risk profile. To ensure risk remains ALARP, a staged and scalable approach to resourcing has been adopted. Should additional monitoring capacity be required from week 3 onwards, this will be identified early through ongoing review of monitor and evaluate	Cost to contract an additional OSM Service Provider.	The option to contract an additional OSM Service Provider to increase the number of contracted monitoring teams during the initial stages of the spill response has been assessed and found not to be reasonably practicable due to the elevated safety and environmental risks associated with SIMOPs, including vessel collisions, anchoring impacts, and waste discharges. These risks outweigh the marginal benefit of increased early-stage monitoring coverage, particularly given the scale of the existing response and monitoring deployment already planned.	**No**

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		activities and existing monitoring efforts. Woodside will activate additional resourcing via its existing contract with the OSM Services Provider, thereby ensuring a streamlined and controlled expansion of effort. By this stage of the response, operational response activities are expected to have stabilised, reducing the likelihood and severity of SIMOPs-related risks. In addition, efficiencies may be gained by reallocating existing monitoring teams to other priority receptors where monitoring is still required, particularly in cases where termination criteria have been met at initial locations. This dynamic resourcing approach ensures that additional personnel are only deployed when necessary, thereby supporting both environmental and safety performance outcomes and maintaining ALARP principles throughout the monitoring program.			
Purchase water quality / hydrocarbon sampling kits for pre-positioning on nearby support vessels and develop technical procedure for sample collection	The availability of initial water quality / hydrocarbon sampling kits on nearby support vessels (and an accompanying technical procedure for sample collection) will provide an opportunity for more rapid initial measurements of hydrocarbon properties and concentrations. This information will provide important initial situational awareness information that will aid decision making in both monitoring and response efforts.	This control measure will improve the availability and timeframe for first strike water quality sampling.	Implementing this additional control measure will involve time and effort to source and supply first strike sampling kits to the selected supply vessels. There will also be employee time involved in developing and conducting training to vessel crews on the technical procedure for sample collection.	Adoption of this control measure will provide an additional and quicker opportunity for first strike water quality sampling, resulting in improved situational awareness for decision making in monitoring and response teams.	**Yes**
Modify Woodside Aerial Surveillance Observer Log to enable observers to record marine fauna sightings (presence and type of fauna)	Initial aerial surveillance provides important information for decision making in response operations, but can also provide important initial environmental monitoring data. Amending the Woodside Aerial Surveillance Observer Log to include the ability to report on location, presence and type of fauna could assist in a more rapid, effective deployment of specialised OMP teams for Marine Fauna Assessment and Oiled Wildlife Response.	This control measure is considered reasonably practicable to implement.	Cost to modify the Aerial Surveillance Observer Log is minimal and is associated with time and effort of existing employees.	Adoption of this control measure is considered to be beneficial as it could assist in more effective and efficient deployment of fauna monitoring and response efforts.	**Yes**
Conduct periodical review of existing baseline data sources across receptors predicted to be contacted within 7 days at the low thresholds and a probability ≥10%	This ensures that receptors with deficient baseline data are identified. This is a consideration for initial monitoring prioritisation and the finalisation of each SMP design	This control measure is considered reasonably practicable to implement.	Cost of contract with Service Provider.	Understanding the presence or absence, suitability and quality of baseline data for receptors predicted to be contacted within 7 days, at a probability ≥ 10%, is an important preparatory measure. Understanding which receptors have insufficient baseline data will help quickly guide monitoring prioritisation and the finalisation of each SMP design and whether there is a need to include alternative designs.	**Yes**

6.5.2.3 Improved Control Measures considered

Improved Control Measures considered
Improved control measures, including potentially more effective and/or novel control measures are evaluated as replacements for an adopted control

Option considered	Environmental consideration	Feasibility	Approximate Cost	Assessment conclusions	Implemented
Adoption of the OSRL OSM Supplementary Service Agreement for OSM capability provision	A Joint Industry capability provision has considerable benefits, including an improvement to industry OSM standards; improved reliability in accessing specialist personnel; efficiencies and capability growth associated with shared testing and exercising; and greater depth in Monitoring Service Provider (MSP) capability, with a centralised contract coordinating multiple consultancies and MSPs.	This control measure has already been developed by Industry and is considered reasonably practicable to implement.	Cost of annual subscription to OSRL OSM Supplementary Service Agreement	Adopting this control measure involves additional costs, but the benefits of a Joint Industry OSM capability provision outweighs the costs and therefore this additional measure has been accepted.	**Yes**

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Determine the required specifications for suitable monitoring vessels, including specialised equipment for OMPs and SMPs (i.e. hiab) and the requirement of shallow draft vessels to access offshore islands and priority monitoring areas	Understanding vessel specification requirements for OSM at priority locations will result in quicker mobilisation times, and more effective monitoring, as correctly equipped vessels will be made available at the commencement the monitoring effort.	This control measure is considered reasonably practicable to implement.	Cost to determine vessel specifications is minimal and is associated with time and effort of existing employees.	This control measure would result in the correct vessels being mobilised for monitoring personnel and result in quicker implementation of monitoring.	**Yes**

6.5.3 Selected Control Measures

Following review of alternative, additional and improved control measures as outlined above, the following controls were selected for implementation for the Petroleum Activity:

- alternative
  - none selected
- additional
  - purchase initial water quality / hydrocarbon sampling kits for pre-positioning on nearby support vessels and develop technical procedure for sample collection
  - modify Woodside Aerial Surveillance Observer Log to enable observers to record marine fauna sightings (presence and type of fauna)
  - conduct periodical review of existing baseline data sources for receptors predicted to be contacted within 7 days, at the low thresholds and a probability ≥ 10%.
- improved
  - adoption of the OSRL OSM Supplementary Service Agreement for OSM capability provision
  - determine the required specifications for suitable monitoring vessels, including specialised equipment for OMPs and SMPs (i.e. hiab) and the requirement of shallow draft vessels to access offshore islands and priority monitoring areas.

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6.5.4 ALARP and Acceptability Summary

ALARP and Acceptability Summary		
Operational and Scientific Monitoring		
ALARP Summary	X	Known, reasonably practicable control measures have been adopted
	X	No additional, alternative and improved control measures would provide further benefit
	X	No reasonably practical additional, alternative, and/or improved control measure exists
	The resulting operational and scientific monitoring capability has been assessed against the credible spill scenarios. The range of techniques provide an ongoing approach to monitoring operations to assess and evaluate the scale and extent of impacts. Known, reasonably practicable control measures have been adopted with the cost and organisational complexity of these options determined to be Moderate and the overall delivery effectiveness considered Medium. The Operational and Scientific Monitoring's main objectives can be met, with the addition of one alternative control measures to provide further benefit.	
Acceptability Summary	• The control measures selected for implementation manage the potential impacts and risks to ALARP. • In the event of a hydrocarbon spill for the Petroleum Activity, the control measures selected, meet or exceed the requirements of Woodside Management System and industry best-practice. • Operational and scientific monitoring control and activities are compliant with relevant environmental legislation and regulations, including the EPBC Act. • Throughout the Petroleum Activity, relevant Australian standards and codes of practice will be followed to evaluate the impacts from a loss of well control. • Stakeholder consultation undertaken for the Petroleum Activity did not receive feedback regarding concerns for Scientific Monitoring activities in response to a hydrocarbon spill. • The level of impact and risk to the environment has been considered with regards to the principles of Ecologically 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 credible case scenarios, and uncertainty has not been used as a reason for postponing control measures.	
On the basis from the ALARP and acceptability summary as presented above and in Section 6 of the EP Woodside considers the adopted controls discussed manage the impacts and risks associated with implementing operational and scientific monitoring activities to a level that is ALARP and acceptable.		

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7 ENVIRONMENTAL RISK ASSESSMENT OF SELECTED RESPONSE TECHNIQUES

The implementation of response techniques may modify the impacts and risks identified in the EP and response activities can introduce additional impacts and risks from response operations themselves. Therefore, it is necessary to complete an assessment to ensure these impacts and risks have been considered and specific measures are put in place to continually review and manage these further impacts and risks to ALARP and Acceptable levels. A simplified assessment process has been used to complete this task which covers the identification, analysis, evaluation and treatment of impacts and risks introduced by responding to the event.

7.1 Identification of impacts and risks from implementing response techniques

Each of the control measures can modify the impacts and risks identified in the EP. These impacts and risks have been previously assessed within the scope of the EP. Refer to the EP for details regarding how these risks are being managed. They are not discussed further in this document.

- Atmospheric emissions
- Routine and non-routine discharges
- Physical presence, proximity to other vessels (shipping and fisheries)
- Routine acoustic emissions vessels
- Lighting for night work/navigational safety
- Invasive marine species
- Collision with marine fauna
- Disturbance to Seabed

Additional impacts and risks associated with the control measures not included within the scope of the EP include:

- Vessel operations and anchoring
- Secondary contamination from the management of waste
- Additional stress or injury caused to wildlife

7.2 Analysis of impacts and risks from implementing response techniques

The table below compares the adopted control measures for this activity against the environmental values that can be affected when they are implemented.

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Table 7-1: Analysis of risks and impacts

	Environmental Value						
	Soil and Groundwater	Marine Sediment Quality	Water Quality	Air Quality	Ecosystems/ Habitat	Species	Socio-Economic
Monitor and evaluate	✓	✓	✓		✓	✓	
Source control		✓	✓	✓	✓	✓	✓
Oiled wildlife response					✓	✓	
Operational and scientific monitoring	✓	✓	✓	✓	✓	✓	✓
Waste management	✓			✓	✓	✓	✓

7.3 Evaluation of impacts and risks from implementing response techniques

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 operational and scientific monitoring). The use of vessel anchoring will be minimal and likely to occur when the impacted area 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.

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 containment and recovery and shoreline clean-up operations
- Semi-solids/solids (oily solids), collected during containment and recovery and shoreline clean-up operations
- Debris (e.g. seaweed, sand, woods, plastics), collected during containment and recovery and shoreline clean-up operations 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.

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

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removal of water proofing feathers are managed and mitigated. Finally, during the release phase it's important that wildlife is not released back into a contaminated environment.

7.4 Treatment of impacts and risks from implementing response techniques

In respect of the impacts and risks assessed the following treatment measures have been adopted. It must be recognised that this environmental assessment is seeking to identify how to maintain the level of impact and risks at levels that are ALARP and of an acceptable level rather than exploring further impact and risk reduction. It is for this reason that the treatment measures identified in this assessment will be captured in Operational Plans, Tactical Response Plans, and/or First Strike Plans.

Vessel operations and anchoring

- If vessels are required for access, anchoring locations will be selected to minimise disturbance to benthic primary producer habitats. Where existing fixed anchoring points are not available, locations will be selected to minimise impact to nearshore benthic environments with a preference for areas of sandy seabed where they can be identified (Performance Standard (PS) 17.1)
- Shallow draft vessels will be used to access remote shorelines to minimise the impacts associated with seabed disturbance on approach to the shorelines (PS 17.2)

Waste generation

- Teams will segregate liquid and solid wastes at the earliest opportunity (PS 11.1)

Additional stress or injury caused to wildlife

- Oiled wildlife operations (including hazing) would be implemented with advice and assistance from the DBCA Oiled Wildlife Advisor and in accordance with the processes and methodologies described in the WA OWRP and the relevant regional plan. (PS 9.1)

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8 ALARP CONCLUSION

An analysis of alternative, additional and improved control measures has been undertaken to determine their reasonableness and practicability. The tables in Section 6 document the considerations made in this evaluation. Where the costs of an alternative, additional, or improved control measure have been determined to be clearly disproportionate to the environmental benefit gained from its adoption it has been rejected. Where this is not considered to be the case the control measure has been adopted.

The risks from a hydrocarbon spill have been reduced to ALARP because:

- Woodside has a significant hydrocarbon spill response capability to respond to the WCCS through the control measures identified.
- New and modified impacts and risks associated with implementing response techniques have been considered and will not increase the risks associated with the activity.
- A consideration of alternative, additional, and improved control measures identified any other control measures that delivered proportionate environmental benefit compared to the cost of adoption for this activity ensuring that:
    - Known, reasonably practicable control measures have been adopted.
    - No additional, reasonably practicable alternative and/or improved control measures would provide further environmental benefit.
    - No reasonably practical additional, alternative, and/or improved control measure exists.
- A structured process for considering alternative, additional, and improved control measures was completed for each control measure.
- The evaluation was undertaken based on the outputs of the WCCS so that the capability in place is sufficient for all other scenario from this activity.
- The likelihood of the WCCS spill has been ignored in evaluating what was reasonably practicable.

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9 ACCEPTABILITY CONCLUSION

Following the ALARP evaluation process, Woodside deems the hydrocarbon spill risks and impacts have been reduced to an acceptable level by meeting all of the following criteria:

- Techniques are consistent with Woodside's processes and relevant internal requirements including policies, culture, processes, standards, structures and systems.
- Levels of risk/ impact are deemed acceptable by relevant persons/ organisations are aligned with the uniqueness of, and/or the level of protection assigned to the environment, its sensitivity to pressures introduced by the activity, and the proximity of activities to sensitive receptors, and have been aligned with Part 3 of the EPBC Act.
- Selected control measures meet requirements of legislation and conventions to which Australia is a signatory (e.g. MARPOL, the World Heritage Convention, the Ramsar Convention, and the Biodiversity Convention etc.). In addition to these, other non-legislative requirements met include:
    - Australian IUCN reserve management principles for Commonwealth marine protected areas and bioregional marine plans.
    - National Water Quality Management Strategy and supporting guidelines for marine water quality.
    - Conditions of approval set under other legislation.
    - National and international requirements for managing pollution from ships.
    - National biosecurity requirements.
- Industry standards, best practices and widely adopted standards and other published materials have been used and referenced when defining acceptable levels. Where these are inconsistent with mandatory/ legislative regulations, explanation has been provided for the proposed deviation. Any deviation produces the same or a better level of environmental performance (or outcome).

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11 GLOSSARY AND ABBREVIATIONS

11.1 Glossary

Term	Description / Definition
ALARP	Demonstration through reasoned and supported arguments that there are no other practicable options that could reasonably be adopted to reduce risks further.
Availability	The availability of a control measure is the percentage of time that it is capable of performing its function (operating time plus standby time) divided by the total period (whether in service or not). In other words, it is the probability that the control has not failed or is undergoing a maintenance or repair function when it needs to be used.
Control	The means by which risk from events is eliminated or minimised.
Control effectiveness	A measure of how well the control measures perform their required function.
Control measure (risk control measure)	The features that eliminate, prevent, reduce or mitigate the risk to environment associated with the Petroleum Activity.
Credible spill scenario	A spill considered by Woodside as representative of maximum volume and characteristics of a spill that could occur as part of the Petroleum Activity.
Dependency	The degree of reliance on other systems in order for the control measure to be able to perform its intended function.
Environment that may be affected	The summary of quantitative modelling where the marine environment could be exposed to hydrocarbons levels exceeding hydrocarbon threshold concentrations.
Incident	An event where a release of energy resulted in or had (with) the potential to cause injury, ill health, damage to the environment, damage to equipment or assets or company reputation.
Performance outcome	A statement of the overall goal or outcome to be achieved by a control measure
Performance standard	The parameters against which [risk] controls are assessed to ensure they reduce risk to ALARP. A statement of the key requirements (indicators) that the control measure has to achieve in order to perform as intended in relation to its functionality, availability, reliability, survivability and dependencies.
Preparedness	Measures taken before an incident in order to improve the effectiveness of a response
Reasonably practicable	... a computation ... made by the owner, in which the quantum of risk is placed on one scale and the sacrifice involved in the measures necessary for averting the risk (whether in money, time or trouble) [showing whether or not] that there is a gross disproportion between them ... made by the owner at a point of time anterior to the accident. (Judgement: Edwards v National Coal Board [1949])
Receptors at risk	Physical, biological and social resources identified as at risk from hydrocarbon contact using oil spill modelling predictions.
Receptor areas	Geographically referenced areas such as bays, islands, coastlines and/or protected area (WHA, Commonwealth or State marine reserve or park) containing one or more receptor type.
Receptor Sensitivities	This is a classification scheme to categorise receptor sensitivity to an oil spill. The Environmental Sensitivity Index (ESI) is a numerical classification of the relative sensitivity of a particular environment (particularly different shoreline types) to an oil spill.
Regulator	NOPSEMA are the Environment Regulator under the Environment Regulations.
Reliability	The probability that at any point in time a control measure will operate correctly for a further specified length of time.
Response technique	The key priorities and objectives to be achieved by the response plan Measures taken in response to an event to reduce or prevent adverse consequences.

