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PETREL SURVEY ENVIRONMENTAL PLAN

PR-OP	1	22/07/2026	Issued for submission	Xodus	DST	SWA, CGO, DLI		
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ACRONYMS AND DEFINITIONS

Nomenclature	Definition
~	Approximately
AAE	Australian Air Equipment
ACHIS	Aboriginal Cultural Heritage Inquiry System
AHO	Australasian Hydrographic Office
AIMS	Australian Institute of Marine Science
ALARP	As low as reasonably practicable
AMOSC	Australian Marine Oil Spill Centre
AMP	Australian Marine Park
AMSA	Australian Maritime Safety Authority
ANZECC	Australian and New Zealand Environmental Conservation Council
API	American Petroleum Institute
APPEA	Australian Petroleum Production and Exploration Association
ARC	AMSA Rescue Centre
AQIS	Australian Quarantine Inspection Service
BAC	Balanggarra Aboriginal Corporation
BIA	Biologically Important Area
BTEX	<i>Benzene, toluene, ethylbenzene, and xylenes</i>
CCS	<i>Carbon Capture and Storage</i>
CM	Control Measure
CSIRO	Commonwealth Scientific and Industrial Research Organisation
Cth	Commonwealth
DAFF	Department of Agriculture, Fisheries and Forestry
DBCA	Department of Biodiversity, Conservation and Attractions
DCCEEW	Department of Climate Change, Energy, the Environment and Water
DEE	Department of Environment and Energy
DEMIRS	Department of Energy, Mines, Industry Regulation and Safety
DEWHA	Department of Environment, Water, Heritage and the Arts
DITT	Department of Industry, Tourism and Trade
DNP	Director of National Parks
DO	Dissolved Oxygen
DoE	Department of the Environment
DoT	Department of Transport (WA)
DP	Dynamic Positioning
DPIRD	Department of Primary Industries and Regional Development
DSEWPac	Department of Sustainability, Environment, Water, Population and Communities (Cth)
DSS	Dual System Sonar
DVL	Doppler Velocity Log
E&P	Exploration and Production
EMBA	Environment that May Be Affected
EPBC	Environment Protection and Biodiversity Conservation Act 1999
EPO	Environmental Performance Outcome

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EPS	Environmental Performance Standards
ESD	Ecologically Sustainable Development
GEP	Gas export pipeline
GHG	Greenhouse Gas
GVI	General video inspections
HF	High Frequency
HSE	Health, Safety and Environment
IMCRA	Integrated Marine and Coastal Regionalisation of Australia
IMDG	International Maritime Dangerous Goods
IMO	International Maritime Organisation
IMS	Invasive Marine Species
IMT	Incident Management Team
IOGP	International Association of Oil and Gas Producers
IPA	Indigenous Protected Areas
ISO	International Organisation for Standardisation
ITOPF	International Tank Owners Pollution Federation
IUCN	International Union for Conservation of Nature
JASCO	Jasco Applied Sciences
JBG	Joseph Bonaparte Gulf
KEF	Key Ecological Features
LDC	Larrakia Development Corporation
LF	Low Frequency
LN	Larrakia Nation
LOR	Limit of reporting
LOWC	Loss of Well Control
MARPOL	International Convention for the Prevention of Pollution from Ships
MBES	Multi-Beam Echo Sounder
MC	Measurement Criteria
MDO	Marine Diesel Oil
MFO	Marine Fauna Observer
MG	Miriuwung and Gajerrong
MGO	Marine Gas Oil
MNES	Matters of National Environmental Significance
MO	Marine Orders
MOC	Management of Change
MRU	Marine Response Unit
MSL	Mean Sea Level
NAILSMA	North Australian Land and Sea Management Alliance
NEBA	Net Environmental Benefit Analysis
NIAA	National Indigenous Australians Agency
NLC	Northern Land Council
NGOs	Non-government organisations
NM	Nautical Mile
NMFS	National Marine Fisheries Service
NGOs	Non-government organisations

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NOAA	National Oceanic and Atmospheric Administration
NOPTA	National Offshore Petroleum Titles Authority
NORMs	Naturally occurring radioactive materials
NT	Northern Territory
NTSC	Northern Territory Seafood Council
NWSA	Northern Wildcatch Seafood Australia
OIW	Oil In Water
OPEP	Oil Pollution Emergency Plan
OPGGS	Offshore Petroleum and Greenhouse Gas Storage (Act)
OPGGS(E) Regulations	Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations
OSMP	Operational and Scientific Monitoring Plan
OSPAR	Oil Spill Prevention, Administration and Response Fund
OWR	Oiled Wildlife Response
PAH	Polyaromatic hydrocarbons
PBCs	Prescribed Bodies Corporate
P&A	Plug and Abandonment
PGB	Permanent Guide Base
PK	Peak Sound Level
PMS	Planned Maintenance System
PMST	EPBC Act Protected Matters Search Tool
PNEC	Predicted no effect concentration
POB	Persons on Board
PTS	Permanent Threshold Shift
RAMSAR	Convention on Wetlands of International Importance especially as Waterfowl Habitat
RKB	Rotary kelly bushing
RNTBC	Registered Native Title Body Corporate
ROV	Remotely Operated Vehicle
SBES	Single beam echo sounders
SBP	Sub Bottom Profiler
SDS	Safety Data Sheet
SEL	Sound Exposure Level
SIMAP	Spill Impact Mapping Analysis Program
SOLAS	Safety of Life At Sea
SOPEP	Shipboard Oil Pollution Emergency Plan
SPL	Sound Pressure Level
SSS	Side Scan Sonar
STP	Sewage treatment plant
SV	Sound Velocity
SVP	Sound Velocity Profiler
TEC	Threatened ecological communities
TDC	Thamarrurr Development Corporation Ltd
TGB	Temporary Guide Base
TKN	Total Kjeldahl Nitrogen
TLC	Tiwi Land Council

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TOC	Total organic carbon
TP	Total phosphorous
TPH	Total Petroleum Hydrocarbons
TTS	Temporary Threshold Shift
UK	United Kingdom
UMEC	Uunguu Monitoring and Evaluation Committee
USBL	Ultra-short Baseline
VHF	Very High Frequency
VHR	Very High Resolution
WA	Western Australia

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1 INTRODUCTION

1.1 Activity Overview

Eni Energy Bonaparte Pty Ltd (Eni) is the operator of the Petrel gas field in the Bonaparte Basin in northern Western Australia. The Petrel field is located within retention leases NT/RL1 and WA-6-R, in water depths between 89m and 107m.

This Environment Plan (EP) has been prepared to allow for survey activities to acquire geotechnical, geophysical and environmental data for the purpose of potential future exploration and development of the Petrel field. The future development of the Petrel field may include subsea infrastructure and facilities, and potentially a gas export pipeline (GEP) that will connect the platform with Eni's existing Blacktip Project.

The area to be surveyed covers the 2 retention leases and the proposed GEP route (herein termed the GEP route) (Figure 1-2).

This EP has been prepared to meet the requirements of the *Offshore Petroleum and Greenhouse Gas Storage Act 2006* (OPGGGS Act) for a petroleum activity involving the

The defined petroleum activity for the Petrel Survey EP will be limited to:

- Geophysical surveys;
- Geotechnical surveys;
- Environmental surveys; and
- Associated support operations.

The Petrel field has undergone extensive exploration and appraisal phases – starting in 1969 with the discovery well Petrel-1. Appraisal drilling has been ongoing from the 1980's through to the last well drilled in 2010 (Petrel-7).

At present the field is considered to be in the pre-development phase (Figure 1-1).



Figure 1-1: Phases of Field Development

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1.2 Environment Plan Summary

This EP has been structured in accordance with the Offshore Petroleum and Greenhouse Gas (Environment) Regulations 2023 Regulations 35(6) and 35(7). A Summary of the EP is as outlined in Table 1-1.

Table 1-1: Environment Plan process phases, applicable OPGGS (E) Regulations and relevant sections of this Environment Plan

EP Summary material requirement	Relevant section of this EP containing EP Summary material
The location of the activity	Section 3.1.1
A description of the receiving environment	Section 4
A description of the activity	Section 3
Details of the environmental impacts and risks	Section 7 and 8
The control measures for the activity	Section 9.1
The arrangements for ongoing monitoring of the titleholder's environmental performance	Section 10
Response arrangements in the Oil Pollution Emergency Plan (OPEP)	Section 10.13, OPEP (ENI-HSE-PL-0002_01)
Consultation already undertaken and plans for ongoing consultation	Section 5, APPENDIX C
Details of the titleholder's nominated liaison person for the activity	Section 1.5.1

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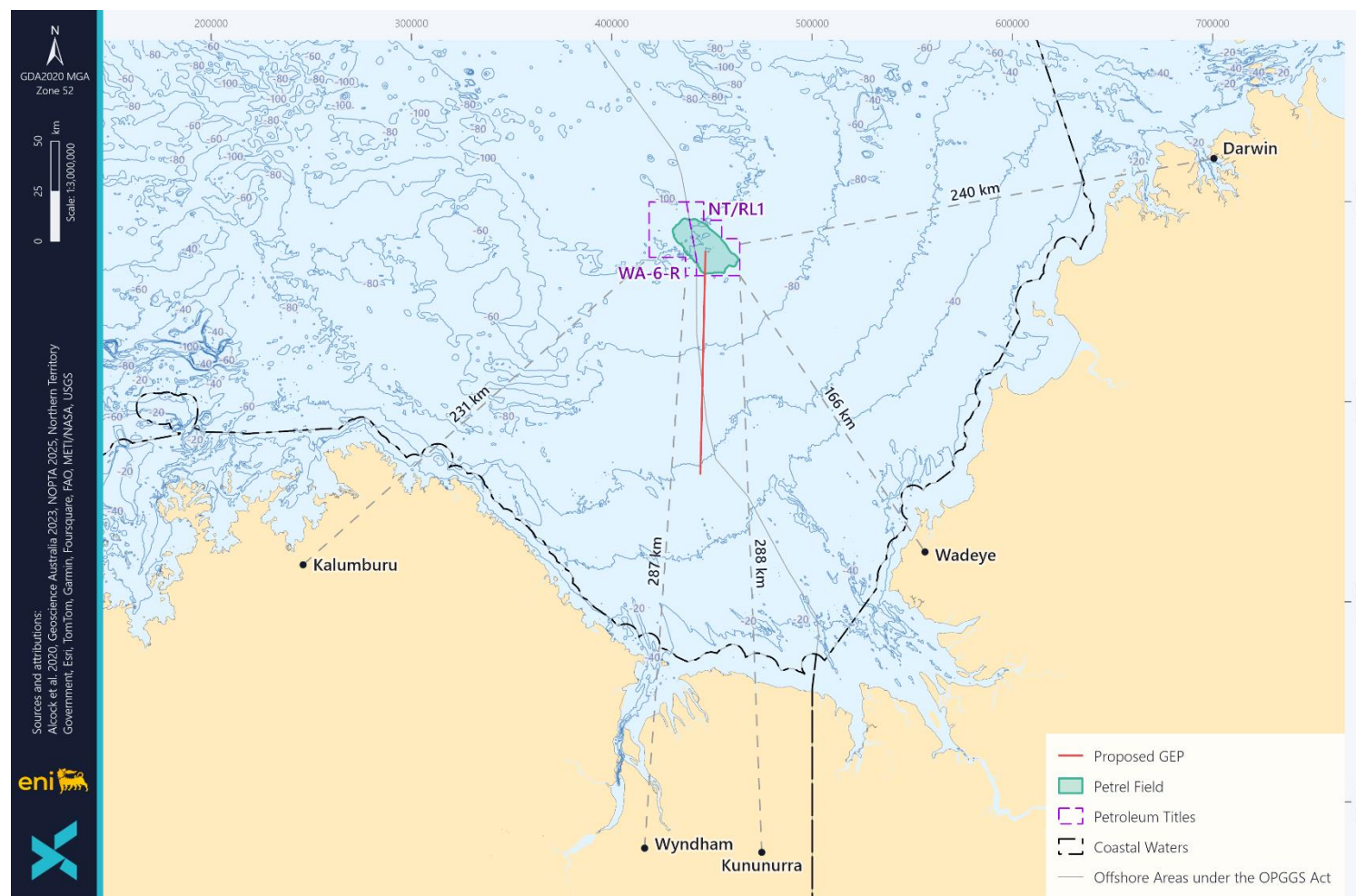


Figure 1-2: Petrel gas field location

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1.3 Purpose of this Document

This EP has been prepared to demonstrate that appropriate management controls are in place to reduce to as low as reasonably practicable (ALARP) and to an acceptable level, the potential environmental impacts and risks of the surveys.

It has been prepared in accordance with the Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2023 (OPGGS(E) Regulations) for acceptance by, the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA). This EP details the potential environmental impacts and risks that may be associated with the Activity and demonstrates how these are reduced to ALARP and to an acceptable level.

1.4 Scope of the Environment Plan

This EP applies to a defined 'petroleum activity', as defined in the OPGGS(E) Regulations. For this EP, the planned petroleum activity is defined as:

'Any other petroleum related operations or works carried out under an instrument, authority or consent granted or issued under the OPGGS Act.'

Specifically, the survey activities (petroleum activities) covered under this EP include the:

- Geophysical surveys;
- Geotechnical surveys;
- Geophysical investigation;
- Environmental surveys; and
- Associated support operations.

Activities excluded from the scope of this EP include vessels transiting to or from the Operational Area, as defined in Section 3.1.1. These vessels are deemed to be operating under the Commonwealth *Navigation Act 2012* and not performing a petroleum activity.

Petrel-3 and Petrel-4 are two suspended wells located within the same titles. However, both wells are managed under the Petrel-3 and Petrel-4 Decommissioning and Monitoring EP.

At the time of writing this EP, the Petrel Development OPP was under assessment by NOPSEMA, and this EP is not included within the OPP scope.

1.5 Titleholder Details

Titleholder details for the permit areas are provided in Table 1-2.

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Table 1-2: Titleholder Details

Permit Area	Operator	Titleholder Details
NT/RL1 and WA-6-R (Petrel)	Eni Energy Bonaparte Pty Ltd, an affiliate of Eni Australia Ltd, owned and controlled by Eni SpA	Eni Energy Bonaparte Pty Ltd and Eni Australia B.V.

The Operator details are:

Eni Energy Bonaparte Pty Ltd
c/o Eni Australia Ltd
Level 5, 226 Adelaide Terrace
Perth, WA 6000
Telephone: (08) 9320 1111
Email: info@eniaustralia.com.au
Website: www.eni.com

Eni Energy Bonaparte Pty Ltd is a subsidiary of Eni S.p.A., one of the world's major integrated energy companies. Eni operates in 70 countries and has its headquarters in Milan, Italy. In Australia, Eni operates the Blacktip gas field, associated offshore infrastructure and the YGP.

Since operations commenced in 2009, Blacktip gas has been sold to the domestic gas market (NT/East Coast). Eni also has three large scale solar plants in the NT with an installed capacity of about 59MW. Additionally, Eni has a non-operated interest in the Bayu-Undan gas and condensate field (in Timor-Leste waters), the Bayu-Undan to Darwin gas pipeline, and the Darwin Liquefied Natural Gas (DLNG) facility. Eni also holds two offshore retention leases containing the undeveloped gas discoveries of Verus and Blackwood located around 330km north of Darwin.

1.5.1 Details of the Liaison Person

The nominated liaison person for this EP is:

Samir Wasim
Health, Safety, Environment and Quality Manager
Eni Australia Ltd
Tel: (08) 9320 1111
Email: info@eniaustralia.com.au

Eni Energy Bonaparte's Australian Business Number is 13 138 853 728 and Australian Company Number is 092 812 023. Eni Energy Bonaparte Pty Ltd is an affiliate of Eni Australia Ltd, owned and controlled by Eni SpA.

1.5.2 Notification of Change

In the event of a change of operator, nominated liaison person or contact details, Eni will provide written notification to NOPSEMA providing details of the change.

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2 ENVIRONMENTAL LEGISLATION

The OPGGS(E) Regulations require Eni to describe in this EP the relevant requirements that apply to the petroleum activities, along with how they will be met. Relevant legislation, standards and guidelines are summarised in the next subsections and include:

- Commonwealth legislation (Section 2.1);
- Commonwealth guidelines and policies (Section 2.2); and
- International Agreements (Section 2.3).

While this EP applies to petroleum activities in Commonwealth waters, Section 2.4 summarises key State and Northern Territory requirements relevant to aspects of the petroleum activities outside of NOPSEMA's jurisdiction.

2.1 Commonwealth Legislation

The activities described in this EP (Section 3) will be conducted in Commonwealth waters and are therefore subject to Commonwealth legislation, specifically:

- Offshore Petroleum and Greenhouse Gas Storage Act 2006 (OPGGS Act, Section 2.1.1); and
- Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act, Section 2.1.2).

Other Commonwealth legislation is also applicable to environmental management of the petroleum activities; these have been considered in Section 2.1.3.

2.1.1 OPGGS Act 2006 and OPGGS (Environment) Regulations 2023

The *Offshore Petroleum Greenhouse Gas Storage Act 2006* (OPGGS Act) is the principal legislation managing petroleum activities in Australian Commonwealth waters. The OPGGS Act and supporting regulations address all licencing, health, safety, environmental and royalty issues for offshore petroleum and gas exploration and production operations in Commonwealth waters. Regulations created under the Act include:

- Offshore Petroleum and Greenhouse Gas Storage (Safety) Regulations 2024;
- Offshore Petroleum and Greenhouse Gas Storage (Resource Management and Administration) Regulations 2025; and
- Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2023 (OPGGS (E) Regulations).

The OPGGS (E) Regulations prescribe the requirements for management of environmental impacts associated with petroleum activities and require proponents to submit an EP to the Regulatory Authority for acceptance before activities commence. The object of the OPGGS (E) Regulations is to ensure petroleum activities in Commonwealth waters are performed in a manner:

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

The OPGGS (E) Regulations also include requirements for considering matters of national environmental significance (MNES), as defined in Part 3 of the EPBC Act.

As explained in Section 1.4 Petrel-3 and Petrel-4 are two suspended wells located within the same titles. However, both wells are managed under the Petrel-3 and Petrel-4 Decommissioning and Monitoring EP.

Table 2-1 includes the pertinent sections of the OPGGS (E) Regulations and details the sections of this EP which ensure compliance with the requirements.

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Table 2-1: Requirements of the OPGGS (E) Regulations

Section	Requirements	Relevant Section in the EP
Consultation with relevant authorities, persons and organisations, etc		
25(1)	In the course of preparing an environment plan, or a revision of an environment plan, a titleholder must consult each of the following (<i>a relevant person</i>): - each Department or agency of the Commonwealth to which the activities to be carried out under the environment plan, or the revision of the environment plan, may be relevant; - each Department or agency of a State or the NT to which the activities to be carried out under the environment plan, or the revision of the environment plan, may be relevant; - the Department of the responsible State Minister, or the responsible NT Minister; - a person or organisation whose functions, interests or activities may be affected by the activities to be carried out under the environment plan, or the revision of the environment plan; and - any other person or organisation that the titleholder considers relevant.	Section 5 Relevant Person Consultation
25(2)	For the purpose of the consultation, the titleholder must give each relevant person sufficient information to allow the relevant person to make an informed assessment of the possible consequences of the activity on the functions, interests, or activities of the relevant person.	Section 5 Relevant Person Consultation
25(3)	The titleholder must allow a relevant person a reasonable period for the consultation.	Section 5 Relevant Person Consultation
25(4)	The titleholder must tell each relevant person the titleholder consults that: (a) the relevant person may request that particular information the relevant person provides in the consultation not be published; and (b) information subject to such a request is not to be published under this Part.	Section 5 Relevant Person Consultation
Environmental assessment		
21(1)	<i>Description of the activity</i> The environment plan must contain a comprehensive description of the activity, including: - the location or locations of the activity; - general details of the construction and layout of any facility or other structure;	Section 3.1.1 Operational Area Section 3 Description of the Activity

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Section	Requirements	Relevant Section in the EP
	- an outline of the operational details of the activity (for example, seismic surveys, exploration drilling or production) and proposed timetables; and - any additional information relevant to consideration of environmental impacts and risks of the activity.	
21(2)	<i>Description of the environment</i> The environment plan must: - describe the existing environment that may be affected by the activity; and - include details of the particular relevant values and sensitivities (if any) of that environment.	Section 4 Description of the Environment
21(4)	<i>Requirements</i> The environment plan must: - describe the requirements, including legislative requirements, that apply to the activity and are relevant to the environmental management of the activity; and - demonstrate how those requirements will be met.	Section 2 Environmental Legislation
21(5)	<i>Evaluation of environmental impacts and risks</i> The environment plan must include: - details of the environmental impacts and risks for the activity; - an evaluation of all the impacts and risks, appropriate to the nature and scale of each impact or risk; and - details of the control measures that will be used to reduce the impacts and risks of the activity to as low as reasonably practicable and an acceptable level.	Section 6 Environmental Risk Assessment Methodology
21(6)	To avoid doubt, the evaluation mentioned in paragraph (5)(b) must evaluate all the significant impacts and risks arising directly or indirectly from: - all operations of the activity; and - potential emergency conditions, whether resulting from accident or any other reason.	Section 6 Environmental Risk Assessment Methodology
21(7)	<i>Environmental performance outcomes and standards</i> The environment plan must: - set environmental performance standards for the control measures identified under paragraph (5); - set out the environmental performance outcomes against which the performance of the titleholder in protecting the environment is to be measured; and - include measurement criteria that the titleholder will use to determine whether each environmental performance outcome and environmental performance standard is being met.	Section 9 Environment Outcomes, Standards and Measurement Criteria

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Section	Requirements	Relevant Section in the EP
Implementation strategy for the environment plan		
22(1)	The environment plan must contain an implementation strategy for the activity in accordance with this section.	Section 10 Implementation Strategy
22(2)	The implementation strategy must contain a description of the environmental management system for the activity, including specific measures to be used to ensure that, for the duration of the activity: - the environmental impacts and risks of the activity continue to be identified and reduced to a level that is as low as reasonably practicable; - control measures detailed in the environment plan are effective in reducing the environmental impacts and risks of the activity to as low as reasonably practicable and an acceptable level; and - environmental performance outcomes and standards set out in the environment plan are being met.	Section 10.6 Auditing and Inspection
22(3)	The implementation strategy must establish a clear chain of command, setting out the roles and responsibilities of personnel in relation to the implementation, management, and review of the environment plan, including during emergencies or potential emergencies.	Section 10.2 Roles and Responsibilities
22(4)	The implementation strategy must include measures to ensure that each employee or contractor working on, or in connection with, the activity is aware of his or her responsibilities in relation to the environment plan, including during emergencies or potential emergencies, and has the appropriate competencies and training.	Section 10.2 Roles and Responsibilities
22(5)	The implementation strategy must provide for sufficient monitoring, recording, audit, management of non-conformance and review of the titleholder's environmental performance and the implementation strategy to ensure that the environmental performance outcomes and standards in the environment plan are being met.	Section 10.6 Auditing and Inspection Section 10.7 Non-Conformance, Corrective and Preventative Actions Section 10.8 External Reporting Section 10.9 Internal Reporting
22(6)	The implementation strategy must provide for sufficient monitoring of, and maintaining a quantitative record of, emissions and discharges (whether occurring during normal operations or otherwise), such that the record can be used to assess whether the environmental performance outcomes and standards in the environment plan are being met.	Section 10.5 Monitoring OPEP

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Section	Requirements	Relevant Section in the EP
22(7)	The implementation strategy must: - state when the titleholder will report to the Regulator in relation to the titleholder's environmental performance for the activity; and - provide that the interval between reports will not be more than one year.	Section 10.8 External Reporting
22(8)	The implementation strategy must contain an oil pollution emergency plan and provide for the updating of the plan.	OPEP
22(9)	The oil pollution emergency plan must include adequate arrangements for responding to and monitoring oil pollution, including the following: - the control measures necessary for timely response to an emergency that results or may result in oil pollution; - the arrangements and capability that will be in place, for the duration of the activity, to ensure timely implementation of the control measures, including arrangements for ongoing maintenance of response capability; - the arrangements and capability that will be in place for monitoring the effectiveness of the control measures and ensuring that the environmental performance standards for the control measures are met; and - the arrangements and capability in place for monitoring oil pollution to inform response activities.	OPEP
22(10)	The implementation strategy must provide for monitoring of impacts to the environment from oil pollution and response activities that: - is appropriate to the nature and scale of the risk of environmental impacts of the activity; and - is sufficient to inform any remediation activities.	OPEP
22(11)	The implementation strategy must include information demonstrating that the response arrangements in the oil pollution emergency plan are consistent with the national system for oil pollution preparedness and response.	OPEP
22(12)	The implementation strategy must include arrangements for testing the response arrangements in the oil pollution emergency plan. The testing arrangements must be appropriate to the response arrangements and to the nature and scale of the risk of oil pollution for the activity	OPEP
22(13)	The arrangements for testing the response arrangements must include: - statement of the objectives of testing; - a proposed schedule of tests;	OPEP

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Section	Requirements	Relevant Section in the EP
	- mechanisms to examine the effectiveness of response arrangements against the objectives of testing; and - mechanisms to address recommendations arising from tests.	
22(14)	The proposed schedule of tests must provide for: - testing the response arrangements when they are introduced; - testing the response arrangements when they are significantly amended; - testing the response arrangements not later than 12 months after the most recent test; - if a new location for the activity is added to the environment plan after the response arrangements have been tested, and before the next test is conducted – testing the response arrangements in relation to the new location as soon as practicable after it is added to the plan; and - if a facility becomes operational after the response arrangements have been tested and before the next test is conducted – testing the response arrangements in relation to the facility when it becomes operational	OPEP
22(15)	The implementation strategy must provide for appropriate consultation with: - relevant authorities of the Commonwealth, a State or a Territory; and - other relevant interested persons or organisations.	Section 5.7 Ongoing Consultation
22(16)	The implementation strategy must comply with the Act, this instrument, any other regulations made under the Act, and any other environmental legislation applying to the activity	Section 2 Environmental Legislation
Details of titleholder and liaison person		
23(1)	The environment plan must include the following details for the titleholder: - name; - business address; - telephone number (if any); - fax number (if any); - email address (if any); and - if the titleholder is a body corporate that has an Australian Company Number (within the meaning of the Corporations Act 2001) – Australian Company Number.	Section 1.5 Titleholder Details
23(2)	The environment plan must also include the following details for the titleholder's nominated liaison person: - name; - business address;	Section 1.5.1 Details of Liaison Person

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Section	Requirements	Relevant Section in the EP
	• telephone number (if any); • fax number (if any); and • email address (if any).	
23(3)	The environment plan must include arrangements for notifying the Regulator of a change in the titleholder, a change in the titleholder's nominated liaison person or a change in the contact details for either the titleholder or the liaison person.	Section 10 Implementation Strategy
Other information in the environment plan		
24	The environment plan must contain: • a statement of the titleholder's corporate environmental policy; • a report on all consultations under section 25 of any relevant person by the titleholder, that contain: ○ a summary of each response made by a relevant person; ○ an assessment of the merits of any objection or claim about the adverse impact of each activity to which the environment plan relates; ○ a statement of the titleholder's response, or proposed response, if any, to each objection or claim; and ○ a copy of the full text of any response by a relevant person. • details of all reportable incidents in relation to the proposed activity.	Eni Health, Safety and Environment (HSE) Statement (APPENDIX A) Section 5 Relevant Person Consultation
Revision of an environment plan		
38	A titleholder may submit a revised environment plan under section 26 to include a new activity under the title (rather than submit a separate plan for the new activity). <i>Note 1: This is subject to NOPSEMA's approval (see subsection 26(7)) and, if the new activity is, or is part of, an offshore project, the requirements of subsections 26(3) to (5).</i> <i>Note 2: It is an offence to undertake an activity under a title without an environment plan being in force for the activity (see section 17).</i>	Section 10.12 Management of Change and Reviews of this EP
39(1)	A titleholder must submit to the Regulator a proposed revision of the environment plan for the activity before the commencement of any significant modification or new stage of the activity that is not provided for in the environment plan that is currently in force.	Section 10.12 Management of Change and Reviews of this EP
39(2)	A titleholder must submit a revised environment plan under section 26 for an activity under the title before, or as soon as practicable after, the occurrence of:	Section 10.12 Management of Change and Reviews of this EP

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Section	Requirements	Relevant Section in the EP
	a) any significant new environmental impact or risk, or significant increase in an existing environmental impact or risk, of the activity that is not provided for in the environment plan in force for the activity; or (b) a series of new environmental impacts or risks, or a series of increases in existing environmental impacts or risks, which, taken together, amount to the occurrence of: (i) a significant new environmental impact or risk of the activity; or (ii) a significant increase in an existing environmental impact or risk of the activity; that is not provided for in the environment plan in force for the activity.	
39(3)	If: (a) there is a change in the titleholder of a title; and (b) the change will result in a change in the manner in which the environmental impacts and risks of an activity under the title are managed; the new titleholder must submit a revised environment plan for the activity under section 26 as soon as practicable after becoming the new titleholder.	Section 10.12 Management of Change and Reviews of this EP
Revision of an environment plan		
40	A titleholder must submit to the Regulator a proposed revision of the environment plan for an activity if the Regulator requests the titleholder to do so.	Section 10.12 Management of Change and Reviews of this EP

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2.1.2 Environment Protection and Biodiversity Conservation Act 1999

The *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) is the primary Commonwealth environmental assessment legislation aimed at protecting and managing flora, fauna, ecological communities, environmentally sensitive and heritage places defined as matters of national environmental significance (MNES).

NOPSEMA are the sole designated assessor of petroleum and greenhouse gas (GHG) activities in Commonwealth waters in accordance with the Minister for the Environment's endorsement of NOPSEMA's environmental authorisation process under Part 10, section 146 of the EPBC Act. The objectives of the process include ensuring activities undertaken in the offshore area are conducted in a manner consistent with the principles of ecologically sustainable development (Section 2.1.2.1) and will not result in unacceptable impacts to MNES protected under Part 3 of the EPBC Act.

This has included making specific reference in Section 4.5 to the values of matters protected under Part 3 of the EPBC Act using references and relevant guidance documents to be considered, such as EPBC Act significance guidance documents, relevant policy statements, plans of management, recovery plans and on-line databases.

Where there is the potential for MNES to be impacted by petroleum activities, an assessment of impacts must be presented in the EP. MNES identified as relevant to the petroleum activities are:

- Listed threatened species and ecological communities;
- Listed migratory species (protected under international agreements);
- Commonwealth marine environment;
- World heritage properties;
- National heritage places; and
- Wetlands of National Importance (listed under the Ramsar Convention).

Environmental values and sensitivities, including MNES, are described in Section 4. These descriptions inform the assessment of environmental impacts and risks in Sections 7 and 8.

EPBC Act Reform

Reforms to the EPBC Act were passed by the Australian Parliament on 28 November 2025. The reform package to the EPBC Act comprises seven Acts:

- *Environment Protection Reform Act 2025* (Reform Act);
- *National Environmental Protection Agency Act 2025* (NEPA Act);
- *Environment Information Australia Act 2025* (EIA Act);
- *Environment Protection and Biodiversity Conservation (Restoration Charge Imposition) Act 2025* (Restoration Charge Act); and

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- three separate acts concerning the imposition of general, customs and excise charges under the EPBC Act.

The NEPA Act and EIA Act will commence on 1 July 2026, together with parts of the Reform Act that relate to the NEPA (DCCEE, 2025i). The balance of the Reform Act's provisions will commence upon proclamation or within 12 months.

2.1.2.1 Principles of Ecologically Sustainable Development

NOPSEMA also considers whether the petroleum activities are consistent with the principles of ecologically sustainable development (ESD), as defined in the EPBC Act. The principles of ESD include:

- Decision-making processes should effectively integrate both long-term and short term economic, environmental, social and equitable considerations; the 'integration principle';
- If there are threats of serious or irreversible damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation; the 'precautionary principle';
- The present generation should ensure the health, diversity and productivity of the environment is maintained or enhanced for the benefit of future generations; the 'intergenerational principle';
- The conservation of biological diversity and ecological integrity should be a fundamental consideration in decision-making; the 'biodiversity principle'; and
- Improved valuation, pricing and incentive mechanisms should be promoted; the 'valuation principle'.

Eni has considered these principles when assessing environmental impacts and risks in Sections 7 and 8.

2.1.2.2 Management Plans

Under the EPBC Act, listed threatened species are managed through management plans, recovery plans and conservation advice. The purpose of these is summarised in Table 2-2.

Under s139(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 s268 of the EPBC Act:

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

In relation to offshore petroleum activities in Commonwealth waters, these requirements are now administered by NOPSEMA in accordance with commitments set out in the plans. Recovery plans or threat abatement plans relevant to the scope of this EP have been identified as described in Table 2-2 and assessed in Sections 7 and 8.

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Table 2-2: Summary of the purpose of management plans, recovery plans and conservation advice

Plan/Advice	Summary
Recovery plans	Recovery plans are intended to ensure the recovery of threatened species by setting recovery objectives. These objectives are informed by: - descriptions of the state of the threatened species in Australia and globally; - identification of threats to the species; and - identification of actions by which these threats may be mitigated, and the recovery objectives achieved.
Conservation advice	Conservation advice provide advice about relevant impacts and threats and set requirements for management and protection. This advice is developed in consultation with the Threatened Species Scientific Committee. Conservation advice: - describes the threatened species, including its distribution, habitat and conservation status; - describes threats to the recovery of the species; and - outlines research priorities and conservation actions to prevent further decline of the threatened species.
Wildlife conservation plans	Wildlife conservation plans may be made under the EPBC Act for the protection, conservation and management of species protected under the Act.
Threat abatement plans	Threat abatement plans may be made under the EPBC Act for threatening processes on native species and ecological communities. The plans describe objectives for the mitigation of threatening processes and the actions intended to achieve the objectives.

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Table 2-3: Summary of additional *Environment Protection and Biodiversity Conservation Act 1999* management and recovery plans and conservation advice relevant to the survey activities.

Species	Plan or Advice	Protection under EPBC Act	Relevant key threats identified	Relevant objectives	Relevant conservation actions
Vertebrates					
All vertebrate fauna	Threat abatement plan for the impacts of marine debris on the vertebrate wildlife of Australia's coasts and oceans (CoA, 2018)	N/A	Marine debris	Objectives: - Contribute to long-term prevention of the incidence of marine debris. - Understand the scale of impacts from marine plastic and microplastic on key species, ecological communities and locations. - Remove existing marine debris.	No explicit management actions for non fisheries related industries; note that management actions in the plan relate largely to management of fishing waste (e.g., 'ghost' gear), and State and Commonwealth management through regulation.
Marine Mammals					
Australian humpback dolphin	Conservation Advice for <i>Sousa sahulensis</i> (Australian humpback dolphin) (DCCEW, 2025c)	Vulnerable	Climate change	To manage anthropogenic threats to the Australian snubfin dolphin so that the conservation status of the species can improve, and the species can be removed from the EPBC Act threatened species list.	Undertake actions to reduce other anthropogenic stressors and pressures on the marine environment to facilitate resilience in vulnerable marine ecosystems that is considered suitable habitat for the Australian snubfin dolphin.
			Habitat loss and degradation		Comprehensively assess coastal development that is likely to have a significant impact on Australian snubfin dolphins. For example, in areas identified as Habitat Critical the Survival or inhabited by important populations of the species.

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Species	Plan or Advice	Protection under EPBC Act	Relevant key threats identified	Relevant objectives	Relevant conservation actions
			Marine pollution		Report contaminant studies in sufficient detail (i.e., summary statistics, conversion factors, analytical methods, and quality control parameters) to allow accurate comparison and meta-analysis.
			Underwater noise (industrial and vessel noise)		• Further understand what noise levels cause physiological damage and subsequent mortality to snubfin dolphins. • Further understand how the acoustic propagation of anthropogenic activities overlaps with snubfin dolphin hearing thresholds. • Further understand the impact of noise pollution from increasing vessel traffic and coastal construction on dolphin distribution and behaviour.
Australian snubfin dolphin	Conservation Advice for <i>Orcaella heinsohni</i> (Australian snubfin dolphin) (DCCEEW, 2025d)	Vulnerable	Climate change	To manage anthropogenic threats to the Australian humpback dolphin so that the conservation status of the species can improve, and the species can be removed from the EPBC Act threatened species list	Undertake actions to reduce other anthropogenic stressors and pressures on the marine environment to facilitate resilience in vulnerable marine ecosystems that is considered suitable habitat for the Australian humpback dolphin
			Habitat loss and degradation		Comprehensively assess coastal development that is likely to have a significant impact on Australian snubfin dolphins. For example, in areas identified

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Species	Plan or Advice	Protection under EPBC Act	Relevant key threats identified	Relevant objectives	Relevant conservation actions
					as Habitat Critical the Survival or inhabited by important populations of the species.
			Marine pollution		Report contaminant studies in sufficient detail (i.e., summary statistics, conversion factors, analytical methods, and quality control parameters) to allow accurate comparison and meta-analysis.
			Vessel interaction (vessel strike)		- Ensure all vessel strike incidents are reported in the National Ship Strike Database. - Ensure the risk of vessel strike on Australian snubfin dolphins is considered when assessing actions that increase vessel traffic on areas Australian snubfin dolphins occur and, if required, appropriate mitigation measures are implemented.
Blue whale (includes pygmy blue whale)	Conservation Management Plan for the Blue Whale 2015–2025 (DoE, 2015)	Endangered	Noise interference	The long-term recovery objective is to minimise anthropogenic threats to allow the conservation status of the blue whale to improve so that it can be removed from the threatened species list under the EPBC Act.	Action Area A.2: Anthropogenic noise in biologically important areas will be managed such that any blue whale continues to utilise the area without injury.
			Vessel disturbance		Action Area A.4: Minimising vessel collisions: Ensure the risk of vessel strikes on blue whales is considered when assessing actions that increase vessel traffic in areas where blue

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Species	Plan or Advice	Protection under EPBC Act	Relevant key threats identified	Relevant objectives	Relevant conservation actions
			Climate variability and change		whales occur and, if required, appropriate mitigation measures are implemented.
			Habitat modification (infrastructure/ coastal developments, marine debris, acute and chronic chemical discharge)		Action Area A.3: Understanding impacts of climate variability and change: Continue to meet Australia's international commitments to reduce GHG emissions and regulate the krill fishery in Antarctica.
					No explicit relevant management actions. Habitat modification identified as a threat.
Sei whale	Conservation Advice for <i>Balaenoptera borealis</i> (Sei Whale) (TSSC, 2015)	Vulnerable	Noise interference	No explicit relevant objectives.	Once the spatial and temporal distribution (including biologically important areas) of sei whales is further defined an assessment of the impacts of increasing anthropogenic noise (including from seismic surveys, port expansion, and coastal development) should be undertaken on this species.
			Vessel disturbance		Minimising vessel collisions: Develop a national vessel strike strategy that investigates the risk of vessel strikes on sei whales and

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Species	Plan or Advice	Protection under EPBC Act	Relevant key threats identified	Relevant objectives	Relevant conservation actions
					also identifies potential mitigation measures. Ensure all vessel strike incidents are reported in the National Vessel Strike Database.
			Climate and oceanographic variability and change		Understanding impacts of climate variability and change: Continue to meet Australia's international commitments to reduce GHG emissions and regulate the krill fishery in Antarctica.
			Pollution (persistent toxic pollutants)		No explicit relevant management actions. Pollution identified as a threat.
Fin whale	Conservation Advice for Balaenoptera physalus (Fin Whale) (TSSC, 2015a)	Vulnerable	Noise interference	No explicit relevant objectives.	Once the spatial and temporal distribution (including BIAs) of fin whales is further defined, assess the impacts of increasing anthropogenic noise (including seismic surveys, port expansion and coastal development).
			Vessel disturbance		Minimising vessel collisions: - Develop a national vessel strike strategy that investigates the risk of vessel strikes on fin whales and also identifies potential mitigation measures. - Ensure all vessel strike incidents are reported in the National Vessel Strike Database.

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Species	Plan or Advice	Protection under EPBC Act	Relevant key threats identified	Relevant objectives	Relevant conservation actions
			Climate and oceanographic variability and change		Understanding impacts of climate variability and change: Continue to meet Australia's international commitments to reduce GHG emissions and regulate the krill fishery in Antarctica.
			Pollution (persistent toxic pollutants)		No explicit relevant management actions. Pollution identified as a threat.
Marine Reptiles					
Dusky sea snake	Conservation Advice for <i>Aipysurus fuscus</i> (dusky sea snake) (DCCEEW, 2024i)	Endangered	Climate change	Urgently reducing and eliminating threats from the fossil fuel industry and climate change	Rapidly reduce greenhouse gas emissions
			Fossil fuel exploration and extractions (oil pollution)		Should an oil spill occur that may impact the known or likely distribution of the dusky sea snake: - Urgently use herding agents, bioremediation agents and mechanical means to contain and break down the oil. See Australian Maritime Safety Authority: oil spill control agents. - Urgently cap or otherwise isolate the source of the oil to prevent further contamination. - Immediately resource and mobilise multiple expert wildlife care teams to search for, and rehabilitate, ill dusky sea snakes (and other threatened and priority taxa)

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Species	Plan or Advice	Protection under EPBC Act	Relevant key threats identified	Relevant objectives	Relevant conservation actions
					Ensure there is sufficient expertise within the care team to assess the condition of sea snakes at sea for release or rehabilitation, effectively collect samples from live individuals for toxicology and pathology assessments, and safely collect and freeze deceased individuals for necropsy, pathology, and toxicology assessment.
Loggerhead, hawksbill, green, Olive Ridley, flatback and leatherback turtles	Recovery plan for Marine Turtles in Australia (CoA, 2017)	Endangered (loggerhead, leatherback, Olive Ridley turtles)	Marine debris	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. Interim objective 3: Anthropogenic threats are demonstrably minimised.	Action Area A3: Reduce the impacts from marine debris: - Understand the threat posed by marine debris. - Determine the extent to which marine debris is impacting turtles.
			Chemical and terrestrial discharge		Action Area A4: Minimise chemical and terrestrial discharge: 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.
			Light pollution		Action Area A8: Minimise light pollution: Artificial light within or adjacent to habitat critical to the survival of marine turtles will be managed

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Species	Plan or Advice	Protection under EPBC Act	Relevant key threats identified	Relevant objectives	Relevant conservation actions
			Vessel disturbance		such that marine turtles are not displaced from these habitats.
			Noise interference		Vessel interactions identified as a threat; no specific management actions in relation to vessels prescribed in the plan.
					No explicit relevant management actions; noise interference identified as a threat.
Leatherback turtle	Approved Conservation Advice for <i>Dermochelys coriacea</i> (Leatherback Turtle) (DEWHA, 2008a)	Endangered	Vessel disturbance	No explicit relevant objectives.	No explicit relevant management actions; only vessel strikes identified as a threat.
			Marine debris		No explicit relevant management actions; marine debris identified as a threat.
			Habitat loss, disturbance and modification		Identify and protect migratory corridors between nesting beaches and common foraging areas to facilitate colonization.
			Climate change		No explicit relevant management actions; only climate change identified as a threat.
Leaf-scaled sea snake	Approved Conservation Advice on <i>Aipysurus foliosquama</i> (Leaf-Scaled Sea Snake) (DSEWPaC, 2011a)	Critically Endangered	Habitat degradation or modification	No explicit relevant objectives.	Ensure there is no disturbance in areas where the leaf scaled sea snake occurs, excluding necessary actions to manage the conservation of the species.
Short-nosed sea snake	Approved Conservation Advice for <i>Aipysurus praefrontalis</i> (Short-nosed Sea Snake) (DSEWPaC, 2011b)	Critically Endangered	Habitat degradation	No explicit relevant objectives.	No explicit relevant management actions; habitat degradation, particularly from coral bleaching identified as a threat.

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Species	Plan or Advice	Protection under EPBC Act	Relevant key threats identified	Relevant objectives	Relevant conservation actions
Fish, sharks, and rays					
All sawfish and river sharks	Sawfish and River Shark Multispecies Recovery Plan (CoA, 2015)	NA	Habitat degradation or modification	The primary objective of this recovery plan is 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.	Objective 5: Reduce and, where possible, eliminate adverse impacts of habitat degradation and modification on sawfish and river shark species. Identify risks to important sawfish and river shark habitat and measures needed to reduce those risks.
			Marine debris		Objective 6: Reduce and, where possible, eliminate any adverse impacts of marine debris on sawfish and river shark species.
Dwarf sawfish	Approved Conservation Advice for <i>Pristis clavata</i> (Dwarf Sawfish) (DEWHA, 2009)	Vulnerable	Habitat degradation or modification	The specific objectives of the recovery plan (relevant to industry) are: Objective 5: Reduce and, where possible, eliminate adverse impacts of habitat degradation and modification on sawfish and river shark species.	No explicit relevant management actions. Habitat loss, disturbance and modification identified as threats.
Green sawfish	Approved Conservation Advice for Green Sawfish (DEWHA, 2008b)	Vulnerable	Habitat degradation or modification		No explicit relevant management actions. Habitat loss, disturbance and modification identified as threats.
Freshwater sawfish	Approved Conservation Advice for <i>Pristis pristis</i> (Large Tooth Sawfish) (DoE, 2014)	Vulnerable	Habitat degradation or modification		No explicit relevant management actions. Habitat loss, disturbance and modification identified as threats.

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Species	Plan or Advice	Protection under EPBC Act	Relevant key threats identified	Relevant objectives	Relevant conservation actions
Northern river shark	Approved Conservation Advice for <i>Glyphis garricki</i> (Northern River Shark) (DoE, 2014)	Endangered	Habitat degradation or modification	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.	No explicit relevant management actions. Habitat loss, disturbance and modification identified as threats.
White shark	Recovery Plan for the White Shark (<i>Carcharodon carcharias</i>) (DSEWPoC, 2013)	Vulnerable	Habitat modification Climate Change	The primary objective of this recovery plan is to assist the recovery of the great white shark in Australian waters with a view to: - improving the population status leading to the removal of the great white 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.	Ensure anthropogenic activities do not hinder recovery of the species in the near future or impact on the conservation status of the species in the future. No explicit relevant management actions. Ecosystem effects as a result of habitat modification and climate change identified as threats.
Grey nurse shark	Recovery Plan for the Grey Nurse Shark (<i>Carcharias taurus</i>) (DoE, 2014a)	Vulnerable	Pollution and disease	The primary objective of this recovery plan is to assist the recovery of the grey nurse shark	No explicit relevant management actions. Pollution and disease and ecosystem effects as a result of habitat modification and climate change identified as threats.

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Species	Plan or Advice	Protection under EPBC Act	Relevant key threats identified	Relevant objectives	Relevant conservation actions
				in Australian waters with a view to: improving the population status leading to the removal of the grey nurse 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.	
Speartooth shark	Approved Conservation Advice for <i>Glyphis glyphis</i> (Speartooth Shark) (DoE, 2014b)	Critically Endangered	Habitat degradation or modification	No explicit relevant objectives.	Implement measures to reduce adverse impacts of habitat degradation or modification.
Whale shark	Approved Conservation Advice for <i>Rhincodon typus</i> (Whale Shark) (TSSC, 2015b)	Vulnerable	Vessel disturbance	To maintain existing levels of protection for the whale shark in Australia while working to increase the level of protection afforded to the whale shark within the Indian Ocean and Southeast Asia region to enable population growth so that the species can be removed	Minimise offshore developments and transit time of large vessels in areas close to marine features likely to correlate with whale shark aggregations along the northward migration route that follows the northern Western Australian coastline along the 200m isobath (as set out in the Conservation Values Atlas, DoE, 2014).