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Term	Description / Definition
Survivability	Whether or not a control measure is able to survive a potentially damaging event is relevant for all control measures that are required to function after an incident has occurred.
Threshold	Hydrocarbon threshold concentrations applied to the risk assessment to evaluate hydrocarbon spills. These are defined as: surface hydrocarbon concentration – ≥10 g/m^2, dissolved – ≥50 ppb and entrained hydrocarbon concentrations – ≥100 ppb.

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11.2 Abbreviations

Abbreviation	Meaning
ADIOS	Automated Data Inquiry for Oil Spills
AIIMS	Australasian Inter-Service Incident Management System
ALARP	As low as reasonably practicable
AMOSC	Australian Marine Oil Spill Centre
AMP	Australian Marine Park
AMSA	Australian Maritime Safety Authority
AUV	Autonomous Underwater Vehicle
BACI	Before/ After Control Impact
BAOAC	Bonn Agreement Oil Appearance Code
BOP	Blowout Preventer
CIMT	Corporate Incident Management Team
COP	Common Operating Picture
cSt	Centistokes
DM	Duty Manager
DTMI	Western Australia Department of Transport and Major Infrastructure
DBCA	Western Australia Department of Biodiversity, Conservation and Attractions (former Western Australian Department of Parks and Wildlife)
EMBA	Environment that May Be Affected
EMSA	European Maritime Safety Agency
EP	Environment Plan
Environment Regulations	Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2023
ESI	Environmental Sensitivity Index
ESD	Emergency Shut Down
ESP	Environmental Services Panel
FPSO	Floating Production Storage Offloading
FSP	First Strike Plan
GIS	Geographic Information System
GPS	Global Positioning System
HSP	Hydrocarbon Spill Preparedness
IAP	Incident Action Plan
IC	Incident Commander
ICE	Internal Control Environment
IMSA	Index of Marine Surveys for Assessment
IMT	Incident Management Team
IPIECA	International Petroleum Industry Environment Conservation Association
ITOPF	International Tanker Owners Pollution Federation
IUCN	International Union for Conservation of Nature
KBSF	King Bay Supply Facility

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Abbreviation	Meaning
KIMC	Karratha Incident Management Centre
KSAT	Kongsberg Satellite
LOWC	Loss of Well Containment
MDO	Marine diesel oil
MODU	Mobile Offshore Drilling Unit
MoU	Memorandum of Understanding
NEBA	Net Environmental Benefit Analysis
NOAA	National Oceanic and Atmospheric Administration
NRT	National Response Team
OILMAP	Oil Spill Model and Response System
OMP	Operational Monitoring Program
OPEP	Oil Pollution Emergency Plan
OPGGSA	Offshore Petroleum and Greenhouse Gas Storage Act
OSM	Operational and Scientific Monitoring
OSRL	Oil Spill Response Limited
OSTM	Oil Spill Trajectory Modelling
OWR	Oiled Wildlife Response
OWRP	Oiled Wildlife Response Plan
PEARLS	People, Environment, Asset, Reputation, Livelihood and Services
PBA	Pre-emptive Baseline Areas
PPA	Priority Protection Area
PPB	Parts per billion
PPM	Parts per million
ROV	Remotely Operated Vehicle(s)
RPA	Response Protection Area
SCAT	Shoreline Contamination Assessment Techniques
S&EM	Security and Emergency Management
SIMA	Spill Impact Mitigation and Assessment
SIMAP	Integrated Oil Spill Impact Model System
SSDI	Subsea Dispersant Injection
SFRT	Subsea First Response Toolkit
SMP	Scientific monitoring program
SOP	Standard Operating Procedure
TRP	Tactical Response Plan
UAS	Unmanned Aerial Systems
UAV	Unmanned Aerial Vehicles
VOC	Volatile Organic Compound
WHA	World Heritage Area
Woodside	Woodside Energy Limited
WCC	Woodside Communication Centre

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Abbreviation	Meaning
WWCI	Wild Well Control Inc
WCCS	Worst Case Credible Scenario

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ANNEX A: NET ENVIRONMENTAL BENEFIT ANALYSIS DETAILED OUTCOMES

A NEBA has been conducted to assess the net environmental benefit of different response techniques to selected receptors in the event of an oil spill from the Petroleum Activity for loss of MDO due to vessel collision. The complete list of potential receptor locations within the EMBA within the Petroleum Activity is included in Section 6 of the EP.

The locations utilised for the NEBA were limited to the identified RPAs of the Petroleum Activity identified from modelling (see Section 3 for outline of selection). These include receptors which have potential for the following:

- Surface contact (>50 g/m^2)
- Shoreline accumulation (>100 g/m^2) at any time (note: no shoreline contact is predicted at this threshold)

The detailed NEBA assessment outcomes are shown below. The Pluto 4D Monitor 3 Marine Seismic Survey preoperational NEBAs contains the full assessments.

Table A-1: NEBA assessment technique recommendations for 500 m^3 of MDO surface release from vessel collision

Receptor	Monitor and evaluate	Containment and recovery	Dispersant application: > 20 m water depth and > 10 km from shore/reefs	Shoreline protection	Shoreline clean-up (manual)	Shoreline clean-up (mechanical)	Shoreline clean-up (chemical)	Oiled wildlife response	In situ burning	Mechanical dispersion	Source control
Open Ocean	**Yes**	**No**	**No**	**No**	**No**	**No**	**No**	**Yes**	**No**	**No**	**Yes**
Montebello MP *Note: did not exceed surface contact threshold of >50 g/m^2 however did exceed surface contact>10 g/m^2 to trigger OWR*	**Yes**	**No**	**No**	**No**	**No**	**No**	**No**	**Yes**	**No**	**No**	**Yes**

Overall assessment

Sensitive receptor (sites identified in EP)	Monitor and evaluate	Containment and recovery	Dispersant application: > 20 m water depth and > 10 km from shore/reefs	Shoreline protection	Shoreline clean-up (manual)	Shoreline clean-up (mechanical)	Shoreline clean-up (chemical)	Oiled wildlife response	In situ burning	Mechanical dispersion	Source control
Is this response Practicable?	**Yes**	**No**	**No**	**No**	**No**	**No**	**No**	**Yes**	**No**	**No**	**Yes**
NEBA identifies response potentially of net environmental benefit?	**Yes**	**No**	**No**	**No**	**No**	**No**	**No**	**Yes**	**No**	**No**	**Yes**

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NEBA Impact Ranking Classification Guidance

To reduce variability between assessments, the following ranking descriptions have been devised to guide the workshop process:

			Degree of impact[10]	Potential duration of impact	Equivalent Woodside Corporate Risk Matrix Consequence Level
Positive	**3P**	**Major**	Likely to prevent: • behavioural impact to biological receptors • behavioural impact to socio-economic receptors e.g. changes to day-today business operations, public opinion/behaviours (e.g. avoidance of amenities such as beaches) or regulatory designations.	Decrease in duration of impact by > 5 years	N/A
	2P	**Moderate**	Likely to prevent: • significant impact to a single phase of reproductive cycle of biological receptors • detectable financial impact, either directly (e.g. loss of income) or indirectly (e.g. via public perception), for socio-economic receptors.	Decrease in duration of impact by 1–5 years	N/A

	1P	**Minor**	Likely to prevent impacts on:
			• significant proportion of population or breeding stages of biological receptors
			• socio-economic receptors such as:
			  ○ significant impact to the sensitivity of protective designation; or
			  ○ significant and long-term impact to business/industry.
				Decrease in duration of impact by several seasons (< 1 year)	N/A

	0	**Non-mitigated spill impact**	**No detectable difference to unmitigated spill scenario.**		
Negative	**1N**	**Minor**	Likely to result in: • behavioural impact to biological receptors • behavioural impact to socio-economic receptors e.g. changes to day-to-day business operations, public opinion/behaviours (e.g. avoidance of amenities such as beaches), or regulatory designations.	Increase in duration of impact by several seasons (< 1 year)	Increase in risk by one sub-category, without changing category (e.g. Minor (E) to Minor (D))
	2N	**Moderate**	Likely to result in: • significant impact to a single phase of reproductive cycle for biological receptors; or • detectable financial impact, either directly (e.g. loss of income) or indirectly (e.g. via public perception), for socio-economic receptors. This level of negative impact is recoverable and unlikely to result in closure of business/industry in the region.	Increase in duration of impact by 1–5 years	Increase in risk by one category (e.g. Minor (D) to Moderate (C or B))

	3N	**Major**	Likely to result in impacts on:
			• significant proportion of population or breeding stages of biological receptors
			• socio-economic receptors resulting in either:
			  ○ significant impact to the sensitivity of protective designation; or
			  ○ significant and long-term impact to business/industry.
				Increase in duration of impact by > 5 years or unrecoverable	Increase in risk by two categories (e.g. Minor (E) to Major (A))

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[10] NOTE: the maximum likely impact should be considered; for example, if a spill were to directly impact the behaviour that results in an impact to reproduction and/or the breeding population (such as fish failing to aggregate to spawn), then the score should be a 2 or 3 rather than a 1. Similarly, if a change in behaviour resulted in an increased risk of mortality of a population, then it should be scored as a 2 or 3

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ANNEX B: MONITOR AND EVALUATE ACTIVATION AND TERMINATION CRITERIA

Table B-1: Monitor and evaluate objectives, triggers and termination criteria

Operational Monitoring Operational Plan	Objectives	Activation triggers	Termination criteria
Operational Monitoring Operational Plan - Predictive Modelling of Hydrocarbons to Assess Resources at Risk	Predictive modelling focuses on the conditions that have prevailed since a spill commenced, as well as those that are forecasted in the short term (1–3 days ahead) and longer term. Predictive modelling utilises computer-based forecasting methods to predict hydrocarbon spill movement and guide the management and execution of spill response operations to maximise the protection of environmental resources at risk. The objectives of predictive modelling are to: • Provide forecasting of the movement and weathering of spilled hydrocarbons • Identify resources that are potentially at risk of contamination • Provide simulations showing the outcome of alternative response options (booming patterns etc.) to inform on-going Net Environmental Benefit Analysis (NEBA) and continually assess the efficacy of available response options in order to reduce risks to ALARP	Predictive modelling will be triggered immediately following a level 2/3 hydrocarbon spill.	The criteria for the termination of predictive modelling are: • The hydrocarbon discharge has ceased and no further surface oil is visible • Response activities have ceased • Hydrocarbon spill modelling (as verified by surveillance observations) predicts no additional natural resources will be impacted

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Operational Monitoring Operational Plan	Objectives	Activation triggers	Termination criteria
Operational Monitoring Operational Plan - Surveillance and reconnaissance to detect hydrocarbons and resources at risk	Surveillance and reconnaissance aims to provide regular, on-going hydrocarbon spill surveillance throughout a broad region, in the event of a spill. The objectives of surveillance and reconnaissance are: • Verify spill modelling results and recalibrate spill trajectory models. • Understand the behaviour, weathering and fate of surface hydrocarbons. • Identify environmental receptors and locations at risk or contaminated by hydrocarbons. • Inform ongoing Net Environmental Benefit Analysis (NEBA) and continually assess the efficacy of available response options in order to reduce risks to ALARP. • To aid in the subsequent assessment of the short- to long-term impacts and/or recovery of natural resources (assessed in SMPs) by ensuring that the visible cause and effect relationships between the hydrocarbon spill and its impacts to natural resources have been observed and recorded during the operational phase.	Surveillance and reconnaissance will be triggered immediately following a level 2/3 hydrocarbon spill.	The termination triggers for the Surveillance and reconnaissance are: • 72 hours has elapsed since the last confirmed observation of surface hydrocarbons. • Latest hydrocarbon spill modelling results do not predict surface exposures at visible levels.

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Operational Monitoring Operational Plan	Objectives	Activation triggers	Termination criteria
Operational Monitoring Operational Plan - Pre-emptive assessment of sensitive receptors at risk	Pre-emptive shorelines assessment aims to undertake a rapid assessment of the presence, extent and current status of shoreline sensitive receptors prior to contact from the hydrocarbon spill, by providing categorical or semi-quantitative information on the characteristics of resources at risk. The primary objective of pre-emptive shorelines assessment is to confirm understanding of the status and characteristics of environmental resources, predicted by predictive modelling and surveillance, to be at risk, to further assist in making decisions on the selection of appropriate response actions and prioritisation of resources. Indirectly, qualitative/semi-quantitative pre-contact information collected by pre-emptive shorelines assessment on the status of environmental resources may also aid in the verification of environmental baseline data and provide context for the assessment of environmental impacts, as determined through subsequent SMPs. Pre-emptive shorelines assessment would be undertaken in liaison with WA DTMI as the control agency once the oil is in State Waters (if a Level 2/3 incident).	Triggers for commencing pre-emptive shorelines assessment include: • Contact of a sensitive habitat or shoreline is predicted by predictive modelling and surveillance. • The pre-emptive assessment methods can be implemented before contact from hydrocarbons (once a receptor has been contacted by hydrocarbons it will be assessed via SCAT.	The criteria for the termination of pre-emptive shorelines assessment at any given location are: • 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).

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ANNEX C: PETROLEUM ACTIVITY OSM ACTIVITY SPECIFIC ASSESSMENT

The Woodside OSM-BIP[3] comprehensively presents important information for OSM assessment and implementation, including the process for assessing OSM requirements for each activity. This Annex provides the activity-specific information required for the Petroleum Activity OSM Assessment, including:

- OSM Planning Area;
- Monitoring priorities;
- Mobilisation and implementation timeframes; and
- Resourcing requirements and capability assessment.

C.1. Determine if the activity OSM Planning Area fits within the Combined OSM Planning Area

The OSM Planning Area for the Petroleum Activity credible spill scenarios (as shown in Figure C - 1) fits within the Combined OSM Planning Area (Figure 2-1 in the OSM-BIP).

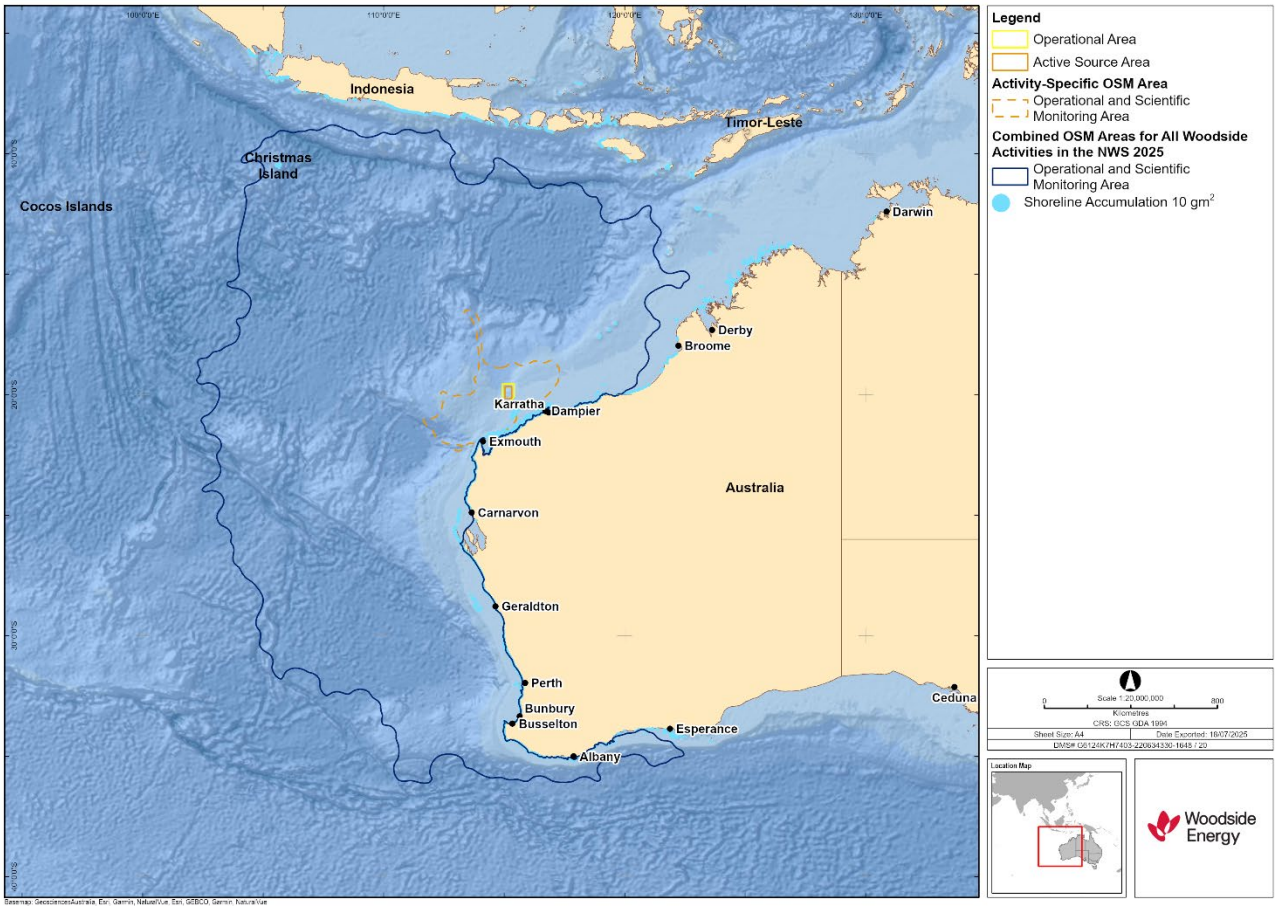


Figure C - 1: Petroleum Activity OSM Planning Area based on the area potentially contacted by the low (below ecological impact) entrained hydrocarbon threshold of 10 ppb in the event of the worst-case credible spill scenario (CS-02)

C.2. Determine activity-specific monitoring priorities

Assess spill exposure risk using trajectory modelling

Woodside has reviewed the oil spill modelling results for the worst-case credible spill scenarios listed in Table 2-1 and as outlined in Section 2.2 of the OSM-BIP, identified receptors contacted at a higher probability of

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rapid contact. Table C - 1 presents the receptors contacted within 14 days at a probability >10% at the low threshold for dissolved (≥10 ppb), entrained (≥10 ppb), floating (≥1 g/m^2), and shoreline contact (≥10 g/m^2). The inclusion of entrained hydrocarbons at concentrations greater than 10 ppb is used to denote exposure to hydrocarbons, but does not necessarily imply toxicity. For entrained whole-oil droplets, the toxic fraction is small, as many hydrocarbon constituents remained sequestered and not bioavailable (French-McCay 2024).

Evaluate availability of adequate baseline data

The availability of baseline data may influence monitoring priorities. Section 4 of the OSM-BIP outlines Woodside's baseline review and evaluation process. Using the Marine Environment Baseline Database, Woodside has reviewed baseline data for all of the receptors predicted of being rapidly contacted at a higher probability from the Petroleum Activity (Table C - 1) to help determine which receptors and key features have insufficient or no baseline data available and should be given a higher monitoring priority.

It is anticipated that some receptors and locations may be impacted before monitoring teams can begin the assessments. Given this constraint, and the limited baseline data at many priority monitoring locations and receptors, scientific monitoring will likely need to use a combination of approaches including gradient analysis, impact versus control comparisons, and lines of evidence methodologies. During a spill, it may be necessary to identify additional unaffected control sites for comparative monitoring where possible. As such, control sites have been factored into capability planning in Section C.4.

Consideration of Key Ecological Features, Biologically Important Areas and transient receptors

A number of broadscale ecological features are located within the OSM Planning Area and have been considered in monitoring prioritisation and OSM capability planning for the Petroleum Activity. The following Key Ecological Features (KEFs) (and their distances to the Operational Area) are noted in Table 4-15 of the EP:

- Continental Slope Demersal Fish Communities (Overlap Operational Area)
- Ancient Coastline at 125 m depth contour (overlaps Operational Area)
- Exmouth Plateau (55 km west of Operational Area)
- Glomar Shoals (120 km east of Operational Area)
- Canyons Linking the Cuvier Abyssal Plan and the Cape Range Peninsula (132 km south-west of Operational Area)
- Commonwealth Waters Adjacent to Ningaloo Reef (173 km south-west of Operational Area)

The Ancient Coastline KEF and Continental Slope Demersal Fish Communities KEF overlaps the Petroleum Activity Operational Area, so is at a higher risk of contact with hydrocarbons. All KEFs within the OSM Planning Area are described in detail in Section 4.7 and Appendix C of the EP. These KEFs include subsea receptors (benthic and pelagic habitats; demersal fish communities; marine fauna aggregations) that may be at risk from subsea releases, such as the loss of containment scenario associated with the Petroleum Activity (refer to Table 2-1). Therefore, OSM planning and resourcing for this activity includes relevant monitoring requirements, such as water quality, sediment quality, benthic habitats and fish for these features (refer to Table C - 3 and Table C - 8).

The OSM Area also overlaps a number of Biologically Important Areas (BIAs) with protected species potentially occurring in the area, as described in Section 4.5 of the EP and listed in Table C - 3. A number of the BIAs and protected species are located within the geographical extents of other receptors, such as marine turtles within the Montebello AMP, so these BIAs and protected species would automatically be included in the relevant SMPs for that receptor (refer to Table C - 6). Where BIAs, protected species and KEFs are situated away from the monitoring priorities, they will be captured in the Offshore Environs monitoring unit described in Table C - 6.

Initial Monitoring Priorities

Monitoring prioritisation during the initial stages of a spill should focus on sensitive receptors with the highest risk of adverse consequences and where oil spill modelling predicts high probability of rapid contact. During the initial monitoring response, emphasis will be placed on receptors contracted by floating, shoreline, and dissolved hydrocarbon phases. If a receptor is only contacted by low concentrations of entrained hydrocarbons and not any other hydrocarbon phase, it will be considered a lower priority during the initial monitoring response.

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To further guide monitoring prioritisation in the event of a spill, Woodside has also compared the availability of baseline data against the WA State-based protection prioritisation evaluation rankings. The WA DTMI protection priority rankings were established through the Western Australian Marine Oil Pollution Risk Assessment process. These rankings evaluate each receptor's vulnerability to marine oil spills, considering impacts from both floating and dissolved oil, as shown in Table C - 4. This information is then used to determine the resultant initial monitoring priorities for the activity.

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Table C - 1: Petroleum Activity Credible spill scenarios stochastic modelling results for locations with a probability of contact ≥10% and <14 days

Scientific monitoring priority area	Total contact probability (%) floating oil ≥1 g/m²	Min. arrival time floating oil ≥1 g/m² (days)	Total contact probability (%) shoreline accumulation ≥10 g/m²	Min. arrival time shoreline accumulation ≥10 g/m² (days)	Probability (%) entrained oil at ≥10 ppb	Min. arrival time entrained oil ≥10 ppb (days)	Probability (%) dissolved oil at >10 ppb	Min. arrival time dissolved oil ≥10 ppb (days)
500 m³ MDO surface release from vessel collision								
Montebello AMP	1	1.29	NA	NA	51.5	0.9	19.5	**
Tryal Rocks	NA	NA	NA	NA	12.5	5.4	2.5	**
Rankin Bank *	18.5	0.08	14	2	29	0.08	NA	NA

Key
Receptor contacted within 7 days
Receptor contacted within 7–14 days
Receptor only contacted by entrained hydrocarbons at a probability >10% and a concentration ≥10 ppb

**Submerged receptor that has no features above the sea surface. Modelling indicates 'contact' with these receptors when the hydrocarbons pass over the receptor on the sea surface.*

*** Minimum arrival time data for dissolved hydrocarbon unavailable. As a conservative approach, sensitive receptors that meet the low thresholds in dissolved hydrocarbon contact probability have been recorded as locations requiring a baseline data review regardless of whether or not they meet the low thresholds in minimum arrival time.*

NA = not applicable; NC = no contact

Table C - 2: Baseline data assessment versus SMPs for identified Petroleum Activity initial monitoring priorities

Receptor	SM1: Water quality impact	SM2: Sediment quality impact	SM3: Intertidal and coastal habitat	SM4: Seabirds and shorebirds	SM5: Marine megafauna – reptiles	SM5: Marine megafauna – whale sharks, dugong and cetacean	SM6: Benthic habitat	SM7: Marine fish and elasmobranch assemblages	SM8: Fisheries impact	SM9 & 10: Heritage and social impact
Montebello AMP			N/A						(Locations to be determined in consultation with key stakeholders to reflect current fishing zones/effort)	(Locations to be determined in consultation with key stakeholders)
Reefs, shoals and banks			N/A							

Key	
	No baseline data available, or existing data are inadequate in quality, scope, or relevance. Caveat: Additional relevant data may exist but be unknown and therefore not included in the assessment.
	Comprehensive baseline data or ongoing monitoring collected within the last 5 years. Data align with Joint Industry SMP parameters and methods, cover required species/communities and span the necessary spatial extent.
	Historical data (>5 years old) that remain of value, or some current but not extensive baseline data. Caveat: Additional relevant data may exist but be unknown and therefore not included in the assessment.
N/A	N/A: not applicable as the receptor is submerged

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Table C - 3: Receptors contacted within 14 days at a probability >10% versus relevant OMPs and SMPs

Receptor	*OM1: Hydrocarbon Characterisation*	*OM2: Hydrocarbon in Water*	*OM3: Hydrocarbon in Sediment*	*OM6: Shoreline Clean-up Assessment*	*OM5: Rapid Marine Fauna Surveillance*	*SM1: Water quality impact assessment*	*SM2: Sediment quality impact assessment*	*SM3: Intertidal and coastal habitat assessment*	*SM4: Seabirds and shorebirds*	*SM5: Marine megafauna assessment- reptiles*	*SM5: Marine megafauna assessment- whale sharks, dugong and cetacean*	*SM6: Benthic habitat assessment*	*SM7: Marine fish and elasmobranch assemblages assessment*	*SM8: Fisheries impact assessment*	*SM9 & 10: Heritage and social impact assessment*
AMPs															
Montebello AMP	✓	✓	✓	-	✓	✓	✓	-	^	^	^	✓	✓	✓	✓
Reefs, shoals and banks	✓	✓	✓	-	✓	✓	✓	-	^	^	^	✓	✓	✓	^
KEFs (within 100 km of Operational area)															
Ancient Coastline at 125 m depth contour	-	✓	✓	-	✓	✓	✓	-	^	^	^	✓	-	-	-
Exmouth Plateau	-	✓	✓	-	✓	✓	✓	-	^	^	^	✓	✓	-	-
Continental Slope Demersal Fish Communities	-	✓	✓	-	✓	✓	✓	-	^	^	^	✓	✓	-	-
BIAs															
Whale shark BIA	-	✓	-	-	✓	✓	-	-	-	-	✓	-	-	-	✓
Pygmy blue whale BIA	-	✓	-	-	✓	✓	-	-	-	-	✓	-	-	-	-
Dugong BIA	-	✓	-	-	✓	✓	-	-	-	-	✓	✓·	-	-	-
Humpback whale BIA	-	✓	-	-	✓	✓	-	-	-	-	✓	-	-	-	-
Southern right whale BIA	-	✓	-	-	✓	✓	-	-	-	-	✓	-	-	-	-
Flatback turtle BIAs	-	✓	-	✓	✓	✓	✓	-	-	✓	-	✓	-	-	-
Green turtle BIAs	-	✓	-	✓	✓	✓	✓	-	-	✓	-	✓	-	-	-
Hawksbill turtle BIAs	-	✓	-	✓	✓	✓	✓	-	-	✓	-	✓	-	-	-
Loggerhead turtle BIAs	-	✓	-	✓	✓	✓	✓	-	-	✓	-	✓	-	-	-
Fairy tern BIA	-	✓	-	✓	✓	✓	✓	-	✓	-	-	-	-	-	-
Lesser crested tern	-	✓	-	✓	✓	✓	✓	-	✓	-	-	-	-	-	-
Roseate tern BIA	-	✓	-	✓	✓	✓	✓	-	✓	-	-	-	-	-	-
Wedge-tailed shearwater BIA	-	✓	-	✓	✓	✓	✓	-	✓	-	-	-	-	-	-

Key	
✓·	It is highly likely that the initiation criteria would be met for the relevant OMP/SMP
^	It is possible that the initiation criteria may or may not be met for the relevant OMP/SMP
-	Not applicable

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Table C - 4: Initial monitoring priorities

Receptor	*Key sensitivities / values*	*Relevant key periods*	*Baseline Priority*	*DTMI Ranking (Floating oil)*	*DTMI Ranking (Dissolved oil)*	*Initial Monitoring Priority*
Montebello AMP	**Coral and other subsea benthic primary producers** A prominent seafloor feature in the Marine Park is Tryal Rocks consisting of two close coral reefs. The reefs are emergent at low tide.	Coral spawning: Mar & Oct	High	3	4	High
	Turtles Biologically important internesting, foraging, mating, and nesting habitat for turtles.	Nesting green and flatback turtles: Oct to Mar (hawksbill can nest all year)	High	3	3	Medium
	Birds Biologically important breeding habitat for seabirds.	Species dependent	High	3	2	Medium
	Whale shark Biologically important habitat for whale shark (*Rhincodon typus*) (endangered)		High	3	4	High
	Marine mammals Humpback whale (*Megaptera novaeangliae*) (least concern) migration area.	Jun to Oct	High	3	2	Medium
	Socio-economic Pearling (inactive/pearling zones). Very significant for recreational fishing and charter boat tourism (Marine Management Area). Shipwreck (Tryal).	Year-round	High	3	2	Medium
Reefs, shoals and banks	***Coral and other subsea benthic primary producers***	*Coral spawning: Mar & Oct*	*High*	*3*	*4*	*High*
	Marine mammals *Humpback whale migration area.*	*Humpback whale migration: Jun to Oct*	*High*	*3*	*2*	*Medium*

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C.3. Mobilisation and timing of OMP and SMP implementation

Table C - 5 provides a list of OMPs and SMPs relevant to the Petroleum Activity, as well as indicative timeframes for mobilisation of each OMP and SMP for key receptors. In addition, monitor and evaluate activities will capture initial observations of fauna, habitat, and other sensitive receptors. Water samples will be collected during vessel surveillance for OM1: Hydrocarbon Characterisation, when safe to do so. This information will be provided to the IMT to aid early decision making per the process outlined in Section 18.1 of the OSM-BIP.

Table C - 5: Indicative OMP and SMP implementation schedule for OSM activities if initiation criteria are met

Proximity to spill source	Monitoring type	0–48 hours from OSM activation	Within 72 hours of OSM activation	~5–7 days from OSM activation	Weeks 1–2 from OSM activation	Ongoing
Spill site and surrounding waters	OM	• Activation of OMP Team Leads. • Finalise OMPs. • Aerial surveillance – which will also document fauna observations. • Commence activation and mobilisation of OM personnel.	• OM1: Hydrocarbon Characterisation, where resources are available (e.g. Supply Vessel with onboard sampling equipment). • OM2: Hydrocarbons in Water Assessment • OM3: Hydrocarbons in Sediment Assessment • OM5: Rapid Marine Fauna Surveillance • Continue to finalise OMPs. • Continue to activate and mobilise OM personnel.	Continued (as per ongoing arrangements)	Continued (as per ongoing arrangements)	As results from implemented OMPs are available, data are provided to relevant personnel in IMT (e.g. Situation Unit) and used in the Incident Action Planning process for the next operational period. OMP is redesigned or reallocated according to the specifics of the actual spill.
	SM	• Commence activation and mobilisation process. • Activation of SMP Team Leads.	• Continue to activate and mobilise personnel. • Work on finalising SMPs.	• SM1: Water Quality Impact Assessment • SM2: Sediment Quality Impact Assessment • SM6: Benthic Habitat Assessment • SM7: Marine fish and elasmobranch assemblages assessment	Continued	Continue SMP monitoring until termination criteria are met
Sensitive receptors predicted to be contacted within 7 days	OM	• Activation of OMP Team Leads. • Finalise OMPs. • Aerial surveillance – which will also document fauna observations. • Commence activation and mobilisation of OM personnel.	• OM1: Hydrocarbon Characterisation • OM2: Hydrocarbons in Water Assessment • OM3: Hydrocarbons in Sediment Assessment • OM5: Rapid Marine Fauna Surveillance • Continue to finalise OMPs. • Continue to activate and mobilise OM personnel.	Continued (as per on-going arrangements)	Continued (as per on-going arrangements)	As results from implemented OMPs are available, data are provided to relevant personnel in IMT (Situation Unit Lead) and used in the Incident Action Planning process for the next operational period. OMP is redesigned or reallocated according to the specifics of the actual spill until termination criteria are met
	SM	• Activation of SMP Team Leads and finalisation of SMPs.	• Continue to activate and mobilise personnel. • Work on finalising SMPs.	• SM1: Water Quality Impact Assessment • SM2: Sediment Quality Impact Assessment • SM4: Seabirds and Shorebirds • SM5: Marine Mega-fauna Assessment – Reptiles • SM5: Marine Mega-fauna Assessment –Cetaceans, Whale Sharks, Dugong • SM6: Benthic Habitat Assessment • SM7: Marine Fish and Elasmobranch Assemblages assessment • SM8: Fisheries impact assessment • SM9: Heritage Features Assessment • SM10: Social Impact Assessment	Continued	Continue SMP implementation until termination criteria are met.