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Species	Plan or Advice	Protection under EPBC Act	Relevant key threats identified	Relevant objectives	Relevant conservation actions
			Habitat degradation or modification	from the threatened species list of the EPBC Act.	Implement measures to reduce adverse impacts of habitat degradation or modification.
			Marine debris		No explicit relevant management actions Marine debris identified as a threat.
			Climate change		No explicit relevant management actions Climate change identified as a threat.
Seabirds and shorebirds					
Seabirds	Wildlife Conservation Plan for Seabirds (CoA, 2020)	NA	Habitat loss or modification	Seabirds and their habitats are protected and managed in Australia. 2e. Manage the effects of anthropogenic disturbance to seabird breeding and roosting areas.	No explicit relevant management actions Habitat loss or modification identified as a threat.
			Anthropogenic disturbance		2d. Ensure all areas of important habitat for seabirds are considered in the development assessment process.
			Climate change		No explicit relevant management actions Climate change identified as a threat.
			Invasive species		No explicit relevant management actions Climate change identified as a threat.
			Pollution (marine debris, light, water)		2f. Ensure seabirds are protected from the adverse effects of invasive species.
			Resource extraction		2h. Enhance contingency plans to prevent and respond to environmental emergencies that have an impact on seabirds and their habitats.
Migratory shorebirds	Wildlife Conservation Plan for Migratory	NA	Habitat loss or modification	Anthropogenic threats to migratory shorebirds in Australia	No explicit relevant management actions Habitat loss or modification identified as a threat.

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Species	Plan or Advice	Protection under EPBC Act	Relevant key threats identified	Relevant objectives	Relevant conservation actions
	Shorebirds (CoA, 2015a)		Anthropogenic disturbance	are minimised or, where possible, eliminated. 3f. Ensure all areas important to Migratory shorebirds in Australia continue to be considered in development assessment processes, specifically for coastal developments.	3c. Investigate the significance of cumulative impacts on Migratory shorebird habitat and populations in Australia.
			Climate change		3b: Investigate the impacts of climate change on Migratory shorebird habitat and populations in Australia
Asian dowitcher	Conservation Advice for <i>Limnodromus semipalmatus</i> (Asian dowitcher) (DCCEEW, 2024h)	Vulnerable	Climate change	Ensure no further loss of habitat critical to the survival of Asian dowitcher throughout Australia (including habitat predicted to become habitat critical to the survival of the species in the future because of climate change).	No explicit relevant management actions. Climate change identified as a threat.
			Pollution (chronic and acute)		No explicit relevant management actions. Pollution (chronic and acute pollution) identified as a threat.
			Habitat loss, fragmentation, and degradation		No explicit relevant management actions. Habitat loss, fragmentation, and degradation identified as a threat.
Australian Painted Snipe	Approved Conservation Advice for <i>Rostratula australis</i> (Australian painted snipe) (DSEWPac, 2013a)	Endangered	None identified.	No explicit relevant objectives.	No explicit relevant actions.
	National Recovery Plan for the Australian Painted Snipe (<i>Rostratula australis</i>) (DCCEEW, 2022c)		Climate change	By 2032, sustain a positive population trend (compared to 2020 baseline counts) in the number of mature individuals of the Australian Painted Snipe.	No explicit relevant management actions. Climate change recognised as a threat.

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Species	Plan or Advice	Protection under EPBC Act	Relevant key threats identified	Relevant objectives	Relevant conservation actions
Curlew sandpiper	Approved Conservation Advice for <i>Calidris ferruginea</i> (Curlew Sandpiper) (DCCEEW, 2023b)	Critically Endangered	Chronic and acute pollution	Minimise further loss of habitat critical to the survival of curlew sandpiper throughout Australia (including habitat predicted to become habitat critical in the future because of climate change).	No explicit relevant management actions for pollution or climate change. Ensure that functional connectivity of sites is maintained throughout the species' migration network, including inland wetlands and coastal sites.
			Climate change		
Eastern curlew	Conservation Advice for <i>Numenius madagascariensis</i> (far eastern curlew) (DCCEEW, 2023c)	Critically Endangered	Chronic and acute pollution	Minimise further loss of habitat critical to the survival of far eastern curlew throughout Australia (including habitat predicted to become habitat critical in the future because of climate change).	No explicit relevant management actions for pollution or climate change. Ensure that functional connectivity of sites is maintained throughout the species' migration network.
			Climate change		
Greater sand plover	Conservation Advice for <i>Charadrius leschenaultii</i> Greater sand plover (DCCEEW, 2023e)	Vulnerable	Habitat loss, fragmentation and degradation	Minimise further loss of habitat critical to the survival of great sand plover throughout Australia (including habitat predicted to become habitat critical in the future because of climate change).	- Ensure that future development projects avoid any activities that disproportionately affect the upper tidal flats and/or areas providing major foraging opportunities as identified by species experts, local studies, and site managers. - Ensure that functional connectivity of sites is maintained throughout the species' migration network.
			Climate change		No explicit relevant management actions. Climate change recognised as a threat.
			Pollution (chronic and acute)		No explicit relevant management actions. Pollution (chronic and acute) identified as a threat.

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Species	Plan or Advice	Protection under EPBC Act	Relevant key threats identified	Relevant objectives	Relevant conservation actions
			Anthropogenic disturbance at feeding and roosting sites		No explicit relevant management actions. Anthropogenic disturbance identified as a threat.
Little tern	Conservation Advice for <i>Sterna albifrons</i> (little tern) (DCCEEW, 2025b)	Vulnerable	Anthropogenic disturbance at nesting sites	Retain breeding colonies across the species' range by managing threats to the extent possible, including by facilitating breeding site re-positioning if needed, and achieve a stable or increasing population trend in both subpopulations	No explicit relevant management actions. Anthropogenic disturbance identified as a threat.
			Introduced species		No explicit relevant management actions. Introduced species identified as a threat.
			Climate change impacts		No explicit relevant management actions. Climate change recognised as a threat.
Northern Siberian Bar-tailed Godwit	Conservation Advice for <i>Limosa lapponica baueri</i> (Yakutian bar-tailed Godwit) (DCCEEW, 2024i)	Endangered	Chronic and acute pollution	Northern Siberian Bar-tailed Godwit	Conservation Advice for <i>Limosa lapponica baueri</i> (Yakutian bar-tailed Godwit) (DCCEEW, 2024i)
			Climate change		
Red knot	Approved Conservation Advice for <i>Calidris canutus</i> (Red Knot) (DCCEEW, 2024a)	Vulnerable	Chronic and acute pollution	Minimise further loss of habitat critical to the survival of red knot throughout Australia (including habitat predicted to become habitat critical in the future because of climate change).	No explicit relevant management actions for pollution or climate change. Ensure that functional connectivity of sites is maintained throughout the species' migration network
			Climate change		
Sharp-tailed sandpiper	Conservation Advice for <i>Calidris acuminata</i> (sharp-tailed sandpiper) (DCCEEW, 2024b)	Vulnerable	Climate change	Minimise further loss of habitat critical to the survival of sharp-tailed sandpiper throughout Australia (including habitat predicted to become habitat	No explicit relevant management actions for pollution or climate change. Ensure that functional connectivity of sites is maintained throughout the species' migration network.
			Chronic and acute pollution		

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Species	Plan or Advice	Protection under EPBC Act	Relevant key threats identified	Relevant objectives	Relevant conservation actions
				critical to survival in the future because of climate change and light pollution impacting habitat).	
Red-tailed Tropicbird (Indian Ocean)	Conservation Advice for <i>Phaethon rubricauda westralis</i> (Indian Ocean red-tailed tropicbird) (DCCEEW, 2023f)	Endangered	Climate change	Primary conservation objective: A stable or increasing population trend within Australian territory is maintained to the extent that the subspecies is no longer eligible to be listed under the EPBC Act.	No explicit relevant management actions. Climate driven change in resource availability and extreme natural events identified as threats.

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2.1.2.3 Australian Marine Parks

Under the EPBC Act, Australian Marine Parks (AMPs) are declared in Commonwealth waters based on the International Union for the Conservation of Nature (IUCN) principles and guidelines for categorising protected areas. These AMPs are declared for the purpose of conserving marine habitats and the species that live and rely on these habitats. AMPs are managed under a series of region-based management plans, which detail the management objectives of the AMP, the environmental values within each of the AMPs, and the activities that are permissible within the zones of the AMP.

The EPBC Act allows AMPs to be divided into zones and a category assigned to each, which may differ from the overall category of the AMP. The EPBC Regulations prescribe the Australian IUCN Reserve Management Principles (Environment Australia, 2002) applicable to each category. All activities undertaken within an AMP must be consistent with the objectives of the zone and the values of the AMP (DNP, 2018a), being:

- Special Purpose Zone (IUCN category VI) – to provide for ecologically sustainable use and the conservation of ecosystems, habitats and native species, while applying special-purpose management arrangements for specific activities;
- Multiple Use Zone (IUCN category VI) – to provide for ecologically sustainable use and the conservation of ecosystems, habitats and native species;
- Habitat Protection Zone (IUCN category IV) – to provide for the conservation of ecosystems, habitats and native species in as natural a state as possible, while allowing activities that do not harm or cause destruction to seafloor habitats; and
- National Park Zone (IUCN category II) – to provide for the protection and conservation of ecosystems, habitats and native species in as natural a state as possible.

Zoning takes into account the purposes for which the AMP was declared, the objectives of the region-based management plan, and the requirements of the EPBC Act.

AMPs relevant to the petroleum activities are described in detail in Section 4.5.1.1.

2.1.2.4 Australian Whale Sanctuary

The Australian Whale Sanctuary has been established to protect all whales and dolphins found in Australian waters. The Australian Whale Sanctuary comprises the Commonwealth marine area, beyond the coastal waters of each state and the NT. It includes all of Australia's Exclusive Economic Zone, from 3nm extending 200nm from the coast. Under the EPBC Act, all cetaceans – whales, dolphins and porpoises – are protected in Australian waters. In summary:

- The Australian Whale Sanctuary includes all Commonwealth waters from the 3nm state waters limit out to the boundary of the Exclusive Economic Zone; as in, out to 200nm and further in some places.

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- Within the Australian Whale Sanctuary, it is an offence to kill, injure or interfere with a cetacean. Severe penalties apply to anyone convicted of such offences.

2.1.3 Additional Relevant Commonwealth Legislation

Commonwealth legislation and other requirements relevant to the activity area are described in Table 2-4. Further information about international agreements is provided in Section 2.4.

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Table 2-4: Summary of additional Commonwealth legislation relevant to the survey activities.

Legislation	Scope	Application to Activities	Related International Conventions Relevant to Activity	Administering Authority
<i>Aboriginal and Torres Strait Islander Heritage Protection Act 1984</i>	This Act provides for the preservation and protection from injury or desecration areas and objects that are of significance to Aboriginal people, under which the Minister may make a declaration to protect such areas and objects. The Act also requires the discovery of Aboriginal remains to be reported to the Minister.	No activity being undertaken on land or near shore. There are no known Aboriginal heritage sites or Indigenous Protected Areas within the Operational Area or EMBA. No First Nations cultural heritage sites or values were identified within the Operational Area during consultation with relevant persons.	Not Applicable	Department of Climate Change, Energy, the Environment and Water (DCCEEW)
<i>Air Navigation Act 1920</i>	This Act is responsible for managing navigation within the avian environment.	Helicopter and other aircraft activities operating will comply with the requirements under this Act.	Not Applicable	Department of Infrastructure, Transport, Regional Development, Communications and the Arts
<i>Australian Heritage Council Act 2003</i>	This Act identifies areas of heritage value listed on the Register of the National Estate and sets up the Australian Heritage Council and its functions.	There are no heritage places found on the National Heritage List within the EMBA that could potentially be impacted by unplanned events.	Not Applicable	Australian Heritage Council
<i>Australian Maritime Safety Authority Act 1990</i>	The Act aims to: • promote maritime safety; • protect the marine environment from: ○ pollution from ships;	The Act is applicable to offshore petroleum activities where these have the potential to affect maritime safety and/or result in pollution and other environmental damage	International Convention on Oil Pollution Preparedness,	Australian Maritime Safety Authority (AMSA)

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Legislation	Scope	Application to Activities	Related International Conventions Relevant to Activity	Administering Authority
	- other environmental damage caused by shipping; and - provide for a national search and rescue service. AMSA is the authority responsible for the application of the Act.	associated with the operation of ships. This is in particular relevant to the potential risk of oil spill associated with offshore petroleum activities. Impacts and risks associated with vessel movements as part of the proposed activities are discussed in Sections 7 and 8.	Response and Cooperation 1990 (OPRC 90).	
<i>Biosecurity Act 2015</i>	The <i>Biosecurity Act 2015</i> replaced the <i>Quarantine Act 1908</i> in June 2016. Provides a definition of 'quarantine' and establishes the Australian Quarantine Inspection Service (AQIS). For the petroleum industry, it regulates the condition of vessels and drill rigs entering Australian waters with regards to ballast water and hull fouling. The regulations stipulate that all information regarding the voyage of the vessel and the ballast water is declared correctly to the quarantine officers.	For the petroleum industry, it regulates the condition of vessels and drill rigs entering Australian waters with regards to ballast water and hull fouling. Management measures related to biosecurity risk associated with the program are presented in Section 8.2.	International Convention for the Control and Management of Ships Ballast Water and Sediment 2004	AQIS and Department of Agriculture, Fisheries and Forestry (DAFF)
<i>Climate Change Act 2022</i>	This Act sets out Australia's greenhouse gas emissions reduction targets in a manner consistent with the Paris Agreement and Australia's Nationally Determined Contribution (NDC).	The emissions targets established by this Act are inclusive of offshore petroleum activities.	The Paris Agreement	The Commonwealth Government
<i>Environment Protection and Biodiversity Conservation Regulations 2000: Division 8.1</i>	These regulations provide guidelines for operating aircraft and vessels in the vicinity of cetaceans.	All vessels and aircraft undertaking the activities will comply with the requirements of the Regulations. The requirements are	Not applicable	DCCEEW

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Legislation	Scope	Application to Activities	Related International Conventions Relevant to Activity	Administering Authority
		detailed in the Australian National guidelines for Whale and Dolphin Watching.		
<i>Environment Protection (Sea Dumping) Act 1981</i>	This Act provides for the protection of the environment by regulating dumping matter into the sea, incineration of waste at sea and placement of artificial reefs.	All vessels undertaking the activities will comply with the requirements under this Act. The management of waste is discussed in Sections 7 and 8.	Not applicable	DCCEEW
<i>Fisheries Management Act 1991</i>	This Act provides for the protection of Australia's offshore commercial fish resources from 3 nm to the extent of the Australian Fishing Zone (200 nm). There are no fisheries within the Operational Area, however, there are several within the Environment that May Be Affected (EMBA).	Fishermen in Commonwealth-managed fisheries will be informed by ENI (via AMSA) of activity as required by legislation.	No applicable	Australian Fisheries Management Authority (AFMA) DAFF
<i>Hazardous Waste (Regulation of Exports and Imports) Act 1989</i>	Implements Australia's obligations under the Basel Convention on the Control or Transboundary Movements of Hazardous Wastes and their Disposal.	All ships involved in offshore petroleum activities in Australian waters are required to abide to the requirements under this Act. The management of waste is discussed in Sections 7 and 8.	Not applicable	DCCEEW
National Environment Protection (National Pollutant Inventory) Measure 1998 (established under the <i>National Environment Protection Council Act 1994</i>)	This Act aims to implement national environment protection matters to enhance, restore and protect the Australian environment. The Measure provides the framework for developing and establishing the National Pollutant Inventory, which is an internet database designed to provide publicly available information about the types, and	Reporting requirements for the petroleum activity will comply with the National Environment Protection Measure through routine reporting of the relevant National Pollutant Inventory Substances.	Not applicable	DCCEEW

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Legislation	Scope	Application to Activities	Related International Conventions Relevant to Activity	Administering Authority
	amount of certain substances being emitted to the air, land and water.			
<i>Native Title Act 1993</i>	The main objects of this Act are: a) to provide for the recognition and protection of native title b) to establish ways in which future dealings affecting native title may proceed and to set standards for those dealings c) to establish a mechanism for determining claims to native title d) to provide for, or permit, the validation of past acts intermediate period acts, invalidated because of the existence of native title.	Native Title may be present within the EMBA.	Not applicable	Attorney-General's Department
<i>Native Title Legislation Amendment Act 2021</i>	Updates the Native Title Act 1993 to enhance efficiency and flexibility, strengthen governance of native title bodies, streamline agreements and dispute resolution, validate certain agreements, and expand the Tribunal's role.	Native Title may be present within the EMBA.	Not applicable	Attorney-General's Department
<i>Navigation Act 2012</i>	The Act regulates international ship and seafarer safety as well as the protection of the marine environment from shipping and the actions of seafarers in Australian waters. The Navigation Act also gives effect to international conventions for maritime issues where Australia is a signatory, including the International Convention for the Prevention of Pollution from Ships (MARPOL 73/78).	All vessels involved in petroleum activities in Australian waters will comply with the requirements under this Act. Several Marine Orders (MO) are enacted under this Act which relate to offshore petroleum activities, including: • MO Part 21: Safety of navigation and emergency procedures;	Certain sections of MARPOL.	AMSA

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Legislation	Scope	Application to Activities	Related International Conventions Relevant to Activity	Administering Authority
	The Act regulates: • Vessel survey and certification; • Vessel construction standards; • Vessel crew; • Personnel qualifications and welfare; • Occupational health and safety; • Handling of cargoes; • Passengers; • Marine pollution prevention; and • Monitoring and enforcement activities.	• MO Part 30: Prevention of collisions; and • MO Part 59: Offshore industry vessel operations. Management measures related to shipping safety during the program are presented in Sections 7 and 8.		
<i>Ozone Protection and Synthetic Greenhouse Gas Management Act 1989 (and associated regulations)</i>	Regulates the manufacture, importation and use of ozone depleting substances (ODS) (typically used in fire-fighting equipment and refrigerants). Applicable to the handling of any ODS.	The activity does not include import, export or manufacture activities of ODS. This Act applies where ODS is found on vessel refrigeration systems, however, this is a rare occurrence.	Montreal Protocol on Substances that Deplete the Ozone Layer. Vienna Convention for the Protection of the Ozone Layer 1985 and the Montreal Protocol on Substances that Deplete the Ozone Layer 1987	DCCEEW
<i>Protection of the Sea (Harmful Antifouling Systems) Act 2006</i>	The Act aims to protect the marine environment from the effects of harmful anti fouling systems.	All ships involved in offshore petroleum activities in Australian waters will comply with the requirements under this Act. The marine order that relates to petroleum activities is:	International Convention on the Control of Harmful Anti-fouling	AMSA

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Legislation	Scope	Application to Activities	Related International Conventions Relevant to Activity	Administering Authority
		MO Part 98: Marine Pollution Prevention – Anti-fouling Systems. The management of biofouling risk is discussed in Section 8.2.	Systems on Ships 2001.	
<i>Protection of the Sea (Prevention of Pollution from Ships) Act 1983</i>	The Act aims to protect the marine environment from pollution by oil and other harmful substances discharged from ships in Australian waters. It also invokes certain requirements of the MARPOL Convention such as those relating to discharge of noxious liquid substances, sewage, garbage and air pollution. This Act requires ships greater than 400 gross tonnes to have pollution emergency plans in place, and also provides for emergency discharges from ships.	All vessels involved in petroleum activities in Australian waters will comply with the requirements under this Act. Several MOs are enacted under this Act relating to offshore petroleum activities, including: - MO Part 91: Marine Pollution Prevention – Oil; - MO Part 93: Marine Pollution Prevention – Noxious Liquid Substances; - MO Part 94: Marine Pollution Prevention – Harmful Substances in Packaged Forms; - MO Part 95: Marine Pollution Prevention – Garbage; - MO Part 96: Marine Pollution Prevention – Sewage; and - MO Part 97: Marine Pollution Prevention – Air Pollution. Management measures related to pollution from oil or other hazardous substances are presented in Section 8.	Various parts of MARPOL.	AMSA

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Legislation	Scope	Application to Activities	Related International Conventions Relevant to Activity	Administering Authority
<i>Underwater Cultural Heritage Act 2018</i>	Protects the heritage values of shipwrecks, sunken aircraft and relics (older than 75 years) in Australian Territorial waters from the low water mark to the outer edge of the continental shelf (excluding the State's internal waterways). The Act allows for protection through the designation of protection zones. Activities / conduct prohibited within each zone will be specified.	The Act is applicable to any activities that have the potential to result in damage, interference, removal or destruction of cultural heritage properties protected under the Act. Heritage values of the area of the proposed activities are described in Section 4.6.7 and management measures regarding heritage values discussed in Sections 7 and 8.	Convention on Protection of the Underwater Cultural Heritage 2001.	DCCEEW

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2.2 Commonwealth Guidelines and Policies

While guidelines do not typically have force under legislation, they are often considered to be consistent with good practice. Table 2-5 summarises the Commonwealth policies and guidelines that are relevant to the survey activities.

Table 2-5: Summary of Commonwealth guidelines and policies relevant to the survey activities

Policies and guidelines	Summary	Relevance to the Petrel Survey Activities
Assessing and Managing Impacts to Underwater Cultural Heritage in Australian Waters – Guidelines on the application of the <i>Underwater Cultural Heritage Act</i> 2018 (DCCEEW, 2024g)	Provides guidance on addressing legislative obligations for proponents of near and offshore developments, and promotes best practice for identifying, assessing, and protecting underwater cultural heritage in Australian waters.	Relevant for assessing impact to cultural heritage values.
Offshore energy industry consultation with the commercial fishing industry (AFMA, 2025)	Provides information for the offshore energy industry, including petroleum and wind power, on how to consult with the Commonwealth commercial fishing industry.	Relevant for assessing impact to commercial fisheries.
Australian Ballast Water Management Requirements (DAWE, 2020).	Provides requirements for management measures to reduce the risk of introducing harmful aquatic organisms into Australia’s marine environment through ships ballast water.	All vessels undertaking petroleum activities will be required to comply with the requirements.
Australian Biofouling Management Requirements (DAFF, 2023a)	Provides requirements for the management of biofouling when operating vessels under biosecurity control within Australian territorial seas.	Where relevant, vessels will comply with the requirements including pre-arrival reporting.
Biosecurity Regulations 2016 (DAFF, 2023b)	Provides requirements for managing biosecurity risks to protect Australia’s people, animals, plants, and environment.	Regulates vessels entering Australian territory regarding ballast water and hull fouling.
Commercial Fishing Consultation Framework for the Offshore Oil and Gas Sector (WAFIC, 2024)	WAFIC’s guidance framework to support offshore oil and gas consultation requirements and deliver conducive outcomes for the commercial fishing industry.	The guidelines inform consultation requirements and approach for the commercial fishing industry.

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Policies and guidelines	Summary	Relevance to the Petrel Survey Activities
Engagement with First Nations People under the EPBC Act (DCCEEW, 2025h)	Outlines statutory obligations that apply to, and DCCEEW's expectations of, proponents engaging with First Nations people / communities under the <i>Environment Protection and Biodiversity Conservation Act 1999</i> .	The guidelines inform consultation obligations and expectations for engaging with First Nations people / communities under the EPBC Act.
Environment Protection and Biodiversity Conservation Regulations 2000 (DCCEEW, 2024m)	Part 8 of the regulations provide distances and actions to be taken when interacting with cetaceans.	The interaction requirements are applicable to the activity in the event a cetacean is sighted.
International Maritime Organization (IMO) Guidelines for the Control and Management of Ships' Biofouling to Minimize the Transfer of Invasive Aquatic Species (Biofouling Guidelines) (IMO, 2023)	Guidelines for controlling and managing ships' biofouling to minimise the transfer of invasive aquatic species.	Specific requirements are that vessels have a biofouling management plan and biofouling record book.
Matters of National Environmental Significance – Significant Impact Guidelines 1.1 (DoE, 2013)	Guidelines to assist in determining whether an action is likely to have a significant impact on a matter of national environmental significance.	The guidelines inform the impact assessment detailed in this EP.
National biofouling management guidelines for the petroleum production and exploration industry (Marine Pest Sectoral Committee, 2018).	A voluntary biofouling management guidance document developed under the National System for the Prevention and Management of Marine Pest Incursions. Its purpose is to provide tools to operators to minimise the amount of biofouling accumulating on their vessels, infrastructure and submersible equipment, thereby minimising the risk of spreading marine pests.	All vessels undertaking petroleum activities will implement effective biofouling controls as a best practice.
National Light Pollution Guidelines for Wildlife (DCCEEW, 2023a)	The guidelines provide best-practice industry standard for managing potential impacts of light pollution on marine fauna.	National Light Pollution Guidelines for Wildlife are used when assessing the relevant mitigation controls to apply to the petroleum activities light emissions.
National Strategy for Reducing Vessel Strike on	The overarching goal of the strategy is to provide guidance on understanding and	Implementing the recommendations and controls can

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Policies and guidelines	Summary	Relevance to the Petrel Survey Activities
Cetaceans and other Marine Megafauna (DEE, 2017a)	reducing the risk of vessel collisions and the impacts they may have on marine megafauna.	reduce the risk of vessel collisions with megafauna.
Native Title Information Handbook Northern Territory 2016 (AIATSIS, 2016)	An Information Handbook produced by the Australian Institute of Aboriginal and Torres Strait Islander Studies (AIATSIS) that explains how Native Title, Indigenous Land Use Agreements, Cultural Heritage, and Indigenous Protected Areas are administered in the NT.	Relevant when assessing Native Title, Indigenous Land Use Agreements, Cultural Heritage, and Indigenous Protected Areas are administered in the NT.
Native Title Story: Introduction to native title and prescribed bodies corporate (Kimberley Land Council, 2019)	A native title information resource written by the Kimberley Land Council for Kimberley Traditional Owners, providing an overview of the native title process and the role of PBCs.	Relevant when assessing impacts on First Nations people / communities and the processes / roles of PBCs.
NOPSEMA Information paper – Reducing marine pest biosecurity risks through good practice biofouling management (NOPSEMA, 2020)	Provides advice that is consistent with the expectations of all jurisdictions responsible for regulating biofouling management within the Australian marine environment. Also clarifies biosecurity requirements relevant to offshore activities.	The petroleum activities will comply with the relevant biosecurity requirements, including adopting requirements that may apply to the movement of vessels into and between Commonwealth and State jurisdiction.
NOPSEMA Guidance Note: Petroleum activities and Australian Marine Parks (NOPSEMA, 2024b)	Provides guidance on managing petroleum activities risks and impacts to Australian Marine Parks and to support consultation with the Director of National Parks (DNP).	The EMBA overlaps with the Oceanic Shoals Marine Park (Section 4.5.1.1). The guidance has been used when consulting the relevant persons (Section 5).
NOPSEMA web page: Offshore Environmental Management Assessment process (NOPSEMA, 2021)	NOPSEMA web page: Offshore Environmental Management Assessment process	Useful to understand the offshore environment management assessment processes and the

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Policies and guidelines	Summary	Relevance to the Petrel Survey Activities
		requirements for EP acceptance.
NOPSEMA Guideline: Consultation in the course of preparing an environment plan (NOPSEMA, 2023a)	Provides guidance on consultation for EPs. This guideline is used to develop processes for implementing consultation. The guideline focuses on the instructive reasons given by the Full Federal Court of Australia, in its appeal decision Santos NA Barossa Pty Ltd v Tipakalippa [2022] FCAFC 193 (appeal decision) on 2 December 2022.	The guidance has been used when consulting the relevant persons (Section 5).
NOPSEMA Guideline: Consultation with Commonwealth agencies with responsibilities in the marine area (NOPSEMA, 2024c)	Provides guidance on consultation for EPs, specifically Australian Government agencies with responsibilities in the Commonwealth marine area.	The guidance has been used when consulting the relevant persons (Section 5).
NOPSEMA Guidance Note: Responding to public comment on environment plans (NOPSEMA, 2024a)	Provides guidance on consultation for EPs. The guidance reflects NOPSEMA's interpretation of the requirements of the OPGGS Regulations.	The guidance has been used when consulting the relevant persons (Section 5).
NOPSEMA Guidance note: When to submit a proposal revision of an EP (NOPSEMA, 2024d)	Provides guidance on NOPSEMA's interpretation of the requirements to revise an EP under Part 4 Division 5 of the <i>Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2023</i> .	The guidance has been used when consulting the relevant persons (Section 5).
NOPSEMA Guideline: Environment Plan decision making (NOPSEMA, 2024f)	Sets out NOPSEMA's considerations in making decisions in accordance with the legislated criteria relevant to EPs. Some clear definitions are extracted from this guideline.	The guidance has been used when consulting the relevant persons (Section 5).
NOPSEMA Guidance note: Environment plan content requirement (NOPSEMA, 2024e)	Assists stakeholders in understanding the requirements for preparing and submitting an EP for assessment.	The guidance has been used when consulting the relevant persons (Section 5).
NOPSEMA Information Brochure: Consultation on Offshore Petroleum Environment Plans - Information for the Community' (NOPSEMA, 2023b)	An information brochure created for members of the community who may be relevant persons under the OPGGS (E) Regulations.	The guidance has been used when consulting the relevant persons (Section 5).
Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations	An explanatory statement issued by the authority of the Minister for Resources to	The guidance has been used when consulting the

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Policies and guidelines	Summary	Relevance to the Petrel Survey Activities
2023 Replacement Explanatory Statement	explain the OPGGS Act 2006 associated OPGGS (Environment) Regs.	relevant persons (Section 5).
Offshore Installations – Biosecurity Guide (DAFF, 2023b)	Provides the offshore petroleum industry with guidance about Australian biosecurity requirements.	All activity vessels implement effective biosecurity controls, in accordance with the requirements of this biosecurity guideline.
Consultation approach for Unplanned Events (WAFIC, 2025)	WAFIC's preferred approach in undertaking consultation with commercial fishing licence holders that will only be affected by a significant unplanned event (emergency scenario).	The guidance has been used when consulting the relevant persons (Section 5).
PFAS National Environmental Management Plan Version 3.0 (HEPA, 2025)	Provides guidance about the environmental management of per- and polyfluoroalkyl substances (PFAS), with a focus on preventing and managing PFAS contamination.	The guidelines inform the impact assessment detailed in this EP.

2.3 International Agreements

International agreements and conventions that are relevant to the survey activities are summarised in Table 2-6.

Table 2-6: Applicable international agreement and conventions

International Agreements and Conventions	Summary
Agreement between the Government of Australia and the Government of Japan for the Protection of Migratory Birds in Danger of Extinction and their Environment 1974, commonly referred to as JAMBA	These agreements recognise international concern for protecting migratory birds and birds in danger of extinction. The EPBC Act gives effect to the agreement by listing migratory birds recognised by it. Migratory species are MNES.
Agreement between the Government of Australia and the Government of the People's Republic of China for the Protection of Migratory Birds and their Environment 1986, commonly referred to as CAMBA	These agreements recognise international concern for protecting migratory birds and birds in danger of extinction. The EPBC Act gives effect to the agreement by listing migratory birds recognised by it. Migratory species are MNES.
Convention on Biological Diversity 1992	This convention aims to conserve biological diversity, sustainable use of its components, and the fair and equitable sharing of the benefits arising out of the utilisation of genetic resources.

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Convention on the Conservation of Migratory Species of Wild Animals 1979 (Bonn Convention)	This convention aims to improve the status of all migratory species by national action and international agreements between range states. The EPBC Act gives effect to the Bonn Convention through listing species as Migratory under Part 3 of the Act. Migratory species are MNES.
Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter 1972 (known as the London Convention and more recently, the London Protocol)	The London Convention contributes to the international control and prevention of marine pollution by prohibiting the dumping of certain hazardous materials. The Environment Protection (Sea Dumping) Act 1981 gives effect to the London Protocol.
Convention for the Prevention of Pollution from Ships 1973/1978 (MARPOL 73/78)	This convention aims to preserve the marine environment by eliminating completely pollution by oil and other harmful substances and by minimising accidental discharge of such substances. It contains five Annexes, dealing respectively with oil, noxious liquid substances, harmful packaged substances, sewage and garbage. Detailed rules are laid out as to the extent to which (if at all) such substances can be released in different sea areas.
Convention on the Protection of the Underwater Cultural Heritage	The 2001 Convention provides a framework on how to better identify, research and protect underwater heritage.
Convention on Wetlands of International Importance (Ramsar Convention)	The Ramsar Convention provides for conserving and sustainably using wetlands. The EPBC Act gives effect to the Ramsar Convention by providing specific protection for wetlands recognised by the Convention under Part 3 of the EPBC Act.
International Convention for the Control and Management of Ships Ballast Water and Sediment 2004	This convention aims to prevent the spread of harmful aquatic organisms from one region to another via ballast water and sediment. <i>The Biosecurity Act 2015</i> gives effect to the convention.
International Convention on Standards of Training, Certification and Watchkeeping for Seafarers 1978	This convention sets out minimum standards for masters, officers and watch personnel on merchant vessels. The <i>Navigation Act 2012</i> and subsidiary Marine Orders give effect to the convention.
International Convention for the Safety of Life at Sea 1974	This convention sets out minimum standards for constructing, equipping and operating merchant ships. The convention requires signatory flag states to ensure the ships flagged by them comply with these standards as a minimum. The <i>Navigation Act 2012</i> and subsidiary Marine Orders give effect to the convention.
International Regulations for Preventing Collisions at Sea 1972	These regulations outline internationally recognised navigation rules to be used by vessels at sea to avoid collisions. The regulations are published by

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	the International Maritime Organization (IMO). The <i>Navigation Act 2012</i> and subsidiary Marine Orders give effect to the regulations.
Kyoto Protocol	This is an international treaty that extends the 1992 United Nations Framework Convention on Climate Change, which commits state parties to reducing GHG emissions.
The Paris Agreement	The Paris Agreement aims to limit global temperature rise this century to well below 2°C above preindustrial levels and to pursue efforts to limit the temperature increase even further to 1.5°C.
Vienna Convention for the Protection of the Ozone Layer 1985 and the Montreal Protocol on Substances that Deplete the Ozone Layer 1987	The convention is a multilateral environmental agreement that acts as a framework for international efforts to protect the ozone layer. The accompanying Montreal Protocol specifies goals for reducing the uses of chlorofluorocarbons, the main chemical agents causing ozone depletion.
United Nations Framework Convention on Climate Change 1992	The convention is an international environmental treaty with the objective of stabilising GHG concentrations at a level that would prevent dangerous anthropogenic interference with the climate system.

2.4 Western Australian and Northern Territory Legislation

The Petrel field is located in Australian Commonwealth waters adjacent to the Western Australian (WA) coast. The EMBA (please refer to Section 4.1) does enter WA and NT waters. Supporting vessels for survey activities will pass through either WA or NT waters while transiting to and from a port and will have to comply with a variety of WA legislation. Table 2-7 summarises legislation relevant to the survey activities.

Table 2-7: Summary of WA and NT legislation relevant to the survey activities.

Legislation	Summary
WA	
<i>Aboriginal Heritage Act 1972 (AHA)</i>	This Act governs the protection and management of Aboriginal heritage in Western Australia.
<i>Biodiversity Conservation Act 2016</i>	The <i>Biodiversity Conservation Act 2016</i> came into effect on 3 December 2016 and replaced the <i>Wildlife Conservation Act 1950</i> . Relating to potential impacts to listed species: this Act provides for conserving and protecting Western Australian wildlife.
<i>Environmental Protection Act 1986</i>	Relating to non-routine operations (potential oil spills) in areas under State jurisdiction: this Act provides for preventing, controlling, and abating pollution and environmental harm and for conserving, preserving, protecting, enhancing, and managing the environment.

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Fish Resources Management Regulations 1995	Under Regulation 176 of the Fish Resources Management Regulations 1995, it is an offence to translocate live non-endemic fish to WA without permission. Under section 105 of the Fish Resources Management Act 1994, it is an offence to bring noxious fish into WA. Also, under Part 16A of the Fish Resources Management Act 1994, the Department has emergency powers to deal with incursions of invasive marine species (IMS), which include directing a person to perform necessary activities to prevent or control the spread of IMS, or to eradicate them in WA waters. If these activities are not undertaken, Eni may perform the activities and recover any costs incurred from the person initially directed to do so.
Marine (Certificates of Competency and Safety Manning) Regulations 1983	Marine Safety is responsible for administering national and internationally agreed competency standards; and for examining candidates for commercial Certificates of Competency as master, mate or engineer in WA vessels.
<i>Maritime Archaeology Act</i> 1973	This Act provides for the protection and management of historic shipwrecks, relics, and maritime archaeological sites in Western Australia, including sites associated with ships lost before 1900 and related artefacts.
<i>Pollution of Waters by Oil and Noxious Substances Act</i> 1987	Relating to non-routine operations (potential oil spills) in State waters: this Act relates to protecting the sea and certain waters from pollution by oil and other noxious substances discharged from ships and places on land.
Prevention of Collisions at Sea Regulations 1983	Regulations largely comprise the Rules set out in the International Regulations for Preventing Collisions at Sea 1972 applicable in state and international waters.
<i>Western Australia Marine Act</i> 1982	Relating to vessel movements: an Act to regulate navigation and shipping.
<i>Western Australian Marine (Sea Dumping) Act</i> 1981	Relating to general vessel operations: an Act to provide for protecting the environment by regulating the dumping into the sea, and the incineration at sea, of wastes and other matter and the dumping into the sea of certain other objects, and for other purposes.
NT	
<i>Dangerous Goods Act</i> 1998	This Act provides for safely storing, handling and transporting certain dangerous goods (such as flammable, combustible liquids) in order to promote public safety and protect property and the environment.
<i>Environment Protection Act</i> 2019	This Act establishes the framework for assessing potential or anticipated environmental impacts of development. The object of the Act is to ensure matters affecting the environment to a significant extent are fully examined and taken into account in decisions by the NT Government.
Environment Protection (National Pollutant Inventory) Objective 2004	This is an objective under the Waste Management and Pollution Control Act that provides for compulsory reporting of air emissions by certain facilities, in accordance with the Commonwealth National Environment Protection (National Pollutant Inventory) Measure.
<i>Fisheries Act</i> 1988 (NT)	The NT Fisheries Act 1988 provides for the regulation, conservation and management of fisheries and fishery resources so as to maintain their

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Legislation	Summary
	sustainable utilisation, to regulate the sale and processing of fish and aquatic life, and for related purposes.
<i>Heritage Act 2011</i>	This Act established the NT Heritage Council and governs the protection of both natural and cultural heritage places within the NT jurisdiction.
<i>Northern Territory Aboriginal Sacred Sites Act 1989</i>	This Act facilitates the protection and registration of sacred sites, through procedures for avoiding sacred sites when developing and using land and through establishing an Authority for the purposes of the Act.
<i>Waste Management and Pollution Control Act 1998</i>	This Act provides for protecting the environment through encouraging effective waste management and pollution prevention measures, including licencing for certain levels of pollution discharges to air and water. The Act does not apply to wastes that are confined to the site on which they are generated but requires licencing and registration for wastes that are discharged offsite.

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3 DESCRIPTION OF THE ACTIVITY

3.1 Overview

Eni is proposing to undertake survey campaigns across retention leases NT/RL1, WA-6-R and the GEP route in the Bonaparte Basin, ~240km west of Darwin. Eni proposes the following survey activities:

- Geophysical surveys;
- Geotechnical surveys;
- Environmental surveys; and
- Associated support operations.

The objective of the surveys is to acquire baseline data to better understand the existing environment and seabed characteristics for the purposes of future exploration and development of the Petrel field. The outputs from the surveys will inform final locations for wells and subsea infrastructure in future EPs and inform impact assessments.

Helicopter operations are not required for the survey activities.

3.1.1 Operational Area

The Operational Area is a defined area within which all petroleum activities associated within this EP occur, and which allows impact assessment of those activities. It includes the extent of all planned activities within the EP and is defined to cover the spatial extent of future exploration and development of the Petrel field. The Operational Area is defined as:

- Retention leases (WA-6-R and NT/RL1);
- 5km buffer area on each side of the proposed GEP route; from the boundary of the retention lease to the Blacktip GEP tie-in point; and
- 5km radius around the Blacktip GEP tie-in point.

The Operational Area is shown in Figure 3-1. Water depths within the Operational Area range from approximately 50 – 107m.

The general transit of the vessels to and from the Operational Area is not considered a petroleum activity and is excluded from the scope of this EP. These activities will be undertaken in accordance with the *Navigation Act 2012* (Cth).

3.1.2 Timing and Duration

Surveys will be undertaken throughout the entire Operational Area to inform the future development of the Petrel field. Surveys that will inform future exploration drilling will only be undertaken in the retention lease portion of the Operational Area.

Initial survey campaigns are expected to take place as early as Q1 2027, however surveys could occur anytime throughout the year over the duration of the in-force EP. Each campaign will encompass geophysical, geotechnical and environmental survey scopes.

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The geotechnical survey to support the development campaign has the longest duration of ~40 days. The surveys for the exploration campaign are shorter (~10 days each) as they will be carried out across the retention leases only. It should be noted that all durations are approximates and are subject to weather conditions.

Further survey campaigns may be undertaken anytime until 2030 (throughout the duration of the accepted EP) within the Operational Area to support additional exploration / appraisal well sites. These future survey campaigns will use similar techniques described in Section 3.2 and of similar durations as outlined in Table 3-1.

Table 3-1 provides a summary of the activities.

Table 3-1 Summary of the confirmed 2026 survey campaigns covered in this EP and duration

Survey Type	Survey Campaigns					
	Development			Exploration		
	Location	Expected Duration	Expected Timing	Location	Expected Duration	Expected Timing
Geophysical ¹	Operational Area	10 days	Q1-2017	Retention leases only	10 days	Anytime until 2030 (throughout the duration of the accepted EP).
Geophysical		30 days			10 days	
Environmental		20 days	Q1-2017		10 days	
Geotechnical		40 days	Q1-2017		10 days	

¹ 2D high Resolution (HR) / Very High Resolution (VHR) surveys only.

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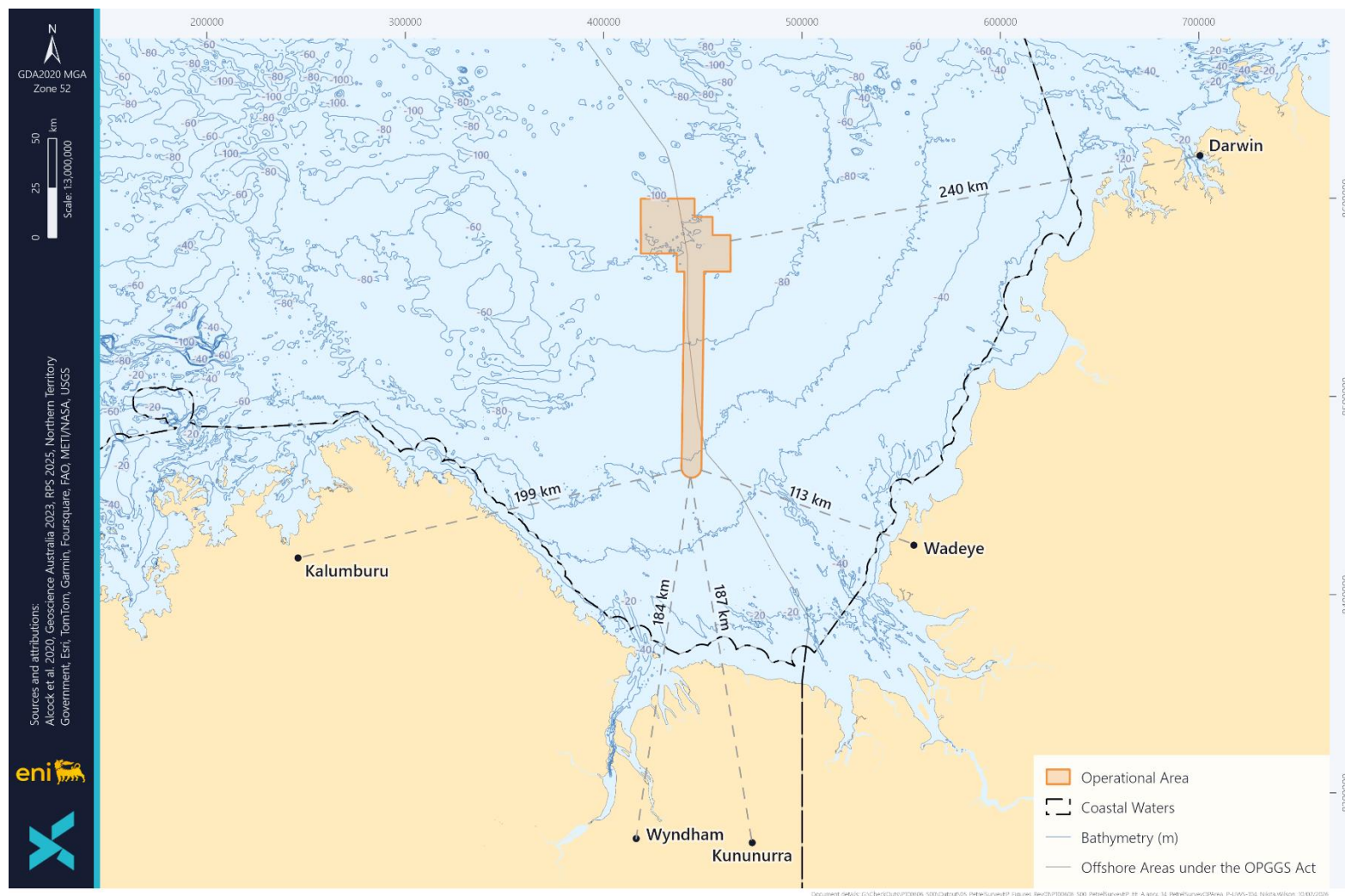


Figure 3-1: Petrel Survey Operational Area

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3.2 Survey Activities

Eni intends to undertake survey campaigns to obtain a range of geophysical, geotechnical and environmental baseline data to better understand existing environment and seabed characteristics within the Operational Area. The survey activities will be performed across the Operational Area (Figure 3-1).

The number of samples proposed for the initial campaign is detailed below.

Further survey campaigns may be undertaken anytime until 2030 (throughout the duration of the accepted EP) within the Operational Area to support additional exploration / appraisal well sites. These future survey campaigns will use similar techniques described in Section 3.2 and be of similar durations as outlined in Table 3-1.

The survey activities to be undertaken during each campaign under this EP may include the following:

- Geophysical survey scope comprising:
 - Combined acoustic sub-bottom profiling (SBP) (chirp) and Side-Scan Sonar (SSS);
 - Sub bottom profiler (SBP);
 - Single beam echosounder (SBES);
 - High precision, motion corrected multibeam echo sounder (MBES);
 - Ultrashort baseline (USBL) and;
 - Water sound velocity profiler (SVP);
 - Magnetometer;
 - Navigational sensors;
 - Doppler Velocity Log (DVL);
 - 2D High Resolution (HR) and Very High Resolution (VHR) surveys; and
 - ROV / drop camera surveys for video and imagery of the sea floor.
- Geotechnical survey scope comprising:
 - Downhole geotechnical drilling;
 - Cone penetration testing (CPT);
 - Coring (gravity piston core); and
 - Sediment sampling (box corer).
- Environmental surveys will include:
 - Water sampling;
 - Sediment sampling (box corer, day grab or modified Van Veen grab sampler); and

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- Benthic characterisation surveys including sediment sampling via grab sampling and seabed imagery or video. The video will also help with incidental observations of marine fauna.

3.2.1 Geophysical Surveys

A range of geophysical survey techniques will be used to understand seabed relief, substrate and hazards on or below the seabed and to inform the planning of activities such as drilling, subsea installation and well construction.

The surveys will gather detailed data concerning but not limited to:

- Water depth;
- Morphology and consistency of the seabed;
- Presence of potential seabed debris and obstructions;
- Stratigraphy of shallow formations (few tens of meters below seabed); and
- Potential presence of shallow gas pockets, faults and other anomalies that may represent hazards for future drilling operations (shallow hazard assessment up to about 1m below seabed) and the emplacement or operability of the structure to be installed.

To deploy the equipment, the following methods are proposed:

- SSS, SBP and magnetometer systems will be towed below the surface;
- MBES and USBL will be mounted on a pole under the survey vessel; and
- boomer system will be towed on the surface.

A summary of the geophysical techniques that will be employed in the survey activities covered under this EP is provided below.

SBP

Acoustic SBP systems are based on 'ping and chirp' type equipment, used to determine the physical properties of the sea floor and to image and characterize the geological formations below the sea floor. This equipment is low frequency (1–16kHz) with an indicative sound output at source ranging from 142 to 200dB re 1µPa@1m.

A SBP boomer (AAE 300 Boomer or similar) transmits a sharp, repeatable single pulse to determine the physical properties of the shallow seafloor subsurface. Indicative sound output at source level may range from 215 to 218dB re 1µPa@1m.

SSS

Use of SSS methods (Edgetech 2050 DSS or similar) will enable Eni to identify seabed obstructions or features. This type of survey is a hydro-acoustic technique, comprising a set of transducers mounted on either side of a towed vehicle. The transducers produce high frequency pulses (either 120kHz or 410kHz) which reflect seabed features. Indicative sound output at source may range from 137 to 200dB re 1µPa@1m.

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SBES

Echo sounder surveys will enable the collection of bathymetry data and the correlation of depth information. This type of survey uses a sonar system to transmit short pulses of sound energy, analysing the return signal from the seafloor or other objects.

A SBES (Odom Echotrac CV100 or similar) will be used to measure water depths along the survey track. The SBES can transmit within two selectable bands based on the specific transducer used: high (100kHz - 750kHz) and low (3.5kHz - 50kHz).

MBES

A high precision, motion corrected MBES (Kongsberg EM2040D or similar) will be used for swathe bathymetry mapping of water depths along the survey track. MBES transmits at frequencies between 200kHz and 400kHz with pulse lengths from 10 to 500µs. Indicative sound output at the source is equipment dependent and may range from 163 to 190dB re 1µPa@1m.

USBL

A complete USBL system (Sonardyne Ranger Pro USBL system or similar) consists of a transceiver, which is mounted on a pole under a vessel, and a transponder or responder on a towfish. A computer, or "topside unit", is used to calculate a position from the ranges and bearings measured by the transceiver.

An acoustic pulse is transmitted by the transceiver and detected by the subsea transponder, which replies with its own acoustic pulse. It emits a signal with a frequency of approximately 19kHz - 34kHz. This return pulse is detected by the shipboard transceiver. The time from the transmission of the initial acoustic pulse until the reply is detected is measured by the USBL system and is converted into a range.

SVP

Water SVP (Valeport Rapid SV, Swift SV or similar) will enable Eni to determine the speed of sound in the water column. It emits ultrasonic pulses at a frequency of approximately 2.5MHz. These high-frequency pulses travel between precisely spaced transducer elements. The time delay of each pulse is measured by the SVP system to calculate the water's sound velocity.

Magnetometer

The purpose is to check for the presence of any metal objects on or buried underneath the seabed, including unexploded ordnance (UXO). A magnetometer (Geometrics G-882 or similar) will be either hull-mounted or towed on a cable behind the vessel. The magnetometer measures the earth's magnetic field and does not emit any sound pulses, therefore not presenting an environmental hazard or threat.

Navigational Sensors

Navigational sensors (motion and orientation) including gyrocompass, heading, pitch, roll and heave sensors and Motion Reference Units (MRU) will be used on vessels to provide precise orientation and movement data for vessel operations.

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DVL

A DVL will measure velocity relative to the sea floor. They emit sound beams with a frequency of approximately 400–600kHz. A DVL is typically mounted to the bottom of a remotely operated vehicle (ROV) or an autonomous underwater vehicle (AUV).

2DHR and VHR Surveys

2DHR and VHR surveys will be conducted at proposed well sites to characterise drilling conditions across the top-hole section. 2DHR and VHR surveys may also be conducted across the proposed location of the Petrel platform location to a minimum depth of 150m below the seabed.

A VHR survey may also be conducted along the proposed GEP route to identify subsea geological structures and geohazards.

The 2DHR and VHR survey systems will involve:

- 2DHR – multichannel single cable with 4 x 40in³ airgun array operated at 3m ± 0.5m source depth; and
- VHR – single channel streamer sparker (Dura-Spark).

Refer to Section 7.4.2.2 for noise profile information.

ROV/Drop Camera

A camera will be used on the ROV for video and camera transects.

3.2.2 Geotechnical Surveys

Geotechnical surveying techniques will be required for the purposes of subsea structure design for the future Petrel Development, and to determine future exploration campaign drilling methods.

Downhole Geotechnical Drilling

Downhole geotechnical drilling will be completed to retrieve samples from the upper 120m of seabed for geotechnical analysis.

Either conventional rotary drilling with wireline sampling or seabed drilling systems may be employed. In case of vessel-mounted drilling system, it will be equipped with a seabed frame (5m x 5m) or clamp to ensure the drill string is stable during sampling and a heave compensator system adequate for the metocean condition at site. The seabed frame will be equipped with sufficient bearing area to avoid disturbance of the soft upper sediments and to guarantee the stability along the seabed slopes present at site.

Sampling will be performed by thin wall push (Shelby tube) or piston type sampler. The footprint of the piston sampler is ~0.0044m².

Rotary coring will be performed when hard soil/rock is encountered. The footprint of each rotary coring sample is ~0.0044m².

For the initial campaign it is proposed that downhole geotechnical samples will be taken at 10 stations in the retention leases portion. However, only the Development

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campaign will have up to 150 additional shallow cores along the GEP route. Up to 10 samples will be taken at each station, with up to 2m³ of cuttings discharged to the seafloor per core.

Cone Penetration Testing

Cone Penetration Testing (CPT) can be used to detect fine changes in stratigraphy. The method will most likely involve pushing a penetrometer (probe) into the seabed at a constant rate while continuously measuring the resistance, friction and water pressure.

Testing will be performed using a standard cone point with minimum base area of 10cm². The seabed frame (2.5 m × 2.5 m × 3 m) will be fitted with sufficiently large footings to ensure adequate bearing capacity, including in areas with very soft, shallow foundation soils (mud). This will allow full testing from the mudline and ensure stability on the seabed slopes present at the site.

The overall footprint of the CPT will not exceed 0.25m². For the initial campaign, CPT samples will be taken at 150 stations, with a total of 150 samples acquired.

Piston Coring

Gravity piston coring involves a steel sample tube (~85–105mm diameter), penetrating the seabed whilst freefalling under its own weight, to retrieve samples from the upper 100m of seabed for geotechnical analysis. No subsea hydraulic systems or electrical connections are required for the operation of a piston corer.

The footprint of the piston corer is 0.0044m². For the initial campaign, piston corer samples will be taken at 150 stations, with a total of 150 samples acquired.

Sediment Sampling

For the initial campaign, samples of seabed sediments will be collected for surface sediment analysis along potential future flowline and umbilical routes, and at well locations. A box corer will be used to obtain samples within the Operational Area. A box corer with dimensions of at least 0.5 x 0.5 x 0.5m will be used, equipped with Mini-Tbar testing apparatus.

The footprint of each sample will be 0.25m². For the initial campaign, box corer samples will be taken at ~21 stations, with up to 7 samples at each station.

Upon the completion of each survey technique, all equipment will be recovered to the vessel.

3.2.3 Environmental Surveys

Environmental baseline surveys are planned to further understand the environmental conditions throughout the Operational Area for the Petrel Development area. The outputs from this baseline survey will inform final locations for wells and subsea infrastructure in future EPs and inform impact assessments.

Water Sampling

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Water samples will be collected to validate the water quality in the operational area. Samples will be collected using a 5L Niskin bottle (or similar), with subsequent laboratory analysis of collected samples.

It is proposed water samples will be taken at ~24 stations.

Sediment Sampling

Samples of seabed sediments will be collected using either a box corer, day grab or modified Van Veen grab sampler. Sediment samples will be retrieved to the vessel and will be subject to laboratory analysis to determine sediment quality.

It is proposed sediment samples will be taken at ~24 stations, with a total of up to 7 samples acquired at each station. Both the box corer and day grab have a footprint of 0.1m² per sample.

A grab sampler will be used in case the box corer is unable to provide adequate penetration. The tool will have a self-closing mechanism controlled by a device that signals contact with the seafloor. The grab samples must guarantee maximum protection against washing when the samples are lifted onboard. A Van Veen type sampler is acceptable.

Benthic Characterisation

Benthic characterisation surveys will be carried out for infaunal analysis and epifaunal assessment within the operational area.

Infaunal analysis will be carried out on the samples obtained from the sediment sampling (described above) at ~24 stations. A limited number of additional stations may be included in the environmental survey sampling, as appropriate.

Upon the completion of each survey, all equipment will be recovered to the vessel.

Seabed imagery or video will be taken at ~30 ROV transects for epifaunal assessment.

Incidental marine fauna observations will also be recorded.

3.3 Support Operations

3.3.1 Vessel Operations

The survey activities will be conducted by multi-purpose survey vessels, operating 24 hours a day within the operational area.

During the geophysical, geotechnical and environmental survey campaigns, there will be only one survey vessel present in the Operational Area at any one time (refer to Table 3-1). Vessels are likely to mobilise out of Darwin Harbour.

The different surveys have different vessel requirements. Table 3-2 provides indicative vessels and an overview.

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Alternate vessels of similar specifications may be used during the survey campaigns throughout the duration of the accepted EP depending on availability, commercial procurement etc.

Table 3-2 Overview of vessels for survey campaigns

Survey	Overview	Approx. POB
Geophysical and environmental surveys	Multi-purpose catamaran vessel 35m in length	32 (max)
	Single hull vessel 44m in length	22 (max)
Geotechnical	76m length vessel for downhole drilling	58 (max)
	65.8m vessel for all other geotechnical survey activities	42 (max)

Activities associated with daily vessel operations include:

- Navigational lighting;
- Atmospheric emissions; and
- Operational discharges:
 - Sewage, greywater and food waste;
 - Cooling water and reverse osmosis brine; and
 - Deck drainage and bilge.

The survey vessels will not anchor in the Operation Area, and will use thrusters to maintain position. All vessels will be fuelled by marine diesel oil (MDO) or marine gas oil (MGO). The largest single fuel tank for the types of support vessels identified for the campaigns is expected to have a volume of ~130m³. No vessel bunkering or crew changes will take place within the Operational Area.

Vessels transiting to and from the operational area are not included in the scope of this EP. These vessels are deemed to be operating under the Commonwealth *Navigation Act 2012* and not performing a petroleum activity.

3.3.2 ROV Operations

ROV operations are proposed to support geophysical and environmental survey activities. ROVs are unoccupied, underwater vehicles that are tethered to a support vessel and may be fitted with various equipment, including a video camera and lights to undertake seabed imagery and video, and collect samples and equipment.

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4 DESCRIPTION OF THE ENVIRONMENT

This section summarises the key physical, biological, socio-economic and cultural characteristics of the existing environment that may be affected (EMBA) by the activity, both from planned and unplanned events associated with the Petrel petroleum activities. The EMBA by the petroleum activity within the scope of this EP has been defined as an area where a change to environmental receptors may potentially occur as a result of planned activities or unplanned events (Section 4.1).

The purpose of this section is to address the requirements of OPGGS(E) Sections 21(2) and 21(3) by describing the existing environment, including values and sensitivities that may be affected by both planned activities and unplanned events.

The description of the environment applies to two spatial areas:

1. the Operational Area (as defined in Section 3.1.1); and
2. the Environment that May Be Affected (EMBA) or low exposure zone (as defined in Section 4.1).

A third area is referenced in this EP. The zone of potential impact (ZPI) or moderate exposure zone (as defined below) is smaller than the EMBA and may be representative of an area of biological impact from hydrocarbons (refer Section 8.5 for more information).

The DCCEEW Protected Matters Search Tool (PMST) was used to identify MNES listed under the EPBC Act in the Operational Area and EMBA (APPENDIX B). This section is informed by this search.

4.1 Determination of the Environment that May be Affected

Stochastic hydrocarbon dispersion and fate modelling has been performed on the worst-case credible hydrocarbon releases from the petroleum activities (MDO spill of 130m³).

The EMBA (Figure 4-1) encompasses the outermost boundary of the worst-case spatial extent of the credible hydrocarbon release scenarios, based on the hydrocarbon low exposure values presented in Table 4-1 (NOPSEMA, 2025b). These exposure thresholds are justified in Section 8.5.2.5.

Table 4-1: Summary of environmental hydrocarbon thresholds applied to the EMBA and ZPI

Zone	Surface hydrocarbon (g/m ²)	Entrained hydrocarbon (ppb)	Dissolved aromatic hydrocarbon (ppb)	Shoreline contact hydrocarbon (g/m ²)
EMBA (low exposure)	1	10	10	10
ZPI (moderate exposure)	10	100	50	100

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Zone	Surface hydrocarbon (g/m ²)	Entrained hydrocarbon (ppb)	Dissolved aromatic hydrocarbon (ppb)	Shoreline contact hydrocarbon (g/m ²)
High exposure	50	1,000	300	1,000

Stochastic modelling compensates for the uncertainty associated with any single hydrocarbon spill event, such that risk assessment and spill response planning are more robust and conservative by covering a wide range of possible scenarios. The footprint of an actual spill event is more accurately represented by only one of the simulations from the stochastic modelling, resulting in a much smaller spatial footprint.

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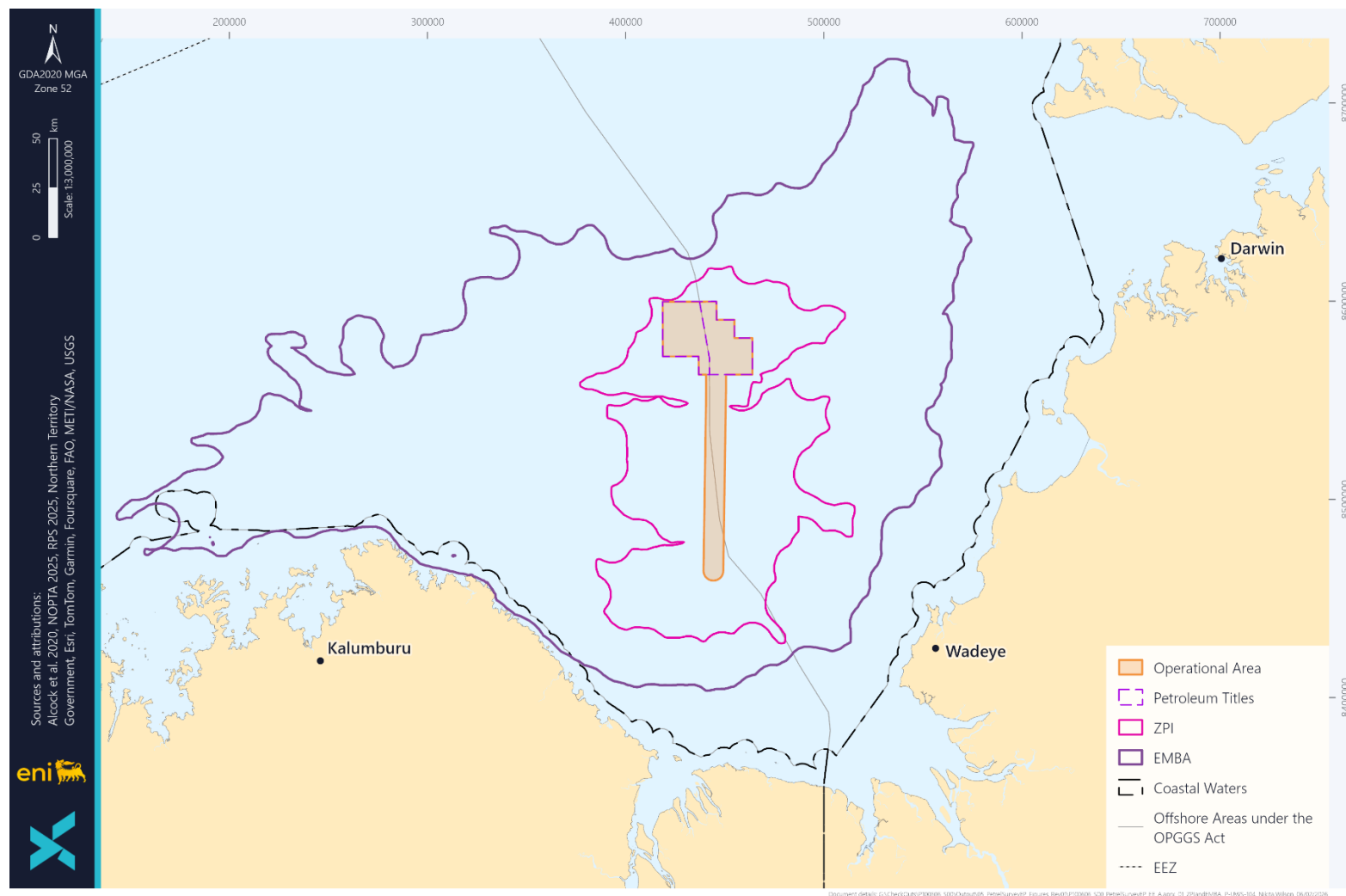


Figure 4-1: Operational Area, EMBA and ZPI for the Petrel Survey Activities

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4.2 Particularly Relevant Values and Sensitivities of the Environment

This section summarises environmental values and sensitivities, including physical, biological, social, economic and cultural features within the marine and coastal environment that are relevant to the Operational Area and EMBA.

Table 4-2 summarises the MNES (EPBC Act) identified as potentially occurring within the Operational Area and EMBA, respectively, as determined by the PMST results. Additional information about identified MNES is provided throughout this section.

Table 4-2: Summary of matters of national environmental significance within the Operational Area and EMBA.

MNES	Number in Operational Area	Number in EMBA	Relevant section
Commonwealth Marine Areas	1	1	N/A
World Heritage Properties	0	0	N/A
National Heritage Places	0	1	Section 4.5.3.2
Wetlands of International Importance (Ramsar)	0	0	Section 4.5.4
Listed Threatened Ecological Communities	0	0	N/A
Listed Threatened Species*	20	34	Section 4.4.3
Listed Migratory Species**	41	59	Section 4.4.3

Note 1: The EPBC Act categorises migratory and threatened species independently; therefore, migratory species can also be threatened.

Note 2: Terrestrial species (such as terrestrial mammals, reptiles, and bird species) that appear in the PMST results of the EMBA and do not have habitats along shorelines are not relevant to the Petrel Survey activities impacts and risks and have, therefore, not been included in these numbers.

4.3 Physical Environment

4.3.1 Bioregions

The Operational Area is located within the Joseph Bonaparte Gulf (JBG), which lies over the Sahul Shelf in the Timor Sea from west of Bathurst Island to the eastern boundary of the North-west Marine Region (Figure 4-2). The Joseph Bonaparte Gulf is a large (300km by 120km) shallow embayment situated on the northwest Australian coast (Taylor, 2004). The JBG is characterised by complex geomorphology, including:

- coastal, shelf and basin features in the JBG;
- dissected banks, shoals, valleys, and terraces on the Van Diemen Rise; and
- deeper areas on the shelf slope to the north of the Van Diemen Rise.

The JBG is an area of soft substrate expanses with localised rocky outcrops, gravel deposits and raised features. Some areas contain high densities of pockmarks and sand waves, and calcarenite subcrops occur in the far northwest in an 11km wide palaeo channel. Benthic communities are exposed to strong tidal currents, high turbidity, and substantial sediment mobility, with disturbance decreasing offshore.

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The Operational Area is located in the upper (outer) reaches of the JBG, in an area of relatively flat, featureless seabed. Sediments are predominantly very soft, grey-green, gravelly sand clays (Woodside, 2004).

The Bonaparte Basin, which dominates the western portion of the JBG system, was formed between 15,000 to 13,000 years ago after rapid sea level rise inundated most of the Sahul Shelf, creating fully open marine conditions within the area known as the Bonaparte Depression. During the late quaternary, the environment of the Bonaparte Depression varied with fluctuating sea levels and climatic conditions, from an estuarine embayment to a shallow, freshwater lake. Extensive palaeo-river channels, some up to 150km long, 5km wide and 240m deep, connect the present-day basin to the old shoreline at the edge of the shelf (Heyward et al., 1997).

The JBG has been included in several continent-scale habitat classifications. The most recent being the Commonwealth bioregionalisation (IMCRA 4.0) which places most of the JBG into a single provincial bioregion the Northwest Shelf Transition. The Operational Area and EMBA are both located solely within the Northwest Shelf Transition (Section 4.3.1.1).

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4.3.1.1 Northwest Shelf Transition

The Northwest Shelf Transition crosses both the north-west marine region (NWMR) and the north marine region (NMR) and is overlapped by the Operational Area. The provincial bioregion is characterised by the following biophysical features (DSEWPaC, 2012d):

- Located mostly on the continental shelf, with some small areas extending onto the continental slope;
- Water depths range between 0-330m, with the majority of the bioregion occurring in depths of 10-100m;
- The Indonesian Throughflow (ITF) is the dominant oceanographic feature and dominates the majority of the water column;
- The strength of the ITF and its influence in the bioregion varies seasonally in association with the North-west Monsoon;
- Contains a variety of geomorphic features, including terraces, plateaus, sand banks, canyons and reefs; and
- The biological communities of the Northwest Shelf Transition are typical of Indo-west Pacific tropical flora and fauna and occur across a range of soft-bottom and harder substrate habitats.

4.3.2 Hydrography and Oceanography

The oceanographic environment of the Joseph Bonaparte Gulf region is dominated by diurnal and semi-diurnal tides featuring some of the largest tidal energies observed anywhere in the world, with tidal sea level ranges exceeding 8 m along the western side of the Gulf during the spring tide (CSIRO, 2005). There is a well-defined spring-neap lunar cycle, with spring tides occurring two days after the new and full moon.

The average and maximum current speeds were 0.34m/s and 1.26m/s, respectively. During all seasons the dominant current directions were along the northwest-southeast axis as a result of the influence of the ebb and flood tide dynamics in the region (RPS, 2025).

Mean monthly surface temperatures in the Joseph Bonaparte Gulf region vary between about 26°C between July and August and 30°C during December (RPS, 2025).

The water column is well mixed all year round with respect to temperature, due to the large tidal range and strength of currents (ERM, 2011).

Baseline surveys carried out in 2010 and 2011 showed that seawater temperature was consistent across the area. Temperature gradients throughout the water column did not display a thermocline, instead a vertical gradient in seawater temperature was observed across in which temperature decreased progressively from the surface to the bottom ranging from 32.0°C to 25.3°C. Temperature was around 2°C greater in the second survey, attributed by the warmer and calmer conditions at the end of summer, when survey two was completed (ERM, 2011).

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4.3.3 Bathymetry and Seabed Morphology

The majority of the Northwest Shelf Transition is located on the continental shelf, with only a small area extending onto the continental slope. This bioregion is characterised by complex geomorphology, including:

- Shelves, such as the Sahul Shelf and Arafura Shelf;
- Shoals, such as Flinders–Evans Shoals;
- Banks, such as Van Diemen Rise;
- Terraces;
- Basins, such as the Bonaparte Basin; and
- Valleys, such as the Bonaparte Depression and Malita Shelf Valley, which provides a significant connection between the Joseph Bonaparte Gulf and the Timor Trough.

Areas of patch, fringing and rocky reefs are found closer to the coast (DEWHA, 2008). The bioregion contains 90% of the Region's carbonate banks/shoals (Baker et al., 2008). Carbonate banks and shoals occur predominantly in the Joseph Bonaparte Gulf, and consist of a hard substrate with flat tops and steep sides that rise from water depths of 150–300m (Baker et al., 2008).

The Petrel field is located on one of the prominent geomorphic features of the bioregion, the Sahul Shelf (Baker et al., 2008).

The seabed across the Petrel field is generally smooth, with numerous isolated pockmarks up to 25m diameter and 0.5m deep, and several clusters of smaller, shallow pockmarks scattered across the site. A network of shallow channels meanders through the site. In the south-east there is a prominent central channel approximately 400m wide and 3m deep. This channel divides into a network of narrower channels between 100m and 300m wide and up to 1m deep (Fugro 2010).

The distribution of seabed sediments in the Joseph Bonaparte Gulf and contained within the Sahul Shelf reflect the present-day oceanographic condition and display a distinct seaward fining pattern (Baker et al., 2008). Seabed sediments are predominantly carbonate sands mostly transported by strong tidal currents and seasonal cyclones (van Andel and Veever 1967). Terrigenous sediments reach the Sahul Shelf from large river systems (e.g., Victoria River System) (Baker et al., 2008).

4.3.4 Water Quality

Surface seawater salinities in the tropics are generally 34–35ppt and vary little between seasons (Middleton, 1995 in Shell 2009). Modelled seawater salinity profiles indicated that there is little variation in salinity through the water column, ranging between 33.7ppt (August) and 35.4ppt (March) (RPS, 2025). This is supported by field data showing that salinity and specific conductivity were similar across the Petrel field, and found to slightly increase with depth (ERM, 2011). There is a small variation in salinity and specific conductivity between seasonal surveys with a slight increase in both parameters in the dry season (ERM, 2011).

Dissolved oxygen (DO) concentration ranged from a minimum of 3.64mg/L (49.8%) near the seabed to 7.80mg/L (117.2%) at the sea surface. DO was found to decrease

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with depth consistently across all fields. Such variation is often linked to higher photosynthetic activity at the seawater surface and wave and wind generated mixing. These values are typical of unpolluted seawater (ERM, 2011).

Total suspended solids (TSS) were largely not detected across the area during the time of sampling. The samples that did report detections, had concentrations marginally above the laboratory LOR of 5mg/L with no differences observed between surface and bottom measurements. These data represent relatively low suspended solid values as would be expected for offshore waters in the region (ERM, 2011).

Surveys completed in 2010 and 2011 showed that water quality in the Petrel field is relatively pristine with results typical of nutrient poor (oligotrophic) offshore northern Australian waters (ERM, 2011):

- Total petroleum hydrocarbons, BTEX (benzene, toluene, ethylbenzene, and xylenes) and polyaromatic hydrocarbons (PAH) were not detected in any samples from across all fields;
- There was no major spatial variation evident among fields, or difference in metal concentration between the surface and bottom measurements. Concentration of the metals analysed were all below their respective trigger values as defined by the Australian and New Zealand Environment Conservation Council (ANZECC, 2000);
- The concentration of radionuclides (radium 226 and 228) was relatively uniform and low across all fields and depths with concentrations either below or marginally above the limit of reporting (LOR) of 0.03 Bq/L;
- The concentration of nutrients (nitrogen and phosphorous) were similar and low across all fields and depths with mean nitrate + nitrite as N, TKN, and phosphorous concentrations either being below or only slightly above the laboratory LOR;
- Chlorophyll was not detected in any samples from across all fields with all samples reporting concentrations below the laboratory LOR; and
- Dissolved oxygen decreases very steadily with increasing water depth through the water column.

4.3.5 Air Quality

There is currently no air quality data recorded within the vicinity of the Operational Area. However, given the distance from land, air quality is expected to be relatively high.

Potential sources of air pollution associated with anthropogenic influences are expected to be emissions generated by shipping, and oil and gas activities, and therefore considered to be localised in relation to the regional setting.

4.3.6 Benthic Habitats and Communities

Benthic habitats refer to subtidal environments located below the lowest astronomical tide, where conditions are largely shaped by the availability of light. Their biodiversity and productivity shift according to factors such as depth, light penetration, temperature, and sediment type (Brewer et al., 2007). The depth of the photic zone—the upper layer of the ocean that receives sunlight—changes across space and time, mainly influenced

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by the amount of suspended material in the water column. In the offshore northern region, however, this zone can extend down to around 100 m (DEWHA, 2008). Modelling studies indicate that species richness tends to decline with increasing depth and distance from shore, particularly in waters deeper than 50 m within the Northwest Marine Region (Przeslawski et al., 2011).

The Operational Area is situated within the Northwest Shelf Transition Provincial Bioregion, an area characterised by comparatively shallow waters reaching depths of up to around 330m (DEWHA, 2008). This bioregion supports a range of benthic habitats, including coral communities, seagrass meadows, macroalgae, and various invertebrate assemblages. Despite this diversity, most of the JBG consists of infaunal plains—broad, soft-sediment environments with occasional rocky outcrops, sparse epifauna, and communities dominated by infaunal species (Przeslawski and Nichol, 2012). The Operational Area is located within these infaunal plains.

Eni commissioned a detailed baseline assessment of benthic communities and habitats within the Operational Area, including the GEP route and retention lease areas (O2 Marine, 2025, APPENDIX D). Field survey locations are shown in Figure 4-3. Benthic imagery was collected using a vessel-deployed drop camera, which recorded sparse benthic biota across all sites. Most areas consisted of bare sediment with no visible organisms. Where biota occurred, it was limited to scattered ascidians, sponges, hydroids, soft corals and occasional octocorals, typically within the 0–1% or 1–10% cover classes. These organisms appeared as isolated colonies or small, discontinuous patches and did not form reefal or habitat-forming structures. Macroalgae and seagrass were absent, aside from occasional drift algae or wrack that was unattached and transient.

There were no discernible differences between transects along the GEP corridor, within the retention lease areas, or those positioned elsewhere within the Operational Area. Substrate type, benthic cover, and biota composition showed minimal variability, and no spatial patterns indicative of discrete habitat zones or environmental gradients were identified. Epifaunal occurrences were patchy and localised, typically comprising isolated filter-feeding organisms rather than persistent assemblages. This lateral homogeneity aligns with findings from previous offshore investigations in the JBG and adjacent Timor Sea, which similarly describe widespread soft-sediment habitats with low biological structure and limited mesoscale variability (e.g. Fugro, 2017; Inpex, 2019; Santos, 2020). Collectively, the observed patterns indicate that benthic habitats within the survey area are representative of the broader regional seabed environment; laterally extensive but biologically sparse, consistent with conditions documented elsewhere across the JBG (O2 Marine, 2025; APPENDIX D).

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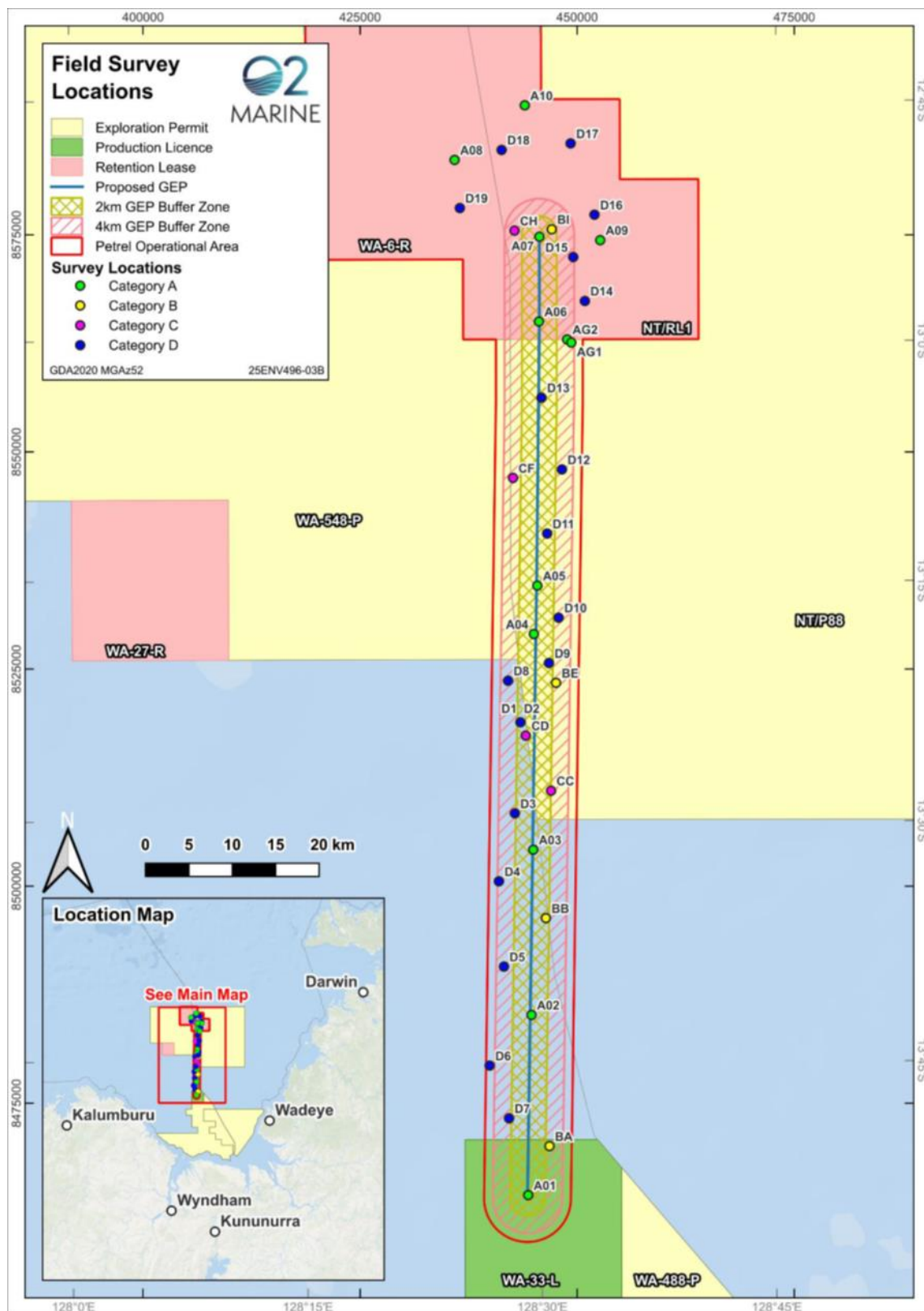


Figure 4-3: Location of the 39 Sites Across the Petrel Operational Area (O2 Marine, 2025)

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4.3.7 Existing Infrastructure

In 2010 while the Petrel field was under the operatorship of Santos, a full field site survey in NT/RL1 was performed. This site survey was undertaken to confirm the bathymetry, shallow geological profiles, confirm the location of existing wells and identify the location of any debris within the field location (Table 4-3) (Fugro Survey, 2013; Tamboritha Survey, 2021).

Table 4-3: Existing infrastructure located within the Operational Area

Well Name	Year	Well Locations (GDA 94)		Reported Status
		Easting	Northing	
Petrel-1	1969	443,157	8,582,240	Suspended
Petrel-1A	1970	442,892	8,581,728	Plugged and Abandoned
Petrel-2	1971	447,476	8,579,220	Plugged and Abandoned
Petrel-3	1981	453,438	8,570,134	Suspended
Petrel-4	1988	445,319	8,575,307	Suspended
Petrel-5	1994	435,908	8,583,543	Plugged and Abandoned
Petrel-6	1995	441,068	8,584,975	Plugged and Abandoned
Petrel-7	2011	452,673	8,574,193	Plugged and Abandoned
Sedco Helen	1970	443,524	8,581,502	Vessel Wreck

These initial and subsequent surveys identified debris within the vicinity of the Petrel-1 and 1A wells comprising of sections of drilling riser. Petrel-1 and 1A are located approximately 7.45km and 7.06km respectively from the proposed location of the platform.

Petrel-3 and Petrel-4 were drilled and suspended in 1981 and 1988 respectively, with wellheads remaining in-situ. Eni plans to permanently abandon these wells, which is covered under the accepted Petrel-3 and Petrel-4 Monitoring and Decommissioning EP (Eni, 2025).

At the southern end of the GEP portion of the Operational Area is the Blacktip WHP and associated infrastructure. This facility has been operated by Eni since 2009, and consists of the WHP, two producing wells, and the Blacktip GEP transporting gas and fluids to shore for processing at the YGP (Eni, 2024b). The Blacktip Drilling EP allows for drilling and completions of a new production well through an existing slot on the WHP (between 2024 and 2027; Eni, 2024a).

4.4 Ecological Environment

4.4.1 Plankton

Plankton species, including both phytoplankton and zooplankton, are a key component in oceanic food chains. Scientists classify plankton in several ways, including by size, type, and how long they spend drifting. But the most basic categories divide plankton into two groups: phytoplankton (plants) and zooplankton (animals).

Phytoplankton are autotrophic planktonic organisms living within the photic zone; and are the start of the food chain in the ocean (McClatchie et al., 2006). Phytoplankton are dependent on oceanographic processes (e.g. currents and vertical mixing), that supply nutrients needed for photosynthesis. Thus, phytoplankton biomass is typically variable

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(spatially and temporally), but greatest in areas of upwelling, or in shallow waters where nutrient levels are high.

Phytoplankton assemblages recorded across the Petrel field was characteristic of offshore tropical waters. Phytoplankton assemblages were dominated by the cyanobacteria during the 2010 wet season survey, which comprised 99.7% of identified algal cells. During 2011 dry season survey, the phytoplankton assemblage was largely dominated by the diatoms (Bacillariophyceae) (ERM, 2011).

Zooplankton is the faunal component of plankton, comprised of small protozoa, crustaceans (e.g. krill) and the eggs and larvae from larger animals. Zooplankton includes species that drift with the currents and also those that are motile.

Sampling indicated that larval fishes during both seasons were found to be dominated by the Serranidae (Cods) and Lutjanidae (Snappers), both of which are species of interest targeted by commercial fisheries in the region. Larval fish density also varied seasonally with the 2011 dry season recording highest densities of larval fishes in the zooplankton. This seasonal effect is consistent with the notion of an extended spawning season (and possibly planktonic larval duration) of the reef species dominating the larval fish assemblage in the study area at this time.

Zooplankton sampling indicated that copepods represented the most dominant group within the macro-zooplankton assemblage in both the 2010 wet season and 2011 dry season. The density of these macro-zooplankton varied significantly among seasons, with an overall greater density of these animals recorded during 2010 wet season. The greater density of macro-zooplankton may be indicative of higher primary productivity in the summer months fuelling population increases of the zooplankton (secondary productivity) at this time. Overall zooplankton density varied at the level of the assemblage with statistically distinct assemblages found within both the 2010 wet season and 2011 dry season.

4.4.2 Marine Invertebrates

Marine invertebrates comprise a variety of different organisms that can live in either the benthic or pelagic zone (Brewer et al. 2007). The most common marine invertebrates include:

- Sponges;
- Cnidarians (e.g. hydroids, anemones, jellyfish);
- Marine worms;
- Arthropods (e.g. krill, prawn, crabs, lobster);
- Molluscs (e.g. nudibranch, sea slugs, mussels, oysters, squid, octopus);
- Echinoderms (e.g. sea stars, sea urchins, sea cucumbers);
- Hemichordates (e.g. acorn worms); and
- Lophophorates (e.g. bryozoans).

A survey conducted in November 2011 recorded benthic infauna assemblages across the Petrel field. Results were similar to that of other studies in the bioregion in terms of the species, diversity and biomass (ERM, 2011). Infauna is documented to occur in

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coastal waters to depths of approximately 200m and are widely distributed through subtropical and tropical waters of Western Australia (ERM, 2011).

A total of 18 benthic habitat sites were sampled in November 2011 with depths ranging from 85-99m. Benthic habitat mapping found that generally the seabed composition was similar, with sparse sessile benthos except for an unidentified white colonial organism (presently recorded as a hydrozoa) across all sampled fields. Estimated percentage cover was low for octocorals and sponges (~2% for each) while the unidentified hydroid comprised between 11-30% at all sites (ERM, 2011).

No protected invertebrates were identified by the PMST search.

Several commercial fisheries have previously operated within the Operational Area and EMBA, as outlined in Section 4.6.1. Commercially important invertebrates for fisheries include prawn and crab species.

Prawn

Banana prawn and tiger prawns are main targets of fisheries operating within the vicinity of Operational Area and EMBA (i.e., Northern Prawn Fishery). Both prawn species may be found between coastal waters and deep offshore environments. Shallower inshore waters act as nursery grounds for juveniles, such as the river and tidal creek systems of the JBG. As adults, the tiger prawns are found in water depths up to 200m while juveniles are found in shallower waters often in associated with seagrass or coral platforms (AFMA, 2023). The banana prawn is generally found in water depths of 16-25m but may occur up to 45m or 90m depending on the subspecies (AFMA, 2023).

Given their preferred habitat, occurrence of prawns within the Operational Area is considered likely.

Crab

Coastal salt flats are important habitat for mud crabs which are the key target species of the Kimberley Crab Managed Fishery and an important food source for First Nations people. Adult mud crabs generally inhabit muddy estuaries and enclosures in mangrove ecosystems and tidal flats that are influenced by tidal waters, while juveniles reside in the upper intertidal and remain there during low tide (DPIR, 2017).

Mud crabs are benthic predators that feed on sessile or slow-moving benthic macroinvertebrates, mainly gastropods, crustaceans, and molluscs.

Given their preferred coastal habitat, occurrence of mud crabs within the Operational Area is considered unlikely.

4.4.3 Threatened and Migratory Fauna

A search of the EPBC PMST was undertaken using areas that covered the full extent of the Operational Area, ZPI and EMBA, respectively, to identify MNES under the EPBC Act (DCCEEW, 2025a). Full PMST Reports for the Operational Area, ZPI and EMBA are included in APPENDIX B. For each species identified, the extent of likely presence is provided.

Recovery Plans are also in place for some species and set out the research and management actions necessary to stop the decline of and support the recovery of listed

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threatened species. Relevant conservation advice, recovery plans and management plans for marine fauna identified in the PMST for the Operational Area, ZPI and the EMBA are provided in Table 2-3. A summary of the specific requirements of the plans relevant to the Activity have also been included, as well as how the current management actions have been taken into account.

BIAs such as an aggregation, breeding, resting, nesting or feeding area, or known migratory routes for these species within the Operational Area, ZPI and EMBA, have been identified in in Section 4.4.4 and Section 4.4.4.1, respectively.

Note that terrestrial species (such as terrestrial mammals, reptiles and bird species) that appear in the EPBC search of the EMBA and do not have habitats along shorelines are not relevant to the Activity impacts and risks have been excluded from Table 4-4.

Marine turtles have been identified as a key environmental value and sensitivity relevant to the Activity, with information provided in Section 4.4.8.