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C.4. Determine the OSM resourcing requirements and assess capability for the activity

To guide the resourcing requirements assessment for the Petroleum Activity, the spill scenario (see Table 2-1) most likely to require the greatest initial capability was selected for further assessment. Selection was based on stochastic modelling results, focusing on the scenario predicted to contact the greatest number of locations at the low dissolved, floating and shoreline thresholds within 14 days and at the highest contact probabilities. If a receptor is only contacted by low concentrations of entrained hydrocarbons at probability > 10%, and not by any other hydrocarbon phase, it will be considered a lower priority during the initial monitoring response as outlined in Section C.2. The instantaneous surface release of 500 m^3 of marine diesel due to a vessel collision was identified as the worst-case scenario, affecting the most locations within 14 days and determined to require the greatest OSM capability (See Table C - 1).

The first 14 days of the response has been selected as the focus area for the OSM resourcing assessment as it is the period during which resources are likely to be overwhelmed, before additional resources (including appropriately qualified personnel, suitable vessels and additional monitoring equipment) can be scaled in locally and from interstate and international resources. Other factors influencing the selection of the scenario with the highest capability requirements were location of the spill, proximity to receptors, and hydrocarbon properties. The OSM Services Provider Contract includes provision of scale-up resources, which would be considered and mobilised as soon as practicable following the spill.

Monitoring Units

Using the stochastic modelling results, Woodside has grouped the monitoring priorities for the Petroleum Activity into monitoring 'units' (Table C - 6). These units incorporate all of the possible receptors that may be contacted by the Petroleum Activity scenarios shown in Table C - 1. These unit groupings are based on consultation with experienced monitoring personnel and planners, who often group these receptors together for time-bound monitoring projects. The grouping of units is based on factors such as access and distance to ports, SIMOPS of multiple vessels and teams working in a close area, travel time between individual locations/receptors and time taken to collect samples for each SMP.

The monitoring units presented in Table C - 6 also include KEFs, BIAs and transient species. Additional information on the seasonality of the receptors can be found in Appendix B of the OSM-BIP and Table 4-14 of the EP. Each monitoring unit will require 1-2 teams during the initial response (first 14 days). The number of teams allocated to each unit will depend on the extent of the spill, the outcome of the monitoring prioritisation finalised at the time of the spill (Section 13 of the OSM-BIP), the ALARP assessment, and SIMOPs.

It should be noted that not all monitoring units will be contacted by a single spill and that the list below has been generated from stochastic modelling results.

Table C - 6: Monitoring units for Petroleum Activity Operations activities relevant to stochastic modelling results

Monitoring Unit	Receptors within Monitoring Unit
Montebello	• Montebello Islands • Montebello AMP* • Montebello Islands MP* • Tryal Rocks* • Montebello Shoals* • Seabird and shorebird BIAs • Marine turtle BIAs • Humpback whale (migration) BIA • Pygmy blue whale (distribution) BIA
Offshore Environs	• Rankin Bank* • Glomar Shoals* • Ancient Coastline at 125 m depth contour* • Continental Slope Demersal Fish Communities* • Humpback whale (migration) BIA • Pygmy blue whale (distribution) BIA • Whale shark (foraging) BIA • Marine turtle BIAs • Seabird and shorebird BIAs

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Control	• Control sites

**Submerged receptor that has no features above the sea surface.*

Stochastic modelling

OSM resourcing requirements were determined using stochastic modelling. Deterministic modelling was not undertaken, as the existing response capability arrangements (refer to Sections 9 and 10 of the OSM-BIP) provide sufficient capacity to meet or exceed the resourcing requirements for all receptors forecast to be contacted by floating, shoreline and/or dissolved hydrocarbons (at >10% probability) by stochastic modelling within the instantaneous 500 m^3 MDO spill due to vessel collision located approximately 15 km southwest of the western end of the trunkline.

The resources required to commence operational and scientific monitoring components during weeks 1–2 are presented in Table C - 7 and Table C - 8 respectively, which are based on the locations requiring a baseline review in Table C - 2 and the implementation schedule outlined in Table C - 5, and the worst-case stochastic spill results outlined in Table C - 1, including the resources required for monitoring unaffected control sites.

Woodside's OSM capability arrangements are detailed in Sections 9 and 10 of the OSM-BIP. These sections demonstrate that Woodside has established arrangements to mobilise up to 5-6 teams for most OMPs and SMPs in the initial stages of a spill, and provision for scale-up capability, confirming that despite the use of stochastic modelling (which means an overconservative estimate of capability has been used for this activity) the OSM capability requirements for the Petroleum Activity (Table C - 7 and Table C - 8) are satisfied by the existing capability arrangements in the OSM-BIP.

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Table C - 7: Resources required for initially implementing operational monitoring plans for the Petroleum Activity spill scenarios

OMP	Week 1 (total)	Week 2 (total)	Arrangement
OM1: Hydrocarbon characterisation*^	1 team (spill site and surrounds) 1 team Montebello Unit 1 team Offshore Environs Unit **Total 3 teams**	1 team (spill site and surrounds) 1 team Montebello Unit 1 team Offshore Environs Unit **Total 3 teams**	OSRL OSM Supplementary Service Agreement Woodside Contracted Vessel Providers Laboratory arrangements
OM2: Hydrocarbon in water assessment*	Refer to OMP: Hydrocarbon properties and weathering behaviour at sea resourcing* (all sites)		OSRL OSM Supplementary Service Agreement Woodside Contracted Vessel Providers
OM3: Hydrocarbon in sediment assessment*	Refer to OMP: Hydrocarbon properties and weathering behaviour at sea resourcing* (all sites)		OSRL OSM Supplementary Service Agreement Woodside Contracted Vessel Providers
OM5: Rapid marine fauna surveillance	1 team to conduct aerial surveys for spill site, Barrow Unit and Montebello Unit (2 observers per aircraft) 1 team to conduct aerial surveys for Offshore Environs Unit (2 observers per aircraft) **Total 2 teams** Note: Fauna related SMPs are likely to be initiated simultaneously or following aerial assessment with vessel and ground based fauna surveys carried out as part of the relevant fauna SMP.		OSRL OSM Supplementary Service Agreement Woodside Contracted Vessel Providers Aviation contractors
OM7: Air quality modelling (responder health and safety)	1 model	N/A	3rd party modelling provider / OSRO
Total number of teams	**5 teams**	**5 teams**	

 # Specific monitoring units are mentioned for planning and guidance purposes based on a worst-case planning approach. In the event of an actual spill, other locations and/or receptors may be contacted and the ability to access these locations (i.e. with consideration of safety and simultaneous operations (SIMOPS)) would be assessed. This would be identified and managed as part of implementation as per the guidance in Section 13 of the BIP.

** Initial co-mobilisation between OMP: Hydrocarbon properties and weathering behaviour at sea, OMP: Water quality assessment, and OMP: Sediment quality assessment*

^ These resources may not be required if relevant scientific monitoring components' initiation criteria have been triggered.

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Table C - 8: Resources required for initially implementing scientific monitoring plans for the Petroleum Activity spill scenarios

SMP	Week 1 (total)	Week 2 (total)	Arrangement
SM1: Water quality impact assessment *^	1 team (spill site and surrounds) 1 team for Montebello Unit 1 team Offshore Environs Unit **Total 3 teams**	1 team (spill site and surrounds) 1 team for Montebello Unit 1 team Offshore Environs Unit **Total 3 teams**	OSRL OSM Supplementary Service Agreement Woodside Contracted Vessel Providers Laboratory arrangement
SM2: Sediment quality impact assessment *	Refer to SMP: Water quality impact assessment* (all sites)		OSRL OSM Supplementary Service Agreement Woodside Contracted Vessel Providers Laboratory arrangement
SM4: Seabirds and shorebirds^	1 team to conduct initial aerial surveys for Montebello Unit (2 observers per aircraft) 1 team to conduct initial aerial surveys for Offshore Environs Unit (2 observers per aircraft) **Total 2 aerial teams** 1 team to conduct vessel-based surveys for Montebello Unit 1 team Offshore Environs Unit 1 team control site(s) (surveys would include all fauna [birds, reptiles, cetaceans, dugong and whale shark]) **Total 3 vessel-based teams**	1 team to conduct initial aerial surveys for Montebello Unit (2 observers per aircraft) 1 team to conduct initial aerial surveys for Offshore Environs Unit (2 observers per aircraft) **Total 2 aerial teams** 1 team to conduct vessel-based surveys for Montebello Unit 1 team Offshore Environs Unit 1 team control site(s) (surveys would include all fauna [birds, reptiles, cetaceans, dugong and whale shark]) **Total 3 vessel-based teams**	OSRL OSM Supplementary Service Agreement Woodside Contracted Vessel Providers Laboratory arrangement
SM5: Marine mega-fauna assessment – whale shark, dugong and cetaceans^	Aerial surveys refer to SMP: Seabirds and shorebirds Vessel surveys refer to SMP: Seabird and shorebirds	N/A	OSRL OSM Supplementary Service Agreement Woodside Contracted Vessel Providers Laboratory arrangement
SM5: Marine mega-fauna assessment – reptiles^	Aerial surveys refer to SMP: Seabirds and shorebirds	N/A	OSRL OSM Supplementary Service Agreement

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SMP	Week 1 (total)	Week 2 (total)	Arrangement
	Vessel surveys refer to SMP: Seabird and shorebirds Ground based survey refer to SMP: Seabird and shorebirds (including 1 member experienced with ground turtle surveys)		Woodside Contracted Vessel Providers Laboratory arrangement
SM6: Benthic habitat assessment	1 team (spill site and surrounds) 1 team for Montebello Unit 1 team Offshore Environs Unit 1 team control site(s) **Total 4 teams**	1 team (spill site and surrounds) 1 team for Montebello Unit 1 team Offshore Environs Unit 1 team control site(s) **Total 4 teams**	OSRL OSM Supplementary Service Agreement Woodside Contracted Vessel Providers Laboratory arrangement
SM7: Marine fish and elasmobranch assemblages assessment	1 team (spill site and surrounds) 1 team for Montebello Unit 1 team Offshore Environs Unit 1 team control site(s) **Total 4 teams**	1 team (spill site and surrounds) 1 team for Montebello Unit 1 team Offshore Environs Unit 1 team control site(s) **Total 4 teams**	OSRL OSM Supplementary Service Agreement Woodside Contracted Vessel Providers Laboratory arrangement
SM8: Fisheries impact assessment	Total **2 teams** to cover all relevant Commonwealth and State fisheries – initial locations determined in consultation with key stakeholders to reflect current fishing zones/effort		OSRL OSM Supplementary Service Agreement Woodside Contracted Vessel Providers Laboratory arrangement
SM9: Heritage features assessment	**1 team**	**1 team**	OSRL OSM Supplementary Service Agreement Woodside Contracted Vessel Providers Laboratory arrangement
SM10: Social impact assessment	**1 team**	**1 team**	OSRL OSM Supplementary Service Agreement
Total number of teams	**20 teams**	**20 teams**	

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ANNEX D: TACTICAL RESPONSE PLANS

TACTICAL RESPONSE PLANS
Exmouth
Mangrove Bay
Turquoise Bay
Yardie Creek
Muiron Islands
Jurabi to Lighthouse Beaches Exmouth
Ningaloo Reef – Refer to Mangrove/ Turquoise Bay and Yardie Creek
Exmouth Gulf
Shark Bay Area 1: Carnarvon to Wooramel
Shark Bay Area 2: Wooramel to Petite Point
Shark Bay Area 3: Petite Point to Dubaut Point
Shark Bay Area 4: Dubaut Point to Herald Bight
Shark Bay Area 5: Herald Bight to Eagle Bluff
Shark Bay Area 6: Eagle Bluff to Useless Loop
Shark Bay Area 7: Useless Loop to Cape Bellefin
Shark Bay Area 8: Cape Bellefin to Steep Point
Shark Bay Area 9: Western Shores of Edel Land
Shark Bay Area 10: Dirk Hartog Island
Shark Bay Area 11: Bernier and Dorre Islands
Abrolhos Islands: Pelseart Group
Abrolhos Islands: Wallabi Group
Abrolhos 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

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Enderby Island – Dampier
Rosemary Island – Dampier
Legendre Island – Dampier
Karratha Gas Plant
KGP to Withnell Creek
KGP to Northern Shore
KGP Fire Pond & Estuary
KGP to No Name Creek
Broome
Sahul Shelf Submerged Banks and Shoals
Clerke Reef (Rowley Shoals)
Imperieuse Island (Rowley Shoals)
Mermaid Reef (Rowley Shoals)
Scott Reef
Oiled Wildlife Response
Exmouth
Dampier region
Shark Bay

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APPENDIX H OIL POLLUTION FIRST STRIKE PLAN

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Woodside Energy

Pluto 4D Monitor 3 Marine Seismic Survey – Oil Pollution First Strike Plan

Corporate HSE

Hydrocarbon Spill Preparedness

March 2026
Revision 0a

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CONTROL AGENCIES AND INCIDENT CONTROLLERS

Source	Location	Level	Jurisdictional Authority/ Hazard Management Agency	Control Agency	Incident Controller
Spill from facility including subsea infrastructure Note: pipe laying and accommodation vessels are considered a "facility" under Australian regulations	Commonwealth waters	1	NOPSEMA	Woodside	Person In Charge (PIC) with support from Onshore Team Leader (OTL)
		2/3		Woodside	Corporate Incident Management Team Incident Commander (CIMT IC)
	State waters	1/2/3	Western Australian Department of Transport and Major Infrastructure (DTMI)	DTMI	DTMI Incident Controller
	Within port limits	1	DTMI	Port Authority	Port Harbour Master
		2/3		Port Authority/ DTMI	Port Harbour Master/ DTMI Incident Controller
Spill from vessel Note: SOPEP should be implemented in conjunction with this document	Commonwealth waters	1	Australian Marine Safety Authority (AMSA)	AMSA	Vessel Master
		2/3		AMSA	AMSA (with response assistance from Woodside)
	State waters	1/2/3	DTMI	DTMI	DTMI Incident Controller
	Within port limits	1	DTMI	Port Authority	Port Harbour Master
		2/3		Port Authority/ DTMI	Port Harbour Master/ DTMI Incident Controller

SPILLS IN STATE WATERS

In the event of a hydrocarbon spill (hereafter 'spill') where Woodside Burrup Pty. 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 and Major Infrastructure (DTMI).

Initially Woodside will be required to make available an appropriate number of suitably qualified persons to work in the DTMI IMT (APPENDIX F – Woodside Liaison Officer Resources to DTMI). DTMI's role as the Controlling Agency in State waters 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 or to commence the initial response actions to a spill prior to DTMI establishing incident control in line with DTMI *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 DTMI can be seen at APPENDIX E – Woodside Incident Management Structure.

The coordination structure for a concurrent hydrocarbon spill in both Commonwealth and State waters/ shorelines is shown in APPENDIX D – Coordination Structure for a Concurrent Hydrocarbon Spill in Both Commonwealth And State Waters/Shorelines.

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RESPONSE PROCESS OVERVIEW

<table>
<tr><th colspan="3">For guidance on credible scenarios and hydrocarbon characteristics, refer to APPENDIX A</th></tr>
<tr><td>ALL INCIDENTS</td><td colspan="2">Notify the Woodside Communication Centre (WCC) on:
[1]</td></tr>
<tr><td></td><td colspan="2">If further support required, Incident Commander or delegate to implement this Oil Pollution First Strike Plan per relevant actions detailed in Table 1-1 and Table 2-1.</td></tr>
<tr><td rowspan="2">LEVEL 1</td><td>FACILITY INCIDENT</td><td>VESSEL INCIDENT</td></tr>
<tr><td>Coordinate pre-identified tactics in Table 2-1 of this Oil Pollution First Strike Plan.
Remember to download each Operational Plan.</td><td>Notify AMSA and coordinate pre-identified tactics in Table 2-1 of this Oil Pollution First Strike Plan
Remember to download each Operational Plan.</td></tr>
<tr><td rowspan="4">LEVEL 2/3</td><td colspan="2">If the spill escalates such that the site cannot manage the incident, inform the WCC on:
[1] and escalate to a level 2/3 incident.</td></tr>
<tr><td>FACILITY INCIDENT</td><td>VESSEL INCIDENT</td></tr>
<tr><td>Handover control to CIMT and notify DTMI</td><td>Handover control to AMSA and stand up CIMT to assist.</td></tr>
<tr><td>Commence quick revalidation of the recommended strategies in Table 2-1 taking into consideration seasonal sensitivities and current situational awareness.
Commence validated strategies.</td><td>If requested by AMSA:
Commence quick revalidation of the recommended strategies in Table 2-1 taking into consideration seasonal sensitivities and current situational awareness.
Commence validated strategies.</td></tr>
<tr><td>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 full detailed pre-operational Net Environmental Benefit Analysis (NEBA) see the OSPRMA Appendix A</td><td>If requested by AMSA:
Create an IAP for all ongoing operational periods.
The content of the IAP should reflect the selected response strategies based on current situational awareness.
For the full detailed pre-operational NEBA see the OSPRMA Appendix A</td></tr>
</table>

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1. NOTIFICATIONS

The Incident Controller or delegate must ensure the below notifications (Table 1-1) are completed within the designated timeframes.