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Table 4-4: Commonwealth listed threatened, migratory and marine listed species within the Operational Area, ZPI and EMBA

Scientific Name	Common Name	Threatened Status	Migratory Category	Listed Marine Species	Presence in OA	Presence in ZPI	Presence in EMBA
Birds							
<i>Limnodromus semipalmatus</i>	Asian Dowitcher	Vulnerable	Migratory Wetlands Species	Listed	-	-	Species or species habitat may occur within area
<i>Rostratula australis</i>	Australian Painted Snipe	Endangered	-	Listed	-	-	Species or species habitat likely to occur within area
<i>Hirundo rustica</i>	Barn Swallow	-	Migratory Terrestrial Species	Listed	-	-	Species or species habitat may occur within area
<i>Limosa lapponica</i>	Bar-tailed Godwit	-	Migratory Wetlands Species	Listed	-	-	Species or species habitat likely to occur within area
<i>Chalcites osculans</i>	Black-eared Cuckoo	-	-	Listed	-	-	Species or species habitat may occur within area
<i>Onychoprion anaethetus</i>	Bridled Tern	-	Migratory Marine Birds	Listed	-	-	Breeding likely to occur within area
<i>Bubulcus ibis</i>	Cattle Egret	-	-	Listed	-	-	Species or species habitat

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Scientific Name	Common Name	Threatened Status	Migratory Category	Listed Marine Species	Presence in OA	Presence in ZPI	Presence in EMBA
							may occur within area
<i>Anous stolidus</i>	Common Noddy	-	Migratory Marine Birds	Listed	Species or species habitat may occur within area	Species or species habitat may occur within area	Species or species habitat may occur within area
<i>Actitis hypoleucos</i>	Common Sandpiper	-	Migratory Wetlands Species	Listed	Species or species habitat may occur within area	Species or species habitat may occur within area	Species or species habitat likely to occur within area
<i>Calidris ferruginea</i>	Curlew Sandpiper	Critically Endangered	Migratory Wetlands Species	Listed	Species or species habitat may occur within area	Species or species habitat may occur within area	Species or species habitat may occur within area
<i>Numenius madagascariensis</i>	Eastern Curlew, Far Eastern Curlew	Critically Endangered	Migratory Wetlands Species	Listed	Species or species habitat may occur within area	Species or species habitat may occur within area	Species or species habitat likely to occur within area
<i>Apus pacificus</i>	Fork-tailed Swift	-	Migratory Marine Birds	Listed	-	-	Species or species habitat likely to occur within area
<i>Chloebia gouldiae</i>	Gouldian Finch	Endangered	-	-	-	-	Species or species habitat likely to occur within area
<i>Fregata minor</i>	Great Frigatebird,	-	Migratory Marine Birds	Listed	Species or species habitat	Species or species habitat	Species or species habitat

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Scientific Name	Common Name	Threatened Status	Migratory Category	Listed Marine Species	Presence in OA	Presence in ZPI	Presence in EMBA
	Greater Frigatebird				may occur within area	likely to occur within area	likely to occur within area
<i>Thalasseus bergii</i>	Greater Crested Tern	-	Migratory Wetlands Species	Listed	-	-	Breeding likely to occur within area
<i>Charadrius leschenaultii</i>	Greater Sand Plover, Large Sand Plover	Vulnerable	Migratory Wetlands Species	Listed	-	-	Species or species habitat likely to occur within area
<i>Motacilla cinerea</i>	Grey Wagtail	-	Migratory Terrestrial Species	Listed	-	-	Species or species habitat may occur within area
<i>Thalasseus bengalensis</i>	Lesser Crested Tern	-	-	Listed	-	Breeding likely to occur within area	Breeding likely to occur within area
<i>Fregata ariel</i>	Lesser Frigatebird, Least Frigatebird	-	Migratory Marine Birds	Listed	Species or species habitat likely to occur within area	Species or species habitat likely to occur within area	Species or species habitat likely to occur within area
<i>Sternula albifrons</i>	Little Tern	Vulnerable	Migratory Marine Birds	Listed	-	-	Species or species habitat may occur within area
<i>Anseranas semipalmata</i>	Magpie Goose	-	-	Listed	-	-	Species or species habitat may occur within area

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Scientific Name	Common Name	Threatened Status	Migratory Category	Listed Marine Species	Presence in OA	Presence in ZPI	Presence in EMBA
<i>Tyto novaehollandiae kimberli</i>	Masked Owl (northern)	Vulnerable	-	-	-	-	Species or species habitat likely to occur within area
<i>Limosa lapponica menzbieri</i>	Northern Siberian Bar-tailed Godwit, Russkoye Bar-tailed Godwit	Endangered	-	-	-	-	Species or species habitat likely to occur within area
<i>Cuculus optatus</i>	Oriental Cuckoo, Horsfield's Cuckoo	-	Migratory Terrestrial Species	-	-	-	Species or species habitat may occur within area
<i>Charadrius veredus</i>	Oriental Plover, Oriental Dotterel	-	Migratory Wetlands Species	Listed	-	-	Species or species habitat may occur within area
<i>Glareola maldivarum</i>	Oriental Pratincole	-	Migratory Wetlands Species	Listed	-	-	Species or species habitat may occur within area
<i>Acrocephalus orientalis</i>	Oriental Reed-Warbler	-	Migratory Wetlands Species	Listed	-	-	Species or species habitat may occur within area
<i>Pandion haliaetus</i>	Osprey	-	Migratory Wetlands Species	Listed	Species or species habitat	Species or species habitat	Species or species habitat

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Scientific Name	Common Name	Threatened Status	Migratory Category	Listed Marine Species	Presence in OA	Presence in ZPI	Presence in EMBA
					may occur within area	may occur within area	likely to occur within area
<i>Calidris melanotos</i>	Pectoral Sandpiper	-	Migratory Wetlands Species	Listed	Species or species habitat may occur within area	Species or species habitat may occur within area	Species or species habitat may occur within area
<i>Merops ornatus</i>	Rainbow Bee-eater	-	-	Listed	-	-	Species or species habitat may occur within area
<i>Erythrotriorchis radiatus</i>	Red Goshawk	Endangered	-	-	-	-	Species or species habitat likely to occur within area
<i>Calidris canutus</i>	Red Knot, Knot	Vulnerable	Migratory Wetlands Species	Listed	Species or species habitat may occur within area	Species or species habitat may occur within area	Species or species habitat may occur within area
<i>Cecropis daurica</i>	Red-rumped Swallow	-	Migratory Terrestrial Species	Listed	-	-	Species or species habitat may occur within area
<i>Phaethon rubricauda</i>	Red-tailed Tropicbird	-	Migratory Marine Birds	Listed	Species or species habitat likely to occur within area	Species or species habitat likely to occur within area	Species or species habitat likely to occur within area

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Scientific Name	Common Name	Threatened Status	Migratory Category	Listed Marine Species	Presence in OA	Presence in ZPI	Presence in EMBA
<i>Phaethon rubricauda westralis</i>	Red-tailed Tropicbird (Indian Ocean), Indian Ocean Red-tailed Tropicbird	Endangered	-	-	Species or species habitat likely to occur within area	Species or species habitat likely to occur within area	Species or species habitat likely to occur within area
<i>Sterna dougallii</i>	Roseate Tern	-	Migratory Marine Birds	Listed	-	-	Foraging, feeding or related behaviour likely to occur within area
<i>Calidris acuminata</i>	Sharp-tailed Sandpiper	Vulnerable	Migratory Wetlands Species	Listed	Species or species habitat may occur within area	Species or species habitat may occur within area	Species or species habitat likely to occur within area
<i>Chroicocephalus novaehollandiae</i>	Silver Gull	-	-	Listed	-	-	Breeding likely to occur within area
<i>Calonectris leucomelas</i>	Streaked Shearwater	-	Migratory Marine Birds	Listed	Species or species habitat likely to occur within area	Species or species habitat likely to occur within area	Species or species habitat likely to occur within area
<i>Haliaeetus leucogaster</i>	White-bellied Sea-Eagle	-	-	Listed	-	-	Species or species habitat likely to occur within area
<i>Phaethon lepturus</i>	White-tailed Tropicbird	-	Migratory Marine Birds	Listed	Species or species habitat	Species or species habitat	Species or species habitat

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Scientific Name	Common Name	Threatened Status	Migratory Category	Listed Marine Species	Presence in OA	Presence in ZPI	Presence in EMBA
					may occur within area	may occur within area	likely to occur within area
<i>Motacilla flava</i>	Yellow Wagtail	-	Migratory Terrestrial Species	Listed	-	-	Species or species habitat likely to occur within area
Fish, Sharks and Rays							
<i>Corythoichthys intestinalis</i>	Australian Messmate Pipefish, Banded Pipefish	-	-	Listed	Species or species habitat may occur within area	Species or species habitat may occur within area	Species or species habitat may occur within area
<i>Doryrhamphus dactyliophorus</i>	Banded Pipefish, Ringed Pipefish	-	-	Listed	Species or species habitat may occur within area	Species or species habitat may occur within area	Species or species habitat may occur within area
<i>Hippichthys penicillus</i>	Beady Pipefish, Steep-nosed Pipefish	-	-	Listed	Species or species habitat may occur within area	Species or species habitat may occur within area	Species or species habitat may occur within area
<i>Trachyrhamphus bicoarctatus</i>	Bentstick Pipefish, Bend Stick Pipefish, Short-tailed Pipefish	-	-	Listed	Species or species habitat may occur within area	Species or species habitat may occur within area	Species or species habitat may occur within area
<i>Doryrhamphus excisus</i>	Bluestripe Pipefish, Indian Blue-stripe Pipefish, Pacific	-	-	Listed	Species or species habitat may occur within area	Species or species habitat may occur within area	Species or species habitat may occur within area

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Scientific Name	Common Name	Threatened Status	Migratory Category	Listed Marine Species	Presence in OA	Presence in ZPI	Presence in EMBA
	Blue-stripe Pipefish						
<i>Hippichthys cyanospilos</i>	Blue-speckled Pipefish, Blue-spotted Pipefish	-	-	Listed	-	Species or species habitat may occur within area	Species or species habitat may occur within area
<i>Halicampus brocki</i>	Brock's Pipefish	-	-	Listed	Species or species habitat may occur within area	Species or species habitat may occur within area	Species or species habitat may occur within area
<i>Doryrhamphus janssi</i>	Cleaner Pipefish, Janss' Pipefish	-	-	Listed	Species or species habitat may occur within area	Species or species habitat may occur within area	Species or species habitat may occur within area
<i>Bhanotia fasciolata</i>	Corrugated Pipefish, Barbed Pipefish	-	-	Listed	Species or species habitat may occur within area	Species or species habitat may occur within area	Species or species habitat may occur within area
<i>Syngnathoides biaculeatus</i>	Double-end Pipehorse, Double-ended Pipehorse, Alligator Pipefish	-	-	Listed	Species or species habitat may occur within area	Species or species habitat may occur within area	Species or species habitat may occur within area
<i>Pristis clavata</i>	Dwarf Sawfish, Queensland Sawfish	Vulnerable	Migratory Marine Species	-	Species or species habitat likely to occur within area	Species or species habitat likely to occur within area	Species or species habitat likely to occur within area

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Scientific Name	Common Name	Threatened Status	Migratory Category	Listed Marine Species	Presence in OA	Presence in ZPI	Presence in EMBA
<i>Corythoichthys amplexus</i>	Fijian Banded Pipefish, Brown-banded Pipefish	-	-	Listed	Species or species habitat may occur within area	Species or species habitat may occur within area	Species or species habitat may occur within area
<i>Hippocampus planifrons</i>	Flat-face Seahorse	-	-	Listed	Species or species habitat may occur within area	Species or species habitat may occur within area	Species or species habitat may occur within area
<i>Mobula birostris</i>	Giant Manta Ray	-	Migratory Marine Species	-	Species or species habitat likely to occur within area	Species or species habitat likely occur within area	Species or species habitat likely to occur within area
<i>Festucalex cinctus</i>	Girdled Pipefish	-	-	Listed	-	Species or species habitat may occur within area	Species or species habitat may occur within area
<i>Pristis zijsron</i>	Green Sawfish, Dindagubba, Narrowsnout Sawfish	Vulnerable	Migratory Marine Species	-	Species or species habitat likely to occur within area	Species or species habitat likely to occur within area	Species or species habitat likely to occur within area
<i>Carcharias taurus</i>	Grey Nurse Shark	-	Migratory Marine Species	-	Species or species habitat may occur within area	Species or species habitat may occur within area	Species or species habitat may occur within area
<i>Solegnathus lettiensis</i>	Gunther's Pipehorse, Indonesian Pipefish	-	-	Listed	Species or species habitat may occur within area	Species or species habitat may occur within area	Species or species habitat may occur within area

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Scientific Name	Common Name	Threatened Status	Migratory Category	Listed Marine Species	Presence in OA	Presence in ZPI	Presence in EMBA
<i>Hippocampus spinosissimus</i>	Hedgehog Seahorse	-	-	Listed	Species or species habitat may occur within area	Species or species habitat may occur within area	Species or species habitat may occur within area
<i>Pristis pristis</i>	Freshwater Sawfish, Largetooth Sawfish, River Sawfish, Leichhardt's Sawfish, Northern Sawfish	Endangered	Migratory Marine Species	-	Species or species habitat may occur within area	Species or species habitat may occur within area	Species or species habitat may occur within area
<i>Isurus paucus</i>	Longfin Mako	-	Migratory Marine Species	-	Species or species habitat likely to occur within area	Species or species habitat likely to occur within area	Species or species habitat likely to occur within area
<i>Halicampus grayi</i>	Mud Pipefish, Gray's Pipefish	-	-	Listed	Species or species habitat may occur within area	Species or species habitat may occur within area	Species or species habitat may occur within area
<i>Anoxypristis cuspidata</i>	Narrow Sawfish, Knifetooth Sawfish	-	Migratory Marine Species	-	Species or species habitat likely to occur within area	Species or species habitat likely to occur within area	Species or species habitat likely to occur within area
<i>Glyphis garricki</i>	Northern River Shark, New Guinea River Shark	Endangered	-	-	-	Species or species habitat may occur within area	Species or species habitat may occur within area

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Scientific Name	Common Name	Threatened Status	Migratory Category	Listed Marine Species	Presence in OA	Presence in ZPI	Presence in EMBA
<i>Carcharhinus longimanus</i>	Oceanic Whitetip Shark	-	Migratory Marine Species	-	Species or species habitat may occur within area	Species or species habitat may occur within area	Species or species habitat may occur within area
<i>Choeroichthys brachysoma</i>	Pacific Short-bodied Pipefish, Short-bodied Pipefish	-	-	Listed	Species or species habitat may occur within area	Species or species habitat may occur within area	Species or species habitat may occur within area
<i>Solegnathus hardwickii</i>	Pallid Pipehorse, Hardwick's Pipehorse	-	-	Listed	Species or species habitat may occur within area	Species or species habitat may occur within area	Species or species habitat may occur within area
<i>Choeroichthys suillus</i>	Pig-snouted Pipefish	-	-	Listed	Species or species habitat may occur within area	Species or species habitat may occur within area	Species or species habitat may occur within area
<i>Halicampus dunckeri</i>	Red-hair Pipefish, Duncker's Pipefish	-	-	Listed	Species or species habitat may occur within area	Species or species habitat may occur within area	Species or species habitat may occur within area
<i>Mobula alfredi</i>	Reef Manta Ray, Coastal Manta Ray	-	Migratory Marine Species	-	Species or species habitat likely to occur within area	Species or species habitat likely to occur within area	Species or species habitat likely to occur within area
<i>Corythoichthys haematopterus</i>	Reef-top Pipefish	-	-	Listed	-	Species or species habitat may occur within area	Species or species habitat may occur within area

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Scientific Name	Common Name	Threatened Status	Migratory Category	Listed Marine Species	Presence in OA	Presence in ZPI	Presence in EMBA
<i>Corythoichthys flavofasciatus</i>	Reticulate Pipefish, Yellow-banded Pipefish, Network Pipefish	-	-	Listed	Species or species habitat may occur within area	Species or species habitat may occur within area	Species or species habitat may occur within area
<i>Haliichthys taeniophorus</i>	Ribboned Pipehorse, Ribboned Seadragon	-	-	Listed	Species or species habitat may occur within area	Species or species habitat may occur within area	Species or species habitat may occur within area
<i>Solenostomus cyanopterus</i>	Robust Ghostpipefish, Blue-finned Ghost Pipefish,	-	-	Listed	Species or species habitat may occur within area	Species or species habitat may occur within area	Species or species habitat may occur within area
<i>Cosmocampus banneri</i>	Roughridge Pipefish	-	-	Listed	Species or species habitat may occur within area	Species or species habitat may occur within area	Species or species habitat may occur within area
<i>Sphyrna lewini</i>	Scalloped Hammerhead	Conservation Dependent	-	-	Species or species habitat likely to occur within area	Species or species habitat likely to occur within area	Species or species habitat likely to occur within area
<i>Corythoichthys schultzi</i>	Schultz's Pipefish	-	-	Listed	Species or species habitat may occur within area	Species or species habitat may occur within area	Species or species habitat may occur within area
<i>Isurus oxyrinchus</i>	Shortfin Mako, Mako Shark	-	Migratory Marine Species	-	Species or species habitat likely to occur within area	Species or species habitat likely to occur within area	Species or species habitat likely to occur within area

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Scientific Name	Common Name	Threatened Status	Migratory Category	Listed Marine Species	Presence in OA	Presence in ZPI	Presence in EMBA
Hippichthys parvicarinatus	Short-keel Pipefish, Short-keeled Pipefish	-	-	Listed	-	Species or species habitat may occur within area	Species or species habitat may occur within area
Glyphis glyphis	Speartooth Shark	Critically Endangered	-	-	-	Species or species habitat may occur within area	Species or species habitat may occur within area
<i>Hippocampus histrix</i>	Spiny Seahorse, Thorny Seahorse	-	-	Listed	Species or species habitat may occur within area	Species or species habitat may occur within area	Species or species habitat may occur within area
<i>Halicampus spirostris</i>	Spiny-snout Pipefish	-	-	Listed	Species or species habitat may occur within area	Species or species habitat may occur within area	Species or species habitat may occur within area
<i>Hippocampus kuda</i>	Spotted Seahorse, Yellow Seahorse	-	-	Listed	Species or species habitat may occur within area	Species or species habitat may occur within area	Species or species habitat may occur within area
<i>Trachyrhamphus longirostris</i>	Straightstick Pipefish, Long-nosed Pipefish, Straight Stick Pipefish	-	-	Listed	Species or species habitat may occur within area	Species or species habitat may occur within area	Species or species habitat may occur within area
<i>Campichthys tricarinatus</i>	Three-keel Pipefish	-	-	Listed	Species or species habitat	Species or species habitat	Species or species habitat

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Scientific Name	Common Name	Threatened Status	Migratory Category	Listed Marine Species	Presence in OA	Presence in ZPI	Presence in EMBA
					may occur within area	may occur within area	may occur within area
<i>Micrognathus micronotopterus</i>	Tidepool Pipefish	-	-	Listed	Species or species habitat may occur within area	Species or species habitat may occur within area	Species or species habitat may occur within area
<i>Filicampus tigris</i>	Tiger Pipefish	-	-	Listed	Species or species habitat may occur within area	Species or species habitat may occur within area	Species or species habitat may occur within area
<i>Rhincodon typus</i>	Whale Shark	Vulnerable	Migratory Marine Species	-	Species or species habitat may occur within area	Species or species habitat may occur within area	Foraging, feeding or related behaviour likely to occur within area
<i>Carcharodon carcharias</i>	White Shark, Great White Shark	Vulnerable	Migratory Marine Species	Listed	Species or species habitat may occur within area	Species or species habitat may occur within area	Species or species habitat may occur within area
Marine Mammals							
<i>Sousa sahalensis</i>	Australian Humpback Dolphin	Vulnerable	Migratory Marine Species	-	-	Species or species habitat likely to occur within area	Foraging, feeding or related behaviour likely to occur within area
<i>Orcaella heinsohni</i>	Australian Snubfin Dolphin	Vulnerable	Migratory Marine Species	-	-	Species or species habitat	Breeding likely to occur within area

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Scientific Name	Common Name	Threatened Status	Migratory Category	Listed Marine Species	Presence in OA	Presence in ZPI	Presence in EMBA
						may occur within area	
<i>Balaenoptera musculus</i>	Blue Whale	Endangered	Migratory Marine Species	-	Species or species habitat likely to occur within area	Species or species habitat likely to occur within area	Species or species habitat likely to occur within area
<i>Tursiops truncatus s. str.</i>	Bottlenose Dolphin	-	-	-	Species or species habitat may occur within area	Species or species habitat may occur within area	Species or species habitat may occur within area
<i>Balaenoptera edeni</i>	Bryde's Whale	-	Migratory Marine Species	-	Species or species habitat may occur within area	Species or species habitat may occur within area	Species or species habitat may occur within area
<i>Delphinus delphis</i>	Common Dolphin, Short-beaked Common Dolphin	-	-	-	Species or species habitat may occur within area	Species or species habitat may occur within area	Species or species habitat may occur within area
<i>Dugong dugon</i>	Dugong	-	Migratory Marine Species	Listed	Species or species habitat may occur within area	Species or species habitat may occur within area	Species or species habitat may occur within area
<i>Pseudorca crassidens</i>	False Killer Whale	-	-	-	Species or species habitat likely to occur within area	Species or species habitat likely to occur within area	Species or species habitat likely to occur within area
<i>Balaenoptera physalus</i>	Fin Whale	Vulnerable	Migratory Marine Species	-	Species or species habitat	Species or species habitat	Species or species habitat

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Scientific Name	Common Name	Threatened Status	Migratory Category	Listed Marine Species	Presence in OA	Presence in ZPI	Presence in EMBA
					may occur within area	may occur within area	may occur within area
<i>Megaptera novaeangliae</i>	Humpback Whale	-	Migratory Marine Species	-	Species or species habitat likely to occur within area	Species or species habitat likely to occur within area	Species or species habitat likely to occur within area
<i>Tursiops aduncus</i>	Indian Ocean Bottlenose Dolphin, Spotted Bottlenose Dolphin	-	-	-	Species or species habitat may occur within area	Species or species habitat may occur within area	Species or species habitat likely to occur within area
<i>Sousa chinensis</i> ¹	Indo-Pacific Humpback Dolphin	Vulnerable	Migratory Marine Species	-	-	-	-
<i>Orcinus orca</i>	Killer Whale, Orca	-	Migratory Marine Species	-	Species or species habitat may occur within area	Species or species habitat may occur within area	Species or species habitat may occur within area
<i>Balaenoptera omurai</i>	Omura's Whale	-	Migratory	-	Species or species habitat likely to occur within area	Species or species habitat likely to occur within area	Species or species habitat likely to occur within area
<i>Grampus griseus</i>	Risso's Dolphin, Grampus	-	-	-	Species or species habitat may occur within area	Species or species habitat may occur within area	Species or species habitat may occur within area

¹ The Indo-Pacific Humpback dolphin was not identified within the Operational Area, ZPI or EMBA PMSTs. Further desktop research identified a foraging BIA for this species, therefore further explanation for the Indo-Pacific Humpback Dolphin is provided below.

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Scientific Name	Common Name	Threatened Status	Migratory Category	Listed Marine Species	Presence in OA	Presence in ZPI	Presence in EMBA
<i>Balaenoptera borealis</i>	Sei Whale	Vulnerable	Migratory Marine Species	-	Species or species habitat may occur within area	Species or species habitat may occur within area	Species or species habitat may occur within area
<i>Tursiops aduncus</i> (Arafura/Timor Sea populations)	Spotted Bottlenose Dolphin (Arafura/Timor Sea populations)	-	Migratory Marine Species	-	Species or species habitat likely to occur within area	Species or species habitat likely to occur within area	Species or species habitat likely to occur within area
<i>Stenella attenuata</i>	Spotted Dolphin, Pantropical Spotted Dolphin	-	Migratory Marine Species	-	Species or species habitat may occur within area	Species or species habitat may occur within area	Species or species habitat may occur within area
Reptiles							
<i>Parahydrophis mertoni</i>	Arafura Smooth Sea Snake, Northern Mangrove Sea Snake	-	-	Listed	-	Species or species habitat may occur within area	Species or species habitat may occur within area
<i>Hydrophis zweifeli</i>	Australian Beaked Sea Snake	-	-	Listed	Species or species habitat may occur within area	Species or species habitat may occur within area	Species or species habitat may occur within area
<i>Hydrophis atriceps</i>	Black-headed Sea Snake, Banded Sea Snake	-	-	Listed	Species or species habitat may occur within area	Species or species habitat may occur within area	Species or species habitat may occur within area

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Scientific Name	Common Name	Threatened Status	Migratory Category	Listed Marine Species	Presence in OA	Presence in ZPI	Presence in EMBA
<i>Hydrophis coggeri</i>	Cogger's Sea Snake, Black-headed Sea Snake	-	-	Listed	Species or species habitat may occur within area	Species or species habitat may occur within area	Species or species habitat may occur within area
<i>Aipysurus duboisii</i>	Dubois' Sea Snake, Dubois' Seasnake, Reef Shallows Sea Snake	-	-	Listed	Species or species habitat may occur within area	Species or species habitat may occur within area	Species or species habitat may occur within area
<i>Emydocephalus annulatus</i>	Eastern Turtle-headed Sea Snake	-	-	Listed	-	Species or species habitat may occur within area	Species or species habitat may occur within area
<i>Hydrophis elegans</i>	Elegant Sea Snake, Bar-bellied Sea Snake	-	-	Listed	Species or species habitat may occur within area	Species or species habitat may occur within area	Species or species habitat may occur within area
<i>Natator depressus</i>	Flatback Turtle	Vulnerable	Migratory Marine Species	Listed	Breeding likely to occur within area	Breeding likely to occur within area	Breeding likely to occur within area
<i>Chelonia mydas</i>	Green Turtle	Vulnerable	Migratory Marine Species	Listed	Breeding likely to occur within area	Breeding likely to occur within area	Breeding likely to occur within area
<i>Eretmochelys imbricata</i>	Hawksbill Turtle	Vulnerable	Migratory Marine Species	Listed	Species or species habitat likely to occur within area	Species or species habitat likely to occur within area	Breeding likely to occur within area
<i>Hydrophis peronii</i>	Horned Sea Snake	-	-	Listed	Species or species habitat	Species or species habitat	Species or species habitat

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Scientific Name	Common Name	Threatened Status	Migratory Category	Listed Marine Species	Presence in OA	Presence in ZPI	Presence in EMBA
					may occur within area	may occur within area	may occur within area
<i>Aipysurus foliosquama</i>	Leaf-scaled Sea Snake, Leaf-scaled Seasnake	Critically Endangered	-	Listed	-	Species or species habitat may occur within area	Species or species habitat may occur within area
<i>Dermochelys coriacea</i>	Leatherback Turtle, Leathery Turtle, Luth	Endangered	Migratory Marine Species	Listed	Species or species habitat likely to occur within area	Species or species habitat likely to occur within area	Foraging, feeding or related behaviour likely to occur within area
<i>Caretta caretta</i>	Loggerhead Turtle	Endangered	Migratory Marine Species	Listed	Species or species habitat likely to occur within area	Species or species habitat likely to occur within area	Foraging, feeding or related behaviour known to occur within area
<i>Hydrophis macdowellii</i>	MacDowell's Sea Snake, Small-headed Sea Snake,	-	-	Listed	Species or species habitat may occur within area	Species or species habitat may occur within area	Species or species habitat may occur within area
<i>Aipysurus mosaicus</i>	Mosaic Sea Snake	-	-	Listed	Species or species habitat may occur within area	Species or species habitat may occur within area	Species or species habitat may occur within area
<i>Lepidochelys olivacea</i>	Olive Ridley Turtle, Pacific Ridley Turtle	Endangered	Migratory Marine Species	Listed	Breeding likely to occur within area	Breeding likely to occur within area	Breeding likely to occur within area

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Scientific Name	Common Name	Threatened Status	Migratory Category	Listed Marine Species	Presence in OA	Presence in ZPI	Presence in EMBA
<i>Aipysurus laevis</i>	Olive Sea Snake, Olive-brown Sea Snake	-	-	Listed	Species or species habitat may occur within area	Species or species habitat may occur within area	Species or species habitat may occur within area
<i>Hydrophis major</i>	Olive-headed Sea Snake	-	-	Listed	Species or species habitat may occur within area	Species or species habitat may occur within area	Species or species habitat may occur within area
<i>Hydrophis pacificus</i>	Pacific Sea Snake, Large-headed Sea Snake	-	-	Listed	-	Species or species habitat may occur within area	Species or species habitat may occur within area
<i>Hydrophis inornatus</i>	Plain Sea Snake	-	-	Listed	Species or species habitat may occur within area	Species or species habitat may occur within area	Species or species habitat may occur within area
<i>Hydrelaps darwiniensis</i>	Port Darwin Sea Snake, Black-ringed Mangrove Sea Snake	-	-	Listed	Species or species habitat may occur within area	Species or species habitat may occur within area	Species or species habitat may occur within area
<i>Crocodylus porosus</i>	Salt-water Crocodile, Estuarine Crocodile	-	Migratory Marine Species	Listed	Species or species habitat likely to occur within area	Species or species habitat likely to occur within area	Species or species habitat likely to occur within area
<i>Aipysurus apraefrontalis</i>	Short-nosed Sea Snake, Short-nosed Seasnake	Critically Endangered	-	Listed	-	-	Species or species habitat likely to occur within area

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Scientific Name	Common Name	Threatened Status	Migratory Category	Listed Marine Species	Presence in OA	Presence in ZPI	Presence in EMBA
<i>Hydrophis kingii</i>	Spectacled Sea Snake	-	-	Listed	Species or species habitat may occur within area	Species or species habitat may occur within area	Species or species habitat may occur within area
<i>Hydrophis hardwickii</i>	Spine-bellied Sea Snake	-	-	Listed	Species or species habitat may occur within area	Species or species habitat may occur within area	Species or species habitat may occur within area
<i>Hydrophis ornatus</i>	Spotted Sea Snake, Ornate Reef Sea Snake	-	-	Listed	Species or species habitat may occur within area	Species or species habitat may occur within area	Species or species habitat may occur within area
<i>Hydrophis stokesii</i>	Stokes' Sea Snake	-	-	Listed	Species or species habitat may occur within area	Species or species habitat may occur within area	Species or species habitat may occur within area
<i>Hydrophis platura</i>	Yellow-bellied Sea Snake	-	-	Listed	Species or species habitat may occur within area	Species or species habitat may occur within area	Species or species habitat may occur within area

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4.4.4 Biologically Important Areas and Habitat Critical

BIAs are areas used by protected marine species for carrying out critical life functions, such as reproduction, feeding, migration and resting (DCCEEW, 2024c). BIAs are designated for marine species protection under the EPBC Act (DCCEEW, 2024c). BIAs have been under review by DCCEEW and are presented on the Australian Marine Spatial Information system (AMSIS). Shapefiles for the data presented on AMSIS are not available at the time of writing, hence the most recent available data is used to inform presence of BIAs and figures for BIAs within this EP (DCCEEW, 2024d).

BIAs identified within the Operational Area, ZPI and EMBA are presented in Table 4-4, and Figure 4-4 to Figure 4-13. The PMST reports on broad search grids of up to 32 x 32km in offshore areas. Therefore, PMST reports may identify environmental values and sensitivities to be within defined spatial extents even if they are only within close proximity. To ensure the most accurate data is assessed within this EP Eni has utilised the Australian Marine Spatial Information System (AMSIS) which provides data at a more granular level.

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Table 4-5: Biologically important areas within the Operational Area, ZPI and EMBA

Species	BIA	Overlaps Operational Area	Overlaps ZPI	Overlaps EMBA	Distance from Operational Area (km)	Figure reference
Marine Reptiles						
Loggerhead Turtle	Foraging	✓	✓	✓	Overlaps	Figure 4-4
Green Turtle	Foraging	✓	✓	✓	Overlaps	Figure 4-5
Olive Ridley Turtle	Foraging	✓	✓	✓	Overlaps	Figure 4-6
Flatback Turtle	Foraging	✓	✓	✓	Overlaps	Figure 4-7
	Internesting buffer	-	✓	✓	5km	
	Internesting	-	-	✓	106km	
Seabirds						
Lesser Frigatebird	Breeding	-	-	✓	170km	Figure 4-8
Roseate Tern	Breeding	-	-	✓	165km	Figure 4-9
Lesser Crested Tern	Breeding	-	✓	✓	49km	Figure 4-10
Fish and Sharks						
Whale Shark	Foraging	-	-	✓	270km	Figure 4-11
Marine Mammals						
Australian Snubfin Dolphin	Foraging	-	-	✓	78km	Figure 4-12
	Breeding	-	-	✓	78km	
	Calving	-	-	✓	78km	
	Resting	-	-	✓	78km	
Indo-Pacific Humpback Dolphin	Foraging	-	-	✓	465km	Figure 4-13

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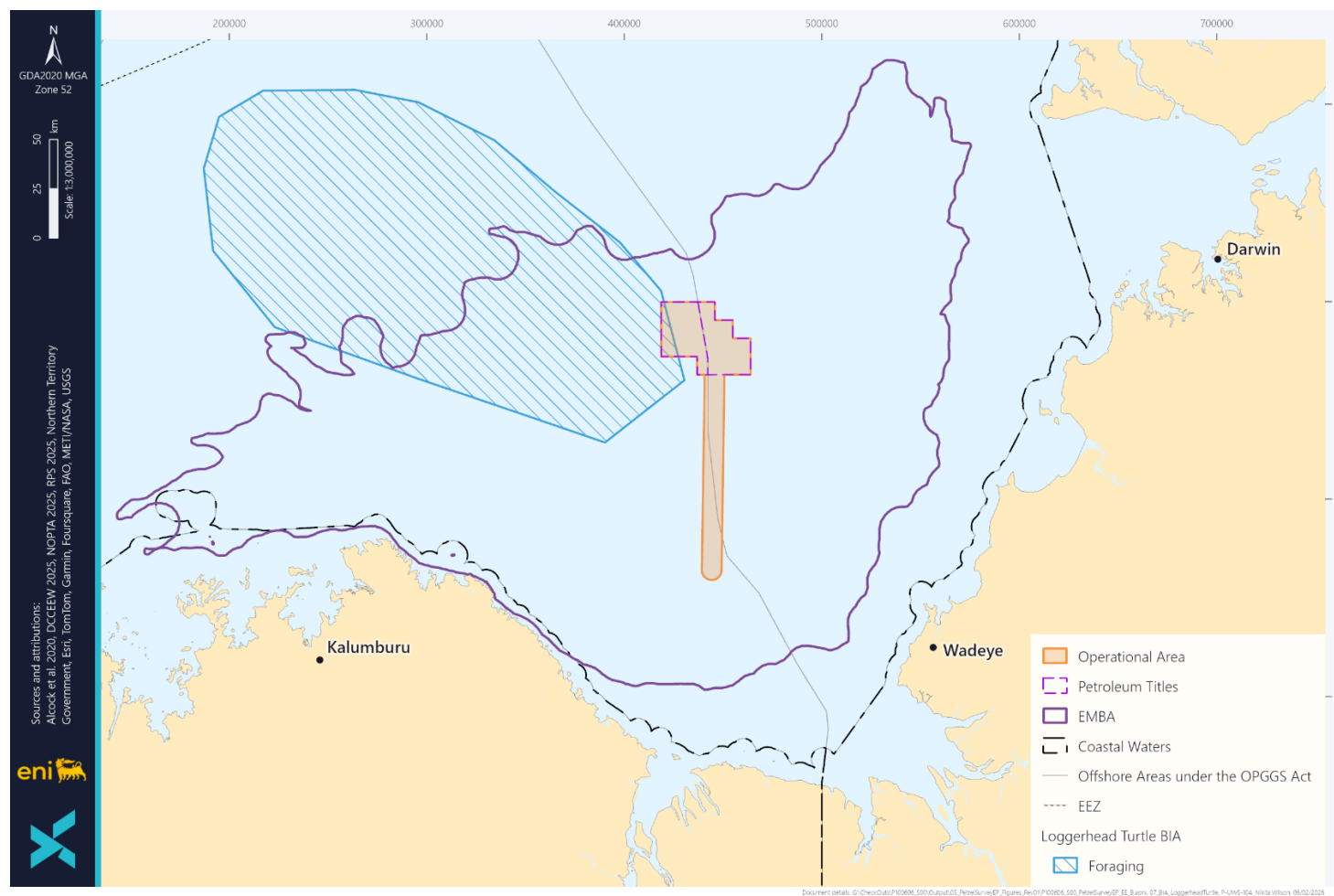


Figure 4-4: Biologically Important Area for Loggerhead Turtles

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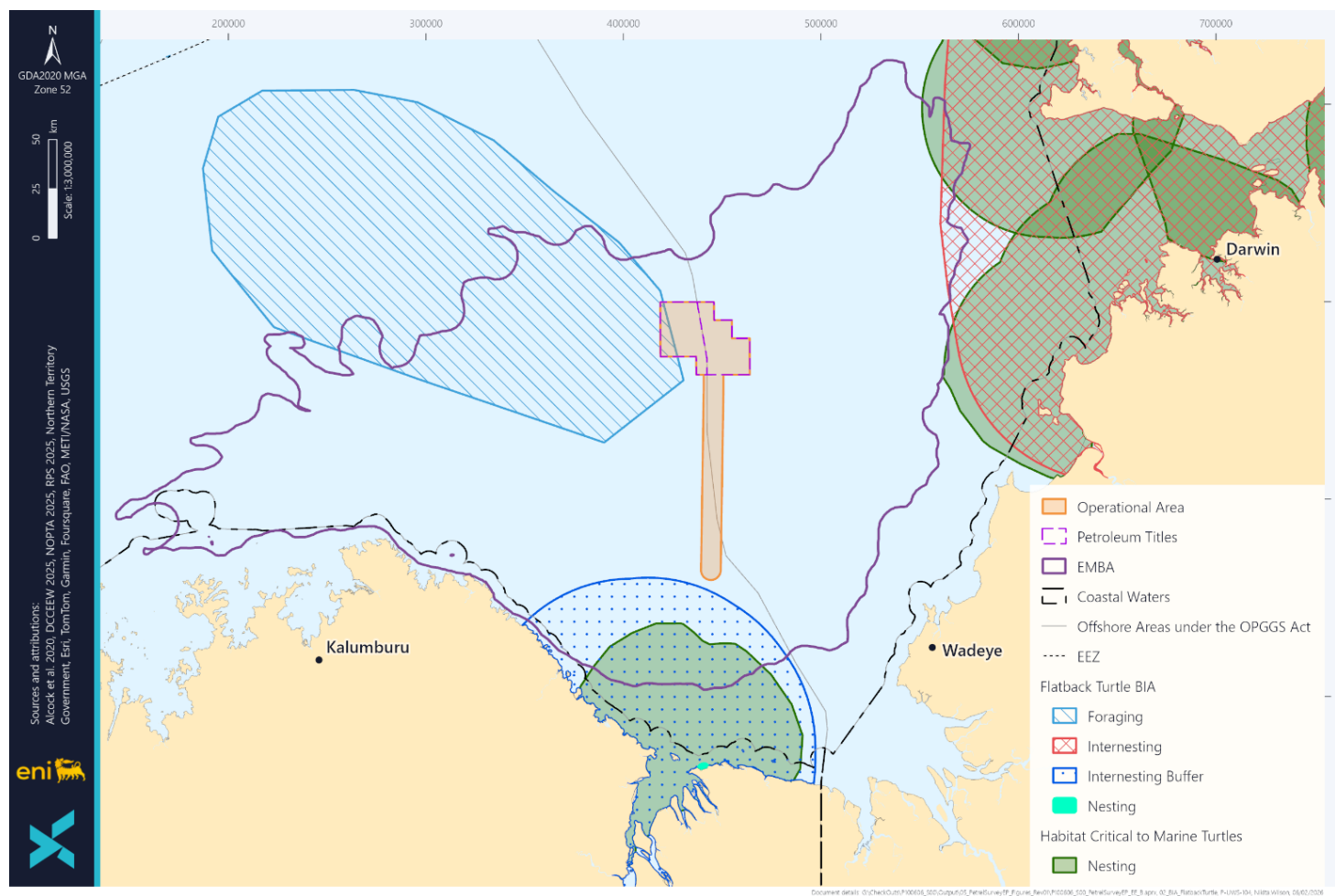


Figure 4-7: Biologically Important Areas and Habitat Critical for Flatback Turtles

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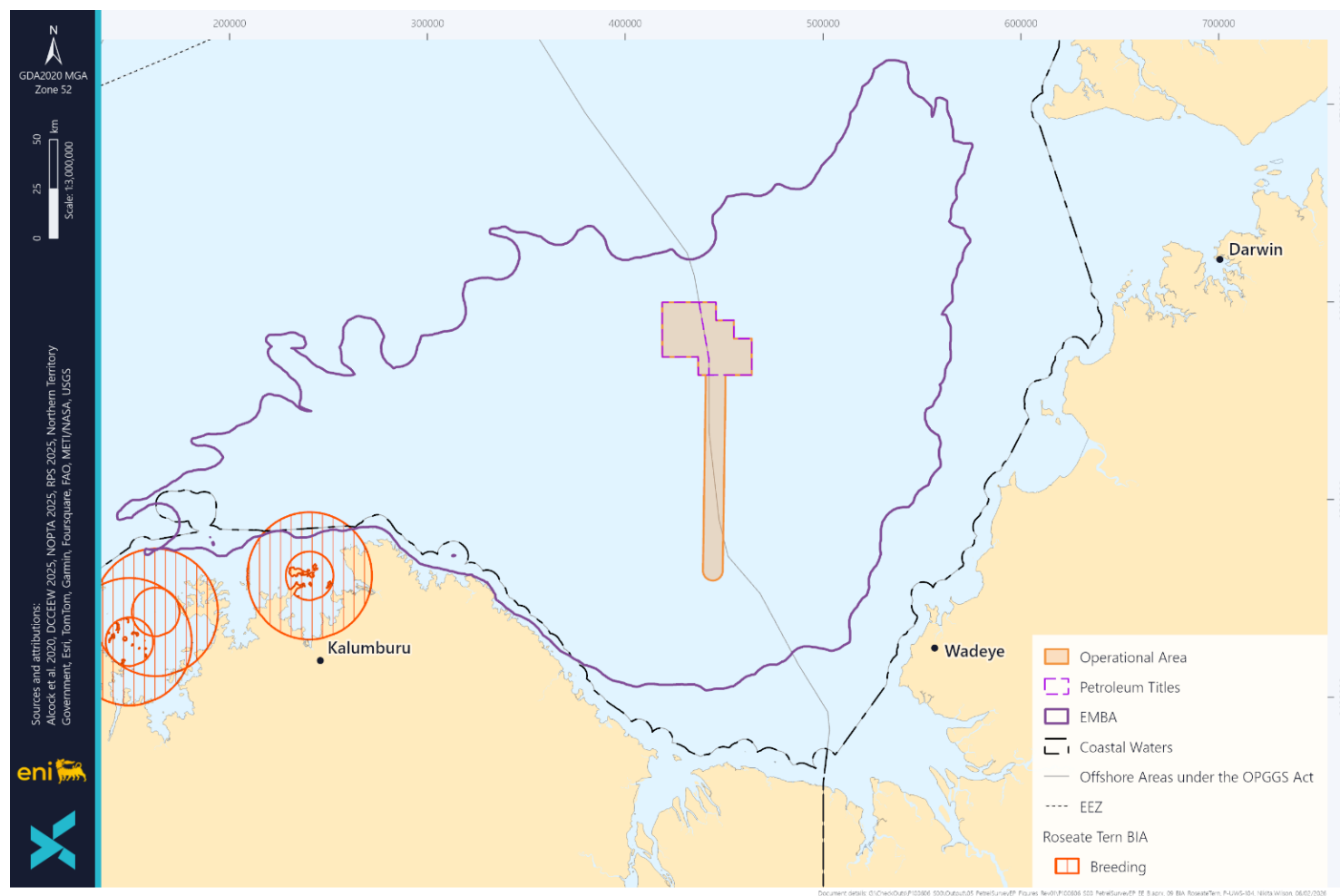


Figure 4-9: Biologically Important Areas for Roseate Tern

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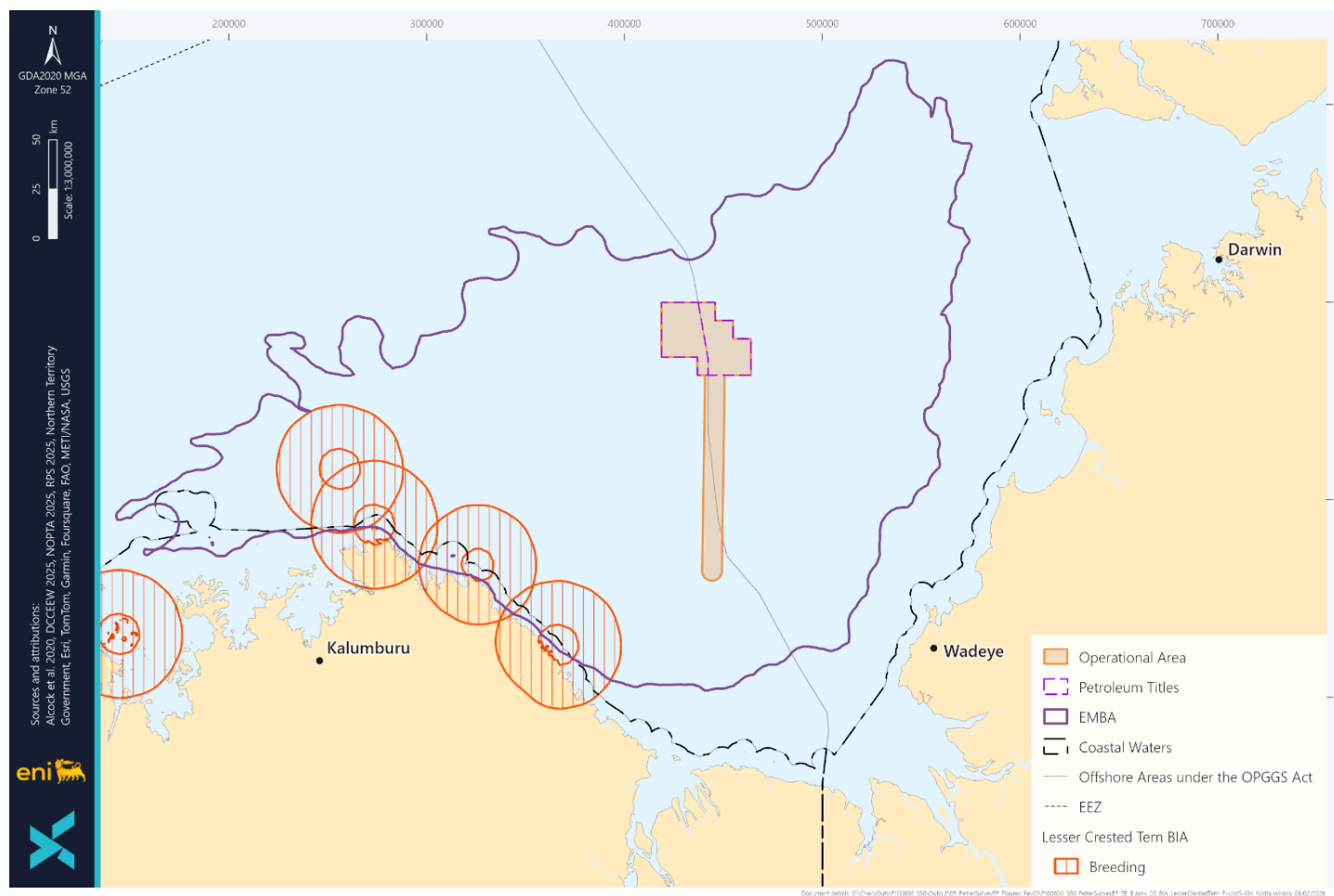


Figure 4-10: Biologically Important Areas for Lesser Crested Tern

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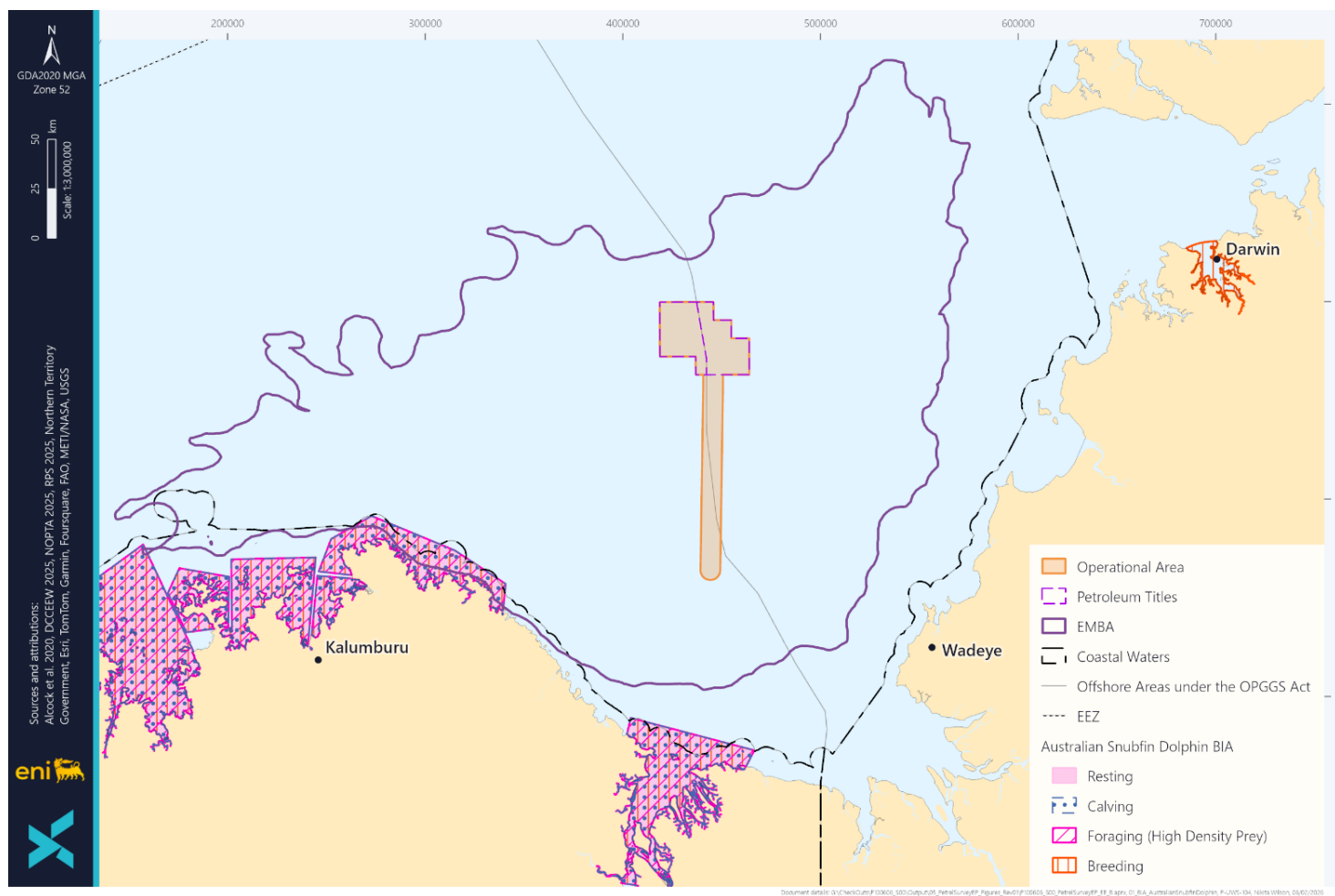


Figure 4-12: Biologically Important Areas for Australian Snubfin Dolphin

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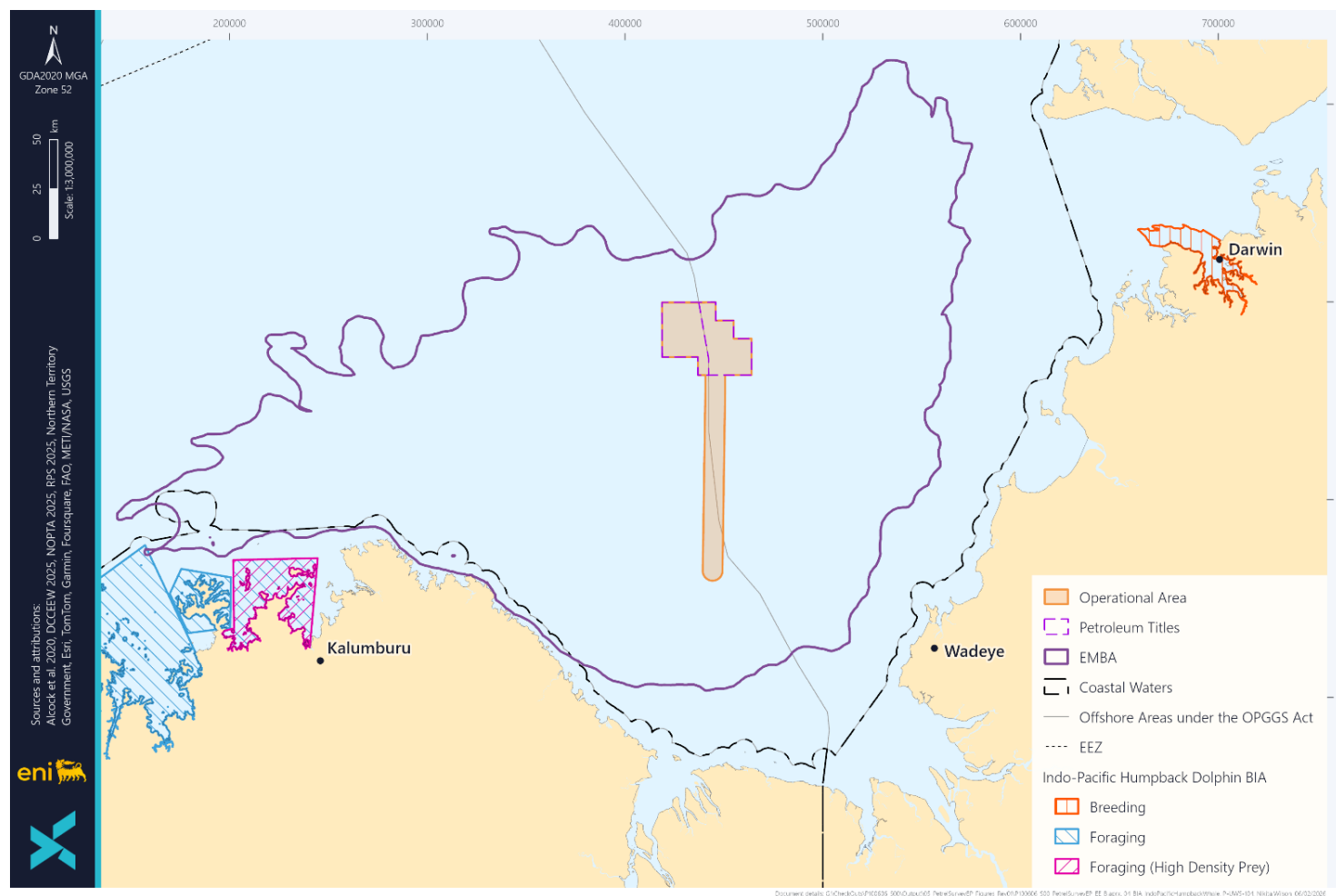


Figure 4-13: Biologically Important Area for Indo-Pacific Humpback Dolphin

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4.4.4.1 Habitat Critical to the Survival of Marine Turtles

Marine turtles are long-lived, air-breathing, diving, marine reptiles that spend most of their life cycle in the ocean, with females spending a brief period on sandy beaches to nest and lay eggs (Pendoley and Wilson, 2023). Following emergence from nests, hatchlings also spend a very short period on land as they crawl across the beach to the ocean and swim offshore (Pendoley and Wilson, 2023). All marine turtle species share a very similar life cycle pattern comprised of three behavioural phases:

- **Migration:** During the breeding period, males and females will migrate to mating areas, which may or may not be close to the nesting beach.
- **Inter-nesting:** Females will spend several months at the nesting area, laying multiple clutches of eggs. Between nesting events, females will move to inter-nesting areas while they wait for the next clutch of eggs to form.
- **Foraging:** After mating (males) or once their last clutch of eggs is laid (females), marine turtles migrate back to their remote foraging areas, where they build up their fat reserves before the next breeding migration. Most females will not nest in consecutive years (Miller 1996).