For spills from a vessel, relevant notifications must be undertaken by a Woodside representative.

Table 1-1: Notifications

In the event of an incident between campaign vessels, also activate relevant vessel Emergency Response Plans and/or Bridging Documents
In the event of an incident impacting live well infrastructure, also activate other relevant Oil Pollution First Strike Plans
Pluto Facility Operations
Julimar Operations

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)	Corporate Incident Management Team Incident Commander (CIMT IC)	[1]	Verbally notify WCC of event and estimated volume and hydrocarbon type. If further support required, implement this Oil Pollution First Strike Plan per relevant actions detailed in Table 1-1 and Table 2-1.	Verbal	
Within 2 hours	Woodside Site Rep (WSR), CIMT IC or Delegate	National Offshore Petroleum Safety Environmental Management Authority (NOPSEMA[1])	Incident notification office	[2]	Verbally notify NOPSEMA for spills >80 litres. Record notification using Initial Verbal Notification Form or equivalent and send to NOPSEMA as soon as practicable (cc to NOPTA and DMPE).	Link	
Within 3 days	WSR, CIMT IC or Delegate				Provide a written NOPSEMA Incident Report Form as soon as practicable (no later than 3 days after notification) (cc to NOPTA and DMPE) NOPSEMA [2] NOPTA [3] DMPE [4]	[2]	
As soon as practicable	CIMT IC or Delegate	Woodside	Environment Unit Leader	As per roster	Verbally notify Environment Unit Leader of event and seek advice on relevant performance standards from EP	Verbal	
Within 2 hours of becoming aware of a marine pollution incident (MOP) that occurs in or may impact state waters	CIMT IC or Delegate	WA Department of Transport and Major Infrastructure	DTMI Maritime Environmental Emergency Response Unit (MEER) Duty Officer	[5]	Verbally notify DTMI MEER Duty Officer that a spill has occurred and, if required, request use of equipment stored in Karratha. Follow up with a written Marine Pollution Report (POLREP) as soon as practicable following verbal notification. Additionally, DTMI to be notified if spill is likely to extend into WA State waters. Request DTMI to provide Liaison to Woodside IMT.	[5]	
Within 24 hours of Woodside reporting the incident to the appropriate authority	CIMT IC or Delegate	Department of Primary Industries and Regional Development (DPIRD)			Notification to DPIRD via email within 24 hours of Woodside reporting the incident to the appropriate authority: [6]	Email	
Within 24 hours of Woodside reporting the incident to the appropriate authority	CIMT IC or Delegate	WA Fishing Industry Council (WAFIC)	Industry Liaison Officer	[7]	Notification to WAFIC via email within 24 hours of Woodside reporting the incident to the appropriate authority: [7]	Email	
As soon as practicable	CIMT IC or Delegate	Department of Climate Change, Energy, the Environment and Water (DCCEEW) Director of National Parks	Marine Park Compliance Duty Officer	[8]	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: • titleholder details • time and location of the incident • proposed response arrangements and locations as per the OPEP • contact details for the response coordinator	Verbal	

[1] Notification to NOPSEMA must be from a Woodside Representative.

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Timing	By	To	Name	Contact	Instruction	Form	Complete? (✓)
NOTIFICATIONS FOR ALL LEVELS OF SPILL							
					• confirmation of access to relevant monitoring and evaluation reports when available.		
As soon as practicable if there is potential for oiled wildlife or the spill is expected to contact land or waters managed by WA Department of Biodiversity, Conservation and Attractions	CIMT IC or Delegate	WA Department of Biodiversity, Conservation and Attractions (DBCA)	Duty Officer	[9]	Phone call notification	Verbal	
As soon as practicable	Public Information	Relevant persons/ organisations	To be determined	To be determined	Should it be identified that additional persons such as, but not limited to, commercial fishers or tourism operators may be affected, Woodside would, at the relevant time, engage with these parties as appropriate and in alignment with the Oil Spill Preparedness and Response Mitigation Assessment (OSPRMA) for Pluto 4D 3 Marine Seismic Survey. Relevant persons/ organisations will be re-assessed throughout the response period.	Verbal initially	
As soon as practicable	Public Information	Relevant cultural authorities	To be determined	To be determined	Should it be identified that relevant cultural authorities may be affected, Woodside would, at the relevant time, engage with these parties as appropriate and in alignment with the OSPRMA for Pluto 4D 3 Marine Seismic Survey. Relevant cultural authorities will be re-assessed throughout the response period.	Verbal initially	
ADDITIONAL NOTIFICATIONS TO BE MADE ONLY IF SPILL IS FROM A VESSEL							
"Without delay" as per *Protection of the Sea (Prevention of Pollution from Ships) Act 1983* (Cth) s 11(1)	Vessel Master	Australian Maritime Safety Authority (AMSA)	Rescue Coordination Centre (RCC)	[10]	Verbally notify AMSA RCC of the hydrocarbon spill. Follow up with a written Harmful Substances Report (POLREP) as soon as practicable following verbal notification.	[10]	
ADDITIONAL LEVEL 2/3 NOTIFICATIONS							
As soon as practicable	CIMT IC or Delegate	AMOSC	AMOSC Duty Manager	[11]	Notify AMOSC that a spill has occurred and follow-up with an email from the **CIMT IC/ CIMT Deputy IC/ CMT Leader** to formally activate AMOSC. Determine what resources are required consistent with the AMOSPlan and detail in a Service Contract that will be sent to Woodside from AMOSC upon activation.	[11]	
As soon as practicable	CIMT IC or Delegate	Oil Spill Response Limited (OSRL)	OSRL Duty Manager	[12]	Notification for all services: Contact OSRL duty manager and request assistance from technical advisor. Send the completed notification form to OSRL as soon as practicable.	[12]	
					Mobilisation of response personnel/ equipment: For mobilisation of response personnel/ resources, send the Mobilisation Form to OSRL as soon as practicable. The mobilisation form must be signed by a nominated callout authority from Woodside i.e. **CIMT IC/ CIMT Deputy IC/ CMT Leader**. OSRL can advise the names on the call out authority list, if required.	[12]	
					Mobilisation of Operational and Scientific Monitoring service: For mobilisation of Operational and Scientific Monitoring (OSM) service, send the OSM Mobilisation Form to OSRL as soon as practicable. The mobilisation form must be signed by a nominated callout authority from Woodside i.e. **CIMT IC/ CIMT Deputy IC/ CMT Leader**. OSRL can advise the names on the call out authority list, if required.	[12]	
As soon as practicable if extra personnel are required for incident support	CIMT IC or Delegate	Marine Spill Response Corporation (MSRC)	MSRC Response Manager	[13]	Activate the contract with MSRC (in full) for the provision of up to 14 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	

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2. RESPONSE TECHNIQUES

Table 2-1: Response techniques

Technique	Spill type MDO	Level	Pre- Identified Tactics	Responsible	ALARP Commitment Summary	Link to Operational Plans for notification numbers and actions
Monitor and evaluate – tracking buoy	**Yes**	**ALL**	Deploy the oil spill tracking buoy within 2 hours in the event of release of hydrocarbons to the marine environment. If no oil spill tracking buoy is available, mobilise unit from the King Bay Supply Facility (KBSF) stockpile.	Operations	**DAY 1:** Tracking buoy deployed within 2 hours.	Surveillance and Reconnaissance to Detect Hydrocarbons and Resources at Risk in Operational Monitoring Operational Plan. Deploy tracking buoy in accordance with Link.
Monitor and evaluate – predictive modelling	**Yes**	**ALL**	Undertake initial modelling using OceansMap and weathering fate analysis using Automated Data Inquiry for Oil Spills (ADIOS) or refer to the hydrocarbon information in Appendix A.	Environment	**DAY 1:** Initial modelling within 6 hours using the OceansMap tool.	Predictive Modelling of Hydrocarbons to Assess Resources at Risk in Operational Monitoring Operational Plan. *Planning Section to download immediately and follow steps*
	Yes	**ALL**	Send Oil Spill Trajectory Modelling (OSTM) form (Appendix B, Form 7) to RPS Response ([14]). Outputs will be uploaded to OceansMap by RPS.	Environment	**DAY 1:** Detailed modelling within 4 hours of RPS Response receiving information from Woodside.	
Monitor and evaluate – aerial surveillance	**Yes**	**ALL**	Aviation Unit Leader to commence aerial observations in daylight hours. Aerial surveillance observer to complete log in APPENDIX B Form 8.	Logistics – Aviation	**DAY 1:** 2 trained aerial observers. 1 aircraft available. Report made available to the IMT within 2 hours of landing after each sortie.	Surveillance and Reconnaissance to Detect Hydrocarbons and Resources at Risk in Operational Monitoring Operational Plan. *Planning Section to download immediately and follow steps*
Monitor and evaluate – satellite tracking	**Yes**	**ALL**	Environment Unit Leader to action satellite imagery services. This may be obtained via: • AMOSC Duty Manager: [11] • OSRL Duty Manager: [12] • KSAT: [15] • Others identified by CIMT	Environment	**DAY 1:** Service provider will confirm availability of an initial acquisition within 2 hours. Data received to be uploaded into Woodside Common Operating Picture.	
Revalidate pre-operational NEBA	**Yes**	**ALL**	Environment Unit Leader to revalidate pre-operational NEBA against current situational awareness from monitor and evaluate techniques.	Environment	**WITHIN 24 HOURS**: Revalidate pre-operational NEBA and incorporate into IAP	Pre-operational NEBAs
Monitor and evaluate – pre-emptive assessment of receptors at risk	**Yes**	**ALL**	Consider the need to mobilise resources to undertake pre-emptive assessment of sensitive receptors at risk.	Planning or Environment	In agreement with WA DTMI, deployment of 2 specialists for each of the Response Protection Areas (RPA) with predicted impacts.	Pre-emptive Assessment of Sensitive Receptors in Operational Monitoring Operational Plan.
Operational monitoring – shoreline assessment	**No**	**N/A**	Modelling does not predict any shoreline contact at response thresholds.			Mobilise OSM service via OSRL: [12] Refer to OSM Bridging Implementation Plan – Part B for additional implementation information: Link Refer to Joint Industry Operational And Scientific Monitoring Plan Framework for activation criteria and additional supporting information.
Operational and Scientific Monitoring	**Yes**	**ALL**	Consider the need to mobilise OSM resources via third party service provider.	Environment	**WITHIN 4 HOURS**: Notify service provider of spill event. **OSM:** OMPs and SMPs will be activated in accordance with the initiation criteria provided in Tables 9-1 and 9-2 of the Joint Industry OSM Framework (APPEA, 2021)	
Surface dispersant	**No**	**N/A**	This response strategy is not recommended for a spill of MDO.			
Containment and recovery	**No**	**N/A**	This response strategy is not recommended for a spill of MDO.			
Mechanical dispersion	**No**	**N/A**	This response strategy is not recommended for a spill of MDO.			
In-situ burning	**No**	**N/A**	This response strategy is not recommended for a spill of MDO.			
Shoreline protection and deflection	**No**	**N/A**	Modelling does not predict any shoreline contact at response thresholds.			
Shoreline clean-up	**No**	**N/A**	Modelling does not predict any shoreline contact at response thresholds.			
Oiled wildlife response	**Yes**	**ALL**	If oiled wildlife is a potential impact, request AMOSC to mobilise containerised oiled wildlife first strike kits and relevant personnel. Refer to relevant Tactical Response Plan for potential wildlife at risk. Mobilise AMOSC Oiled Wildlife Containers. Consider whether additional equipment is required from local suppliers.	Logistics and Planning		Oiled Wildlife Response Operational Plan

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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, the sensitive receptors outlined in **Table 3-1** are identified as priority protection areas, as they have the potential to be contacted by hydrocarbon at or above impact threshold levels within 48 hours of a spill.

Table 3-1: Receptors for Priority Protection with Potential Impact within 48 Hours

Receptor	Distance and Direction from Operational Area (km)	Minimum time to shoreline contact (above 100g/m²) in days	Tactical Response Plans
Open ocean	0 km	Threshold: floating hydrocarbon at >50 g/m² Strategies: Monitor the slick to assess if any shoreline RPAs become at risk of impact. *N.B. No shoreline impact is predicted at response thresholds. Additionally, although this RPA has some surface concentrations at the >50 g/m² threshold, dispersant and containment and recovery are not feasible for a spill of MDO.*	N/A-offshore locations

Hydrocarbon spill modelling results indicate none of the sensitive receptors have the potential to be contacted by shoreline hydrocarbons beyond 48 hours of a spill at response thresholds.

Tactical Response plans for these locations can be accessed via the link here 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 Pluto 4D 3 Marine Seismic Survey Operational Area . The coordinates of the Operational Area are included in Table 3-2:

Table 3-2: Operational Area co-ordinates of the Petroleum Activity

Location Point	Latitude	Longitude
A	19° 33' 04.683" S	114° 56' 03.125" E
B	20° 15' 25.575" S	114° 56' 01.032" E
C	20° 15' 29.330" S	115° 15' 56.152" E
D	20° 04' 49.110" S	115° 24' 59.927" E
E	19° 33' 27.728" S	115° 25' 05.996" E

Consideration should be given to other stakeholders (including mariners) in the vicinity of the spill location. **Table 3-2** indicates the assets within the vicinity of the Pluto 4D 3 Marine Seismic Survey Operational Area.

Table 3-3: Assets in the vicinity of the Pluto 4D 3 Marine Seismic Survey Operational Area

Asset	Distance and Direction from Operational Area (OA)	Operator
Pluto platform	Overlaps OA	Woodside
Pluto pipeline	Overlaps OA	Woodside
Scarborough trunkline	Overlaps OA	Woodside
Wheatstone platform	Overlaps OA	Chevron
Wheatstone trunkline	Overlaps OA	Chevron
Janz-lo pipeline	Overlaps OA	Chevron
John Brookes Platform	~20.9 km south of OA	Santos
Wonnich A platform	~31.6 km south of OA	Santos

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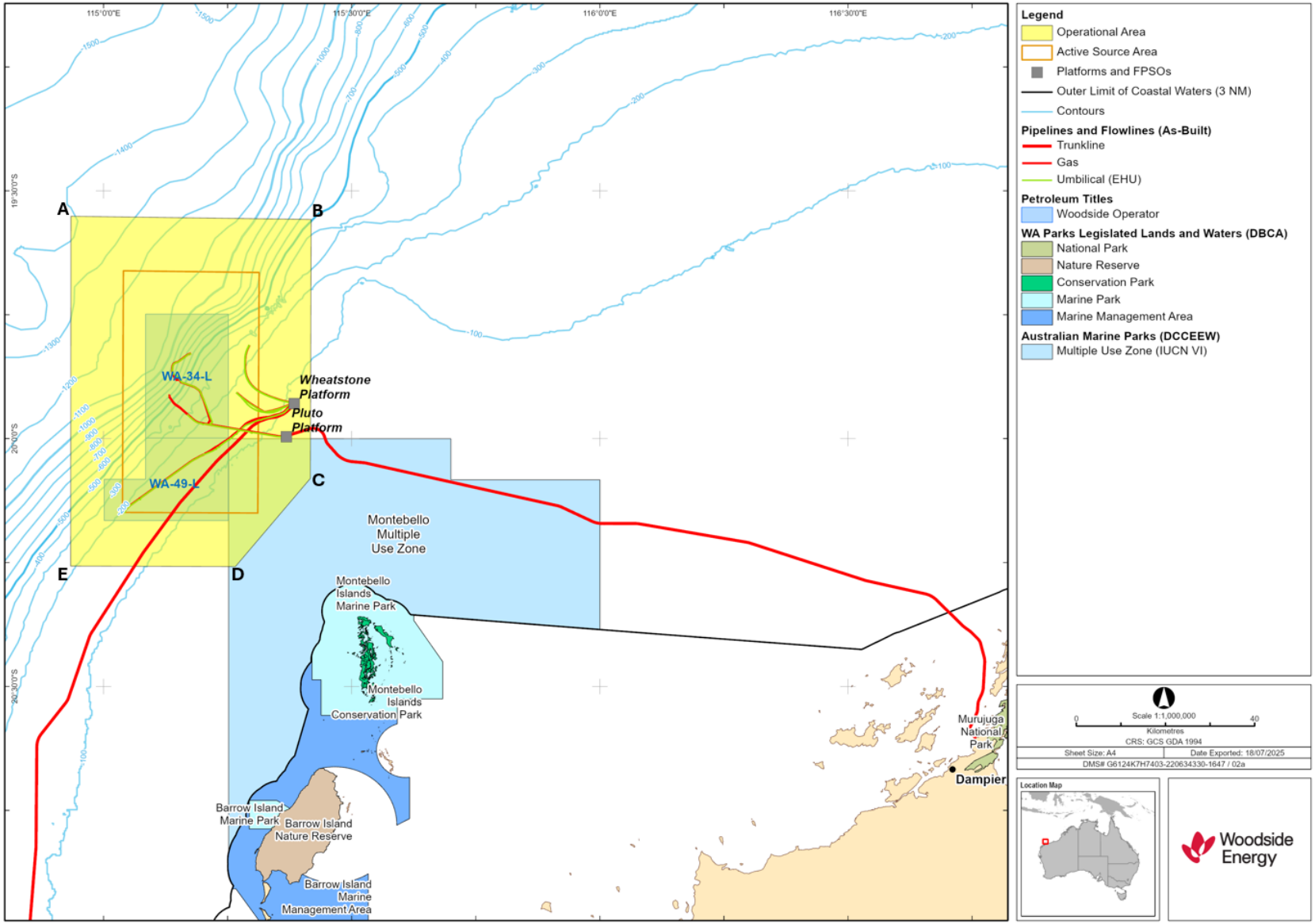


Figure 3-1: Operational area

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4. DISPERSANT APPLICATION

Dispersant is not considered an appropriate response strategy for this activity as described in the Pluto 4D Monitor 3 Marine Seismic Survey Environment Plan Appendix F (Woodside's Oil Spill Preparedness and Response Mitigation Assessment).