Considering these three behavioural phases, at any point in time, marine turtles may be present in the area either as residents on semi-permanent foraging grounds, as migrants moving between foraging sites and nesting areas, or as breeding animals that have migrated from their foraging ground to their nesting area, where females will remain as temporary residents for up to three months laying multiple clutches of eggs (Pendoley and Wilson, 2023).

No habitat critical to the survival of marine turtles is present in the Operational Area.

Those identified in the ZPI and EMBA are listed in Table 4-6 and shown in Figure 4-5, Figure 4-6, and Figure 4-7. A list of the relevant conservation advice and / or recovery plans are provided in Table 2-3 along with the relevant management actions.

Table 4-6: Habitat critical to the survival of marine turtles within the EMBA

Species	Habitat Type	Location	Distance from Operational Area	ZPI	EMBA
Green Turtle	Nesting	Mainland east of Mary Island to mainland adjacent to Murrara Island including all offshore islands. 20km internesting buffer	214km	-	✓
Flatback Turtle	Nesting	Cape Domett and Lacrosse Island in the Cambridge Gulf. 60km internesting buffer	26km	✓	✓
		Brace Point to One Tree Point, including all offshore islands. 60km internesting buffer	129km		✓

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Species	Habitat Type	Location	Distance from Operational Area	ZPI	EMBA
		Waigait Beach to south of Point Blaze, including all offshore islands. 60km interesting buffer	978km		✓

4.4.5 Seabirds and shorebirds

There are 42 seabird and shorebird species (or species habitat) classified as threatened, migratory or a listed marine species with an identified presence within the EMBA (Table 4-4). A list of the relevant conservation advice and/or recovery plans is also provided in Table 2-3. The type of presence varies, however the majority of species or species habitat are known to occur within the EMBA.

BIAs for seabird or shorebird species; lesser frigatebird, roseate tern and lesser crested tern, intersect the EMBA (Figure 4-8, Figure 4-9 and Figure 4-10). These species are discussed in the relevant sections below.

4.4.5.1 Lesser Frigatebird

The lesser frigatebird is listed as migratory under the EPBC Act. The PMST search identified that the species as likely to occur within the Operational Area and known to occur within the EMBA (Table 4-4).

They are a pelagic species, often found far offshore, but have also been observed over shelf waters, inshore areas, and inland over continental coastlines (DSEWPac, 2012d). This species breeds on a number of offshore islands within Australia such as Ashmore Reef, and West Lacapede Island, between March and September each year (DSEWPac, 2012d). The species generally forages for fish and cephalopods, typically captured via surface-seizing. The lesser frigatebird forages in Australia, on small, remote tropical and sub-tropical islands, in mangroves or bushes, and even on bare ground (CoA, 2020). PMST reports identified that breeding behaviours are known to occur within the EMBA. A BIA for breeding for the lesser frigatebird has been identified along the Kimberley and Pilbara coasts and associated islands including Ashmore Reef, which is located to the south-west of the Operational Area within the EMBA (Table 4-4; Figure 4-8).

Given their distribution and breeding preference occurs outside of the EMBA, any occurrence within the EMBA is likely to be of a transient nature due to the lack of offshore islands in the western EMBA; however, it is possible that the species may use the area for foraging.

4.4.5.2 Roseate Tern

The roseate tern is listed as migratory under the EPBC Act. The PMST search identified that the species is not known to occur within the Operational Area and is likely to occur within the EMBA (Table 4-4; Figure 4-9).

The species is widespread globally with a cosmopolitan distribution. In Australia the species can be found in subtropical and tropical waters from south-west WA to south-

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east Queensland where they inhabit a variety of habitats such as rocky and sandy beaches, coral reefs and offshore islands (CoA, 2020). The roseate tern rarely occurs in inshore waters or near the mainland (CoA, 2020). The species is a colonial nester that shows a preference for nesting sites close to clear, shallow feeding grounds in tidal bays and sheltered inshore waters (CoA, 2020). PMST reports identified that foraging, feeding or related behaviour is likely to occur within the EMBA.

Individuals are known to usually move away from breeding colonies following breeding, however their non-breeding range is not well defined (CoA, 2020). A BIA for breeding for the roseate tern has been identified along the Kimberley and Pilbara coasts and associated islands including Ashmore Reef, which is located to the south-west of the Operational Area within the EMBA. Foraging mainly occurs around islands on the continental shelf, either in lagoons or offshore with rare recordings in shallow sheltered inshore waters (CoA, 2020).

4.4.5.3 Lesser Crested Tern

The lesser crested tern is listed as marine under the EPBC Act. The PMST search identified that the species is not known to occur within the Operational Area and known to occur within the EMBA (Table 4-4). The species has a wide global range and can be found on islands and coastlines of tropical and subtropical areas, including Australia. Foraging occurs in the surf and over the open ocean where they prey predominantly on small pelagic fish (CoA, 2020). PMST reports identified that breeding behaviours are known to occur within the EMBA. The nest is a shallow scrape on sand beaches, rock, coral flats, offshore islands, etc. Breeding BIAs for the lesser crested tern are located on islands off north and west Kimberley to the south-west of the Operational Area, within the EMBA (Table 4-4; Figure 4-10).

Given their distribution and breeding preference, any occurrence is likely to be of a transient nature due to the absence of shoreline contact and offshore islands within the EMBA; however, it is possible that the species may use the area for mating or foraging.

4.4.6 Fish, sharks and rays

There are 15 fish, shark and ray species (or species habitat) classified as threatened, migratory or a listed marine species and 34 syngnathid species (or species habitat) with an identified presence within the EMBA (Table 4-4; APPENDIX B). A list of the relevant conservation advice and/or recovery plans is also provided in Table 2-3. The type of presence varies, however the majority of species or species habitat are known to occur within the EMBA. The whale shark was identified to have a BIA intersecting the EMBA (Table 4-5, Figure 4-11) This species are discussed in the relevant sections below.

4.4.6.1 Whale Shark

The whale shark is listed as threatened and migratory under the EPBC Act. The PMST search identified that the species may occur within the Operational Area and is known to occur within the EMBA (Table 4-4; Figure 4-11).

Whale sharks are widely distributed in tropical to warm temperate oceanic and coastal waters. In Australia, the whale shark is most common in waters off northern WA, Northern Territory and Queensland (but has been observed in waters south of this) (TSSC, 2015b). The whale shark is generally observed close to or at the surface

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as a single individual but will occasionally occur in schools or aggregations of up to hundreds.

The whale shark is a suction filter feeder, with a diet including plankton, small crustaceans, and small schooling fishes (TSSC, 2015b). PMST reports identified that foraging, feeding or related behaviours are known to occur within the EMBA. A foraging BIA for the whale shark is located along the 200 m isobath and runs north from Ningaloo. This BIA is located to the north-west of the Operational Area within the EMBA.

During stakeholder consultation, the NT Department of Agriculture and Fisheries confirmed whale shark sightings in the Petrel survey area by Thamarrurr Rangers (APPENDIX C). Given the whale shark's widespread distribution across northern Australia, the species may occur in the Operational Area. However, their presence would likely occur seasonally in higher concentrations between March and July when the species may transient the area to reach foraging grounds adjacent to the Operational Area.

4.4.6.2 Observed Fish Assemblage

Eni commissioned a preliminary investigation into the baseline benthic community and habitat within the Operational Area, including along the GEP corridor route and retention lease areas (O2 Marine, 2025). Fish assemblages and benthic habitats which support fish assemblages were not identified. The investigation observed biologically simple, and ecologically low relief benthic habitats, with no evidence of reefal, framework-building, or habitat-forming structures that could support fish assemblages (Section 4.3.6).

Previously, ERM deployed Baited Remote Underwater Video Systems (BRUVS) to characterise demersal fish and habitats assessment using underwater towed video techniques. Analysis of the 36 BRUVS from the 2010 wet season survey recorded a total of 22 genera representing 17 families (positive identification was made for 33 species plus 3 unidentified records) for the deep waters of the Petrel field as well as a proposed pipeline route, that was being planned as part of a previously scoped project. The most common families by density were Terapontidae (grunters) Nemipteridae (threadfin breams) and Lutjanidae (snappers). The first two families were represented by small scavenging opportunists, *Terapon jarbua* and *Nemipterus spp* often caught as bycatch in demersal trawl and trap fisheries in the region. In contrast, the Lutjanids are larger predatory fishes targeted by commercial and recreational fishers in tropical Australia and include gold band snapper (*Pristipomoides multidens*) and crimson seaperch (*Lutjanus malabaricus*). (ERM, 2011). None of these species are listed threatened or have conservation advice.

Univariate and multivariate analysis of spatial variation in fish assemblage data suggest a patchy distribution characterised by areas of increased diversity around small and localised patches of filter feeder communities within the largely unconsolidated sedimentary habitat.

Based on this, paired with the lack of habitat and fish assemblages identified in the recent benthic communities and habitat investigation (Section 4.3.6; O2 Marine, 2025), it is not expected that any fish found in the Operational Area will be ecologically sensitive, or that the Operational Area provides critical habitat to fish species. The relative density of the observed species is not consistent with an aggregation or sensitive ecological community, or fish nursery grounds.

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4.4.7 Marine mammals

There are 8 whale, 8 dolphin and one dugong species (or species habitat) classified as threatened, migratory or a listed marine species with an identified presence within the EMBA (Table 4-4, APPENDIX B). A list of the relevant conservation advice and/or recovery plans is also provided in Table 2-3. The type of presence varies, however the majority of species or species habitat are known to occur within the EMBA. BIAs for 2 marine mammal species have been identified to intersect with the EMBA (Table 4-4).

4.4.7.1 Australian Snubfin Dolphin

The Australian snubfin dolphin is listed as threatened and migratory under the EPBC Act. The PMST search did not indicate this species would be present in the Operational Area, however it is known to occur within the EMBA (Table 4-4; Figure 4-12).

The species range extends across northern Australia, ranging from Broome to Brisbane River (DCCEEW, 2025e). Sightings indicate that Australian snubfin dolphins are primarily found in shallow waters less than 20m deep in protected shallow coast waters, and near river and creek mouths (Bouchet et al., 2021). A regional assessment of the species population between 2004-2020 identified Roebuck Bay (Yawuru Sea Country), Cygnet Bay (Bardi Jawi Sea Country), King Sound (Mayala, Bardi Jawi, Bindunbur Sea Countries), Doubtful Bay (Dambimangari Sea Country), Prince Regent River (and surrounding embayments, Dambimangari Sea Country), the seaward end of Napier Broome Bay (Wunambal Gaambera Sea Country) and the upper parts of the Cambridge Gulf (Balangarra Sea Country) as areas of high relative probability for Australian snubfin dolphin occurrence (Bouchet et al., 2021).

PMST reports identified that breeding is known to occur within the EMBA. Resting and reproduction (calving and breeding) BIAs for the Australian snubfin dolphin are located along the northern WA coastline, within the EMBA (Table 4-5; Figure 4-12).

The species preys on a variety of fish species which are often associated with tropical coastal and estuarine regions. Foraging BIAs for the Australian snubfin dolphin are located along the northern WA coastline, within the EMBA (Table 4-5; Figure 4-12). It is suspected that one of the drivers of the species distribution around riverine-estuarine systems is related to the productivity of these area's food-rich resources, where fish tend to aggregate (Bouchet et al., 2021).

Given the Operational Area is approximately 85km from the coastline with a water depth between 50-107m, and the species prefers shallow coastal waters, it is considered unlikely that the Australian snubfin dolphin will be present in the Operational Area

4.4.7.2 Indo-Pacific Humpback Dolphin

The Indo-Pacific humpback dolphin (*Sousa chinensis*) is listed as threatened and migratory under the EPBC Act (Table 4-4; Figure 4-13).

This species ranges across northern Australia from Shark Bay in Western Australia to the Queensland/New South Wales border, and into southern Papua New Guinea. The species primarily inhabits shallow, turbid coastal waters within 20km of the shore, favouring depths of 5–15m, estuaries, embayments, and river mouths. The Indo-Pacific humpback dolphin was not identified within the Operational Area, ZPI or

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EMBA PMSTs. However, further desktop research identified a foraging BIA for this species around Admiralty Gulf & Parry Harbour. Australian humpback dolphins feed opportunistically on fish and cephalopods associated with mangrove and seagrass habitats.

Given the Operational Area is approximately 85km from the coastline with a water depth between 50-107m, and the species prefers shallow coastal waters, it is considered unlikely that the Indo-Pacific humpback dolphin will be present in the Operational Area.

4.4.7.3 Blue whale

The blue whale is listed as threatened and migratory under the EPBC Act. The PMST search identified that the species is likely to occur within the Operational Area and EMBA (Table 4-4).

There are two subspecies of blue whale that occur within Australian waters: Antarctic blue whale and pygmy blue whale. Typically, Antarctic blue whales occur in waters south of 60°S and pygmy blue whales occur in waters north of 55°S (i.e. not in the Antarctic) (DEWHA, 2008). On this basis, nearly all blue whales sighted in the NWMR are assumed to be pygmy blue whales.

Pygmy blue whales migrate biannually through the NWMR between feeding and breeding grounds. The East Indian Ocean population travels seasonally from Indonesia to south-west Australia and beyond. Migration patterns vary, with some whales remaining resident in productive areas and others migrating long distances. Three main migratory stages are observed: southbound (October–January), southern Australian (January–June), and northbound (April–August).

Thums et.al. (2022) used passive acoustic monitoring and satellite telemetry data to assess the spatial extent of the distribution, migration and foraging areas for pygmy blue whales in the South-east Indian Ocean. They highlighted extensive use of slope habitat off Western Australia and minimal use of shelf habitat. Additionally, pygmy blue whales off Western Australia were mostly engaged in migration, with short periods of foraging. Whale density was highest in the southern part of the north-west Australian coast and whales were there between April-June, and November-December. Thums et al. (2022) identified the most important foraging (and/ or resting/ breeding) areas from south to north as 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 approx. 25°S; and the Banda Sea.

There are no BIAs for pygmy blue whales located within the Operational Area or EMBA.

4.4.8 Marine reptiles

There are 6 marine turtles, 22 sea snakes, and one crocodile species (or species habitat) classified as threatened, migratory or listed marine with an identified presence within the EMBA (Table 4-4, APPENDIX B). A list of the relevant conservation advice and/or recovery plans is also provided in Table 2-3. The type of presence varies, however the majority of species or species habitat are known to occur within the EMBA. BIAs for 4 marine turtle species were identified to intersect with the EMBA (Table 4-5; Figure 4-4, Figure 4-5, Figure 4-6, and Figure 4-7). These 4 species,

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flatback turtle, green turtle, loggerhead turtle and Olive Ridley turtle, are detailed in the sections below. Further, the EMBA intersects with habitat critical to the survival for the flatback turtle.

No BIAs or habitat critical to the survival of sea snakes were identified (APPENDIX B).

4.4.8.1 Flatback turtle

The flatback turtle is listed as threatened and migratory under the EPBC Act. The PMST search identified that the species is known to occur within the Operational Area and the EMBA (Table 4-4).

The flatback turtle is found in tropical waters of northern Australia and is one of only 2 species of sea turtle without a global distribution (CoA, 2017). A foraging BIA has been identified for the flatback turtle, overlapping the Operational Area and interesting, interesting buffer and nesting BIAs within the EMBA (Table 4-5; Figure 4-7). Habitat critical for this species has also been defined along the western NT coastline, within the EMBA (Table 4-5; Figure 4-7).

Flatback turtles are primarily carnivorous, feeding on soft-bodied invertebrates; juveniles eat gastropod molluscs, squid and siphonophores (CoA, 2017). Limited data also indicates that cuttlefish, hydroids, soft corals, crinoids, molluscs and jellyfish may form part of their diet (CoA, 2017). Flatback turtles preferred foraging habitat is typically associated with shallow continental shelf waters, at depths from 2 to 70 m, and can extend from nearshore areas to over 200 km offshore (Smith, et al. 2024).

A study by Thums et al. (2017) tracked the movements of 11 flatback turtles after they nested on islands off the Kimberley coast and found that the species tended to forage and travel in clearer waters. The group was observed to migrate along the coast to foraging grounds on the mid-Sahul Shelf in the Timor Sea approximately 135km offshore and in average water depths of 74m (Thums et al., 2017). The study also showed that flatback turtles preferred foraging in water depths of 60-90m, particularly in areas with complex benthic geomorphology such as banks, shoals, terraces, and valleys (Thums et al., 2017).

The species have been observed foraging on the carbonate banks of the JBG and around the Pinnacles of the Bonaparte Depression (DCCEEW, 2024e). A foraging BIA has been identified in this area and overlaps with the western portion of the Operational Area (Figure 4-7).

Australia has some of the largest marine turtle nesting rookeries in the Indo-Pacific region and is the only country where flatback turtles nest (CoA, 2017). Flatback turtles require sandy beaches in tropical and subtropical regions for nesting, with sand temperatures between 25 °C and 33 °C at nest depth to ensure successful incubation (Limpus, 1995). The nearest marine turtle nesting sites for the flatback turtle occur on the north side of Cape Domett and at Lacrosse Island, which is located approximately 96km south of the southern extent of the Operational Area. Cape Domett, combined with the smaller site at Lacrosse Island, supports one of the world's largest nesting populations of flatback turtles with nesting occurring throughout the year, peaking in August and September (Whiting et al., 2008; COA, 2017).

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Habitat critical to the survival of the species (nesting) and an internesting buffer have been identified within WA portion of the EMBA. These are approximately 26 km and 5km south of the southern extent of the Operational Area respectively (Table 4-5; Figure 4-7). Internesting habitat for flatback turtles is typically associated with shallow waters less than 16 m deep and within 5-10 km of nesting beaches (Whitlock et. al., 2016). The use of these habitats decreases as water depths increase and areas with water depths over 25m and more than 27km from the coastline were defined as unsuitable (Whitlock et. al., 2016). Habitat critical to the survival of the species is also defined within this area.

NT populations are typically found in the Gulf of Carpentaria, western Torres Strait, Wellesley Islands Group and Sand Islet. Flatback turtle nesting within the NT is from the Arafura Sea breeding and genetic stock, with unknown long-term trends (CoA, 2017c). Nesting has been recorded on the Tiwi Islands, particularly on the southern and south-western beaches that overlap with the EMBA (Pendoley Environment, 2013). Nesting and internesting occurs year-round with a peak in during June and August, and hatchling emergence peaking between July and September (COA, 2017).

Given the flatback turtles' preference for tropical waters and the proximity of important habitat to the Operational Area, it is likely that the species will be present in the Operational Area.

4.4.8.2 Loggerhead turtle

The loggerhead turtle is listed as threatened and migratory under the EPBC Act. The PMST search identified the species as likely to occur within the Operational Area and is known to occur within the EMBA (Table 4-4).

The loggerhead turtle has a global distribution throughout tropical, sub-tropical and temperate waters; and in Australia typically occurs in the waters of coral and rocky reefs, seagrass beds, or muddy bays throughout eastern, northern and western Australia (CoA, 2017). PMST reports identified that foraging, feeding or related behaviour known to occur within the EMBA. While the species has a broad foraging range throughout Australian waters, a BIA has been identified in the Western Joseph Bonaparte Depression, which overlaps the Operational Area, ZPI and EMBA (Table 4-4, Figure 4-4).

Foraging areas are widespread for loggerhead turtles, ranging from near shore to water depths of 55m (Limpus, 2009). Loggerhead turtles are known to forage on the carbonate banks of the Joseph Bonaparte Gulf and around the pinnacles of the Bonaparte Depression (DEWHA, 2007; Donovan et al., 2008). Loggerhead turtles are carnivorous, feeding primarily on benthic invertebrates (CoA, 2017).

Breeding aggregations in Australia occur on both the east and west coasts. The annual nesting population in Western Australia is thought to be 3,000 females annually (Baldwin et al., 2003), and this is considered to support the third largest population in the world (Limpus, 2008a). Loggerhead turtles have one genetic breeding stock within Western Australia (COA, 2017). No nesting or habitat critical to the survival of the species is known to occur within the vicinity of the Operational Area or EMBA.

Given the species widespread distribution and the foraging BIA overlaps with the Operational Area, it is likely that the loggerhead turtle will be present in the Operational Area.

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4.4.8.3 Olive Ridley turtle

The Olive Ridley turtle is listed as threatened and migratory under the EPBC Act. The PMST search identified the species as known to occur within the Operational Area and the EMBA (Table 4-4).

The Olive Ridley turtle is found in waters across northern Australia and to the southern Queensland border. Nesting aggregations occur worldwide, although no major breeding areas have been recorded in Australia (DCCEEW, 2023d). Chatto and Baker's (2008) long-term study of nesting turtles in the Northern Territory found that Olive Ridley Turtles were the second most widespread nesting species (after Flatbacks) in the Northern Territory. Though they nest in low numbers through much of their range, some beaches, such as along the northern coast of the Tiwi Islands and some islands in north-eastern Arnhem Land, see significant numbers (Chatto & Baker 2008).

According to Ackerman (1997), Olive Ridley turtles exhibit a longer internesting period (of 17-30 days) compared to other species. Internesting olive ridley turtles remain relatively close to nesting beaches during the nesting period (in comparison to post-nesting movements); tagged turtles remained within 48km of the nesting beach in waters typically <30m water depth (Hamel et al., 2008).

Olive Ridley turtles are primarily carnivorous, feeding on soft-bodied invertebrates such as sea pens, soft corals, sea cucumbers, and jellyfish (CoA, 2017). Both juveniles and adults have been observed foraging over shallow benthic habitats from northern Western Australia to south-east Queensland, although occurrences in pelagic foraging habitats also occur (CoA, 2017). Foraging BIAs for the species have been identified within the Operational Area, ZPI and the EMBA (Table 4-4, Figure 4-6) and are associated with the Pinnacles of the Bonaparte Basin (DCCEEW, 2023d):

- Joseph Bonaparte Depression;
- Western Joseph Bonaparte Gulf; and
- Western Joseph Bonaparte Gulf – banks.

No nesting or habitat critical to the survival of the species is known to occur within the vicinity of the EMBA.

Given a significant portion of the Operational Area overlaps with important foraging grounds for the Olive Ridley turtle, and the observed foraging depths align with the water depth within the Operational Area (50-107m), it is likely that the species will be present in the Operational Area.

4.4.8.4 Green turtle

The green turtle is listed as threatened and migratory under the EPBC Act. The PMST search identified the species as known to occur within the Operational Area and EMBA (Table 4-4).

Green turtles are generally found in tropical and subtropical waters throughout the world; usually occurring within the 20°C isotherms, although individuals can stray into temperate waters (CoA, 2017). Within Australia, green turtles typically nest, forage and migrate across tropical northern Australia (CoA, 2017).

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Green turtle abundance and timing during nesting fluctuates significantly from year to year, and typically depend on environmental variables, locality, and food availability (Pendoley Environmental, 2011). In northern Australia, these fluctuations have been linked to sea surface temperatures (Solow et al., 2002). However, within the NT green turtle nesting typically occurs between October and April with peak nesting between December and January (CoA, 2017).

Green turtles have been recorded nesting in the Bonaparte and Van Diemen Gulf bioregions, with some nesting turtles recorded on the west coast of Bathurst Island and Melville Island (CoA, 2017c). Female green turtles return to nesting after approximately five years (Hamann et al., 2002). Nesting and internesting BIAs for the green turtle have been identified within the EMBA (Table 4-4, Figure 4-5). Habitat critical to the survival of the species is also overlapping the EMBA (Table 4-6).

The results from a systematic literature review covering aerial and ground surveys between 1990 and 2004 identified green turtles nesting across northern and eastern NT (Chatto & Baker, 2008). However, the species was not recorded nesting at Cambridge Bonaparte and Anson Beagle bioregions (Chatto & Baker, 2008). The majority of green turtles nesting in the NT were recorded on large beaches between Cape Arnhem and Blue Mud Bay (Chatto & Baker, 2008), which occurs outside the EMBA. There are four nationally significant nesting sites within the NT (Northern Territory, n.d), all of which are located outside the EMBA. The closest nationally significant nesting site is located at Cobourg Peninsula.

Green turtles spend the first ten years of their life drifting on ocean currents, before residing in shallower benthic habitats such as coral and rocky reefs, and seagrass beds (Limpus, 2008). The species is known to migrate more than 2,600km between feeding and breeding grounds (Limpus, 2008). Green turtles may migrate through deeper offshore waters between foraging and nesting locations but are unlikely to forage or dwell in deeper waters (Ferriera et al., 2020). Adult green turtles consume mainly seagrass and algae, although they will occasionally eat mangroves, fish-egg cases, jellyfish, and sponges. Juvenile green turtles are typically more carnivorous and will also consume plankton during their pelagic stage (CoA, 2017). Green turtles are common in the NWMR, with the JBG AMP identified as an important foraging area for the species (DCCEEW, 2024e). The Operational Area overlaps with this foraging BIA for the species (Table 4-4, Figure 4-5).

Green turtles are known to forage around the pinnacles of the Bonaparte Depression (DEWHA, 2007; Donovan et al., 2008). However, based on knowledge about the species ecology and habitat use around Australia, it is likely that the species would favour seagrass and reef habitats within the Northwest Marine Region (DCCEEW, 2012).

Given the species preference for tropical waters and a significant portion of the Operational Area overlaps with important foraging grounds for the green turtle, it is likely that the species will be present in the Operational Area.

4.5 Protected and Significant Areas

The PMST results (APPENDIX B) identified that the Operational Area, ZPI and EMBA intersect with the Commonwealth Marine Area.

As shown in Figure 4-14, the Operational Area does not intersect any State marine protected areas, wetlands of international or national importance, World, National or

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Commonwealth heritage properties or places. The ZPI overlaps one Australian Marine Park (AMP) and 2 Key Ecological Features (KEFs). The EMBA overlaps 3 AMPs, 3 KEFs and 2 State parks and reserves. These are summarised in Table 4-7 and further described in the next subsections.

Table 4-7: Protected areas, key ecological features, and State parks and reserves within the Operational Area, ZPI and EMBA

Key sensitive area	IUCN category	Overlaps Operational Area	Overlaps ZPI	Overlaps EMBA	Distance from Operational Area (km)
Australian Marine Parks					
Oceanic Shoals Marine Park	Multiple Use Zone (IUCN VI) Special Purpose Zone (Trawl) (IUCN VI) Habitat Protection Zone (IUCN IV)	-	-	✓	16km
Joseph Bonaparte Gulf Marine Park	Special Purpose Zone (IUCN VI) Multiple Use Zone (IUCN VI)	-	✓	✓	40km
Kimberly Marine Park	Multiple Use Zone (IUCN VI)	-	-	✓	220km
Key Ecological Features					
Pinnacles of the Bonaparte Basin	Not applicable	-	✓	✓	520m
Carbonate bank and terrace system of the Sahul Shelf	Not applicable	-	✓	✓	18km
Carbonate bank and terrace system of the Van Diemen Rise	Not applicable	-	-	✓	84km
State Parks and Reserves					
Lesueur Island Nature Reserve (WA)	Not applicable	-	-	✓	125km
North Kimberley Marine Park (WA)	Not applicable	-	-	✓	76km

4.5.1 Australian Marine Parks and State / Territory Parks and Reserves

The Operational Area does not intersect any Australian or State Marine Parks. The ZPI overlaps one AMP, the Joseph Bonaparte Gulf Marine Park (Table 4-7). The EMBA overlaps 3 AMPs, the Oceanic Shoals Marine Park, Joseph Bonaparte Gulf and Kimberly (Table 4-7).

The WA North Kimberley Marine Park intersects the EMBA and has significance to First Nations heritage. The values are discussed in Section 4.6.8.

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4.5.1.1 Australian Marine Parks

The AMP Network has been established around Australia as part of the National Representative System of Marine Protected Areas (NRSMPA). The primary goal of the NRSMPA is to establish and effectively manage a comprehensive, adequate and representative system of marine parks to contribute to the long-term conservation of marine ecosystems and protect marine biodiversity.

The EMBA overlaps 3 Australian Marine Parks, the Oceanic Shoals Marine Park, Joseph Bonapart Gulf and Kimberley (Figure 4-14). Values for these AMPs are described in Table 4-8.

Management plans for AMPs have been developed and came into force on 1 July 2018. Under these plans AMPs are allocated conservation objectives (International Union for Conservation of Nature (IUCN) Protected Area Category) based on the Australian IUCN reserve management principles in Schedule 8 of the EPBC Regulations 2000. These principles determine what activities are acceptable within the different zones of the AMP network and are described in Table 2-3. The Activity will be undertaken in compliance with the AMP network zone rules.

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Table 4-8: Values of the Australian Marine Parks within the EMBA

Australian Marine Park	Management Zone/s	Values
Oceanic Shoals AMP	Habitat Protection Zone (IUCN IV) Multiple Use Zone (IUCN VI) Special Purpose Zone (Trawl) (IUCN VI)	<u>Natural Values:</u> The Oceanic Shoals Marine Park is significant because it contains habitats, species and ecological communities associated with the Northwest Shelf Transition. It contains four KEFs: • Carbonate bank and terrace systems of the Van Diemen Rise; • Carbonate bank and terrace systems of the Sahul Shelf; • Pinnacles of the Bonaparte Basin; and • Shelf break and slope of the Arafura Shelf. All valued as unique seafloor features with ecological properties of regional significance. The Marine Park is the largest marine park in the North Network and supports a range of species, including species listed as threatened, migratory, marine or cetacean under the EPBC Act. BIAs within the Marine Park include foraging and interesting habitat for marine turtles. <u>Cultural Values:</u> The Northern Land Council and the Kimberley Land Council are the Native Title Representative Bodies for the Northern Territory's (NT) northern region, and the Kimberley region. The Tiwi Land Council collectively represents Traditional Owners of the Tiwi Islands. <u>Heritage Values:</u> No international, Commonwealth or National Heritage listings apply to the Marine Park at commencement of the North Management Plan (2018a). <u>Social / Economic Values:</u> Commercial fishing and mining are important activities in the Marine Park.
Joseph Bonaparte Gulf AMP	Multiple Use Zone (IUCN VI) Special Purpose Zone (IUCN VI)	<u>Natural Values:</u> The Joseph Bonaparte Gulf Marine Park is significant because it contains habitats, species and ecological communities associated with the Northwest Shelf Transition bioregion. It includes one KEF: the carbonate bank and terrace system of the Sahul Shelf (valued as a unique seafloor feature with ecological properties of regional significance). The Marine Park contains a number of prominent shallow seafloor features including an emergent reef system, shoals, and sand banks. It is near an important wetland systems including the Ord

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Australian Marine Park	Management Zone/s	Values
		River floodplain Ramsar site and provides connectivity between the nearshore and sea environments. The Marine Park includes habitats connecting to and complementing the adjacent WA North Kimberley Marine Park. The Marine Park supports a range of species, including species listed as threatened, migratory, marine or cetacean under the EPBC Act. Biologically important areas (BIA) within the Marine Park include foraging habitat for marine turtles and the Australian snubfin dolphin. <u>Cultural Values:</u> The Miriuwung, Gajerrong, Doolboong, Wardenybeng and Gija and Balangarra people have responsibilities for sea country in the Marine Park. They are represented by the following Prescribed Body Corporates: Miriuwung and Gajerrong Aboriginal Corporation, and Balangarra Aboriginal Corporation. These corporations are the points of contact for their respective areas of sea country in the Marine Park. The Northern Land Council and the Kimberley Land Council are the Native Title Representative Bodies for the NT's northern region, and the Kimberley region. <u>Heritage Values:</u> No international, Commonwealth or National Heritage listings apply to the Marine Park at commencement of the North Management Plan (2018a). <u>Social / Economic Values:</u> Tourism, commercial fishing, mining, and recreation including fishing, are important activities in the Marine Park.
Kimberley AMP	Multiple Use Zone (IUCN VI)	<u>Natural Values:</u> The Kimberley Marine Park is significant because it includes habitats, species and ecological communities associated with the Northwest Shelf Province, Northwest Shelf Transition and Timor Province. It includes two KEFs: the ancient coastline at the 125m depth contour (an area of enhanced productivity and migratory pathway for cetaceans and pelagic marine species); and continental slope demersal fish communities (valued for high levels of endemism and diversity and the second richest area for demersal fish species in Australia). The Marine Park provides connectivity between deeper offshore waters, and the inshore waters of the adjacent WA North Kimberley Marine Park and Lalang-garram / Camden Sound Marine Park. The Marine Park supports a range of species, including protected species listed as threatened, migratory, marine or cetacean under the EPBC Act. BIAs within the Marine Park include breeding and foraging habitat for seabirds, internesting and nesting habitat for marine turtles, breeding, calving and foraging habitat for inshore dolphins, calving, migratory

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Australian Marine Park	Management Zone/s	Values
		pathway and nursing habitat for humpback whales, migratory pathway for pygmy blue whales, foraging habitat for dugong and foraging habitat for whale sharks. <u>Cultural Values:</u> The Wunambal Gaambera, Dambimangari, Mayala, Bardi Jawi and the Nyul Nyul people's sea country extends into the Kimberley Marine Park. The National Heritage listing for the West Kimberley recognises the following key cultural heritage values: • Wanjina Wunggurr Cultural Tradition which incorporates many sea country cultural sites; • Log-raft maritime tradition, which involved using tides and currents to access warrurru (reefs) far offshore to fish; • Interactions with Makassan traders around sea foods over hundreds of years; and • Important pearl resources that were used in traditional trade through the wunan and in contemporary commercial agreements. The Wunambal Gaambera, Bardi Jawi, Mayala and the Nyul Nyul people have had native title determined over parts of their sea country included in this Park. The native title holders for these people are represented by the Wunambal Gaambera Aboriginal Corporation, Bardi and Jawi Niimidiman Aboriginal Corporation and the Kimberley Land Council. These representative bodies are the points of contact for their respective areas of sea country for the Marine Park. The Kimberley Land Council is the Native Title Representative Body for Kimberley region. <u>Heritage Values:</u> No international, Commonwealth or National Heritage listings apply to the Marine Park at commencement of the North-west Management Plan (2018b), however the Marine Park contains more than 40 known shipwrecks listed under the <i>Historic Shipwrecks Act 1976</i>. <u>Social / Economic Values:</u> Tourism, commercial fishing, mining, recreation, including fishing, and traditional use are important activities in the Marine Park.

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4.5.1.2 State / Territory Parks and Reserves

The Operational Area and ZPI do not overlap with any State / Territory Parks and Reserves, however the EMBA overlaps with 2 State / Territory Parks and Reserves (Table 4-7, Figure 4-15). These were identified through the PMST Reports as well as desktop research. The closest state or Territory Park is the North Kimberley Marine Park, located within the EMBA and in WA waters, approximately 76km from the Operational Area. Values for the parks and reserves within the EMBA are outlined below.

4.5.1.2.1 North Kimberley Marine Park (WA)

The north Kimberley coast is recognised as one of the world's most ecologically diverse marine areas (DPAW, 2016) and at 1,845,000 hectares, the North Kimberley Marine Park is the largest marine park in Western Australia and the second largest State Marine Park in Australia (DBCA, 2020).

There are more than 1000 islands within the boundaries of the North Kimberley Marine Park, each providing an array of intertidal and subtidal habitats (DPAW, 2016). The coral reefs of the north Kimberley have the greatest diversity in Western Australia and are some of the most pristine reefs in the world (Richards et al., 2015; Wilkinson, 2008 in DPAW, 2016). Large estuaries, mudflats and extensive mangrove forests support many threatened, protected and culturally important species such as dugongs, turtles and sawfish. The marine park aims to conserve and enhance these values for the benefit of present and future generations.

The North Kimberley Marine Park contains many places of cultural and spiritual importance to Traditional Owners. The significance of the cultural heritage values in the Kimberley region has been recognised as part of the West Kimberley National Heritage listing, protected under the EPBC Act.

The scenery, diverse wildlife and cultural heritage enhances the community value of the area as well as providing recreation and tourism opportunities.

4.5.1.2.2 Lesueur Island Nature Reserve

Lesueur Island Nature Reserve is located approximately 12km from the WA coast and is approximately 125km from the Operational Area. The island is also located within the boundaries of the North Kimberley Marine Park and are zoned for recreation and conservation, although the remoteness of the location poses a challenge for access, including for management operations (DBCA, 2019).

Lesueur Island is recognised as an important part of the naturally and culturally significant North Kimberley National Biodiversity Hotspot and West Kimberley National Heritage Area (DBCA, 2019). Key values of Lesueur Island include both cultural and natural values. European exploration and a lighthouse linked to Australian heritage represents the cultural heritage values of Lesueur Island, while habitat for breeding seabirds and nesting habitat for turtles are included as natural values (DBCA, 2019). Lesueur Island also lies within Balanggarra County and the Balanggarra Native Title Determination (DBCA, 2019).

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4.5.2 Key Ecological Features

KEFs are those components of the marine ecosystem that are important for biodiversity or the ecosystem function and integrity of a Commonwealth marine area. The Operational Area does not overlap any KEFs. The ZPI overlaps 2 KEFs:

- Carbonate bank and terrace system of the Sahul Shelf; and
- Pinnacles of the Bonaparte Basin.

The EMBA overlaps three KEFs:

- Carbonate bank and terrace system of the Sahul Shelf;
- Carbonate bank and terrace system of the Van Diemen Rise; and
- Pinnacles of the Bonaparte Basin.

The Pinnacles of the Bonaparte Basin KEF has been recorded 0.52km from the closest boundary of the Operational Area. All KEFs within the EMBA are shown in Figure 4-16 and described in Table 4-9.

Table 4-9: Key Ecological Features within the EMBA

KEF	Values and Description
Carbonate bank and terrace system of the Sahul Shelf	The Sahul banks are the single most extensive banks and shoals in the Australian EEZ with unique seafloor feature with ecological properties of regional significance. The area is significant because of its role in enhancing biodiversity and local productivity in the region. The banks provide hard substrate in an otherwise soft substrate environment which provides a habitat for sessile species. The banks rise steeply from depths of approximately 80m and emerge to within 30m of the surface allowing for light dependent organisms to thrive. Communities comprise of hard and soft corals, sponges, whips, fans and bryozoans. The banks form part of a larger complex of banks and terraces that occurs on the Van Diemen Rise. The area supports a diverse range of species including 11 shark species, black marlin, barracuda, sea turtles, sea snakes and orca. Humpback whales and green and freshwater sawfish are known to occur within the area. (DSEWPAC, 2012a).
Carbonate bank and terrace system of the Van Diemen Rise	The Carbonate banks and terrace system of the Van Diemen Rise are regionally important because of their contribution to enhancing biodiversity and supporting relatively high species diversity and local productivity relative to their surrounds (DSEWPAC, 2012b). The KEF is located in the western Joseph Bonaparte Gulf and to the north of Cape Bougainville and Cape Londonderry. The bank and terrace system of the Van Diemen Rise covers approximately 31,278km² and forms part of the larger system associated with the Sahul Banks to the north and Londonderry Rise to the east. The feature is characterised by terrace, banks, channels and valleys (DSEWPAC, 2012b). The banks, ridges and terraces of the Van Diemen Rise are raised geomorphic features with relatively high proportions of hard substrate that support sponge and octocoral gardens. These, in turn, provide habitat to other epifauna, by providing structure in an otherwise flat environment. Plains and valleys are characterised by scattered epifauna and infauna that

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KEF	Values and Description
	include polychaetes and ascidians. These epibenthic communities support higher order species such as olive ridley turtles, sea snakes and sharks (DSEWPAC, 2012b).
Pinnacles of the Bonaparte Basin	The Pinnacles of the Bonaparte Basin are defined as a KEF due to the unique seafloor that features ecological properties of regional significance. Although they are not overlapped by the Operational Area instances of the KEF are located within a close proximity, approximately 0.52km north of the Operational Area. The Pinnacles of the Bonaparte Basin provide areas of hard substrate in an otherwise relatively featureless environment, the pinnacles are likely to support a high number of species, although a better understanding of the species richness and diversity associated with these structures is required. Covering >520km² within the Bonaparte Basin, this feature contains the largest concentration of pinnacles along the Australian margin. The Pinnacles of the Bonaparte Basin are thought to be the eroded remnants of underlying strata; it is likely that the vertical walls generate local upwelling of nutrient-rich water, leading to phytoplankton productivity that attracts aggregations of planktivorous and predatory fish, seabirds, and foraging turtles (DSEWPAC, 2012c).

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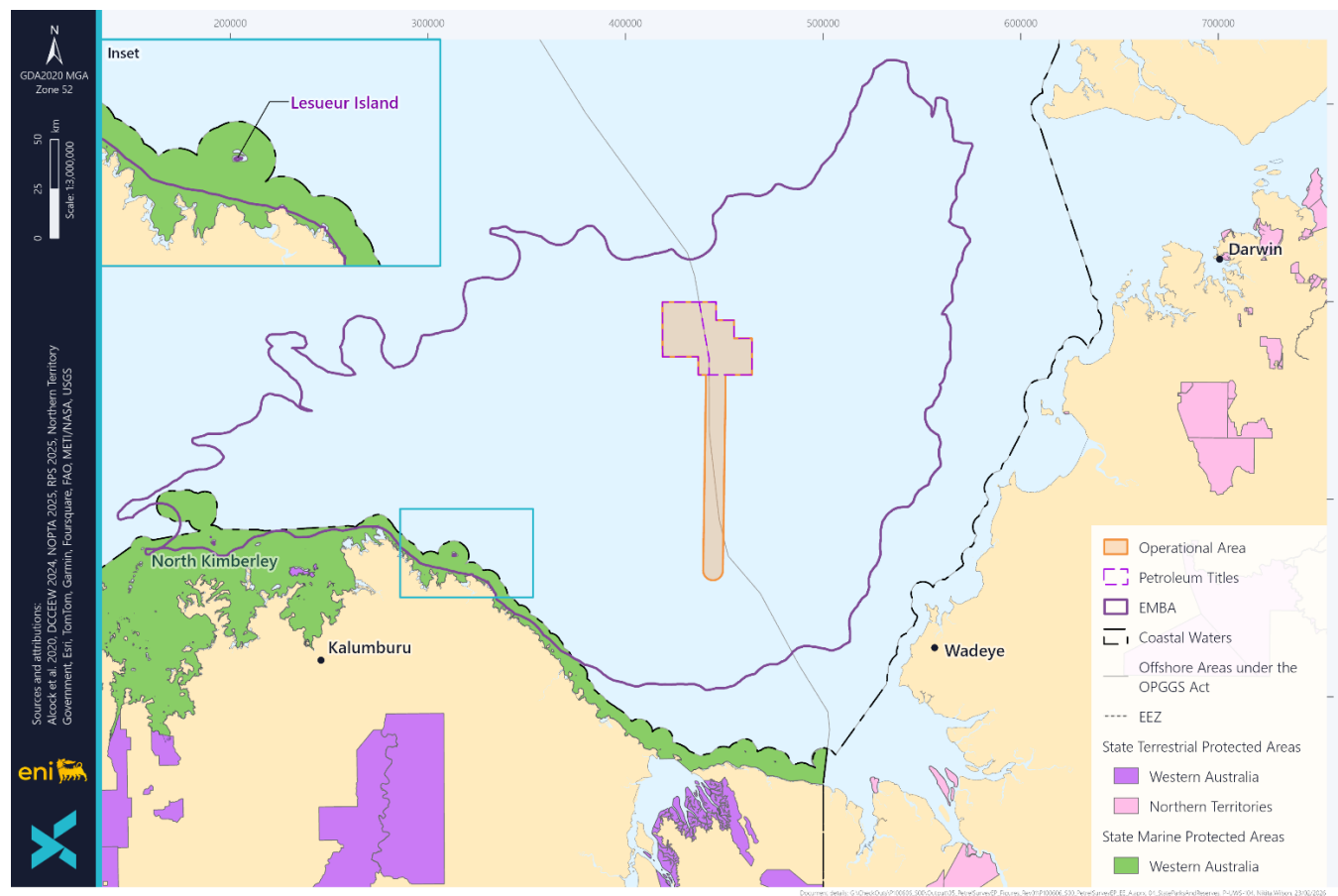


Figure 4-15: State Marine Parks within the EMBA

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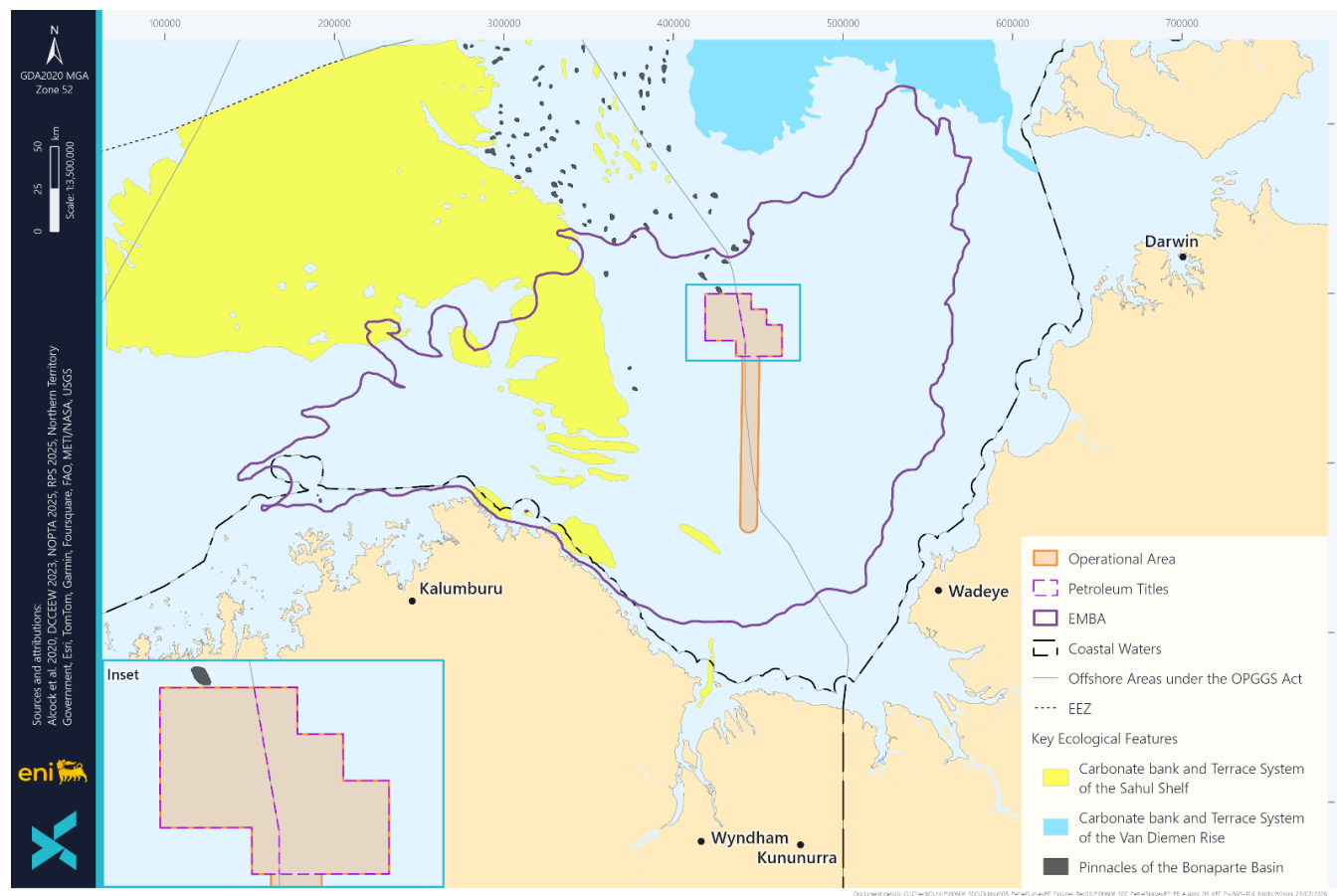


Figure 4-16: Key Ecological Features in Northern Australia

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4.5.3 Heritage Places

4.5.3.1 World Heritage Places

There are no World Heritage Places that overlap the Operational Area, ZPI or EMBA.

4.5.3.2 National Heritage Places

One area of National Heritage was identified within the EMBA (Figure 4-17). The West Kimberley is located in northern WA and was national heritage listed in 2011. The natural, historic and Indigenous stories of the region were found to be of outstanding heritage value to the nation. The West Kimberley listing encompasses the Kimberley coast from La Grange south of Broome, north to the Dampier Peninsula east to Cambridge Gulf, the Kimberley plateau and country south to the Oscar and Napier Ranges and the Fitzroy River.

Natural values of the region are defined by its ancient geology and include:

- The King Leopold Ranges which are the remnants of mountains which resulted from the collision of the Kimberley and Pilbara land masses millions of years ago; and
- The Oscar, Napier, Emmanuel and Pillara Ranges are the remains of a vast coral reef (DCCEEW, 2023h).

The region has rich biodiversity supporting a number of species which are unique to the region. Further, Roebuck Bay is internationally recognised as one of Australia's most significant sites for migratory wading birds (DCCEEW, 2023g). The West Kimberly's indigenous occupation occurred over 40,000 years and tells an important story of the evolution of the history of the country.

4.5.4 Ramsar Wetlands

There are no Ramsar Wetlands that overlap the Operational Area, ZPI or EMBA.

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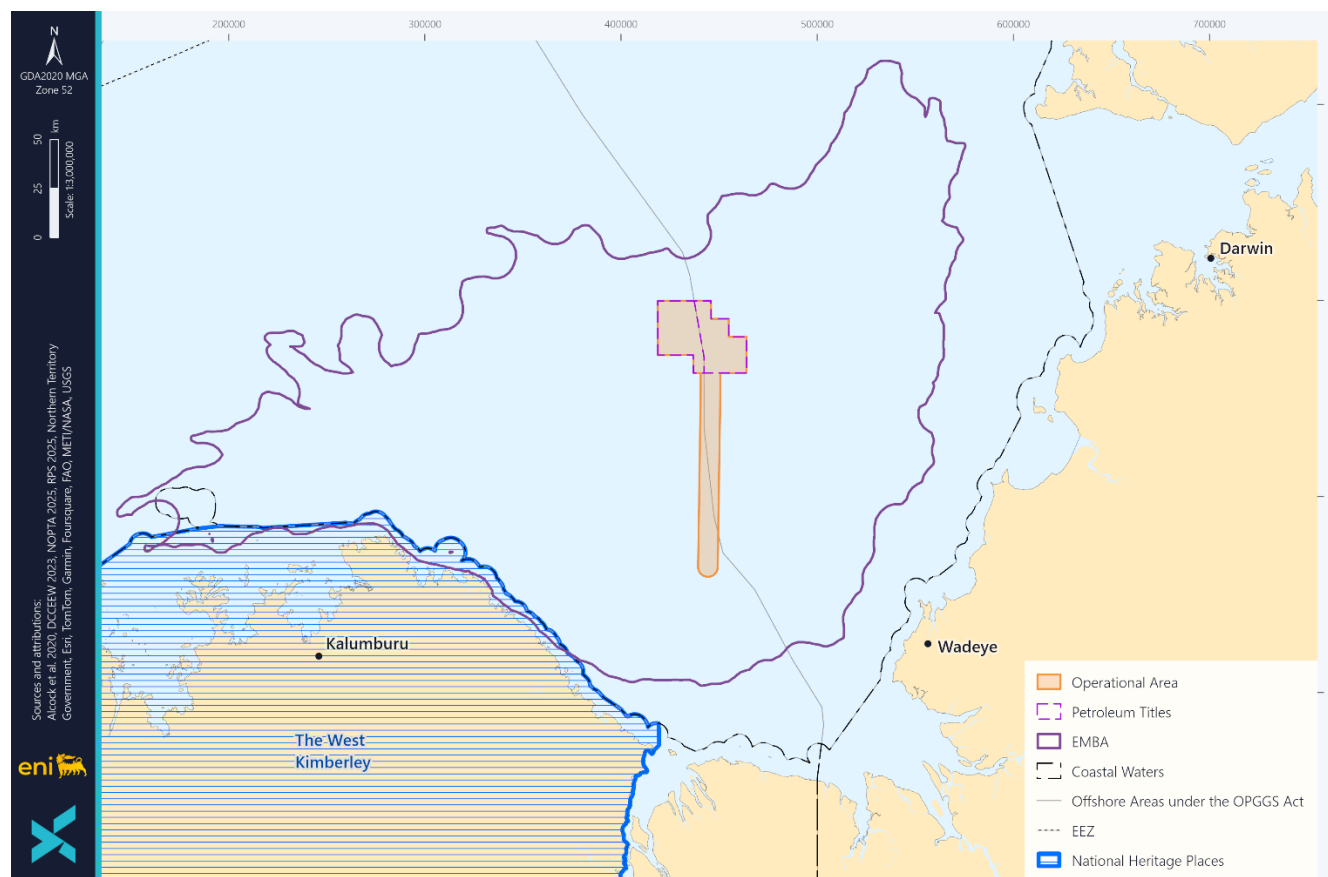


Figure 4-17: National Heritage within the EMBA

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4.6 Cultural and Socioeconomic Environment

4.6.1 Commercial Fisheries

To identify fisheries with the potential for interaction with the activity, a historical catch-effort and detailed fishery management assessment along with consultation was completed. The historical catch-effort assessment was completed using the following datasets and date-ranges:

- Commonwealth-managed fisheries – fishing intensity data from 2019 to 2024. Sourced from Australian Bureau of Agricultural and Resource Economics and Sciences (Summerson (ABARES), 2024);
- State-managed fisheries – averaged over 5 years from 2018 to 2023. Sourced from fishery status reports (Butler, et al., 2025) and the most recent FishCube data catch and effort records, from the West Australian Department of Primary Industry and Regional Development (DPIRD, 2023a); and
- Territory-managed fisheries – number of active licences data from 2019 to 2023. Sourced from Department of Industry, Tourism and Trade (DITT) (NT GOV, 2024).

Table 4-10 outlines the Commonwealth and State/Territory commercial fisheries overlapping the Operational Area, ZPI and EMBA. Some fisheries have designated management areas, which are specifically defined geographic zones within their respective jurisdiction, each with unique sets of rules and regulations tailored to the specific ecological and socio-economic characteristics of the region. Fisheries that do not have designated management areas are managed via other non-spatial means. Further consideration has been undertaken to determine the potential for interaction with these fisheries, including any spatial management and specific catch-methodology to determine the potential for interaction with petroleum activities.

Table 4-10 also provides an assessment of the potential interaction based on the catch-methodology, relevant spatial closures or management conditions of the fisheries, and historic catch-effort data, to determine whether the fishery is considered 'active'; or has the potential for future fishing effort in the Operational Area. While it is recognised that catch data referenced in Table 4-10 does not preclude the possibility for future catch, it is highly unlikely the catch effort of these fisheries will significantly increase in the vicinity of the Operational Area over the life of this EP.

Based on the assessment in Table 4-10, the following is a summary of fisheries that overlap with the Operational Area, ZPI and EMBA. The fisheries considered active in the Operational Area with fishing intensity recorded between 2018-2023, include:

Commonwealth-managed fisheries:

- Northern Prawn Fishery

Western Australian-managed fisheries:

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- Mackerel; and
- Northern Demersal Scalefish.

Northern Territory-managed fisheries:

- Demersal;
- Offshore Net and Line; and
- Tour Operators.

For the Mackerel Managed Fishery, the 60NM grid dataset indicated active fishing effort within the OA; however, the granular 10NM grid dataset revealed no activity (Figure 4-19). Despite the absence of fine-scale evidence, for impact assessment purposes, the Mackerel Managed Fishery is considered active within the Operational Area.

Fisheries with maximum fishing effort recorded over the data period that overlaps the EMBA are shown in Figure 4-18 to Figure 4-23. Note that some fisheries do not have management areas to display, and that the datasets and the way fishing effort is recorded differs between Commonwealth, State and Territory commercial fisheries (i.e. intensity, number of active licences or number of active vessels).

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Table 4-10: Spatial overlap of Commonwealth and State fisheries within the Operational Area, ZPI and EMBA

Fishery		Spatial Overlap of Fishery			Description
		Operational Area	ZPI	EMBA	
Commonwealth Fisheries					
Northern Prawn Fishery	✓(a)	✓(a)	✓(a)	The Northern Prawn Fishery (NPF) management area overlaps the Operational Area, ZPI, and the EMBA. The fishery extends from Joseph Bonaparte Gulf across the Top End to the Gulf of Carpentaria (Butler et al., 2025). The NPF uses otter trawl gear to target a variety of tropical prawn species. In the management area, fishing effort peaked in 1981 of more than 250 active vessels and has decreased to 51 active vessels in the 2023-2024 fishing season (Butler et al., 2025). Low - medium fishing effort was recorded within Operational Area (<0.1 - <0.5 day annually between 2018-2023) (Butler et al., 2025) (Figure 4-18). No fishing is permitted by the NPF in this area from 1 April – 15 June until the effectiveness of the closure is reviewed in 2026 (AFMA, 2023). Outside of this timing fishing is unlikely. Engagement with the NPMFI confirmed that NPF operators do not object to the proposed surveys of the Petrel field, provided that activities do not occur between 1 August and 20 November each year. NPF amended the preferred timing for the activity to after 15 October, to limit any impacts on fishing operations from Eni vessel transit. However, the timing of the Petrel survey activities is subject to vessel availability in the region and weather conditions, and given the nature of the work, it is not feasible to commit to limiting work to specific periods of the year.	
Southern Bluefin Tuna Fishery	✓	✓	✓	The Southern Bluefin Tuna Fishery management area overlaps the Operational Area, ZPI, and the EMBA. The fishery spans the Australian Fishing Zone, both on the high seas and within the Exclusive Economic Zones (EEZs) of Australia and other nations. Since 1992, most of the Australian catch has been taken by purse seine in the Great Australian Bight (Patterson et al., 2025a). There has been no fishing activity recorded within the Operational Area, ZPI, or the EMBA (Summerson, 2024). The fishery targets tuna species, some of which that can be found in deeper waters to 500m (AFMA, 2026).	

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Fishery	Spatial Overlap of Fishery			Description
	Operational Area	ZPI	EMBA	
				Accordingly, given the depth of the Operational Area (~83m), Eni considers there to be no potential for interaction within the Operational Area, ZPI, or EMBA, and unlikely to interact in the future.
Western Skipjack Fishery	✓	✓	✓	The Western Skipjack Tuna Fishery management area overlaps the Operational Area, ZPI, and the EMBA. The Western Skipjack Tuna Fishery spans the Australian Fishing Zone west of Victoria and the Torres Strait. The fishery is currently not active, with no fishing effort present since 2009 (Patterson and Dylewski, 2025). Therefore, Eni considers there to be no potential for interaction with this fishery within the Operational Area, ZPI, and the EMBA, and unlikely to interact in the future.
Western Tuna and Billfish Fishery	✓	✓	✓	The Western Tuna and Billfish Fishery management area overlaps the Operational Area, ZPI, and the EMBA. However, most of the Australian catch has been concentrated off south-west Western Australia with occasional activity off South Australia (Patterson, et al., 2025). Historical fishing effort is concentrated off south-west WA, with occasional activity off South Australia. During stakeholder consultation, feedback from the Western Tuna and Billfish Fishery indicated growing interest from fishers seeking access following the WA government's demersal trawl fisheries ban (APPENDIX C). However, this fishery is not considered active within the EMBA. Accordingly, Eni considers there to be no potential for interaction with this fishery within the Operational Area, ZPI and EMBA, and unlikely to interact in the future.
Western Australian State Managed Fisheries				
Abalone Managed Fishery	✓	✓	✓	The Abalone Managed Fishery management area overlaps the Operational Area, ZPI and the EMBA. The fishery includes the Greenlip/Brownlip Fishery (Area four) and Roe's Abalone Fishery (Area eight). After being closed for 13 years, DPIRD opened parts of the fishery north of Moore River to the Greenough River Mouth, but the northernmost zones still remain closed.

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Fishery	Spatial Overlap of Fishery			Description
	Operational Area	ZPI	EMBA	
				Accordingly, Eni considers there to be no potential for interaction with this fishery within the Operational Area, ZPI and the EMBA; but there may be interaction in the ZPI and EMBA in the future if the fishery reopens the northernmost zones.
Kimberley Crab Managed Fishery	✓	✓(a)	✓(a)	The Kimberley Crab Fishery management area overlaps the Operational Area, ZPI and the EMBA. The fishery allows for 1,200 units (600 traps) to license holders and an additional 600 traps allocated to Traditional Owner groups (Newman et al., 2024). The fishery is active within the ZPI and EMBA. There were < 3 active licences reported within the 60NM CAES blocks between 2018-2023 seasons within the ZPI (DPIRD, 2023). Accordingly, Eni considers it a possibility that interaction with the fishery may occur within the ZPI and the EMBA.
Kimberley Gillnet and Barramundi Fishery*	✖	✖(a)	✓(a)	The Kimberley Gillnet and Barramundi Fishery management area overlaps the EMBA. However, the fishery is active within the ZPI and EMBA. There were up to 3 active licences reported within the 60NM CAES blocks between 2018-2023 seasons within the ZPI (DPIRD, 2023). Accordingly, Eni considers it a possibility that interaction with the fishery may occur within the ZPI and the EMBA.
Kimberley Prawn Fishery	✖	✖	✓(a)	The Kimberley Prawn Fishery management area overlaps the EMBA. The fishery is active within the EMBA. There were up to 11 active licences reported within the 10NM CAES blocks between 2018-2023 seasons within the EMBA (DPIRD, 2023). Accordingly, Eni considers it a possibility that interaction with the fishery may occur within the EMBA only.
Mackerel Managed Fishery	✓(a) ²	✓(a)	✓(a)	The Mackerel Managed Fishery management area overlaps the Operational Area, ZPI and the EMBA. The fishery extends from the West Coast Bioregion to the WA/NT border and is active within the Operational Area, ZPI and the EMBA. There were < 3 vessels reported within the Mackerel Managed Fishery 60NM CAES blocks between 2019-2023 seasons that overlap the Operational Area (DPIRD, 2023) (Figure 4-19). However, at a finer scale, there is no fishing intensity overlap of the 10NM CAES blocks and the

² The 60NM grid dataset for the Mackerel Managed Fishery indicated active fishing effort within the OA; however, the 10NM grid dataset did not identify any activity. For impact assessment purposes, this fishery is considered active within the Operational Area.

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Fishery	Spatial Overlap of Fishery			Description
	Operational Area	ZPI	EMBA	
				Operational Area during same period. Fishing intensity within the 10 NM CAES blocks only occurs within the ZPI and EMBA, with <3 active licences reported between the 2019-2023 seasons. Eni considers it is possible that interaction with the fishery may occur within the Operational Area, ZPI, and the EMBA.
Marine Aquarium Managed Fishery	✓	✓(a)	✓(a)	The Marine Aquarium Managed Fishery management area overlaps the Operational Area, ZPI and the EMBA. No fishing effort has been recorded within the Operational Area. The fishery is active within the ZPI and EMBA. There were <3 active licences reported within the 60NM CAES blocks between 2018-2023 seasons within the ZPI (DPIRD, 2023). The Marine Aquarium Managed fishery is a diver-based fishery and restricted to relatively shallow waters. Accordingly, Eni considers it a possibility that interaction with the fishery may only occur within the ZPI and EMBA.
Northern Demersal Scalefish Fishery	✓(a)	✓(a)	✓(a)	The Northern Demersal Scalefish Fishery management area overlaps the Operational Area, ZPI, and the EMBA. The fishery is active within the Operational Area, ZPI and the EMBA and is managed in accordance with the North Coast Demersal Resource. The fishery reported <3 vessels active within the 10NM CAES blocks within the Operational Area during the 2018-2019 season (DPIRD, 2023) (Figure 4-20). Recent data indicates that red emperor stock targeted by the Northern Demersal Scalefish Fishery is classified as Inadequate and the risk to this stock is assessed as High. The goldband snapper stock is classified as sustainable-adequate and the risk to the stock is assessed as Medium. Model projections based on current catch suggest that the stock would continue to decline to around the threshold level by 2035 (Trinnie et al, 2025). The ZPI and EMBA overlaps the 10NM and 60NM CAES fishing blocks with historical activity reporting <3 vessels in the 10 NM CAES blocks overlapping the ZPI between the 2018-2020 season and <3 vessels in the 10 NM CAES blocks within the EMBA between 2018 and 2023 (DPIRD, 2023). Accordingly, Eni considers it a possibility that interaction with the fishery may occur within the Operational Area, ZPI and the EMBA.
South West Coast Salmon Managed Fishery	✓	✓	✓	The South West Coast Salmon Managed Fishery management area overlaps the Operational Area, ZPI and the EMBA. Historically, no fishing has occurred north of the Perth Metropolitan Area (Duffy et al., 2023) and there is no fishing effort recorded within

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Fishery	Spatial Overlap of Fishery			Description
	Operational Area	ZPI	EMBA	
				the Operational Area, ZPI, and the EMBA. Accordingly, Eni considers there to be no potential for interaction with this fishery within the EMBA and unlikely to interact in the future.
Specimen Shell Managed Fishery	✓	✓	✓	The Specimen Shell Managed Fishery management area overlaps the Operational Area, ZPI, and the EMBA. The fishery is largely diver-based, targeting specimen shells in water depths < 30 m. There has been no fishing effort recorded within the Operational Area, ZPI and the EMBA. Accordingly, Eni considers there to be no potential for interaction with the fishery within the Operational Area, ZPI, and the EMBA, and unlikely to interact in the future.
West Australian Sea cucumber Fishery*	✖	✖	✖(a)	The West Australian Sea Cucumber Fishery has fishing effort that intersects with the EMBA. Note this fishery does not have a management area. No fishing effort has been recorded within the Operational Area. The fishery is active in the EMBA, with 60NM CAES block reporting <3 vessels active across the 2018-2023 seasons (DPIRD, 2023). Accordingly, Eni considers it a possibility that interaction with the fishery may occur with the EMBA only.
West Coast Deep Sea Crustacean Managed Fishery	✓	✓	✓	The West Coast Deep Sea Crustacean Managed Fishery management area overlaps the Operational Area, ZPI and the EMBA. However, the Operational Area, ZPI and the EMBA are within the closed waters of the fishery and no fishing effort recorded. Accordingly, Eni considers there to be no potential for interaction with the fishery within the ZPI and the EMBA, and unlikely to interact in the future.
Western Australia Charter Fisheries				
Tour Operators*	✖	✖(a)	✖(a)	Fishing Tour Operators are permitted to operate across WA state waters and are required to report monthly logbook records of client fish catches. This fishery does not have a management area but are permitted to fish anywhere in WA state waters. The fishery is active within the ZPI and the EMBA. There were between <3 and 16 active licences recorded within the 60NM reporting grids and <3 recorded within the ZPI over the 2018-2023 seasons. Accordingly, Eni considers it a possibility that interaction with the fishery may occur within the ZPI and the EMBA.

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Fishery	Spatial Overlap of Fishery			Description
	Operational Area	ZPI	EMBA	
Northern Territory Managed Fisheries				
Aquarium Fishery	✓	✓	✓	The Northern Territory Aquarium Fishery management area overlaps with the Operational Area, ZPI and EMBA. The Aquarium Fishery is a small-scale, multi-species fishery and includes freshwater, estuarine and marine habitats to the outer boundary of the Australian EEZ. Freshwater and estuarine species are generally collected between the Adelaide and Daly rivers, while most marine species are collected within 100km of Nhulunbuy and Darwin (NT Government 2024a). The fishery implements barrier, cast, scoop, drag and skimmer nets, hand pumps, freshwater pots and hand-held equipment to collect species, hard rock and corals. Analysis of five years of NT fishing effort data (2019-2023) showed no active fishing recorded for this fishery within the Operational Area, ZPI or EMBA (NT DAF, 2024). Accordingly, Eni considers there to be no potential for interaction with the fishery within the ZPI and the EMBA.
Demersal Fishery	✓(a)	✓(a)	✓(a)	The Demersal Fishery management area overlaps with the Operational Area, ZPI and EMBA (Figure 4-21). Demersal fishing is allowed from 15 nm from the low water mark to the outer boundary of the Australian EEZ, excluding the area of the Timor Reef fishery. There is active fishing that occurs within the Operational Area (Figure 4-21). However, fishing effort data for this fishery (2019-2023) is classified as <5 licences are operating in the within the Operational Area, and ZPI. Up to 5 licences are recorded overlapping the EMBA during the 2019-2023 seasons (NT GOV, 2024). Eni considers there may be potential for interaction with the fishery within the Operational Area.
Development Fishery (Small Pelagic)	✓	✓	✓	The Development Fishery management area overlaps with the Operational Area, ZPI and EMBA. Development Fishery Licences are issued to existing fisheries intending to trial new fishing gear, fishing methods and/or catch new target species. Fishers who wish to conduct development trials are required to lodge written applications providing detailed information about their proposed activities. Performance criteria are assigned to each permit so that the feasibility of the trials may be assessed. Development licences may be issued to approved applicants for up to one licensing year and may be renewed a maximum of four times. Where licence holders meet all performance criteria and remain able to demonstrate that the fishery and/or gear is both

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Fishery	Spatial Overlap of Fishery			Description
	Operational Area	ZPI	EMBA	
				ecologically and economically sustainable, the fishery and/or gear in question may progress to a managed fishery. Analysis of five years of NT fishing effort data (2019-2023) showed no active fishing recorded for this fishery within the Operational Area, ZPI or EMBA (NT DAF, 2024). Accordingly, Eni considers there to be no potential for interaction with the fishery within the ZPI and the EMBA.
Offshore Net and Line Fishery	✓(a)	✓(a)	✓(a)	The Offshore Net and Line Fishery management area overlaps with the Operational Area, ZPI and EMBA (Figure 4-22). This fishery operates in all NT waters from the low water mark to the boundary of the Australian EEZ. The fishery operates using demersal and pelagic long-lines, gaffs, and pelagic nets. There is active fishing that occurs within the Operational Area (Figure 4-22). However, fishing effort data for this fishery (2018-2023) is classified as <5 licences are operating in the within the Operational Area, ZPI and EMBA (NT GOV, 2024). Eni considers there may be potential for interaction with the fishery within the Operational Area.
Pearl Oyster Fishery*	✖	✖	✖(a)	The Pearl Oyster Fishery has fishing effort that intersects with the EMBA. Note this fishery does not have a management area. The Pearl Oyster Fishery operates from the high-water mark to the outer boundary of the Australian EEZ. Pearl oysters must be caught by hand. There is active fishing that occurs within the EMBA. However, fishing effort data for this fishery (2018-2023) is classified as <5 licences are operating in the within the EMBA (NT GOV, 2024). Therefore, Eni considers it a possibility that interactions with the fishery may occur only in the EMBA.
Spanish Mackerel	✓	✓(a)	✓(a)	The Spanish Mackerel management area overlaps with the Operational Area, ZPI and EMBA. Commercial fishing for Spanish mackerel is allowed from the high-water mark to the outer boundary of the Australian EEZ. Fishing generally takes place around reefs, headlands and shoals. The fishery is restricted to 15 licences, which are fully allocated. The fishery operates via troll lines, floating hand lines and rods. There is active fishing that occurs within the ZPI and EMBA. However, fishing effort data for this fishery (2019-2023) is classified for the ZPI as <5 licences are operating in the

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Fishery	Spatial Overlap of Fishery			Description
	Operational Area	ZPI	EMBA	
				within the area. There were up to 6 active licences recorded within the 2023 fishery season for the EMBA (NT GOV, 2024). Eni considers there may be potential for interaction with the fishery only within the ZPI and EMBA.
Special Permits*	×	×	×(a)	The Special Permits Area has fishing effort that intersects with the EMBA. Note this fishery does not have a management area. This permit is for education activities, research or carrying out trials and experiments with fishing vessels or gear. It may also be issued for sport or recreation for a person who would otherwise be unable to fish due to disability. There is active fishing that occurs within the EMBA. However, fishing effort data for this fishery (2019-2023) is classified as <5 licences are operating in the within the EMBA (NT GOV, 2024). Eni considers there may be potential for interaction with the fishery only within the EMBA.
Timor Reef Fishery	×	×	×(a)	The Timor Reef Fishery overlaps with the EMBA. Commercial fishing is allowed north-west of Darwin to the WA/NT border and to the outer boundary of the Australian EEZ. There is active fishing that occurs within the EMBA. However, fishing effort data for this fishery (2019-2023) is classified as <5 licences are operating in the within the EMBA (NT GOV, 2024). Eni considers there may be potential for interaction with the fishery only within the EMBA.
Northern Territory Charter based fisheries				
Tour operators*	×(a)	×(a)	×(a)	Fishing tour operators in the NT are required a licence to run commercial guided fishing tours and authorisation with an approved operator card (Northern Territory Government, 2024). This fishery does not have a management area but has fishing effort that intersects with the Operational Area, ZPI and EMBA (Figure 4-23). There is active fishing that occurs within the Operational Area. However, fishing effort data for this fishery (2019-2023) is classified as <5 licences are operating within the Operational Area, ZPI and EMBA (NT GOV, 2024). Eni considers there may be potential for interaction with the fishery within the Operational Area.
✓ Management area present × Management area not present				

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Fishery	Spatial Overlap of Fishery			Description
	Operational Area	ZPI	EMBA	
(a) Fishing intensity recorded within data periods described above				
* Does not have a spatially defined management area, but does have an active licence recorded within the area				

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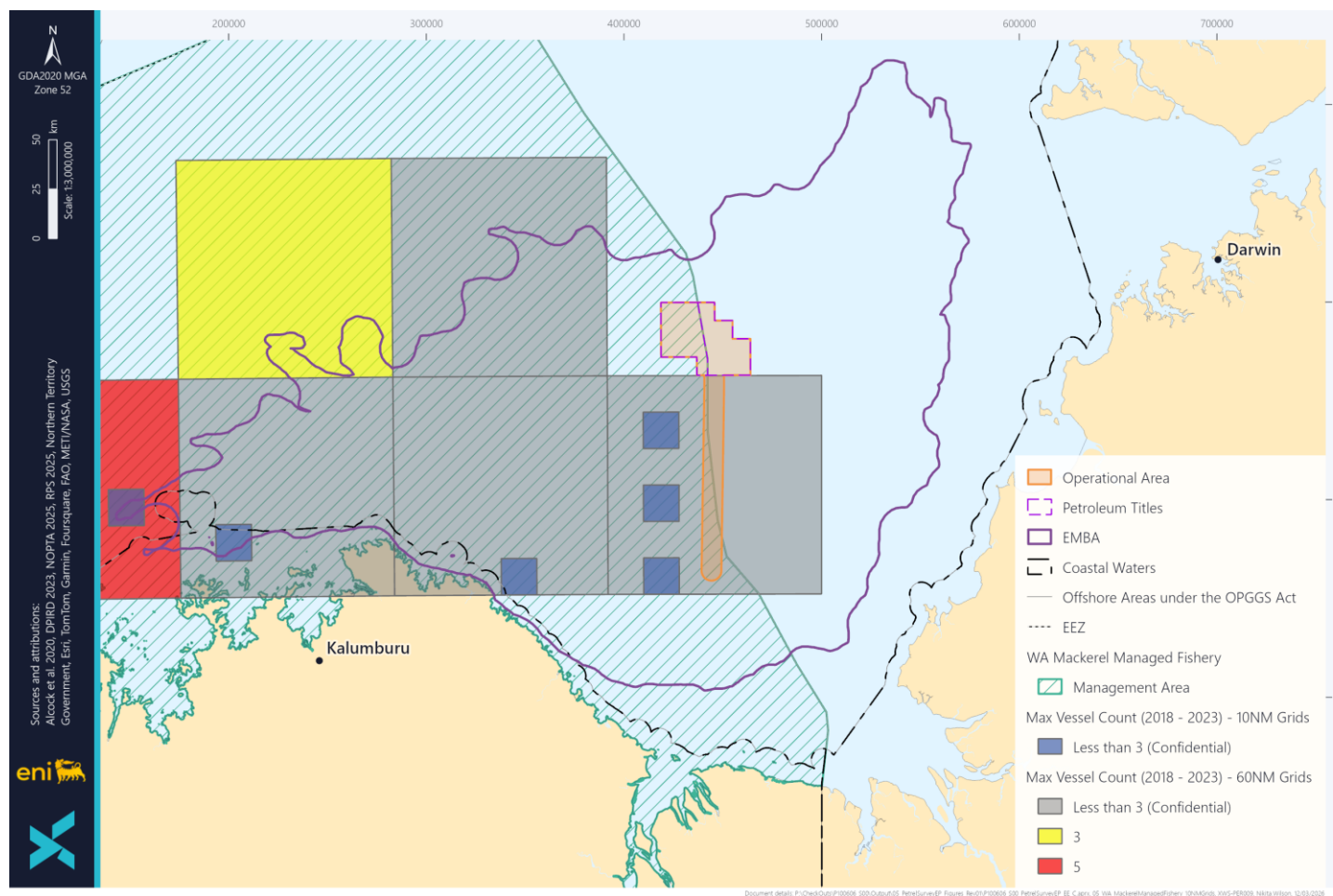


Figure 4-19: WA Mackerel Managed Fishery Fishing Intensity within the EMBA

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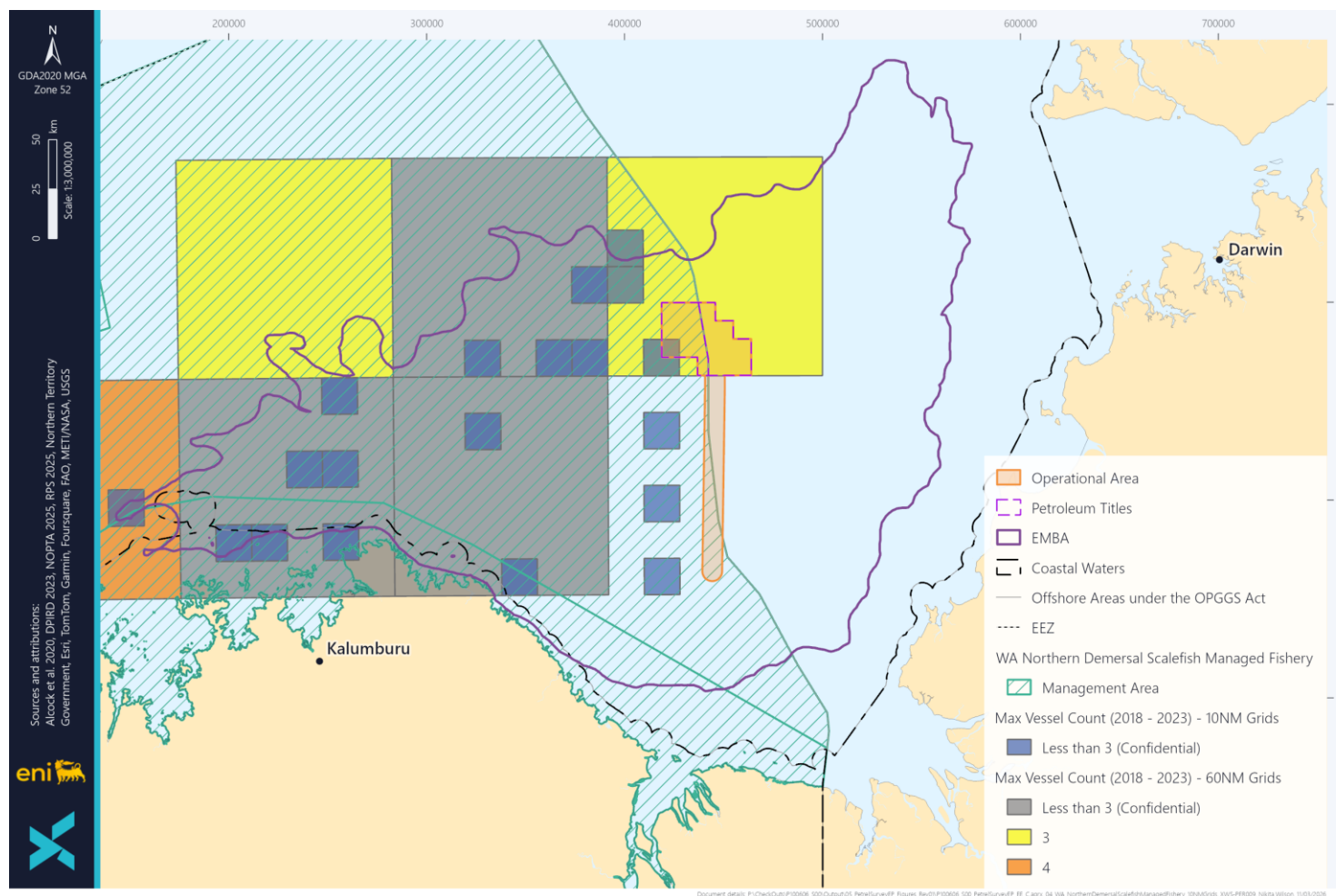


Figure 4-20: WA Northern Demersal Scalefish Fishery Fishing Intensity within the EMBA

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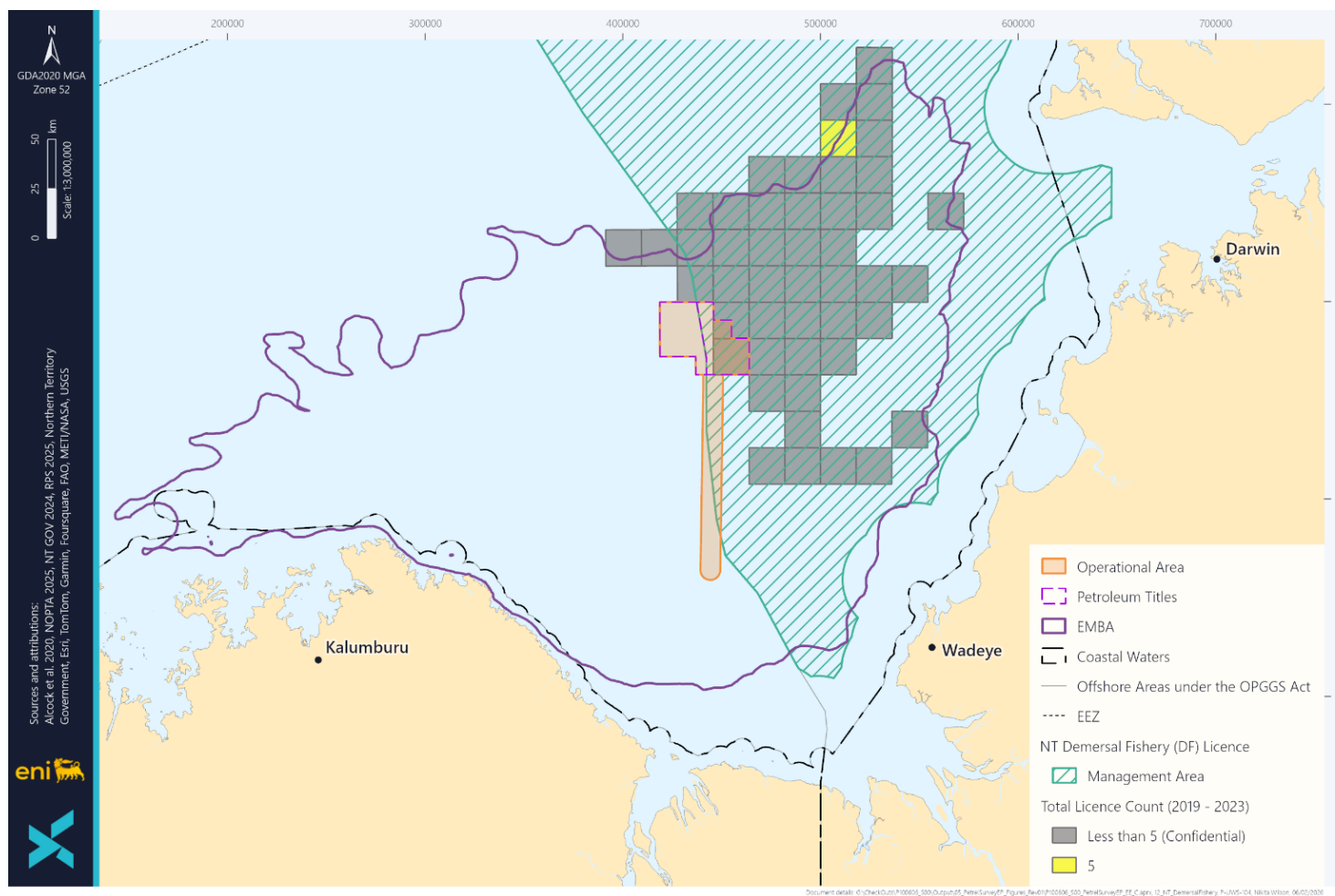


Figure 4-21: NT Demersal Fishery Fishing Intensity within the EMBA

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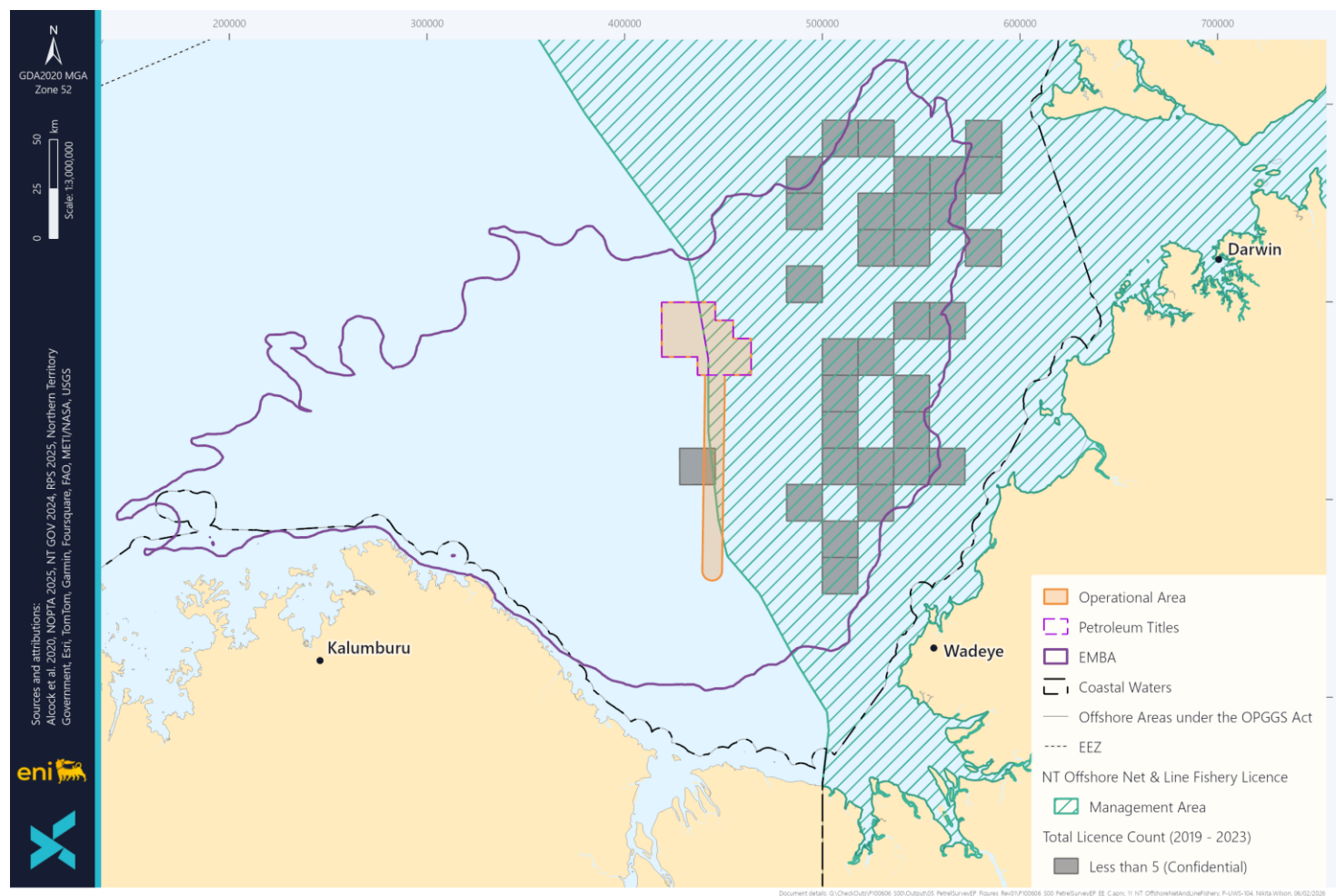


Figure 4-22: NT Offshore Net and Line Fishery Fishing Intensity within the EMBA

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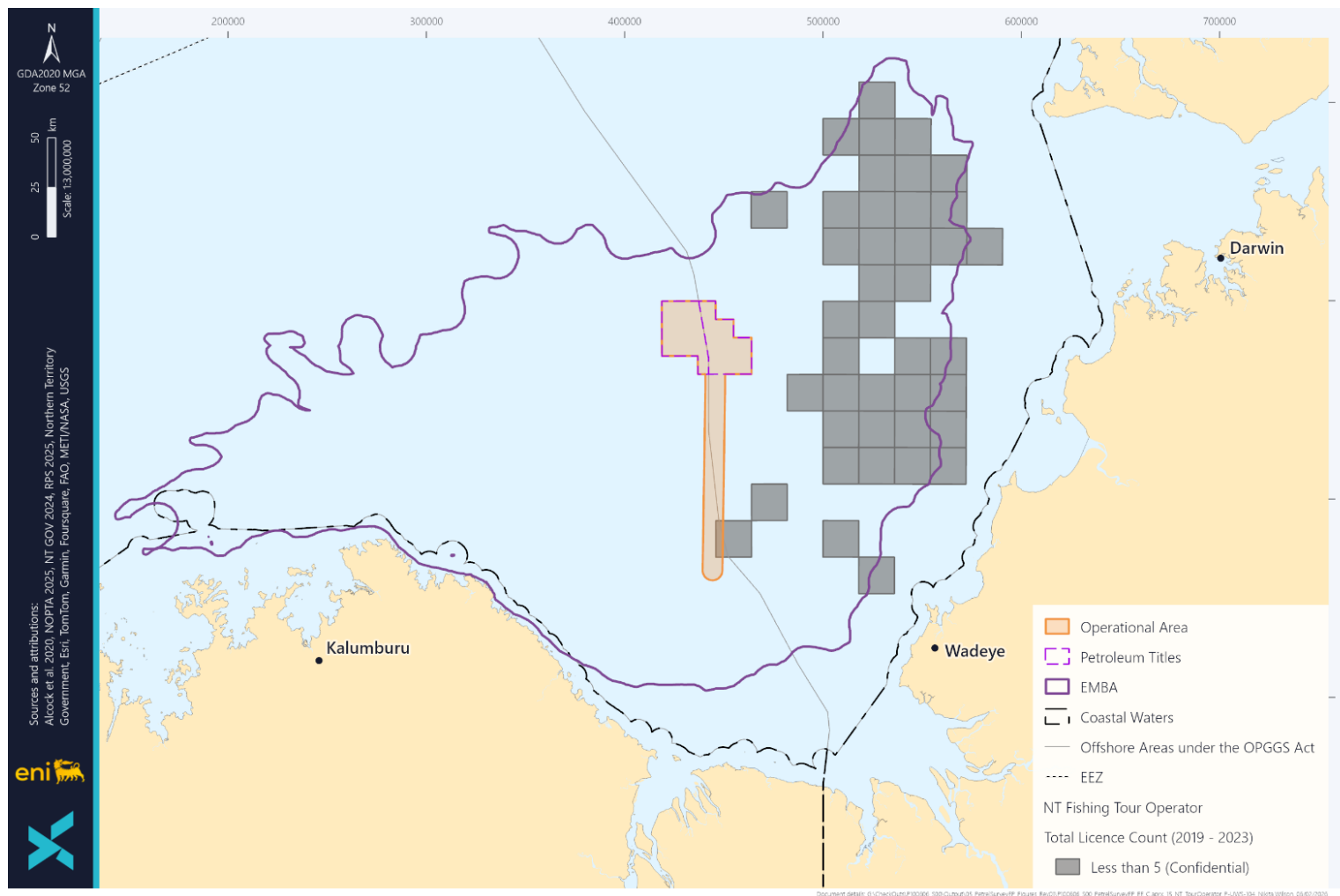


Figure 4-23: NT Fishing Tour Operator Fishing Intensity within the EMBA

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4.6.2 Tourism and Recreational Fishing

Most recreational and tourism activities in the region occur predominantly in State / Territory waters adjacent to population centres, such as Broome and Darwin. Tourism in the region typically peaks during the dry season (May to October), which includes activities such as recreational fishing, diving, snorkelling, wildlife watching and boating (DEWHA, 2008).