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APPENDIX A – CREDIBLE SPILL SCENARIOS AND HYDROCARBON INFORMATION

Table A - 1: Credible spill scenarios and hydrocarbon information

Scenario	Product	Density (g/cm^3)	Volume	Residue	Weathering rate		Suggested ADIOS2 Analogue[2]
CS-02: Instantaneous surface release of MDO due to a vessel collision[3]	MDO	0.829 at 25 °C	350 m^3 [4]	5% (17.55 m^3)	12 hours (BP < 180 °C)	6%	Diesel Fuel Oil – Southern USA 1 (API 37.2°)
					24 hours (180 °C < BP < 265 °C)	34.6%	
					Several days (265 °C < BP < 380 °C)	54.4%	

[2] Initial screening of possible ADIOS2 analogues considered hydrocarbons with similar APIs. Suggested selection is based on the closest distillation cut to the Woodside hydrocarbon. Only hydrocarbons with >380°C distillation cuts were included in selection process.

[3] Labelled as CS-02 to be consistent with the scenario description in the modelling report

[4] Spill modelling of a 500 m^3 instantaneous release of MDO was undertaken by RPS in 2022 (RPS 2022) and was used as a surrogate release location. Release location for the modelled spill site is located approximately 20 km east of the Operational Area and is closer to sensitive receptors e.g. Rankin Bank. The results of the modelling data can be used to demonstrate that a spill of a larger volume and closer to sensitive receptors is a conservative approach and representative of the spill risk. As such, modelling data is considered an appropriate surrogate for the PAP and therefore additional modelling was not required. Modelling data was originally undertaken in 2022 using NOPSEMA's contemporary modelling.

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APPENDIX B – NOTIFICATION FORMS

Table B - 1: Notification forms

No.	Form Name	Link
1	Record of initial verbal notification to NOPSEMA template	Link
2	NOPSEMA Incident Report Form	[2]
3	Harmful Substances Report (POLREP – AMSA)	[10]
4	Marine Pollution Report (POLREP – DTMI)	[6]
5	AMOSC Service Contract	[11]
6	OSRL Initial Notification Form	[12]
7a	OSRL Mobilisation Activation Form	[12]
7b	OSRL Operational and Scientific Monitoring Service Mobilisation Form	[12]
7c	RPS Response Oil Spill Trajectory Modelling Request	[14]
8	Aerial Surveillance Observer Log	Link
9	Tracking buoy deployment instructions	Link

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FORM 1 – RECORD OF INITIAL VERBAL NOTIFICATION TO NOPSEMA

Woodside Energy

NOPSEMA phone: [2]		
Date of call		
Time of call		
Call made by		
Call made to		
Information to be provided to NOPSEMA:		
Date and time of incident/ time caller became aware of incident		
Details of incident	**1. Location**	
	2. Title	
	3. Source	**□ Platform**
		□ Pipeline
		□ FPSO
		□ Exploration drilling
		□ Well
		□ Other (please specify)
	4. Hydrocarbon type	
	5. Estimated volume	
	6. Has the discharge ceased?	
	7. Fire, explosion or collision?	
	8. Environment Plan(s)	
	9. Other Details	
Actions taken to avoid or mitigate environmental impacts		
Corrective actions taken or proposed to stop, control or remedy the incident		
After the initial call is made to NOPSEMA, please send this record as soon as practicable to:		
NOPSEMA	**[2]**	
NOPTA	**[3]**	
DMPE	**[4]**	

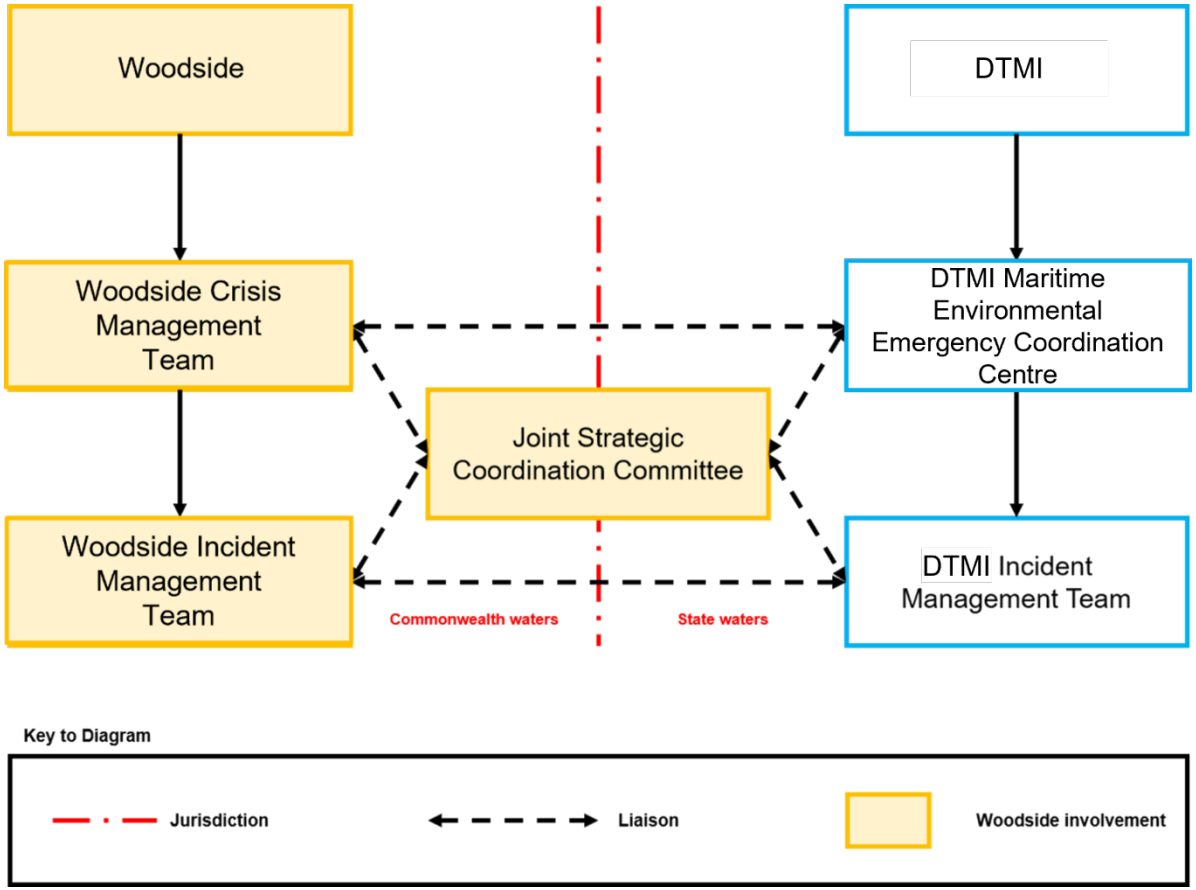
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APPENDIX C – SPILL ASSESSMENT QUESTIONS

What has happened?		
Date/time		
Spill source		
Spill cause		
Safety situation		
What is it?		
Oil type and name		
Oil properties	Specific gravity	
	Viscosity	
	Pour point	
	Asphaltenes	
	Wax content	
	Boiling point	
Where is it?		
Latitude and longitude		
Distance and bearing		
Affected area	☐ Offshore	
	☐ Subsea	
	☐ Shoreline	
	☐ Estuary	
	☐ Port	
	☐ Harbour	
	☐ Inland	
	☐ River	
	☐ Other (please detail):	
Water depth		
How big is it?		
Area		
Release type	☐ Instantaneous	Estimated volume:
	☐ Continuous release	Estimated release rate:
Where it is going?		
Metocean conditions		
Currents and tides		
What is in the way?		
Resources at risk		
Time until resource contact		
What's happening to it?		
Weathering processes		
Response actions underway		

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APPENDIX D – COORDINATION STRUCTURE FOR A CONCURRENT HYDROCARBON SPILL IN BOTH COMMONWEALTH AND STATE WATERS/SHORELINES[5]



The Control Agency for a hydrocarbon spill in Commonwealth waters resulting from an offshore petroleum activity is Woodside (the Petroleum Titleholder).

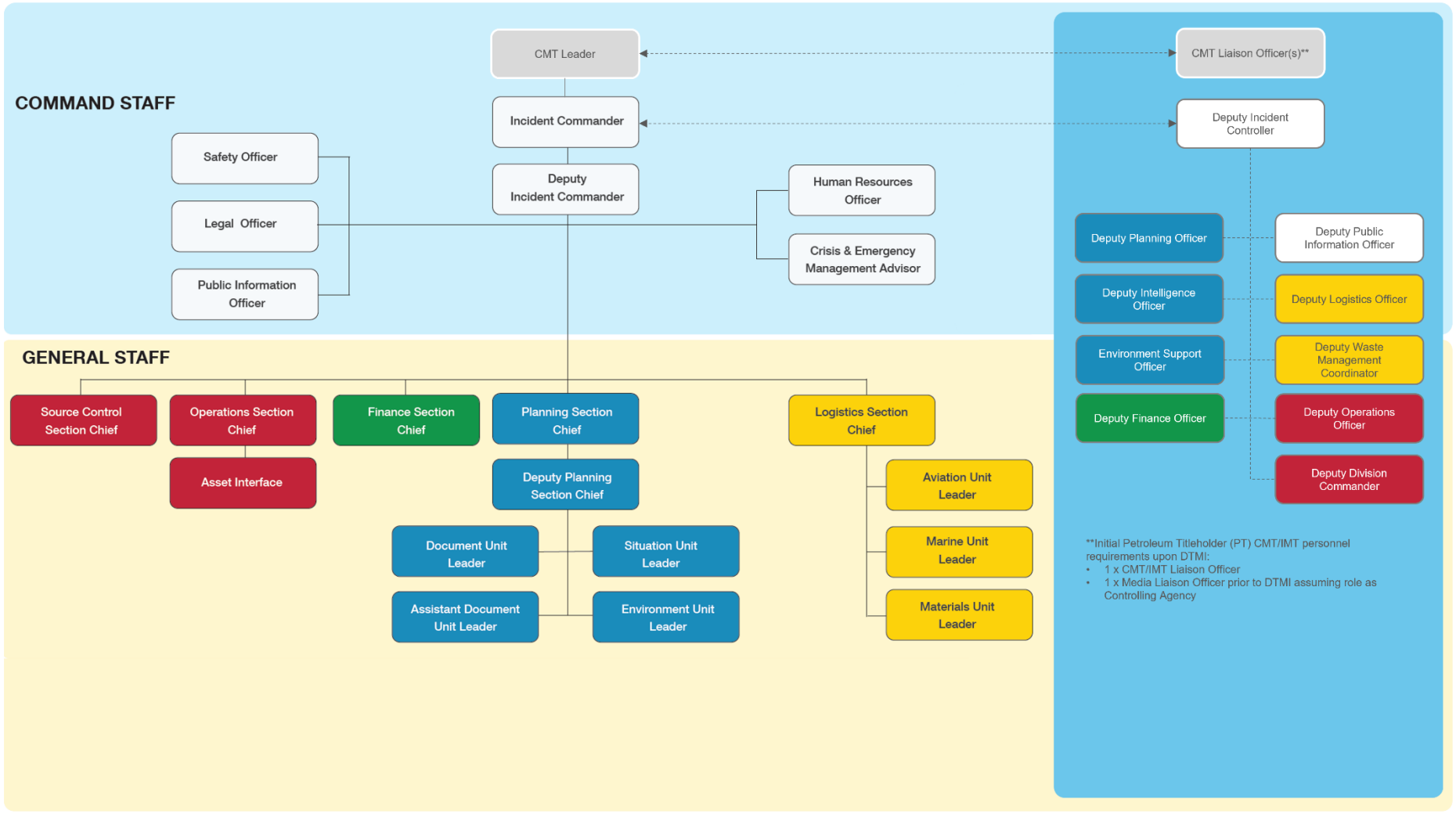
The Control Agency/ Hazard Management Agency (HMA) for a hydrocarbon spill in State waters/shorelines resulting from an offshore petroleum activity is DTMI. DTMI will appoint an Incident Controller and form a separate IMT to only manage the spill within State waters/shorelines.

[5] Adapted from DTMI Offshore Petroleum Industry Guidance Note, Marine Oil Pollution: Response and Consultation Arrangements July 2020. Note: For full structure up to Commonwealth Cabinet/Minister refer to Marine Oil Pollution: Response and Consultation Arrangements Section 6.5, Figure 4.

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APPENDIX E – WOODSIDE INCIDENT MANAGEMENT STRUCTURE

Woodside Incident Management Structure for Hydrocarbon Spill (including Woodside Liaison Officers Command Structure within DTMI IMT if required) is shown below. Woodside's CIMT would operate from the Emergency Operations Centre (EOC) at the Woodside headquarters in Perth.



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APPENDIX F – WOODSIDE LIAISON OFFICER RESOURCES TO DTMI

In the event that DTMI is required to establish an IMT, Woodside will make available an appropriate number of appropriately qualified persons to work within the DTMI IMT.

It is an expectation that Woodside's nominated CMT Liaison Officer and the Deputy Incident Controller attend the DTMI Fremantle Incident Control Centre (ICC) as soon as possible after the formal request has been made by the State Marine Pollution Coordinator (SMPC), and that the remaining initial cohort will attend no later than 8 am on the day following the request being formally made to Woodside by the SMPC. For Woodside personnel designated to serve in DTMI's Forward Operating Base (FOB), it is expected that they arrive at the FOB no later than 24 hours from the formal request being made by the SMPC.