A number of luxury cruise operators access Kimberley coastal waters, including Kimberley Quest, Silversea and True North, which operate from late February/March to October/early November to avoid the wet season. Some Kimberley cruises extend to the coastal waters of the JBG, sailing from Wyndham and visiting coastal locations such as Cambridge Gulf, Berkeley River, Reveley Island, King George River and Cape Bernier, all of which are approximately 30km or more from the Operational Area. Activities are either land-based, or take place in rivers, estuaries or within a few kilometres from the coast. Cruise itineraries do not include offshore waters, although operators may occasionally transit through the Operational Area between Darwin and the Kimberley coastline (Kimberley Quest, 2021; Silversea, 2021; True North, 2021).

Onshore tourism operations in the Kimberley include Berkeley River Lodge, Faraway Bay Lodge, Honeymoon Bay and Kimberley Coastal Camp. All camps close during October and reopen during March following the wet season. Charter fishing, sight-seeing tours and other excursions are located within a few kilometres from the coast, and mainly in estuarine waters.

No scuba diving or snorkelling sites or dive shops or clubs have been identified in the JBG or adjacent townsites. The presence of saltwater crocodiles and other potentially dangerous fauna generally makes these waters unsuitable for such activities and some tourism operators clearly specify this on their websites (e.g. Berkely River Lodge). Swimming tends to be limited to guided excursions to freshwater pools and waterfalls on land. Known dive sites in the wider Kimberley region are near Broome, the Lacepede Islands and the Rowley Shoals.

Recreational fishing occurs in the JBG; however, fishing tends to take place in estuaries (e.g. barramundi fishing) or in coastal waters (NT Government, 2024b). Interactions in the Operational Area are considered unlikely due to the remoteness and predominantly deep offshore waters (approximately 83m) of the Operational Area. The Operational Area is approximately 85km from the closest shore, and approximately 240km to the closest large port settlement (Darwin).

Given the distance from boating facilities and slipways and lack of natural attractions in the Operational Area, minimal recreational or charter fishing is expected to occur.

4.6.3 Commercial Shipping

Coastal shipping traffic is common to offshore areas; the largest port in coastal waters adjacent to the activity location is the Port of Darwin. The Port of Darwin is important for trading vessels, fishing vessels, navy ships and cruise ships, and also services activity associated with the operation of the Australasia Railway and the Timor Sea oil and gas developments. Other major ports in Western Australia include Broome, Port Hedland, and Dampier.

There are no known recognised major shipping routes through the permit areas, however vessels may pass through the Operational Area (Figure 4-24).

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4.6.4 Defence Activities

The Operational Area is located within a military exercise zone named the Northern Australia Exercise Area which is a maritime military zone managed by the Australian Defence Force that encompasses restricted airspace (Figure 4-25). This zone incorporates the majority of the Northern Territories portion of the Bonaparte Basin. This zone is mainly utilised for activities associated with border protection including surveillance, illegal immigration and illegal fishing. This area is occasionally used for live firing military exercises.

The Northern Australia Exercise Area is the primary location of the KAKADU training operated by the Royal Australian Navy and supported by the Royal Australian Air Force. This exercise operates biennially and occurred most recently in September of 2024. The exercise involves numerous naval ships from various countries participating in the waters off Darwin and Northern Australia. During these exercises, access to Northern Australia Exercise Area may be restricted.

Australian Border Force and Australian Defence Force vessels undertake civil and maritime surveillance within the region with the primary purpose of monitoring the passage of illegal entry vessels and illegal fishing activity within these areas. Refugees seeking asylum in Australia are also known to utilise the area, travelling between Indonesia and Australia.

Unexploded ordnance (UXO) may also be present on or in the seafloor of the Operational Area and/or EMBA. According to the Defence UXO Database, the Operational Area is located within the boundaries of a former air-to-air weapons range (1111 – Darwin Area) (Figure 4-25), indicating potential UXO risk (DoD, 2024). The EMBA also encompasses another area of possible UXO contamination, the 1110 – Darwin Area, which was a former air-to-air weapons range. Consultation with DoD in 2026 confirmed that there is a high likelihood of historical unexploded ordnance (UXO) in the Petrel survey area (APPENDIX C).

Eni commissioned Milsearch Pty Ltd. (2008) to undertake a study of the probability of UXO existing on the seabed in the vicinity of the Blacktip Gas field. The study reviewed available military records, sea dumping records and official marine wrecks records. Based on the Milsearch (2008) UXO Study, the probability of UXO presence within the Blacktip area of interest is considered low.

4.6.5 Offshore Industry

Offshore industry, in particular petroleum exploration, has been present in the Bonaparte Basin since the late 1940s.

Gas in the Bonaparte Basin is currently produced from the Bayu-Undan and Blacktip fields. Oil was produced from the Laminaria-Corallina and Buffalo fields and is currently produced from the greater Montara fields (DISR, 2024). There are five yet to be developed gas fields in the region – Sunrise/Sunset/Troubadour, Barossa/Caldita, Petrel/Tern/Frigate, Cash/Maple, and Evans Shoals (NOPSEMA, 2024c).

There are two Carbon Capture and Storage (CCS) permits within the JBG; G-7-AP (held by INPEX) and G-11-AP (held by Santos). Both CCS permits border the retention lease portion of the Operational Area to the east and west, and do not overlap. However, 37km of the GEP portion of the Operational Area overlaps with G-

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7-AP. The G-7-AP Vessel-Based Geophysical and Geotechnical Survey commenced operations on 3 December 2025. The EP considers a maximum of 120 days and may be split over the anticipated 2-year period (2025-2027) to allow for flexibility.

In February 2026, NOPSEMA accepted Santos' Eos 3D Seismic Survey EP (Eos 3DSS). The Eos survey overlaps the Operational Area of the Petrel survey activities as it extends across petroleum permit WA-6-R, WA-548, NT/RL1 and NT/P88, and greenhouse gas assessment permit G-7-AP (Figure 4-27). The Eos survey allows for up to 50 days for survey activities from the date of EP acceptance until 31 December 2027.

Eni is the titleholder for the Petrel-3 and Petrel-4 Monitoring and Decommissioning EP in NT/RL-1 and WA-6-R, which was accepted by NOPSEMA in October 2025. Eni plans to permanently abandon these two suspended wellheads by Q4 2027 (Eni, 2025). Eni proposes to undertake future exploration and appraisal drilling in the NT/RL-1 and WA-6-R retention leases. The first drilling campaign is potentially in 2028, and subsequent campaigns within the 5-year validity of the EP (which is under early development at the time of writing and will be subject to a different EP).

At the southern end of the GEP portion of the Operational Area is the Blacktip WHP. This facility has been operated by Eni since 2009, and consists of the WHP, two producing wells, and the Blacktip GEP transporting gas and fluids to shore for processing at the YGP (Eni, 2024b). The Blacktip Drilling EP allows for drilling of a new production well through an existing slot on the WHP and an associated geophysical survey (between 2024 and 2027; Eni, 2024a).

Santos submitted the Tern-2 Plug and Abandonment EP in February 2024, which states the activity is planned to be undertaken in 2024 (Santos, 2024). However, at time of writing, this EP was still under assessment by NOPSEMA. There is no updated publicly available information on when the abandonment activity is proposed to occur. The Tern-2 suspended wellhead is ~43km from the Operational Area.

Table 4-11 provides the EPs that were accepted and under assessment at time of writing; according to NOPSEMA's website.

Table 4-11: Petroleum activities within the Operational Area, ZPI and the EMBA

Status	Project Name	Titleholder	Timing	Presence		
				Operational Area	ZPI	EMBA
Approved	Eos 3D Marine Seismic Survey	Santos Offshore Pty Ltd	Pending titleholder notification – Q4 2027.	✓	✓	✓
	Crux Completions, Hot Commissioning, Start-up and Operations	Shell Australia Pty Ltd	Est 2026. Pending titleholder notification	-	✓	✓
	Petrel-3 and Petrel-4 Monitoring and Decommissioning	Eni Energy Bonaparte Pty Ltd	Est. 2025 - Q4 2027.	✓	✓	✓
	G-7-AP Vessel-Based Geophysical	INPEX Browse E&P Pty Ltd	Start date 3 December	-	✓	✓

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Status	Project Name	Titleholder	Timing	Presence		
				Operational Area	ZPI	EMBA
	and Geotechnical Survey		2025 - pending titleholder notification			
	Barossa Production Operations	Santos NA Barossa Pty Ltd	Pending titleholder notification	-	✓	✓
	Beehive Multi-Well Exploration Drilling EP	EOG	Est. Q1 2025 – Q4 2029	-	✓	✓
	Beehive-1 Exploration Drilling WA-488-P	EOG	Est. 2024 – 2029	-	✓	✓
	Blacktip Operations EP	Eni	Ongoing	✓	✓	✓
Under assessment	Tern-2 Plug & Abandonment EP	Santos Limited	Est. late 2024*	-	✓	✓

**Note it is assumed timing is delayed, as this EP has not been accepted; however, there is no updated information publicly available.*

4.6.6 Submarine Cables

Submarine cables are underwater infrastructure which transfer communications or electricity, linking one area of Australia to another, or Australia to other countries. A network of submarine cables extends from Darwin through the Timor Sea and offshore waters of the Kimberley, linking Northern Australia with South-East Asia. The North West Cable System intersects the EMBA and Subcom have proposed a new subsea cable which will also cross the EMBA. No subsea cables intersect with the Operational Area or ZPI.

The North West Cable System, connects Australia's remote northern and western regions, including offshore energy industry facilities, with onshore locations. The cable heads north-west out of Darwin Harbour, passing north of the JBG more than 100km from the nearest edge of the Operational Area, and travels a total of 2,100km around the Kimberley to Port Hedland, WA.

The Hawaiki Nui Cable extends a total of 15,000km, out from Darwin, passing the north of the JBG, approximately 72km from the nearest edge of the Operational Area, towards Timor Leste (Figure 4-27).

The proposed Asia Connect Cable-1 also travels northwest out of Darwin Harbour towards Timor Leste. The proposed plans indicate that the subsea cable will not intersect with the Operational Area (Figure 4-27).

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4.6.7 Maritime Heritage

Australia protects its archaeological remains of vessels and aircraft associated relics, including Aboriginal and Torres Strait Islander traditional watercraft that have been wholly or partially submerged for more than 75 years through the Commonwealth *Underwater Cultural Heritage Act 2018*.

The Australasian Underwater Cultural Heritage Database is a register listing historical and environmental information of maritime archaeological heritage within Oceania and Southeast Asia. The Maritime Archaeology shipwreck database contains information and details on Western Australian shipwrecks recorded by the Western Australian Museum.

Some historic shipwrecks also have an associated protected or no-entry zones; these zones cover an area around a wreck site and ensures that a fragile or sensitive historic shipwreck is actively managed. A search of the Australasian Underwater Cultural Heritage Database confirms that there are no historic wrecks with protected zones present within the EMBA.

One shipwreck, the SEDCO Helen was identified within the Operational Area. The SEDCO Helen was wrecked in 1970 and is located in depths of approximately 97m in the Petrel Field in the Bonaparte Gulf (Figure 4-28).

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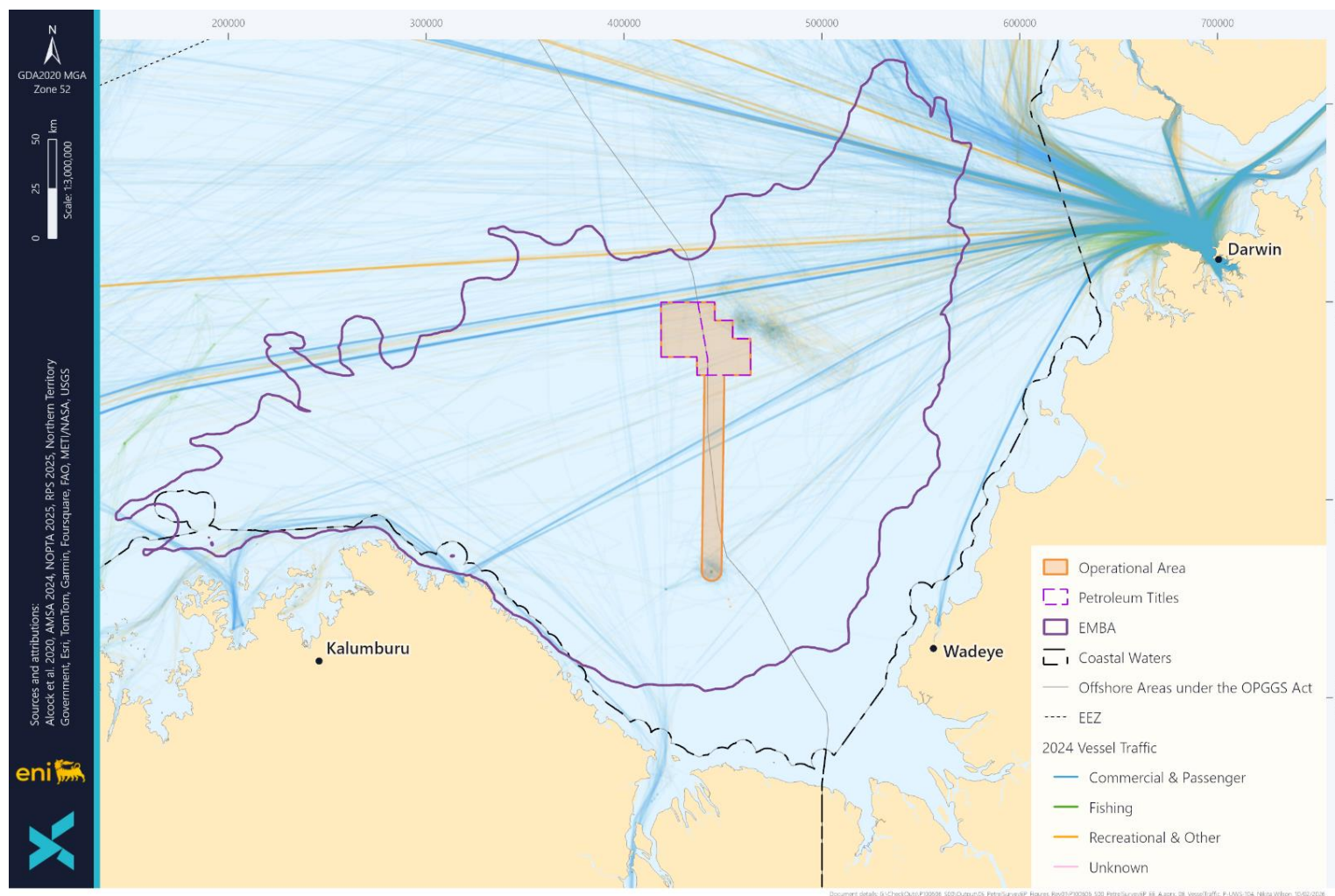


Figure 4-24: Commercial shipping activity within the EMBA

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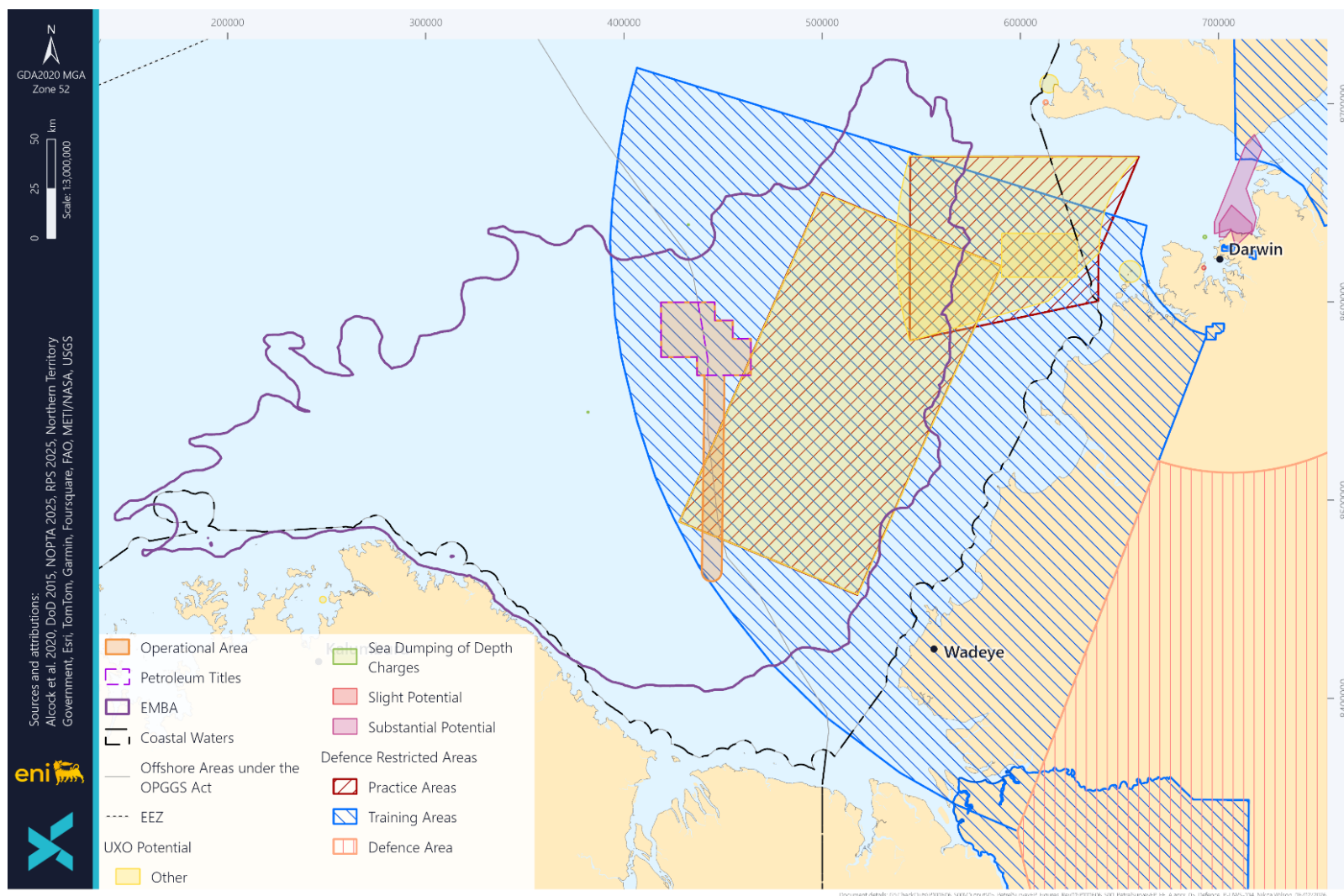


Figure 4-25: Defence activity within the EMBA

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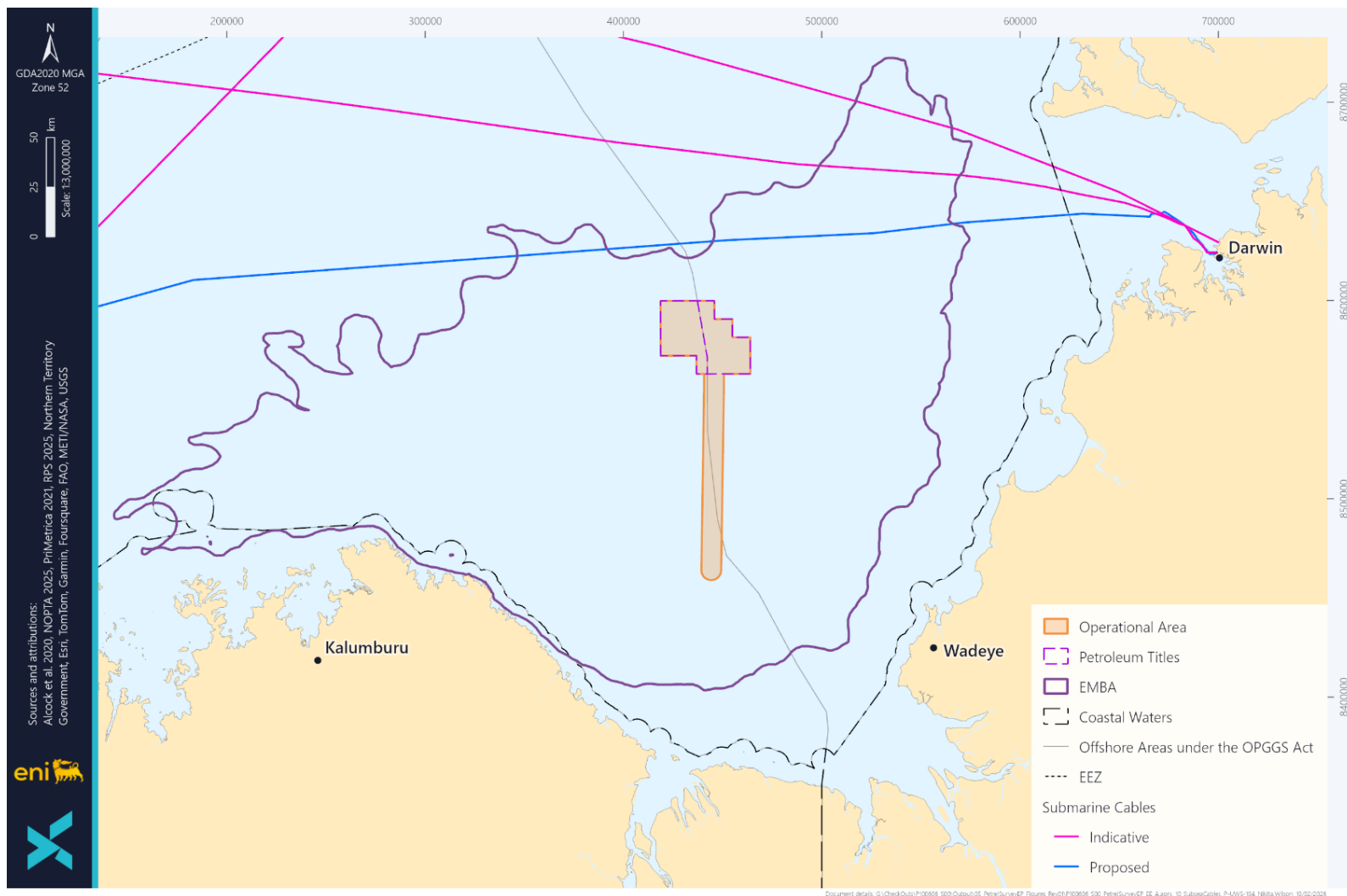


Figure 4-27: Subsea cables within the EMBA

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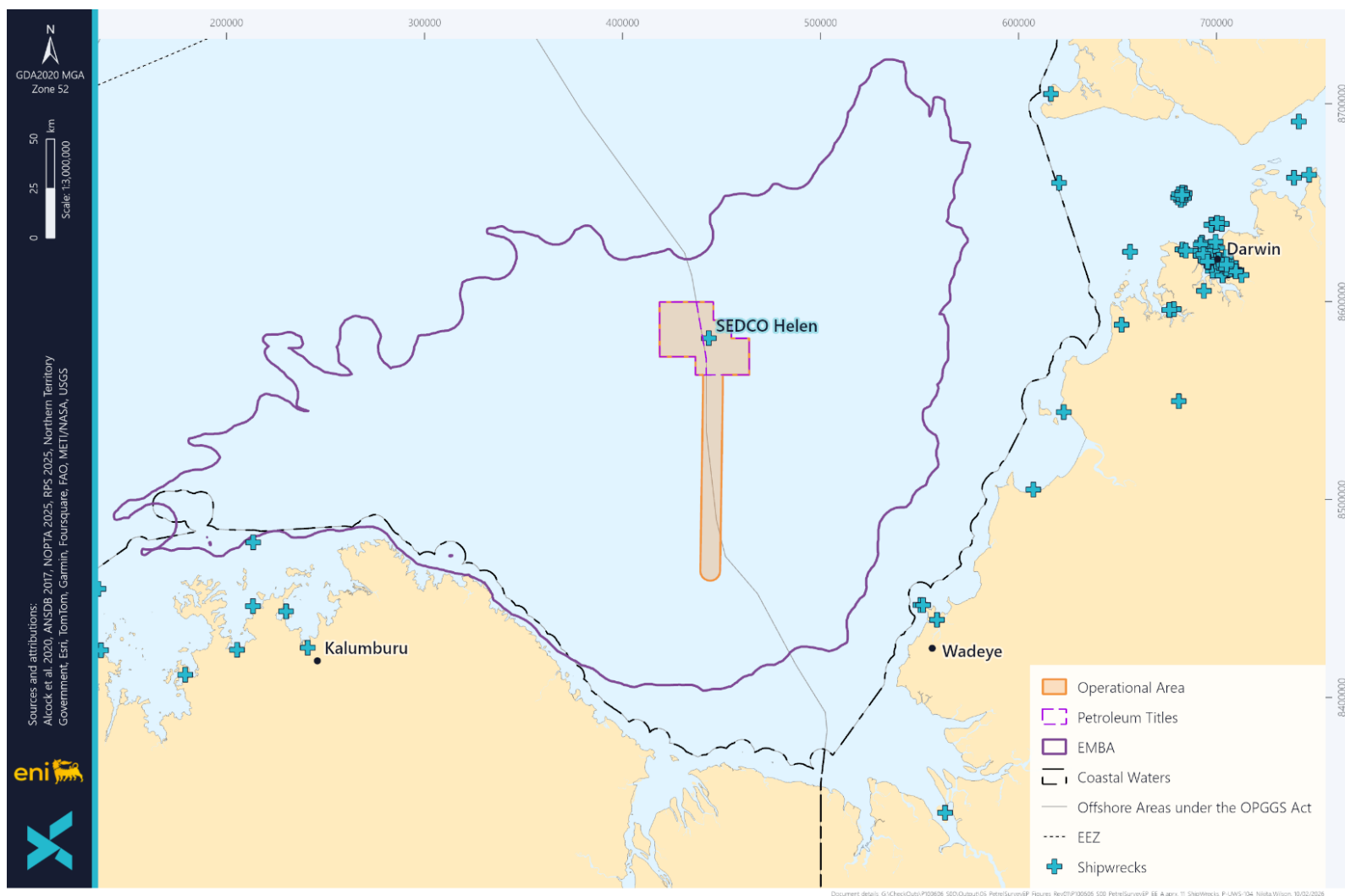


Figure 4-28: Shipwrecks within the EMBA

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4.6.8 First Nations

Australian First Nations culture is the oldest continuing culture in the world and is central to Australia's national heritage. First Nations peoples' continuing connection to country is recognised in Australia under several acts. At a national level, the *Native Title Act 1993* establishes Native title, which recognises, under Australian law, pre-existing Indigenous rights and interests according to traditional laws and customs (DCCEEW, 2025f).

Australia has a range of laws to protect First Nations' heritage. Aboriginal land in the NT is governed by the *Aboriginal Land Rights Act 1976 (NT)*, which affords Traditional Owners sovereign rights to country. In WA, recognition of Aboriginal rights is afforded by the *Native Title Act 1993 (Cth)* and *Land Administration Act 1997 (WA)*, which give rights to access, live upon, forage, harvest and hunt upon and carry out traditional cultural practises on country.

The First Nations language groups, including Aboriginal corporations and Prescribed Bodies Corporate (PBCs) that are on the shorelines within close proximity to the EMBA are identified in Figure 4-29.

There are 3 land councils that represent Aboriginal communities within or adjacent to the EMBA. These include:

- Kimberley Land Council in WA;
- Northern Land Council; and
- Tiwi Land Council in NT.

There are also numerous PBCs and Registered Native Title Bodies Corporate (RNTBCs) that represent First Nations peoples both in the NT and WA.

4.6.8.1 Native Title Determination Areas

The National Native Title Tribunal maintains the National Native Title Register in accordance with the *Native Title Act 1993 (Cth)*. Information about Native Title Claims and Determinations are publicly available.

The following Native Title Determinations are within or in close proximity to the EMBA are shown in Figure 4-29 and listed below:

- Balanggarra (WCD2013/005); and
- Wanjina-Wunggurr (Uunguu Part A WCD2011/001) (Dambimangari WCD2011/002).

In coastal areas of the NT that are located within close proximity to the EMBA, Native Title determinations are limited to an area around Darwin relating to Larrakia; however, whilst no Native Title is currently in effect, the recently successful Kenbi Land claim strengthens Larrakia Native Title. The Top End (Default PBC/CLA) Aboriginal Corporation RNTBC, has responsibility for various determination locations located south of Wadeye, and is currently the registered native title body corporate for all determinations of native title in the Top End of the NT.

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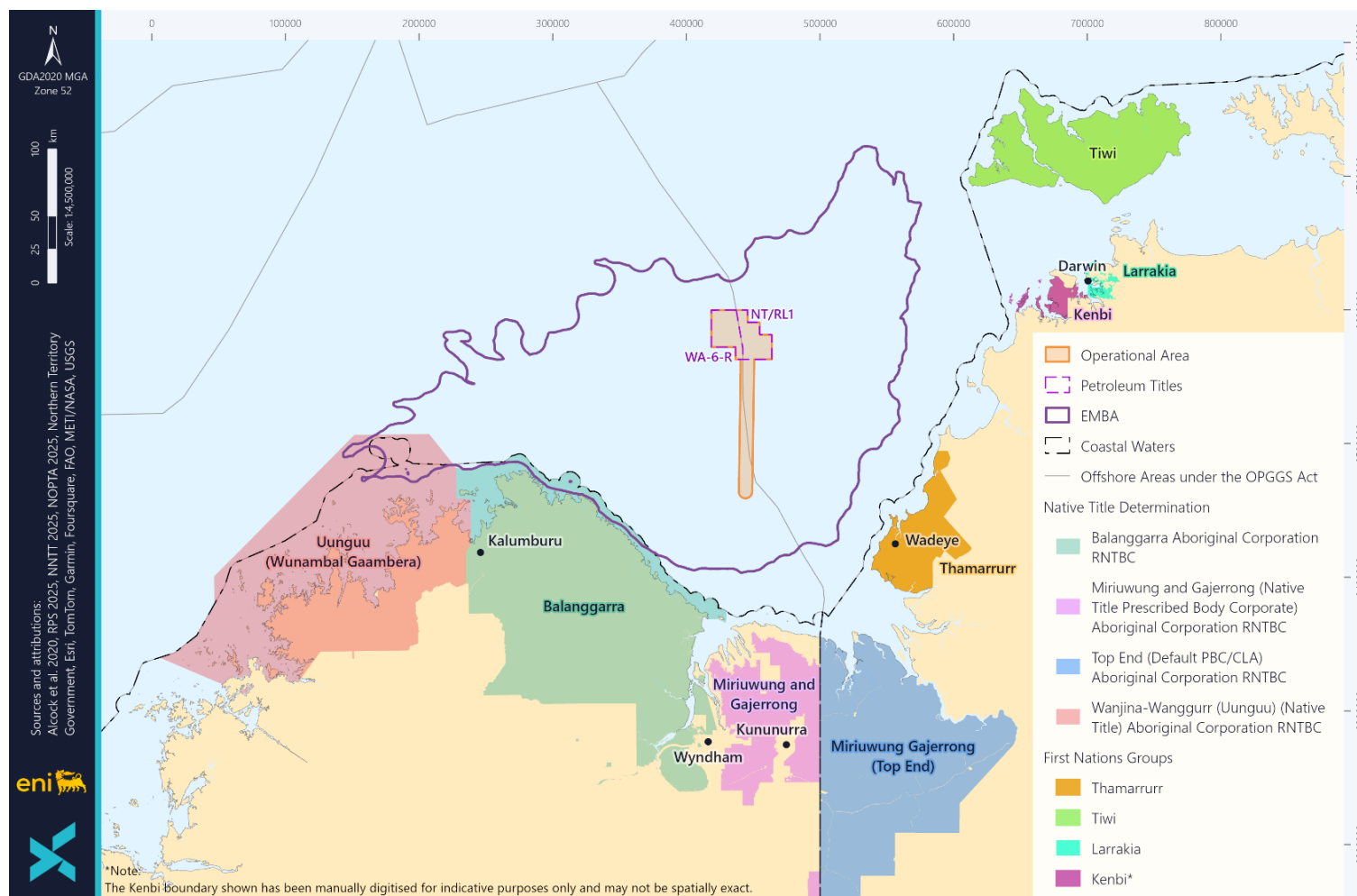


Figure 4-29: Native Title Determinations within the EMBA

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4.6.8.2 Country within or in close proximity of the EMBA

4.6.8.2.1 Northern Territory

Thamarrurr Country

The land around Wadeye, which is to the southeast of the Operational Area is known as the Thamarrurr Region, owned by the Traditional Owner groups of the Daly River Port Keats Aboriginal Land Trust. The land is inalienable freehold land, held under the *Aboriginal Land Rights (Northern Territory) Act 1976*.

Within the Thamarrurr Region, there are seven language groups and more than 20 clan groups, as identified in Figure 4-30 (Streten et al., 2020). The Thamarrurr Development Corporation Ltd (TDC) is a not-for-profit corporate entity owned by members of the four main ceremonial groups – the Wangga, Lirrga, Wulthirri and Tharnpa peoples – and established by the 20 clan groups of the Thamarrurr Region. The TDC represents the interests of these clan groups, which are patrilineal land-owning groups with clear estates and boundaries. Under Thamarrurr, all land-owning groups have traditional rights and responsibilities over land and are able to work together to resolve issues involving that land (TDC, 2023). Thamarrurr Rangers are an important part of the TDC, employing 20+ local Indigenous staff and four non-Indigenous support staff (TDC, 2023). The Thamarrurr Rangers actively engage with Traditional Owners and community members in natural and cultural resource management as they work across 18,000km² of Country and 240km of coastline (TDC, 2023).

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Figure 4-30: Thamarrurr Region and 20 Clan Regions (Streten et al., 2020)

Other Northern Territory Country

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For the directly south coastal areas of the Joseph Bonaparte Gulf on the NT side that are located within close proximity to the EMBA, Native Title claims and determinations are limited to the pastoral lease areas and under the responsibility of the Top End (Default PBC/CLA) Aboriginal Corporation RNTBC – whom is the registered native title body corporate for all determinations of native title in the northern part of the NT.

For the area in and around Darwin (outside of the EMBA), this is linked to Larrakia Nation peoples. Larrakia people have continued connection to country and continue to care for land and water across this region.

On 5 December 2024, one of the longest running land claims in Australia (since 1979) was finalised with the Australian and NT Government handing back the final parcels of land on the Cox Peninsula (extending out to the low tide mark) to the Kenbi Land Trust and the Larrakia Development Corporation (NT Government, 2025). This settlement recognised the Larrakia people's traditional connection to the land, as well as their rights over parts of the area traditionally used for cultural, spiritual, and economic purposes. The Kenbi Land Claim is located outside of the EMBA.

4.6.8.2.2 Western Australia

Balanggarra Country

Approximately 160km to the south-southwest of the Operational Area, the land comes under the Balanggarra Aboriginal Corporation (BAC), who administer the land on behalf of the Balanggarra People. Balanggarra means 'one mob together for Country' and the claim area covers about 2.6 million hectares of land and Sea Country in the north Kimberley. Balanggarra Country has 'blue water' Country from north of the Forrest River drainage system west to Kalumburu (including Cape Londonderry, the lower Drysdale River as well as the Lyne, Berkeley and King George Rivers). The 'saltwater' country comprises the reef, and offshore islands, including Sir Graham Moore and Governor Islands. 'Brown water' Country comprises the rest of the Country, which is in the southern part and takes in all the land drained by the Forrest River system, and the muddy waters and some offshore islands of the Cambridge Gulf, like Adolphus and Lacrosse Islands (BAC, 2011). The newly established (as of 2025) Kwini Rangers based in Kalumburu will be responsible for care of this country, with the support of DBCA Parks and Wildlife Service.

The Balanggarra people live in communities in Kalumburu, Wyndham and Kununurra. Balanggarra Rangers look after Country in the traditional way (as handed down by ancestors) and the western way. The Balanggarra and Kwini Rangers use traditional knowledge when looking for certain animals in Country and to find a way around Country, and western knowledge for fire management, flora and fauna surveys, weed eradication, water testing and coastline monitoring (BAC, 2011).

Balanggarra Rangers participate in the North Australian Indigenous Land and Sea Management Alliance (NAILSMA) Saltwater People Network. They work together with Traditional Owners of Saltwater Country along the whole of North Australia to share knowledge and ensure that marine animals are looked after for future generations (BAC, 2011).

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The Balanggarra Determination (Figure 4-31) and hence their people join Wanjina Wunggur Uunguu (Wunambal Gaambera) and Miriuwung Gajerrong people in the joint management of The North Kimberley Marine Park (Figure 4-31) through the establishment of joint management arrangements (DPAW, 2016).

Miriuwung and Gajerrong Country

The land to the east of the Balanggarra Country, and directly south of the Operational Area, comes under the MG Corporation (who administer the land on behalf of the Miriuwung Gajerrong people). The Miriuwung Gajerrong people have Native Title over two adjacent areas of the East Kimberley in WA and bordering the NT, totalling approximately 7,500km² of land (MG Corporation, 2024). In addition, the MG Corporation owns agricultural land at Goomig as part of a settlement under the Ord Final Agreement; 50,000 hectares of freehold land at Yardungarrl (located on the WA/NT border, which is home to eight Aboriginal communities) and 107 hectares at Weaber Plains Reserve to the east of the Kununurra townsite (which offers protection of sacred sites and direct employment opportunities for MG people) and 125,000 hectares at Reserve 31165 adjacent to Lake Argyle (MG Corporation, 2024).

The Miriuwung Gajerrong Country covers mangrove coastal flats and the mouths of river valleys in the north, progressing to grassy plains and savannah forests and woodlands, deep gorges cutting through sandstone and huge limestone outcrops, with the southernmost area home to semi-desert savannah. An agreement is in place between the MG Corporation and the DBCA Parks and Wildlife Service for the operation of a ranger program at Reserve 31165. The ranger program provides funding for four full-time rangers and a ranger supervisor. Each of the rangers represents one of the four Dawang groups within the reserve (MG Corporation, 2024).

The Miriuwung Gajerrong Determination (Figure 4-31) and hence their people join Wunambal Gaambera and Balanggarra people in the joint management of The North Kimberley Marine Park (Figure 4-31) through the establishment of joint management arrangements (DPAW, 2016).

Wanjina-Wunggurr / Wunambal Gaambera Country

The land to the west of the Balanggarra Country, and approximately 180km southwest of the Operational Area, comes under the Wunambal Gaambera Aboriginal Corporation (who administer the land on behalf of the Wunambal Gaambera people). Wunambal Gaambera Country covers approximately 25,000km² of land and wundaagu (sea). Like their ancestors, the Wunambal Gaambera call Country 'Uunguu' – or living home. The Wunambal Gaambera population is approximately 700, who live in Kalumburu, Derby, Broome and Kununurra, with one family group that lives at Kandiwal on Ngauwudu (Mitchell Plateau) (Wunambal Gaambera, 2021).

Wunambal and Gaambera (Uunguu) people share common Wanjina Wunggurr ancestors with Wororra (Dambimangari) people and Ngarinyin (Willinggin) people, with each group managing its own Country.

There are fifteen graa winya (the traditional land of Wunambal Gaambera Country or family area) on Wunambal Gaambera Country, with two skin groups, Woday and Jirrin girn. The Wunambal Gaambera Aboriginal Corporation currently has 7 fulltime Uunguu Rangers and many casual staff, covering a vast area of Country.

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All Uunguu Rangers undertake a Certificate III qualification in Conservation and Land Management and ranger stations are located on Country to help access and look after the land (Wunambal Gaambera, 2023). The Wunambal Gaambera Aboriginal Corporation established the Uunguu Monitoring & Evaluation Committee (UMEC) to set standards and benchmarks for keeping their Country strong and to help guide actions and decisions about managing Country. The committee is made up of a combination of Traditional Owners and outside experts, including a senior DBCA scientist.

The Wanjina Wunggur Uunguu (Wunambal Gaambera) Determination (Figure 4-31) and hence their people join Balangarra and Miriuwung Gajerrong people in the joint management of The North Kimberley Marine Park (Figure 4-31) through the establishment of joint management arrangements (DPAW, 2016).

Wanjina-Wunggurr / Ngarinyin Country

Whilst most of the 2.4 million hectares within the Ngarinyin people's Willinggin Indigenous Protected Area covers country in the central north Kimberley, they have shared custodianship for a small pocket of the Mitchell River that adjoins the North Kimberley Marine Park and major waterways including the Walcott inlet and Prince Regent River.

Wanjina-Wunggurr / Dambimangari Country

The land to the west of Wunambal Gaambera Country, and approximately 40km further west of the EMBA shown in Figure 4-31 comes under the Dambimangari Aboriginal Corporation. Dambimangari's Native Title Claim covers 16,040km² of land and

11,896km² of Sea Country, including more than 700 islands. It stretches along the Kimberley coast from the Robinson River, just north of Derby, to the Prince Regent River area in the North Kimberley. The Dambimangari people call Country 'Dambeema' – our home.

All Dambeema holds meaning and is rich in stories and culture. There are special places for ceremony, burial sites, middens, engravings, stone arrangements, sites where ochres and clays were collected, fish traps, law sites with restricted access, tools, story lines connecting clan estates, seasonal camping areas, tidal flows and trading routes.

Dambimangari Sea Country enables saltwater as the presence of a powerful living force – referred to as Woongudd (or Wunggurr) and includes coral reefs, powerful whirlpools, rugged cliffs, sandy beaches, and more than 700 islands.

The Wanjina Wunggur (Dambimangari) Determination (Figure 4-31) and hence their people join DBCA Parks and Wildlife Service representatives in the joint management of The Lalang-gaddam Marine Park - a Class A Nature Reserve (Figure 4-31).

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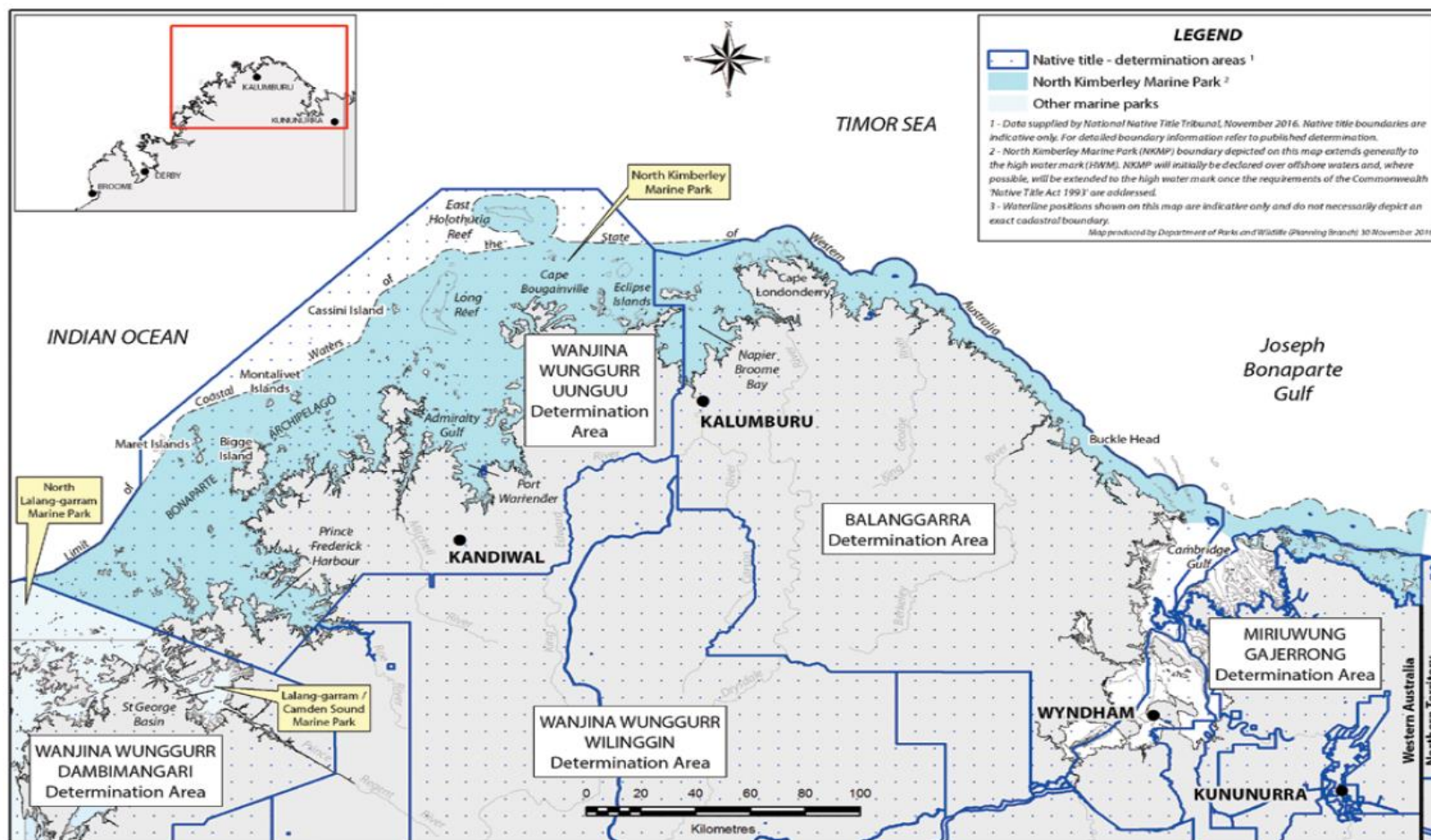


Figure 4-31: Native Titles claim and determination areas within and adjacent to the North Kimberley Marine Park

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4.6.8.3 Indigenous Land Use Agreements

An "Indigenous land use agreement" (ILUA) is a voluntary, legally binding agreement about the use and management of land or waters, made between one or more native title groups and non-native title interest holders in the ILUA area (such as grantee parties, pastoralists or governments).

The Register of Indigenous Land Use Agreements is kept by the Native Title Registrar in accordance with s199A of the NTA and includes a description of the ILUA area, the parties' names, the term of the ILUA and other information as the Registrar considers is appropriate (s199B of the NTA). Registration confers a contractual effect on the ILUA and binds all persons holding native title regardless as to whether they are already parties to the ILUA (s24EA of the NTA).

Table 4-12 shows a search of the Native Title Register found the following ILUA within the EMBA.

Table 4-12: Indigenous Land Use Agreements within the EMBA

ILUA Name	ILUA Type
BAC KSCS Indigenous Land Use Agreement (WA) (WS2017/007)	Body Corporate

4.6.8.4 Culture, Songlines and Connection to Country

First Nations people have passed down culture through generations for the past 65,000 years. This is demonstrated by ongoing cultural connections to Country, as well as by archaeological evidence of human occupation dated to be over 65,000 years old (DCCEEW, 2025f).

Country is the term often used by First Nations people to describe the lands, waterways and seas to which they are connected. The term contains complex ideas about law, place, custom, language, spiritual belief, cultural practice, material sustenance, family and identity (AIATSIS, 2023). Country can be described as the lands with which First Nations people have a traditional attachment or relationship (Rose, 1992).

Historically, First Nations people lived in small family groups and were semi-nomadic, with each family group living in a defined territory, systematically moving across a defined area following seasonal changes. First Nations people built semi-permanent dwellings; as a nomadic society emphasis was on relationships to family, group and Country. Membership within each family or language group was based on birthright, shared language, and cultural obligations and responsibilities. Groups had individual distinct history and culture and at certain times, family groups would come together for social, ceremonial and trade purposes (WWIA, 2024).