Area	Role	Woodside personnel[6]	Key Duties	#
DTMI Maritime Environmental Emergency Coordination Centre (MEECC)	CMT Liaison Officer	CIMT Liaison	• Provide a direct liaison between the CMT and the MEECC. • Facilitate effective communications and coordination between the CIMT Leader and SMPC. • Offer advice to SMPC on matters pertaining to PT crisis management policies and procedures.	1
DTMI IMT Incident Control	Deputy Incident Controller	Deputy Incident Commander (Deputy IC)	• Provide a direct liaison between the PT IMT and DTMI IMT. • Facilitate effective communications and coordination between the PT IC and the DTMI IC. • Offer advice to the DTMI 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 DTMI IMT.	1
DTMI IMT Intelligence	Deputy Intelligence Officer	Situation Unit Leader (Intelligence)	• As part of the Intelligence Team, assist the Intelligence Officer in the performance of their duties in relation to situation and awareness. • Facilitate the provision of relevant modelling and predications from the PT IMT. • Assist in the interpretation of modelling and predictions originating from the PT IMT. • Facilitate the provision of relevant situation and awareness information originating from the DTMI 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 DTMI IMT to the PT IMT.	1
DTMI IMT Intelligence – Environment	Environment Support Officer	Deputy Environment Unit Leader	• 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.	1

[6] *These positions would be mobilised, in consultation with DTMI, to align to the actual spill scenario. The selected roles and/or individual personnel would be subject to continued evaluation to ensure continued 'best fit'. For CIMT roster arrangements, contact the WCC. During a prolonged response, additional personnel may be sourced through internal resourcing and mutual Aid agreements such as the AMOSC Core Group via [11].*

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Area	Role	Woodside personnel[6]	Key Duties	#
			• 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 DTMI IMT to the PT IMT.	
DTMI IMT Planning-Plans/ Resources	Deputy Planning Officer	Deputy Planning Section Chief	• 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 DTMI 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 DTMI IMT to the PT IMT. **(Note this individual must have intimate knowledge of the relevant PT OPEP and planning processes)**	1
DTMI IMT Public Information-Media/ Community Engagement	Deputy Public Information Officer	Deputy Public Information Officer	• As part of the Public Information Team, provide a direct liaison between the PT Media team and DTMI IMT Media team. • Facilitate effective communications and coordination between the PT and DTMI 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 DTMI Information and Warnings team. • Offer advice to the DTMI Media Coordinator on matters pertaining to PT media policies and procedures. • Facilitate effective communications and coordination between the PT and DTMI Community Liaison teams. • Assist in the conduct of joint community briefings and events. • Offer advice to the DTMI Community Liaison Coordinator on matters pertaining to the PT community liaison policies and procedures. • Facilitate the effective transfer of relevant information obtained from through the Contact Centre to the PT IMT.	1
DTMI IMT Logistics	Deputy Logistic Officer	Deputy Logistics Section Chief	• 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 DTMI to action via PT IMT. **(Note this individual must have intimate knowledge of the relevant PT logistics processes and contracts)**	1

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Area	Role	Woodside personnel[6]	Key Duties	#
DTMI IMT Finance-Accounts/ Financial Monitoring	Deputy Finance Officer	Deputy Finance Section Chief	• 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 DTMI and to be charged back to the PT.	1
DTMI IMT Operations	Deputy Operations Officer	Deputy Operations Section Chief	• 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 DTMI Operations Section. • Offer advice to the DTMI Operations Officer on matters pertaining to PT incident response procedures and requirements. • Identify efficiencies and assist to resolve potential conflicts around resource allocation and simultaneous operations of PT and DTMI response efforts.	1
DTMI IMT Operations – Waste Management	Deputy Waste Management Coordinator	Deputy Waste Coordinator (Materials)	• 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 DTMI to action via PT IMT.	1
DTMI FOB Operations Command	Deputy Division Commander	FOB Deputy Incident Commander	• 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 DTMI FOB. • Facilitate effective communications and coordination between the PT Division Commander and the DTMI Division Commander. • Offer advice to the DTMI Division Commander on matters pertaining to PT incident response policies and procedures. • Assist the Safety Coordinator deployed in the FOB in the performance of their duties, particularly as they relate to PT employees or contractors. • Offer advice to the Safety Coordinator deployed in the FOB on matters pertaining to PT safety policies and procedures.	1
			Total	11

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APPENDIX G – DTMI LIAISON OFFICER RESOURCES TO WOODSIDE

Once DTMI activates a State waters/shorelines IMT, DTMI will make available the following roles to Woodside.

Area	DTMI Liaison Role	Personnel Sourced from:	Key Duties	#
Woodside CIMT	DTMI Liaison Officer (prior to DTMI assuming Controlling Agency)/ Deputy Incident Controller – State waters (after DTMI assumes Controlling Agency)	DTMI	• Facilitate effective communications between DTMI's SMPC/ Incident Controller and the Petroleum Titleholder's appointed CMT Leader / Incident Controller. • Provide enhanced situational awareness to DTMI of the incident and the potential impact on State waters. • Assist in the provision of support from DTMI to the Petroleum Titleholder. • Facilitate the provision technical advice from DTMI to the Petroleum Titleholder Incident Controller as required.	1
Woodside CIMT Public Information – Media	DTMI Media Liaison Officer	DTMI	• Provide a direct liaison between the PT Media team and DTMI IMT Media team. • Facilitate effective communications and coordination between the PT and DTMI 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 DTMI Information & Warnings team. • Offer advice to the PT Media Coordinator on matters pertaining to DTMI and wider Government media policies and procedures.	1
			Total DTMI Personnel Initial Requirement to Woodside	2

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APPENDIX I DEPARTMENT OF PLANNING LAND, HERITAGE AND ABORIGINAL ENQUIRY SYSTEM RESULTS

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Aboriginal Cultural Heritage Inquiry System

List of Aboriginal Cultural Heritage (ACH) Lodged

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Search Criteria

22 Aboriginal Cultural Heritage (ACH) Lodged in Shapefile - Pluto_4DMSS_Cwth_2025_EMBA_v1

Disclaimer

Aboriginal heritage holds significant value to Aboriginal people for their social, spiritual, historical, scientific, or aesthetic importance within Aboriginal traditions, and provides an essential link for Aboriginal people to their past, present and future. In Western Australia Aboriginal heritage is protected under the *Aboriginal Heritage Act 1972*.

All Aboriginal cultural heritage in Western Australia is protected, whether or not the ACH has been reported or exists on the Register.

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Terminology

ID: ACH on the Register is assigned a unique ID by the Department of Planning, Lands and Heritage using the format: ACH-00000001. For ACH on the former Register the ID numbers remain unchanged and use the new format. For example the ACH ID of the place Swan River was previously '3536' and is now 'ACH-00003536'.

Access and Restrictions:

- **Boundary Reliable (Yes/No):** Indicates whether to the best knowledge of the Department, the location and extent of the ACH boundary is considered reliable.
- **Boundary Restricted = No:** Represents the actual location of the ACH as understood by the Department..
- **Boundary Restricted = Yes:** To preserve confidentiality the exact location and extent of the place is not displayed on the map. However, the shaded region (generally with an area of at least 4km²) provides a general indication of where the ACH is located. If you are a landowner and wish to find out more about the exact location of the place, please contact the Department of Planning, Lands and Heritage.
- **Culturally Sensitive = No:** Availability of information that the Department of Planning, Lands and Heritage holds in relation to the ACH is not restricted in any way.
- **Culturally Sensitive = Yes:** Some of the information that the Department of Planning, Lands and Heritage holds in relation to the ACH is restricted if it is considered culturally sensitive information. This information will only be made available if the Department of Planning, Lands and Heritage receives written approval from the people who provided the information. To request access please contact via https://achknowledge.dplh.wa.gov.au/ach-enquiry-form.
- **Culturally Sensitive Nature:**
  - **No Gender / Initiation Restrictions:** *Anyone* can view the information.
  - **Men only:** Only *males* can view restricted information.
  - **Women only:** Only *females* can view restricted information.

Status:

- **Register:** Aboriginal cultural heritage places that are assessed as meeting Section 5 of the *Aboriginal Heritage Act 1972*.
- **Lodged:** Information which has been received in relation to an Aboriginal cultural heritage place, but is yet to be assessed under Section 5 of the *Aboriginal Heritage Act 1972.*
- **Historic:** Aboriginal heritage places assessed as not meeting the criteria of Section 5 of the *Aboriginal Heritage Act 1972*. Includes places that no longer exist as a result of land use activities with existing approvals.

Place Type: The type of Aboriginal cultural heritage place. For example an artefact scatter place or engravings place.
Legacy ID: This is the former unique number that the former Department of Aboriginal Sites assigned to the place.

Coordinates

Map coordinates are based on the GDA 2020 Datum.

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Aboriginal Cultural Heritage Inquiry System

List of Aboriginal Cultural Heritage (ACH) Lodged

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ID	Name	Boundary Restricted	Boundary Reliable	Culturally Sensitive	Culturally Sensitive Nature	Status	Place Type	Knowledge Holders	Legacy ID
884	I-24-S0001/S0002	No	Yes	No	No Gender / Initiation Restrictions	Lodged	Artefacts / Scatter	*Registered Knowledge Holder names available from DPLH	
885	BARROW ISLAND 03	No	Yes	No	No Gender / Initiation Restrictions	Lodged	Artefacts / Scatter	*Registered Knowledge Holder names available from DPLH	
886	C-21-S0001	No	Yes	No	No Gender / Initiation Restrictions	Lodged	Artefacts / Scatter	*Registered Knowledge Holder names available from DPLH	
890	D-20-S0001	No	Yes	No	No Gender / Initiation Restrictions	Lodged	Artefacts / Scatter	*Registered Knowledge Holder names available from DPLH	
891	Bandicoot Bay Settlement	No	Yes	No	No Gender / Initiation Restrictions	Lodged	Artefacts / Scatter	*Registered Knowledge Holder names available from DPLH	
892	BARROW ISLAND 10	No	Yes	No	No Gender / Initiation Restrictions	Lodged	Artefacts / Scatter	*Registered Knowledge Holder names available from DPLH	
893	D-20-S0002	No	Yes	No	No Gender / Initiation Restrictions	Lodged	Artefacts / Scatter	*Registered Knowledge Holder names available from DPLH	
894	D-16-S0001	No	Yes	No	No Gender / Initiation Restrictions	Lodged	Artefacts / Scatter	*Registered Knowledge Holder names available from DPLH	
22943	Flacourt Bay 01	No	Yes	No	No Gender / Initiation Restrictions	Lodged	Rock Shelter	*Registered Knowledge Holder names available from DPLH	
31762	Site 1	No	Yes	No	No Gender / Initiation Restrictions	Lodged	Artefacts / Scatter	*Registered Knowledge Holder names available from DPLH	
31763	Site 2	No	Yes	No	No Gender / Initiation Restrictions	Lodged	Artefacts / Scatter	*Registered Knowledge Holder names available from DPLH	
36199	Boodie Cave	No	Yes	No		Lodged	Historical; Other	*Registered Knowledge Holder names available from DPLH	
36234	South End structures, Barrow Island.	No	No	No		Lodged	Historical; Other	*Registered Knowledge Holder names available from DPLH	
36261	G-13-S0001	No	Yes	No		Lodged	Historical; Other	*Registered Knowledge Holder names available from DPLH	
36262	H-24-S0001	No	Yes	No		Lodged	Historical; Other	*Registered Knowledge Holder names available from DPLH	
36263	H-24-S0002	No	Yes	No		Lodged	Historical; Other	*Registered Knowledge Holder names available from DPLH	
36264	I-23-S0001	No	Yes	No		Lodged	Historical; Other	*Registered Knowledge Holder names available from DPLH	

Aboriginal Cultural Heritage Inquiry System

List of Aboriginal Cultural Heritage (ACH) Lodged

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ID	Name	Boundary Restricted	Boundary Reliable	Culturally Sensitive	Culturally Sensitive Nature	Status	Place Type	Knowledge Holders	Legacy ID
36265	I-23-S0002	No	Yes	No		Lodged	Historical; Other	*Registered Knowledge Holder names available from DPLH	
36266	I-24-S0003	No	Yes	No		Lodged	Historical; Other	*Registered Knowledge Holder names available from DPLH	
36267	J-23-S0001	No	Yes	No		Lodged	Grinding areas / Grooves	*Registered Knowledge Holder names available from DPLH	
36268	J-23-S0002	No	Yes	No		Lodged	Historical; Other	*Registered Knowledge Holder names available from DPLH	
36269	J-23-S0003	No	Yes	No		Lodged	Modified Tree	*Registered Knowledge Holder names available from DPLH	

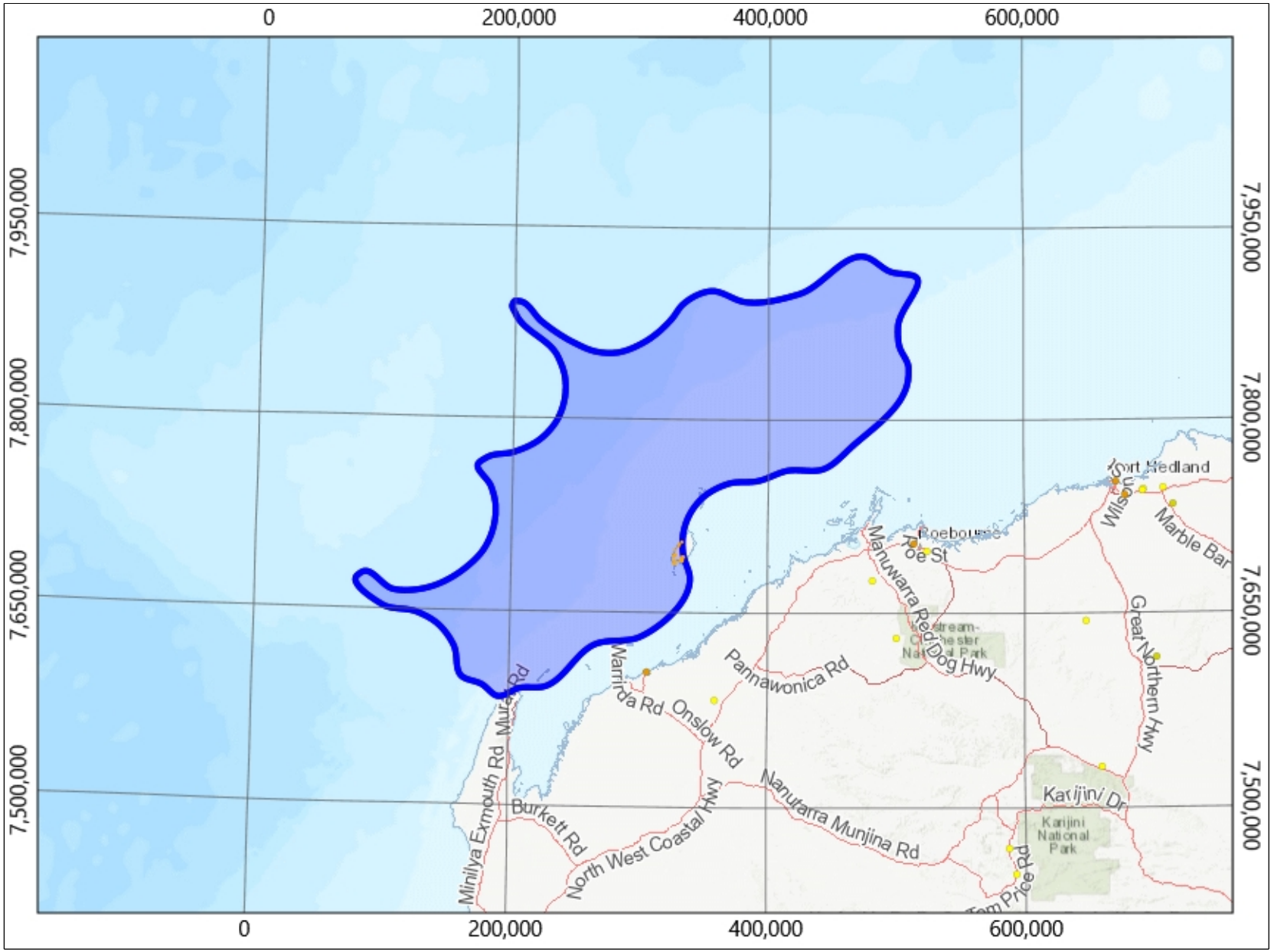
Department of **Planning, Lands and Heritage**

GOVERNMENT OF WESTERN AUSTRALIA

Aboriginal Cultural Heritage Inquiry System

Map of Aboriginal Cultural Heritage (ACH) Lodged

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Legend

- Aboriginal Cultural Heritage (ACH) Lodged
- Search Area
- Aboriginal Community
  - *Permanent*
  - *Seasonal*
  - *Town Based*
- Town
- Road
- River
- Local Government Authority

159.10 kilometres

Map Scale 1 : 4,820,000

MGA Zone 50 (GDA2020)

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Aboriginal Cultural Heritage Inquiry System

List of Aboriginal Cultural Heritage (ACH) Register

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Search Criteria

2 Aboriginal Cultural Heritage (ACH) Register in Shapefile - Pluto_4DMSS_Cwth_2025_EMBA_v1. Warning: Search area complex so results may be inaccurate. Contact DPLH for assistance.

Disclaimer

Aboriginal heritage holds significant value to Aboriginal people for their social, spiritual, historical, scientific, or aesthetic importance within Aboriginal traditions, and provides an essential link for Aboriginal people to their past, present and future. In Western Australia Aboriginal heritage is protected under the *Aboriginal Heritage Act 1972*.

All Aboriginal cultural heritage in Western Australia is protected, whether or not the ACH has been reported or exists on the Register.

The information provided is made available in good faith and is predominately based on the information provided to the Department of Planning, Lands and Heritage by third parties. The information is provided solely on the basis that readers will be responsible for making their own assessment as to the accuracy of the information. If you find any errors or omissions in our records, including our maps, it would be appreciated if you provide the details to the Department via https://achknowledge.dplh.wa.gov.au/ach-enquiry-form and we will make every effort to rectify it as soon as possible.

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Terminology

ID: ACH on the Register is assigned a unique ID by the Department of Planning, Lands and Heritage using the format: ACH-00000001. For ACH on the former Register the ID numbers remain unchanged and use the new format. For example the ACH ID of the place Swan River was previously '3536' and is now 'ACH-00003536'.

Access and Restrictions:

- **Boundary Reliable (Yes/No):** Indicates whether to the best knowledge of the Department, the location and extent of the ACH boundary is considered reliable.
- **Boundary Restricted = No:** Represents the actual location of the ACH as understood by the Department..
- **Boundary Restricted = Yes:** To preserve confidentiality the exact location and extent of the place is not displayed on the map. However, the shaded region (generally with an area of at least 4km²) provides a general indication of where the ACH is located. If you are a landowner and wish to find out more about the exact location of the place, please contact the Department of Planning, Lands and Heritage.
- **Culturally Sensitive = No:** Availability of information that the Department of Planning, Lands and Heritage holds in relation to the ACH is not restricted in any way.
- **Culturally Sensitive = Yes:** Some of the information that the Department of Planning, Lands and Heritage holds in relation to the ACH is restricted if it is considered culturally sensitive information. This information will only be made available if the Department of Planning, Lands and Heritage receives written approval from the people who provided the information. To request access please contact via https://achknowledge.dplh.wa.gov.au/ach-enquiry-form.
- **Culturally Sensitive Nature:**
  - **No Gender / Initiation Restrictions:** *Anyone* can view the information.
  - **Men only:** Only *males* can view restricted information.
  - **Women only:** Only *females* can view restricted information.

Status:

- **Register:** Aboriginal cultural heritage places that are assessed as meeting Section 5 of the *Aboriginal Heritage Act 1972*.
- **Lodged:** Information which has been received in relation to an Aboriginal cultural heritage place, but is yet to be assessed under Section 5 of the *Aboriginal Heritage Act 1972.*
- **Historic:** Aboriginal heritage places assessed as not meeting the criteria of Section 5 of the *Aboriginal Heritage Act 1972*. Includes places that no longer exist as a result of land use activities with existing approvals.

Place Type: The type of Aboriginal cultural heritage place. For example an artefact scatter place or engravings place.

Legacy ID: This is the former unique number that the former Department of Aboriginal Sites assigned to the place.

Coordinates

Map coordinates are based on the GDA 2020 Datum.

Basemap Copyright

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Satellite, Hybrid, Road basemap sources: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, HERE, DeLorme, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), MapmyIndia, NGCC, © OpenStreetMap contributors, and the GIS User Community.

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Aboriginal Cultural Heritage Inquiry System

List of Aboriginal Cultural Heritage (ACH) Register

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ID	Name	Boundary Restricted	Boundary Reliable	Culturally Sensitive	Culturally Sensitive Nature	Status	Place Type	Knowledge Holders	Legacy ID
873	MONTEBELLO IS: NOALA CAVE.	No	Yes	No	No Gender / Initiation Restrictions	Register	Artefacts / Scatter; Midden; Rock Shelter	*Registered Knowledge Holder names available from DPLH	P07287
926	MONTEBELLO IS: HAYNES CAVE.	No	Yes	No	No Gender / Initiation Restrictions	Register	Sub surface cultural material; Artefacts / Scatter; Midden; Rock Shelter	*Registered Knowledge Holder names available from DPLH	P07286

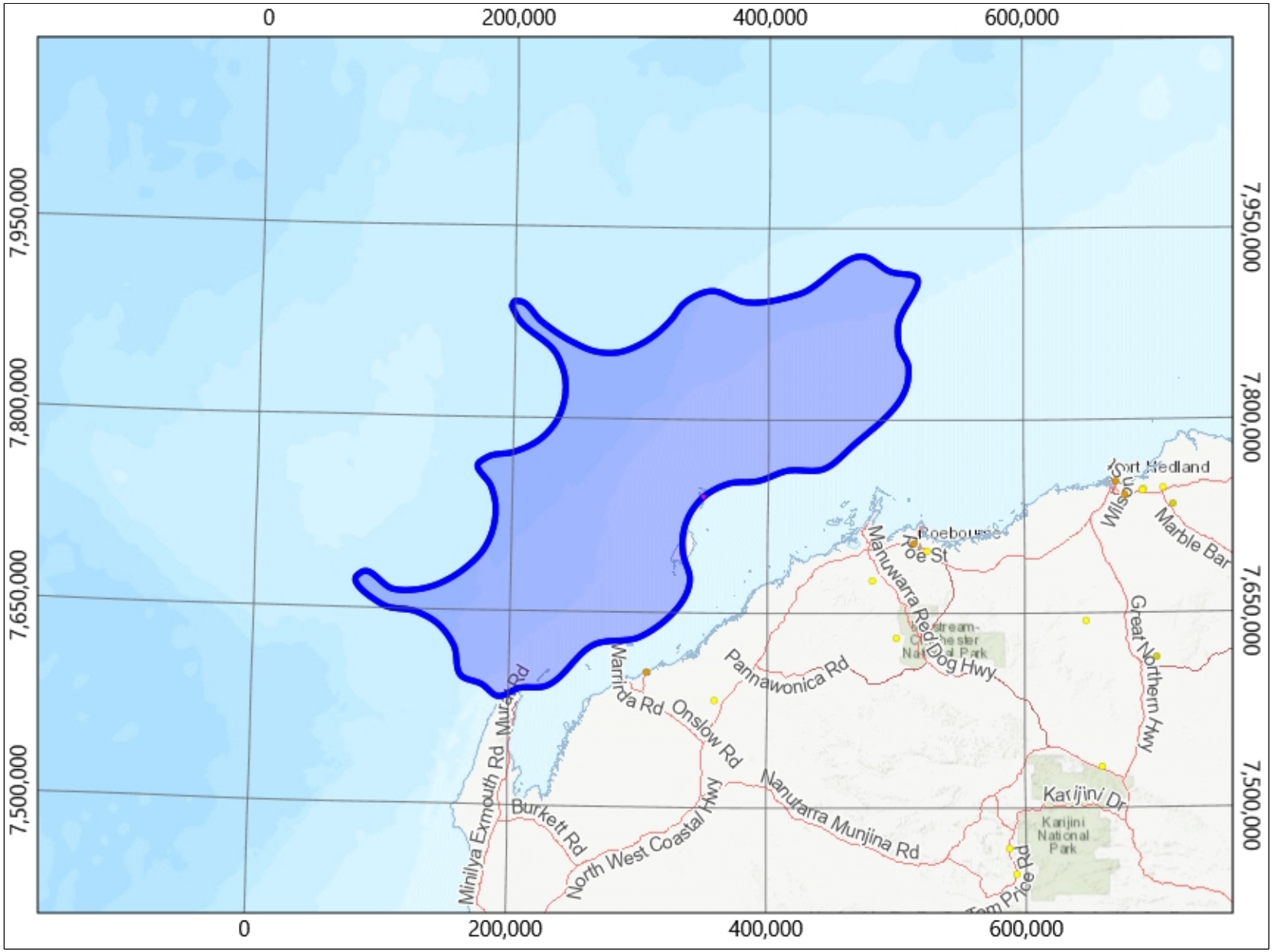
Department of **Planning, Lands and Heritage**

GOVERNMENT OF WESTERN AUSTRALIA

Aboriginal Cultural Heritage Inquiry System

Map of Aboriginal Cultural Heritage (ACH) Register

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159.10 kilometres

Map Scale 1 : 4,820,000

MGA Zone 50 (GDA2020)

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APPENDIX J CO-EXISTENCE APPROACH WITH COMMERCIAL FISHERS IN AUSTRALIA

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Woodside Energy

January 2026

Co-existence Approach with Commercial Fisheries in Australia

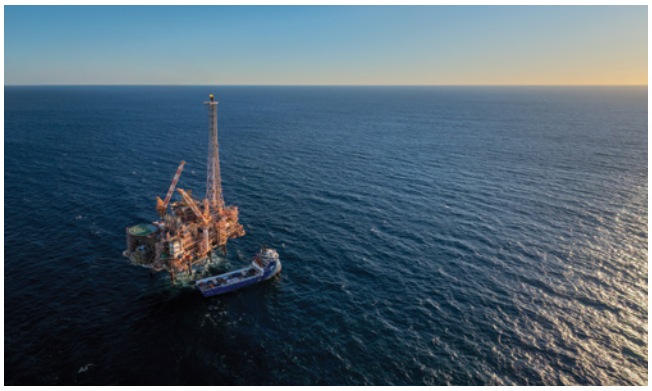
Woodside consults with commercial fishers (commercial fishing licence holders), relevant authorities and fishing industry associations (commercial fisheries stakeholders) to inform the development and review of Commonwealth and State Environment Plans[1] and other regulatory approvals.

Where a commercial fishing licence holder or commercial fisheries stakeholder in Australia anticipates potential impacts from a proposed activity, and informs Woodside through regulatory consultation processes, Woodside will seek to:

- Provide sufficient activity-specific information,
- Discuss objections or claims raised about the adverse impact of the activity, and
- Work to avoid or minimise potential impacts.

A commercial fishing licence holder or commercial fisheries stakeholder in Australia who considers their functions, interests or activities may be affected by the proposed activity is encouraged to contact Woodside as part of the relevant regulatory consultation process.

Woodside's co-existence approach with Commercial Fisheries in Australia (this document), is aligned to Woodside's community grievance framework which provides for the prompt and respectful receipt, investigation of and response to complaints from community members affected by our activities.



[1] Environment Plans must comply with applicable legislation which may include:
Offshore Petroleum and Greenhouse Gas Storage Act 2006 (Commonwealth)
Petroleum (Submerged Lands) Act 1982 (Western Australia)
Petroleum (Submerged Lands) Act 1982 (Victoria)

Australian Commercial Fisheries Claims Process

Further and separate to Woodside's consultation as outlined above, Woodside will consider evidence-based claims submitted by commercial fishing licence holders that arise as a result of carrying on the activity under the relevant Environment Plan where:

- there is genuine displacement from undertaking normal fishing activities that results in economic loss.
- fishing equipment has been lost or damaged.
- there is a loss of catch that can be demonstrated.

As part of Woodside's consultation process, commercial fishing licence holders and/or commercial fisheries stakeholders are requested to review the proposed activity information provided in the course of Woodside's consultation process for the Environment Plan and raise any potential claims or objections to Woodside within the specified consultation period for the Environment Plan.

In addition to the purpose this serves for Woodside's consultation process, this also assists Woodside in its visibility of potential impacts which may lead to claims for compensation from commercial fishing licence holders and identify steps Woodside might take to reasonably mitigate those impacts.

Please note that if the commercial fishing licence holder or a commercial fisheries stakeholder is consulted and does not raise any potential claims or objections during the specified consultation period, this may affect their ability to receive compensation in accordance with Woodside's community grievance framework for claims lodged with Woodside at a later stage.

Displacement

Where a commercial fishing licence holder intends to relocate to another fishing area to avoid the Woodside-operated activity and potentially make a claim as a result of the planned activity being carried out under the relevant Environment Plan, the licence holder is required to notify Woodside prior to relocating and state the reason that the activity has caused them to relocate.

A commercial fishing licence holder wishing to make a claim for compensation will be required to provide Woodside with:

- Evidence of costs of bait, fuel, wages and any other costs that are additional to the costs that it would have incurred when fishing in the licence holder's demonstrated previous footprint within the Operational Area.
- Previous 5 years evidence of fishing effort, catch, and/or Vessel Management System (VMS) data to demonstrate that the licence holder's vessel/s have recently and consistently fished within the activity's Operational Area at the same time of year, for at least 3 of those 5 years.

Lost or damaged equipment

Woodside will assess evidence-based claims by commercial fishing licence holders for equipment that was lost or damaged within the Operational Area that occurred as a direct result of Woodside activity.

Woodside should be notified and provided with evidence as soon as possible but within 14 days of the loss or damage by the commercial fishing licence holder.

Loss of Catch

Where a commercial fishing licence holder claims to have suffered an economic loss from a reduction in catch that believes to have occurred as a direct result of that activity, evidence-based claims will be considered by Woodside, if notification of intent to claim is submitted within 60 days of the completion of the activity and claims are submitted within 90 days of completion of the activity.

General Claim Requirements

Claims must relate to Woodside-operated activities within the approved Operational Area and be limited to Australian based commercial fishery licence holders.

Any claims, including supporting evidence, should be submitted within 90 days of Woodside completing the activity. All information provided will be treated in accordance with the Woodside Privacy Statement.

The claim process should be completed in a timely manner. Figure 1 outlines the key steps and timing commitments.

Once a claim has been submitted, Woodside will acknowledge receipt of the claim and confirm the Woodside contact person for the claim. Woodside may seek a meeting with the commercial fishing licence holder to clarify any information or request further details.

Woodside will assess the merits of the claim and communicate the outcome within 30 days. If the compensation claim is accepted, Woodside will provide compensation to the commercial fishing licence holder once the complainant accepts the proposed resolution and a settlement agreement has been signed.

If there is disagreement regarding the required evidence, loss of catch determination or compensation, Woodside will, in consultation with the commercial fishing licence holder, engage an independent relevant arbitrator to review and finalise the claim.

Contacting Woodside:

Phone: 1800 442 977
Email: feedback@woodside.com

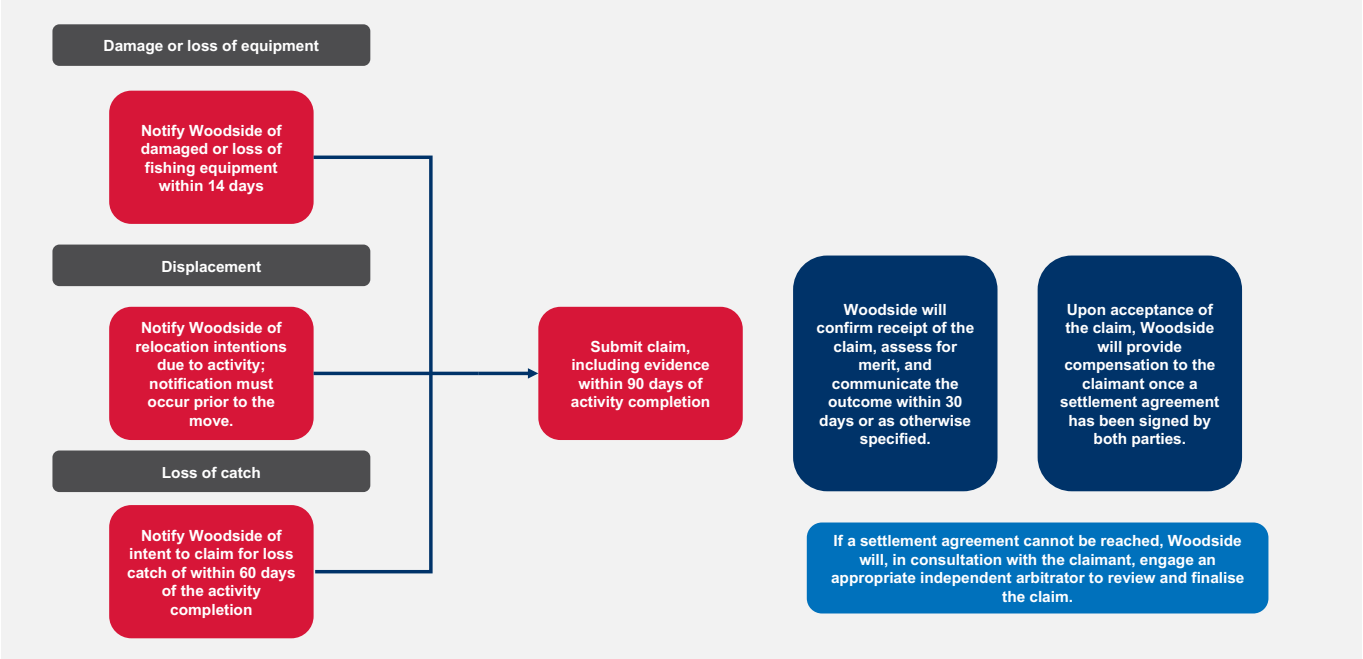


Figure 1 Australian Commercial Fisheries Claims Process