According to First Nations beliefs, the physical environment of each local area was created and shaped by the actions of spiritual ancestors who travelled across the landscape (WWIA, 2024). Songlines are tied to the Australian landscape and provide important knowledge, cultural values and wisdom. Songlines trace the journeys of ancestral spirits as they created the land, animals and lore, and are integral to spirituality and connectedness to Country.

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Unlike elsewhere in Australia, Traditional Owner groups in northern Australia had several centuries of contact with foreign visitors before the arrival of Europeans (National Oceans Office, 2004). Many coastal and island regions in WA and the NT were the scene of complex patterns of interaction, trade and exchange with outsiders including Macassan trepangers from Sulawesi from the late 1600s until early 1900s, European mariners from the mid-1600s, and Japanese pearl divers after European arrival (McCarthy et al., 2022).

There is strong indication Songlines exist along the coast of northern WA and the NT. There are often sacred sites entwined with the Songlines. Natural features within close proximity to the EMBA (e.g., reefs and coastline features) may form core components of Dreaming stories for different First Nations people.

Totems connect First Nations people on a spiritual level, providing a deeper connectivity and understanding to family groups, Country, Dreaming and creation events. Marine animals and plants found in Sea Country can hold special cultural significance (including totemic value) to different First Nations people and may be important for subsistence and medicinal purposes. As described in Section 4.4, BIAs for marine fauna are located within the EMBA, including those for marine turtles. For the Balanggarra people, two important Dreaming narratives are Wungkurr (rainbow serpent) and Wolara (the creator). A male and female Wungkurr travelled from Sir Graham Moore Island in the far west to King George Falls, to become the majestic twin waterfalls. Wolara made the saltwater as he 'poled his canoe' in the coastal regions. Some of the islands are where his pole touched the seabed (DPAW, 2016).

The Balanggarra people have deep understanding and traditional ecological knowledge of plants, animals, the seasons and landscape features, which can also greatly inform scientific research and conservation programs in Balanggarra Country, as detailed in the Balanggarra Healthy Country Plan (BAC, 2011). In recent years, Balanggarra Traditional Owners and rangers have worked in partnership with a range of organisations to conduct research and field surveys for a number of important marine species such as abil (dugong), mangkuru manya (turtle) and yinga (dolphin) (DPAW, 2016).

The Miriuwung Gajerrong have lived for thousands of years by the law, languages and ceremonies established by ancestral beings who were created by the Ngarranggarni (the Dreaming). In ancient times, Miriuwung Gajerrong land was covered by the waters of an enormous flood which receded, placing some of the Dreamings, the ancestral beings, on the landscape. Other Dreamings roamed the land, creating creeks, billabongs, hills and escarpments on tracks through their Country. They created different soils, plants and animals, and all the seasons of the Country – ying-geng (wet season), gerloong (big storm), barndinyiriny (dry season) and wan-gang (cold weather). The Dreamings became different features of the landscape and are still present today. Every part of the Miriuwung Gajerrong Country has a song and their Dreaming stories to make connections between First Nations people, plants, animals and parts of Country like waterholes, creeks, hills, mountains and tracks through the Miriuwung Gajerrong Country (DPAW, 2016).

As described in the Wunambal Gaambera Healthy Country Plan 2021-2030 (Wunambal Gaambera, 2021), Lalai, for Wunambal Gaambera people, is a Dreaming story and belief of the creation of Wunambal Gaambera Country by Wanjina (creator ancestors) and Wunggurr (creator snake) when the world was soft and why lands and sea are the only place in the world Wunambal Gaambera

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can call Uunguu (home). Their Ancestors gave the Laws, customs and culture. Saltwater Wanjina like Ngamali and Jagulamarra, created the sea (wundaagu Saltwater Country) and coast. Some Wunggurr (creator snakes) travelled and still live in the wundaagu and can be seen as waves, tides and currents and the heads, tails and backbones are the islands seen today. Wunggurr formed stone arrangements throughout the coastal Country. Wunggurr also live in waterfalls and waterholes like Punamii-Unpuu (Mitchell Falls) (Wunambal Gaambera, 2021).

4.6.8.5 Sea Country and Submerged Historic Landscapes

Over the 65,000 years of First Nations occupation of Australia, sea levels have fluctuated, rising from a peak low of -120m at around 21,000 years ago relative to present levels, which resulted in the inundation of vast areas the continental shelf (Ward et al, 2022). First Nations peoples have been sustainably using and managing their Sea Country for tens of thousands of years, in some cases since before rising sea levels created these marine environments (DNP, 2018b).

Sea Country or Saltwater Country refers to the areas of the sea that First Nations peoples are particularly affiliated with. It is an estate of sea as well as land, containing sacred sites and inhabited by ancestral beings, existing in both the physical and spiritual world. Sea Country is valued for First Nations cultural identity, health and wellbeing (DNP 2018a, 2018b).

Sea Country includes all living things, beliefs, creation stories, spirits, and cultural obligations (Streten et al., 2020). Smyth and Isherwood (2016) further describe Sea Country as all estuaries, beaches, bays and marine areas collectively, within a traditional estate. Sea Country contains evidence of the ancient mystical events by which all geographic features, animals, plants and people were created. Sea Country contains sacred sites and contains tracks (or Songlines) along which mythological beings travelled during the creation period (Smyth and Isherwood, 2016).

There is a considerable body of literature describing the complexity of the cultural, spiritual, ceremonial, territorial and economic connection between First Nations peoples and the sea. For First Nations people, Country and Sea Country encompasses far more than the physical environment of land, sea, air, plants, animals, and habitats. It is regarded as a living being and a kin relationship that forms the basis of identity and a profound responsibility to care for and protect Sea Country (Janke et al., 2021).

Although limited baseline surveys of submerged archaeology have been undertaken in Australia to date, submerged archaeological landscapes have recently been identified in WA through combined evidence of terrestrial ecology, coastal and marine geomorphology and sea-level studies (Benjamin et al., 2020; McCarthy et al, 2022). As some of the oldest dated terrestrial sites have been found in the NT, there is a potential for the existence of submerged landscapes with associated First Nations heritage values, due to strong cultural connections between Traditional Owners and the sea (McCarthy et al, 2022). Such relationships and the connections with Sea Country transcend the landscape/seascape divide and the sea is not only a physical and temporal space, but also a mental map of ancestral journeys and rituals to nurture and pass on to future generations (Ward et al, 2022). Many Australian and State Marine Parks are of important cultural significance with fishing, hunting and the maintenance of First Nations heritage through ritual and stories and are considered to be

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important uses of nearshore and adjacent areas (DNP, 2018a). The cultural values of these marine parks are described in Section 4.5.1. Australian and State Marine Park Management Plans offer a source of publicly available information regarding Sea Country within close proximity to the EMBA. Management Plans developed to protect these reserves have been used to inform some of the marine values and sensitivities related to Sea Country in this EP.

Documenting traditional knowledge initiates from conversations with First Nations people about their Sea Country and allows industry to gain further understanding about where the geographic areas of importance are and why they are important for First Nations people.

Sea Country in the Thamarrurr Region

Eni has had a long-standing relationship with the Thamarrurr people which was established in 2009, during the early stages of development of the Blacktip and Yelcherr facilities. A partnership project between Eni, the TDC – Thamarrurr Rangers and the Australian Institute of Marine Science (AIMS) was undertaken in 2019 to map the ecological and cultural values of Sea Country in the Thamarrurr Region. The results of this mapping exercise was published by Streten et al. (2020) in the Australian Energy Producers (AEP) (formerly Australian Petroleum Production and Exploration Association (APPEA)) Journal under the title 'Mapping traditional ecological knowledge of Sea Country to understand biodiversity and areas of cultural importance'. This section summarises the Sea Country mapping process and outcomes.

The conversation regarding a participatory mapping workshop was started through a proposal by AIMS that was provided to the Thamarrurr Rangers through Eni's community and environmental group. The Thamarrurr Rangers sought approval from the TDC, which represents the interests of the Traditional Owners of the Thamarrurr Region.

After receiving consent and agreement from the Traditional Owners, researchers (Eni and AIMS) travelled to Wadeye to hold the participatory mapping workshops in 2020. The first workshop was attended by 30 Traditional Owners and Rangers representing different clan groups of the Thamarrurr Region. Attendance at the workshop by Traditional Owners representing many different clan groups in the area allowed the mapping exercise to cover a greater extent of the coastline. Note that Traditional Owners each have custodianship for their specific areas and are restricted to speak only for that part of Country.

The workshop commenced with researchers explaining how the knowledge shared by the Traditional Owners and Rangers would be used to generate a benthic habitat map that could be used by the people of the Thamarrurr Region to communicate with government and industry. The explanation was translated into local language by a member of the TDC.

From a Traditional Ecological Knowledge perspective, 'habitats' in the marine environment could be differentiated based on different ecological processes to those prioritised by scientists, and names will often differ between language, community or dialect. As such, habitats were identified in the local languages first, with English descriptions fitted to the Traditional Ecological Knowledge classifications. The workshop commenced with development of a classification system for marine benthic habitats in three local languages – Murrinhpatha, Mari Amu and Marri Tjevin – and English (Table 4-13). The local language words for

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each habitat were confirmed by discussing photographs of potential habitats in the region and using local language dictionaries with workshop participants.

Table 4-13: Murrinhpatha, Mari Amu, Marri Tjevin and English words for marine habitat

English	Murrinhpatha	Mari Amu	Marri Tjevin
Oysters	Ku wurldirr	Awu wundirr	Awu wundirr
Sea rocks, coral, rocky reef	Nanthi kalpa	Karrila	Karrila
Seagrass	Nanthi kurrukurruk	Thamurr munmurr	Thamurr munmurr
Sand	Da darrimum	Munirrhi	Munirrhi
Macroalgae	Nanthi wemat	Thamurr murmur	Thamurr murmur
Mangrove	Da dara	Tha Tjindi (nidin wuri)	Tha Tjindi (nidin wuri)

After the language discussion, Traditional Owners and Rangers separated into five groups based on their specific Country. The smaller groups drew the location of coral, oysters, seagrass, mangroves, mud, rock, rocky reef and sand on topographic maps of their homelands. The mapping exercise was repeated on the second day with Traditional Owners and Rangers, to add information and check the outcomes from the first day of workshops. The information collected at the workshops was digitised in geographic information system software and a draft habitat map was generated. Researchers returned to Wadeye to discuss the draft habitat map of the Thamarrurr Region.

Rangers and Traditional Owners were invited to check the detail on the map to confirm its accuracy and to identify additional information for inclusion. This refinement step ensured the researchers' interpretation of the knowledge shared matches that of the participants. The classification system in local languages was also reviewed during the second visit to Wadeye. The draft map was refined and the final map identified eight different benthic habitats in three local languages plus English, covering a total area of over 1000km² along the Thamarrurr coastline (Figure 4-32). Other cultural information was also mapped, including totem and dreaming sites and other features of cultural and historical importance (Figure 4-33).

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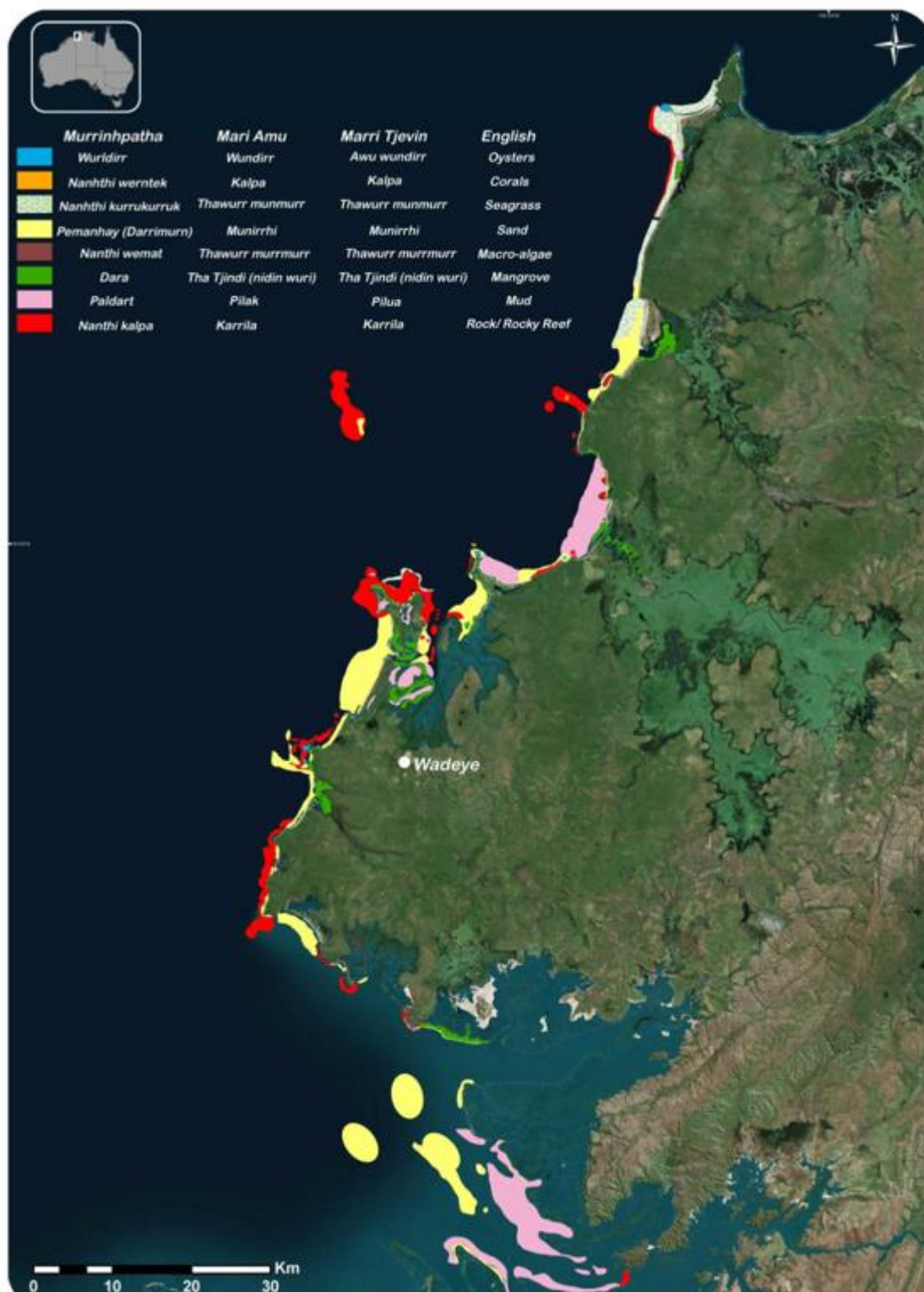


Figure 4-32: Sea Country habitat map for the Thamarrurr Region based on participatory mapping workshop

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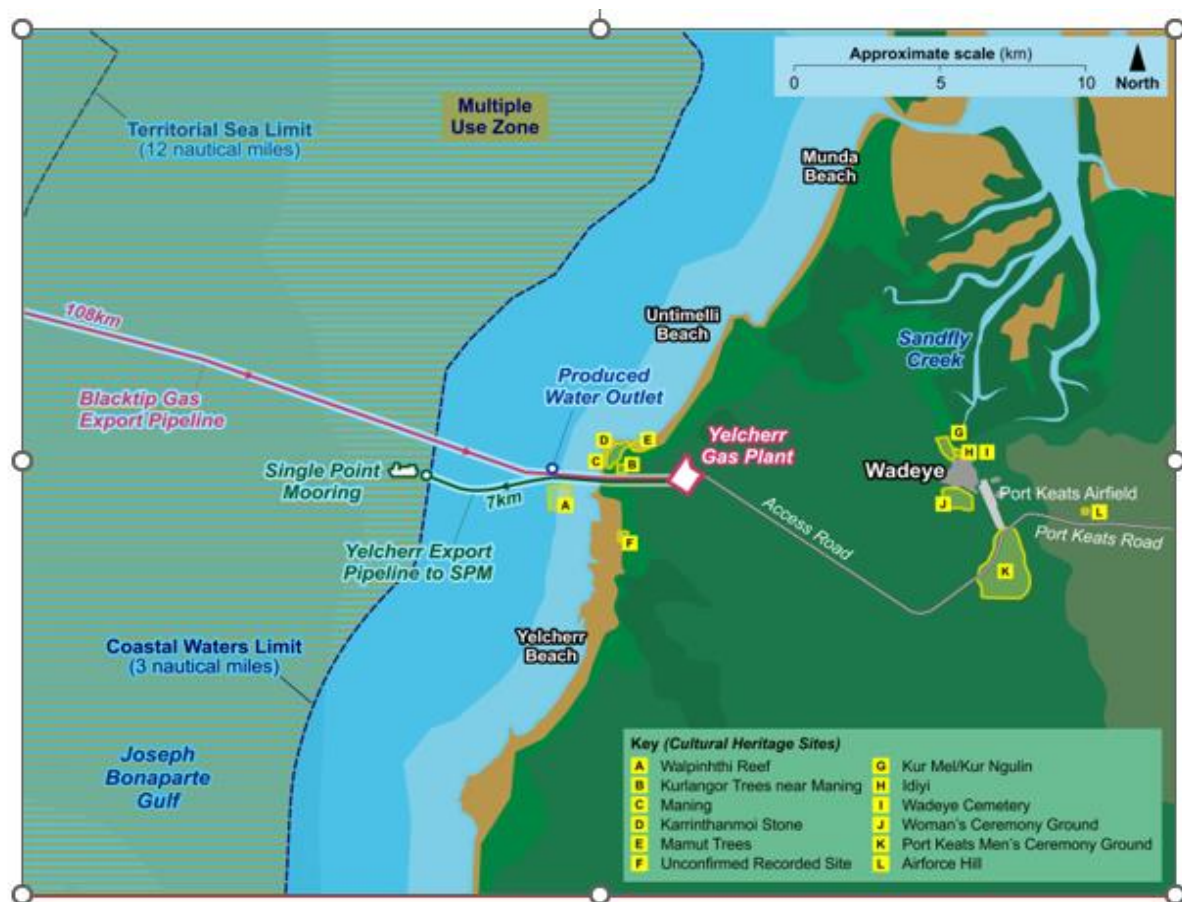


Figure 4-33: Key cultural sites in the vicinity of Yelcherr Gas Plant/Wadeye

Sea Country within Close Proximity to the EMBA

It is understood a fundamental aspect of First Nations peoples' past and ongoing relationship with the sea is that particular groups have a complexity of rights and interests over particular areas of the sea and adjoining coastal land (NOO, 2004). Such relationships and the connections with Sea Country transcend the landscape/seascape divide; the sea is not only a physical and temporal space, but also a mental map of ancestral journeys and rituals to nurture and pass on to future generations (Ward et al., 2022).

Many of the land along the north Kimberley coastlines has Sea Country components and encompasses small islands near the coast. Given the NT has the oldest dated terrestrial sites, there is a potential for the existence of submerged landscapes with associated Aboriginal heritage values due to strong cultural connections between Traditional Owners and the sea (McCarthy et al., 2022).

Many AMPs (Section 4.5.1.1) are of important cultural significance, with fishing, hunting and the maintenance of First Nations heritage through ritual and stories considered to be important uses of nearshore and adjacent areas (DNP, 2018a).

Balanggarra Sea Country comprises all the saltwater and reef from the offshore islands in the north (including Sir Graham Moore and Governor Islands), down to the offshore islands of the Cambridge Gulf to the south (e.g., Adolphus and Lacrosse Islands) (see Figure 4-31) (DPAW, 2016).

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The saltwater of Balangarra Sea Country was created by Wolara as he 'poled his canoe' in the coastal regions. Some of the islands are where his pole touched the seabed. Rinjiibarda'bindingei (to the north of Cape Londonderry) is a reef where the Dreaming Star 'fell down' to become the very shiny and highly prized, ritually and socially important pearl shell.

Whilst the Miriuwung Gajerrong people's traditional lands are primarily inland in the Kimberley region of Western Australia (including the Ord River and its associated floodplains, billabongs, and surrounding landforms), the Miriuwung Gajerrong people also have Sea Country associated with their coastal regions. Miriuwung Gajerrong Sea Country extends from Cambridge Gulf into the NT to the east. Their Dawang groups are responsible for the upkeep of the land and protection of sites of cultural significance for community according to transitional laws and customs that are handed down. The Dawang responsible for the Saltwater Country in the North Kimberley Marine Park is Wardanybeng (DPAW, 2016).

The Wunambal Gaambera people are Wundaagu (Saltwater) people. Their ancestors travelled the waters by raft and canoe right out to the outer islands and reefs (see Figure 4-31). Their ancestral sea wanjinas (creator ancestors) are represented in cave paintings at places like Jalandal and Bigge Island. Wunambal Gaambera Saltwater Country off the Unguu Coast includes both Commonwealth and State waters, daagu (deep/subtidal water) and intertidal waters including warrurru (reefs), burrurrga (beaches), darngarla (mangroves), tidal creeks and mudflats.

The Wunambal Gaambera Aboriginal Corporation has developed the Unguu Wundaagu Saltwater Indigenous Protected Area (IPA) Plan of Management (Wunambal Gaambera, 2023) that compiles aspects relevant to Saltwater Country and elaborates on strategies and actions relating to Saltwater management and is a sub-plan of their Wunambal Gaambera Healthy Country Plan (Wunambal Gaambera, 2021). As detailed in the IPA Plan of Management, the most important values relating to Saltwater Country are (Wunambal Gaambera, 2023):

- The Wunambal Gaambera culture – for example talking to the wundaagu (sea) when fishing and only taking what is needed).
- The Wunambal Gaambera people – this includes ensuring livelihoods and opportunities for future generations).
- Gawi (fish and other seafood) – Wunambal Gaambera people have strong customary practices for collecting and harvesting fish and other seafoods from different Saltwater Country such as warrurru (reefs) and darngarla (mangroves) and these traditions are from their Lalai (Dreaming).
- Mangguru (marine turtles) and Balguja (dugong) – these are important cultural foods especially for cultural gatherings and the Wunambal Gaambera people's customary right to hunt turtle and dugong and to collect turtle eggs is recognised under statutory law.
- Saltwater cultural places – the Wunambal Gaambera people have many important cultural places in the Wundaagu (Saltwater); in particular:
 - Wanjina Wunggurr Cultural Tradition: Our Sea Country is associated with our cultural tradition and has many significant sites

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- Wunambal Gaambera log-raft maritime tradition: Wanjina Wunggurr ancestors used rafts and canoes to sail the tides and currents from the mainland to islands and warrurru (reefs) far offshore. Travel routes followed the tides and were important in their ancestors' wunan (traditional sharing and business trading system) between families
- Makassan: Wanjina Wunggurr ancestors interacted with Makassan seafarers for hundreds of years. Makassans came for Bujulum (sea cucumber) and other resources from the sea and left Tamarind trees and stone hearths on the shores.

4.6.8.6 Seasonal Calendars

First Nations peoples have developed an understanding of the Australian environment over many thousands of years (BOM, 2023; CSIRO, 2022). Knowledge of the seasons is highly localised and unique to each First Nations group. As such, the number of seasons recognised in an annual cycle, the length of each season, and how they are locally defined and understood, differs a lot depending on where the seasonal knowledge of Country has developed (CSIRO, 2022).

Within specific seasons, certain activities occur which include customary activities such as ceremonies and burn offs. Resource availability is also influenced by season, such as the flowering of certain plants identifying when eggs are available for collection or specific bird calls which indicate that yams are ready to eat (BOM, 2023).

Some examples of specific traditional activities that may occur within close proximity to the EMBA that are influenced by season include:

- The Wunambal Gaambera seasonal calendar shows that during Yurrma (dry season: May to August) turtles and mud crabs are hunted, whereas in Yuwala (storm season: September to December) dugongs are hunted for food and turtle eggs are collected (Wunambal Gaambera, 2021); and
- The Balanggarra seasonal calendar shows that stingray hunting for food occurs in Yuwala (hot season, no wind: September to November) and turtles are hunted for food in Yirrma (winter: June to August) (BAC, 2011).

4.6.8.7 Traditional Use of Resources

Traditional fishing occurs along the majority of the Kimberley and NT coastline. The practice of traditional fishing includes taking turtles, dugong, fish and other marine life, with traditional fishing methods consisting of the use of lines, hand collection, nets and spears (National Oceans Office, 2004). Several IPAs identified in Section 4.6.8.8 are found within proximity to the EMBA where it can be expected that traditional fishing activities will occur. Within the Northern Land Council region, approximately 55% of the NT's coastline is owned by Traditional Owner groups. These areas support a range of economies and livelihoods and contain many iconic fishing areas (NLC, 2021).

A National Recreational and Indigenous Fishing Survey undertaken in 2000, reported that the greatest fishing effort focused on saltwater environments,

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including estuarine, coastal, inshore (less than 5km from the coast) and offshore (greater than 5km from the coast) with line fishing and hand gathering being the two most common fishing methods (National Oceans Office, 2004). Data collected during the survey in 2000, showed that offshore fishing activities represented only 2% of total indigenous fishing effort with inshore (49%), coastal (23%), rivers (16%) and lakes/dams (10%) being more common (National Oceans Office, 2004).

The traditional harvesting of marine resources (e.g. turtles, whale sharks and dugong) adjacent to the North West Marine Region is a pressure of potential concern for the carbonate bank and terrace system of the Sahul Shelf, the pinnacles of the Bonaparte Basin, and the Commonwealth waters surrounding Ashmore Reef and Cartier Island (DSEWPac, 2012d) to the west of the EMBA.

Several Traditional Owner groups have responsibility for managing Sea Country in areas within close proximity to the EMBA where they have deep spiritual connections to offshore landscapes and harvest marine resources for food and cultural purposes. Fish are a staple food source, and fishing a form of cultural expression, connecting people to Country modelled on tradition and based in traditional law (DNP, 2018a).

Balanggarra people have strong traditions to collect and harvest saltwater fish and other seafood from darkurr (open sea) and the warrirr (reefs). Saltwater fish, mangkuru manya (turtles), abil (dugong), mud crabs, marlinji manya (oysters) and numbarru manya (cockle shells) continue to be important food sources for Balanggarra people (DPAW, 2016).

In the past, Miriuwung Gajerrong people used tidal saltwater areas, such as mangroves, for hunting, fishing and general bushtucker and wood for spears. The hunting in these places is good for bundungjiliwurrng (saltwater turtle), juinying (saltwater crocodile) and marri marri (pelican). Miriuwung Gajerrong people would also hunt for galak galak (dugong) and fish for ngadagung and muwugang (mullet), durrngman (saltwater salmon), jaliwong (barramundi), jajan (seawater catfish), kalawung (sharks) and birin (stingrays). Bushtucker such as marmurrng (mangrove fruits), gagolyang (big saltwater mussels), woiyimbung and jaguli (oysters), mulgurrent (big saltwater mudcrabs), mulum ngalanggubiny (saltwater worms from mangrove trunks) and gurruwiling (crocodile/turtle eggs) is also collected from these areas (DPAW, 2016).

Wunambal Gaambera people have strong customs and traditions for hunting manggurru (turtle) and balguja (dugong), collecting and harvesting fish and other seafoods from the wundaagu (sea) and warrurru (reefs) for ceremony, food, medicine and bait. These traditions from their Lalai are in songs, oral traditions and paintings. In the past, Wunambal Gaambera Traditional Owners built stone fish traps to catch fish like munungiyunga (barramundi) and also fished from canoes and rafts. Saltwater fish such as ngarrwan (mangrove jack), wunbarlu (blue-bone groper), munungiyunga, bunjumarru (mud crabs) and marlinju (oysters) continue to be important food sources for Wunambal Gaambera people. Wunambal Gaambera people are working to ensure the continuing health of their Country and the sustainable use of resources (DPAW, 2016).

Eni's focus on the Thamarrurr Rangers Initiative

Since 2009, Eni has had a strong focus on the Thamarrurr Rangers initiative. The Thamarrurr Rangers were established in 2001 by the Traditional Owners of the

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Thamarrurr Region to address land and sea management issues. The Rangers have grown from community development and employment programs to a well-resourced program through the Working on Country program (TDC, 2023).

The Thamarrurr Rangers actively engage with Traditional Owners and community members in natural and cultural resource management. The rangers patrol more than 18,000km² of land and around 240km of coastline (from the Daly River to the Fitzmaurice River), and do a range of work, including coastguard, pest control, monitoring wild animals, protecting cultural assets, education and managing the Marri Jabin Indigenous Protected Area (IPA) (TDC, 2023) as well as activities for Eni.

Traditional Owners of the Thamarrurr Region hold a close affinity with Sea Country and, together with Thamarrurr Rangers, have recognised the importance of maintaining an active presence on the water. As discussed in previous sections, the 2019 Sea Country mapping workshops provided the opportunity for the Rangers and researchers (Eni and AIMS) to exchange scientific monitoring knowledge that could enhance the local community's management capabilities of Sea Country.

Eni, AIMS and Thamarrurr Rangers have worked together on field-based projects, notably the following:

1. 2020 Ecological Data Collection at Emu Reef in Wadeye, NT

Rocky reefs are important habitats and nursery areas for a diversity of marine species, such as golden snapper and black jewfish. Based on the participatory mapping workshop (discussed in previous sections), rocky reefs are a key ecological feature in the Thamarrurr Region. The rocky reefs in the region include reef fish protection area, Emu Reef, and the sacred site Walpinhthi Reef (refer Figure 4-32). There is limited scientific data available on the nature of these ecologically important areas.

This project was conducted by AIMS, in collaboration with the Thamarrurr Rangers, during two fieldtrips in the fourth quarter of 2020, and provided training to Rangers on how to use baited remote underwater videos and other marine surveying techniques to characterise reef habitats. The target locations included an around Eni produced formation water release point and Emu Reef. The project not only increased the current knowledge of reefs in the area but also provides field data to refine the details for the areas mapped during the initial participatory workshop. In addition, training of the Rangers provided them with the skills to undertake routine monitoring of the reefs in Sea Country.

2. 2023 Water Quality Sampling at the Blacktip Produced Formation Water Release Point

This project trained the Thamarrurr Rangers to undertake monthly produced water outfall sampling following Eni verified sampling protocols. AIMS trained the Thamarrurr Rangers in water sampling and conducted a dummy survey using a fluorometer on the subsequent day. A Go Pro was used to record the training and fieldwork and may be used as reference and future training of new rangers.

Eni and Thamarrurr Rangers arrangements continue in relation to monitoring and data collection. It is expected to continue to grow with ongoing training in marine

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operations, with Rangers increasing their ability to monitor for research and compliance purposes. The Thamarrurr Rangers will also use water quality sampling skills to assist Eni in the event of an oil spill (refer to the Petrel Survey Operational and Scientific Monitoring Plan (OSMP) [ENI-HSE-PL-0003_01]).

3. 2023 Fluorometer Survey Training in Response to Oil Spill

Following the water quality sampling training (detailed above), AIMS trained the Thamarrurr Rangers in fluorometer use so they can be first responders sampling water in the event of an oil spill. Further details on the use of the Thamarrurr Rangers' skills in operational and scientific monitoring following an oil spill are included in the Petrel Survey OSMP (ENI-HSE-PL-0003_01).

4. Annual Sediment and Shellfish Surveys

Sediment and shellfish sampling around the Blacktip produced water outfall and at reference sites offshore of Wadeye region.

Other field-based projects in collaboration with the Thamarrurr Rangers may be completed in the future. These include:

5. Understanding Mangrove Habitat Change in the Thamarrurr Region

Mangroves play an important role in coastal ecosystem health because they limit coastal erosion and are important nursery grounds for demersal fish and sharks. A change in mangrove habitats along the west coast of the Gulf of Carpentaria, NT has been identified.

The Traditional Owners of the Thamarrurr Region have also identified this change along the east coast of the Bonaparte Gulf, NT. While studies are underway to understand the change in the Gulf of Carpentaria, the cause, rate and extent of the changes of mangrove habitat along the coast near Wadeye have not been examined. This project, in collaboration with Rangers and Traditional Owners, would use participatory mapping techniques to document the change identified by Traditional Owners, in combination with analysis of remote sensing satellite imagery, to elucidate the observed patterns and to assess other environmental variables that may have attributed to this change. Understanding the location of mangrove decline within the Thamarrurr Region may facilitate the identification of factors driving the decline and to develop potential strategies for mangrove rehabilitation projects.

6. Interpreting Megafauna Data and Designing Monitoring Program for Rangers

During the mapping exercise, Rangers and Traditional Owner identified foraging locations for turtles and dugongs as well as movement patterns of rays along the coast. This project may collate Traditional Owners' knowledge as well as data to provide information about the status of species in the area. The outcomes from the project would be a monitoring program designed based on priority species and areas.

Eni sees the benefit of the Thamarrurr Rangers program and is keen to understand what other relevant programs are available in the region.

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In addition to the Thamarrurr Rangers program, Eni notes that under NT Fisheries, Aboriginal people living in a remote community who want to fish and sell the fish they catch, can apply for an Aboriginal Coastal Fishing Licence. There are currently 5 Aboriginal Coastal Fishing Licencees in Wadeye, and these people will be approached for comment regarding this EP, through Eni's relevant person consultation process.

4.6.8.8 Indigenous Protected Areas

An IPA is an area of Indigenous-owned land or sea where Traditional Owners have entered into an agreement with the Australian Government to promote biodiversity and cultural resource conservation. IPAs are managed by First Nations groups in accordance with Traditional Owners' objectives. The boundaries of IPAs may be aligned with Native Title boundaries, or wholly contained within. In 2022, the Australian Government announced a program (the Sea Country IPA Program) to expand the IPA network to include coastal and marine areas.

The IPA program is jointly administered by DCCEEW and NIAA. Whilst there are no IPAs intersecting the Operational Area, the Marri-Jabin (NT), Balanggarra (WA), and Unguu (WA) IPAs are within the EMBA. These IPAs are further described below.

Marri-Jabin IPA

Gazetted in 2009, the Marri-Jabin covers an area of approximately 71,200ha and was dedicated under IUCN category IV (DCCEEW, 2025g) (Figure 4-34). The Thamarrurr Land and Sea Rangers oversee the management of the IPA and carry out a range of critical activities, such as surveying and managing invasive weeds, feral animals, marine invertebrates, and diseases. The rangers also monitor the habitats of threatened species, including sea turtles, while managing fire and documenting and preserving significant cultural sites. Additionally, they are committed to passing on traditional knowledge to the next generation, ensuring the continuation of cultural practices and values for years to come (NIAA, 2024a).

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Figure 4-34: Marri-Jabin Indigenous Protected Area (Source: NIAA, 2024)

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Balanggarra IPA

The Balanggarra IPA, declared in 2013 has a gazetted area of 1,083,000ha and supports the long-term management of Balanggarra traditional Country (DCCEEW, 2025g) (Figure 4-35). The IPA is dedicated under IUCN Category VI. The IPA is situated in the northern-Kimberley region and intersects with five major river systems, namely the King, Forest, Pentecost, Durack, and Ord Rivers, as well as the Cambridge Gulf and the Timor Sea. The IPA is managed by the Balanggarra Rangers (NIAA, 2024b).

The Balanggarra Rangers look after Country both ways, using traditional knowledge and western scientific methods. Walking in both worlds with this knowledge allows Balanggarra Rangers to do 'right-way-fire management', look after cultural sites, undertake wildlife surveys and conduct weed management activities (NIAA, 2024b).

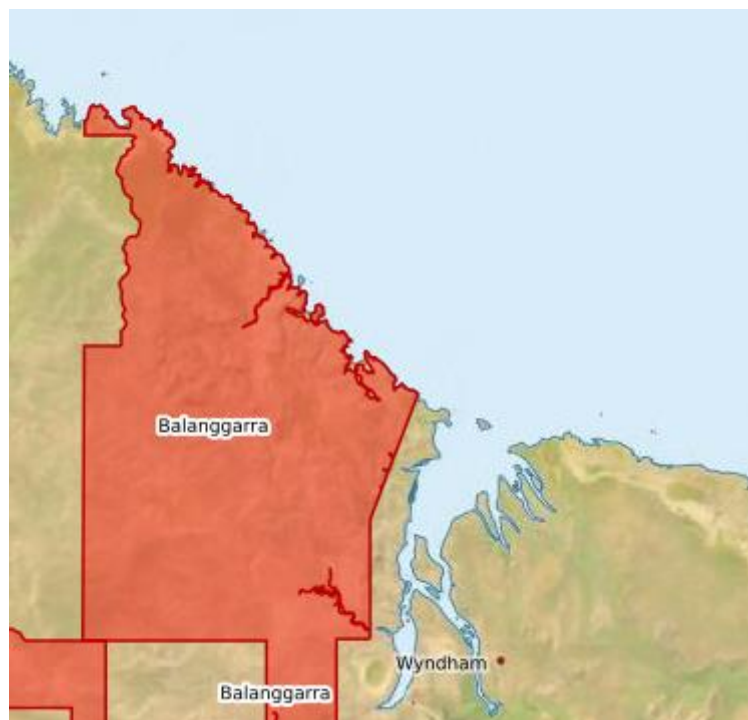


Figure 4-35: Balanggarra Indigenous Protected Area (Source: DCCEEW, 2025g)

Uunguu IPA

The Uunguu IPA, dedicated in 2010, is located in north Kimberley and covers an area of over 760,000ha on the land of the Wunambal Gaambera people (Figure 4-36). The IPA was dedicated under IUCN category VI (DCCEEW, 2025g).

The Uunguu Rangers are responsible for the management of land and sea Country. Key tasks include pest control, cultural heritage conservation, monitoring the health of plants and animals, and implementing Right-way Fire, a method of fire management that involves a mosaic of fires being burnt in the cool season to prevent wildfires in the hot, dry season. The Uunguu Rangers are also responsible for visitor management through the Uunguu Visitor Pass and have established a seasonal base at Garbimirri on Anjo Peninsula, as well as working out of Kandiwal Community at Ngauwudu (Mitchell Plateau). The Uunguu IPA is a vital

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area for the Wunambal Gaambera people and requires continued conservation and management efforts (NIAA, 2024c).

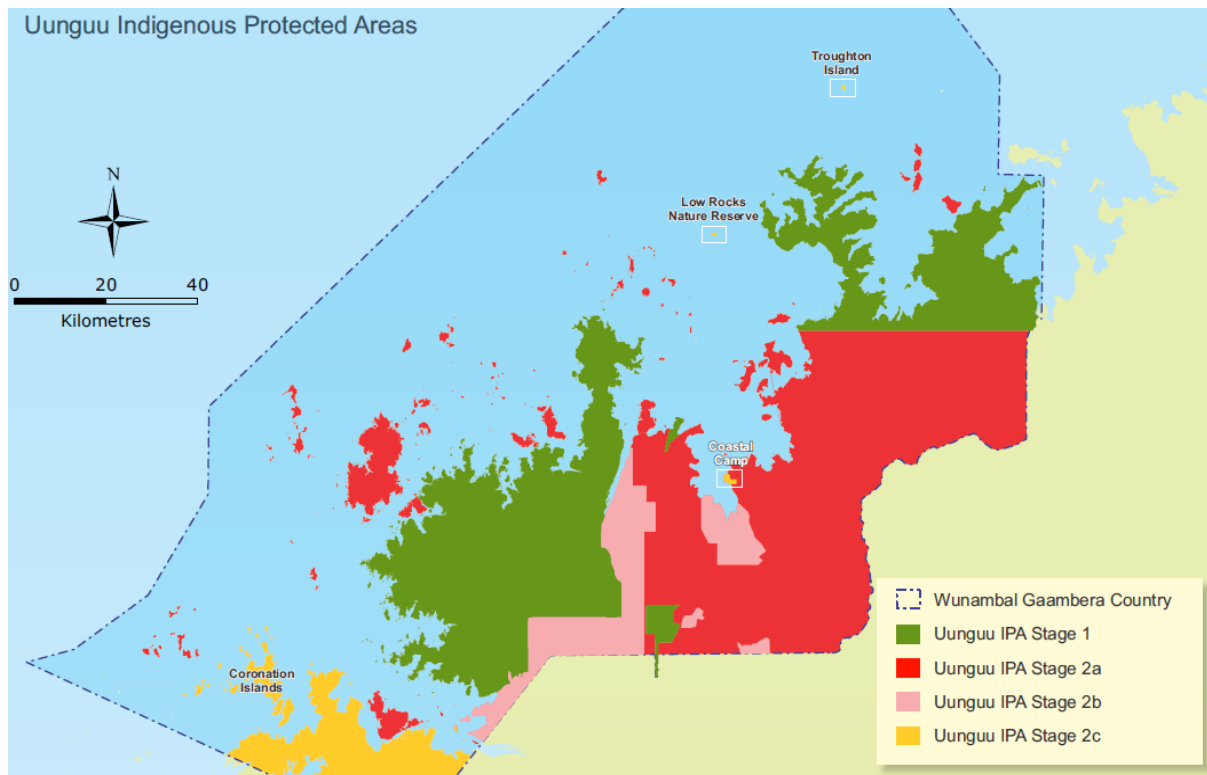


Figure 4-36: Uunguu Indigenous Protected Area (Source: Wunambal Gaambera, 2021)

4.6.8.9 Aboriginal Heritage Sites

The Department of Planning, Lands and Heritage (DPLH) Aboriginal Cultural Heritage Inquiry System (ACHIS) provides information about Aboriginal sites (as defined under the *Aboriginal Heritage Act 1972* (WA)) and Aboriginal Cultural Heritage Lodges Places lodged in Western Australia. To identify Aboriginal sites that may be affected by the Activities, a search of the ACHIS was completed for the EMBA. The results of this search are appended in APPENDIX E.

The Aboriginal Heritage Inquiry System (ACHIS) reports identified no known sites of Aboriginal Heritage significance located within the Operational Area or within the EMBA. One Aboriginal Cultural Heritage Lodged Place, Troughton Island was identified within the EMBA. No Aboriginal Cultural Heritage Lodged Places were identified within the Operational Area.

None of these Aboriginal sites will be disturbed by planned activities. In the unlikely event of a hydrocarbon release, which is assessed as low risk, (Refer Section 8.5), it is not anticipated that shoreline impact to cultural features would arise.

A search of the WA Aboriginal Cultural Heritage Register showed a total of 17 Registered ACH Sites and 3 ACH Lodged Places adjacent to the EMBA are described in

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Table 4-14 (WSP, 2025).

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Table 4-14: WA Aboriginal Cultural Heritage in Relation to the EMBA

First Nations Groups	Registered and Lodged Aboriginal Cultural Heritage Sites on the Coast or Islands
Wunambal Gaambera	2 Registered ACH Sites in coastal areas are within or adjacent to the EMBA but are not located within the Operational Area. These sites include: • Galngauru • Sir Graham Moore Islands
Balanggarra	11 Registered ACH Sites and 2 Lodged ACH Places are within or adjacent to the EMBA but are not located within the Operational Area. These sites include: • Sir Graham Moore Islands • Galngauru • Honeymoon Beach / Wandawarr Djingal • Lunganna Trepanging Site • Klembei • Langanana • Berkely River Dunes • Revely Island Midden • Burrungu (Lacrosse Island) • White Dunes • Berkely River
Miriwung Gajerrong	5 Registered ACH Sites are within or adjacent to the EMBA but are not located within the Operational Area. These sites include: • Burrungu • Balu-Gunanjarr • Ganggarryu • Wundarri • Ngarrmu / Ngarriyu

Northern Territory Cultural Heritage

Under the *Heritage Act 2011* (NT), all Aboriginal and Macassan places and objects are automatically protected whether previously recorded, or not. The Act also protects sites (places and objects) of European and historic heritage value to the NT.

Macassan sites along the NT coastline are evidence of visits by Macassan people from the Sulawesi region of Indonesia at least from the early to mid-1700s and who interacted with Aboriginal peoples primarily to trade in trepang (sea cucumber). Evidence of these visits include the remains of stone fireplaces and smoke houses, tamarind trees planted by Macassan people, fragments of earthenware and porcelain, and burial places. Contact from Macassan people had a profound impact on Aboriginal culture with visits still remembered through oral history, art, songs and dances (Monroe, 2011).

The Aboriginal Areas Protection Authority (AAPA) maintains a register of sacred sites (intangible cultural heritage), which are places within the landscape that have a deep significance under Aboriginal tradition. As access to the AAPA Register is not freely available online, a Request for Information from the AAPA in relation to a specific area to the existence of Registered and Recorded sacred sites within or in proximity to the EMBA. The following sites were included (WSP, 2025):

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- The sacred sites in the offshore and nearshore that were recorded during the development of the Blacktip Project in the vicinity of the pipeline shore crossing at Yelcherr Beach, including the intertidal zone and an Authority Certificate was obtained.
- 2 additional offshore sacred sites neither of which are overlapped by the EMBA but are closely proximate.
- Numerous onshore sites in Gajerrong Country presumably associated with the Project Sea Dragon led previously by Seafarms Group (now liquidated).

4.6.8.10 First Nationals Cultural Values

The following summary in Table 4-15 describes First Nations cultural values drawn from consideration of the publicly available documents, consultation with First Nations and other sources (WSP, 2025) that may have potential to interact with the EMBA.

Table 4-15: First Nations cultural values identified with potential to interact with the EMBA

Cultural Values	Balanggarra Country ³	Miriuwung Gajerrong Country ⁴	Thamarrurr Country ⁵⁶	Wunambal Gaambera Country ⁷
Important cultural sites	Coastal and island-based sacred sites, dreaming places, burial areas, and oral history locations. Eleven (11) Registered ACH Sites and two (2) Lodged ACH Places (listed Table 4-14).	Five (5) Registered ACH Sites (listed Table 4-14)	Shell middens, tamarind (Macassan) trees, dreaming stories (e.g., Magpie Goose). Sites generally not mapped but acknowledged. No ACH sites registered.	Burial sites, rock art, sacred caves, dreaming tracks, particularly Wanjina Wunggurr places (e.g., Mitchell Plateau, Drysdale River, Bigge Island). Two (2) Registered ACH Sites in coastal areas (listed Table 4-14)
Reefs, beaches and islands	Yes	Yes	Yes	Yes
Seagrass and mangroves	Yes	Yes	Yes	Yes
Saltwater fish and seafood	Yes	Yes	Yes	Yes

³ Balanggarra Aboriginal Corporation / Kimberley Land Council, 2011

⁴ Hill, et al., 2008

⁵ Thamarrurr Development Corporation, 2022

⁶ Northern Territory Government, 2018

⁷ Balanggarra Aboriginal Corporation / Kimberley Land Council, 2011

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Cultural Values	Balanggarra Country ³	Miriuwung Gajerrong Country ⁴	Thamarrurr Country ⁵⁶	Wunambal Gaambera Country ⁷
Sea turtles	Yes	Yes	Yes	Yes
Saltwater crocodiles	Yes	Yes	Yes	Yes
Dugongs	Yes	Not evident	Yes	Yes
Whales and dolphins	Yes	Not evident	Yes	Yes
Seabirds and shorebirds	Yes	Yes	Yes	Yes
Freshwater systems	No overlap with EMBA	No overlap with EMBA	No overlap with EMBA	No overlap with EMBA
Native food and bush medicine onshore	No overlap with EMBA	No overlap with EMBA	No overlap with EMBA	No overlap with EMBA
Law and language and culture	Yes	Yes	Yes	Yes

The combined threats to Sea Country identified in the relevant First Nations Planning Frameworks and Healthy Country Plans that are potentially linked to project activities are listed in Table 4-16.

Table 4-16: First Nations Groups Registered and Lodged Aboriginal Cultural Heritage Sites on the Coast or Islands

Threats and Risks to Cultural Values	Relationship with the Project
Lack of appropriate consultation with Traditional Owners	Yes
Climate change	Yes
Lack of land and sea management capacity	Yes
Mining / industrial development, including oil and gas exploration and development	Yes
Marine pests/Introduced species	Yes
Marine pollution	Yes
Pollution	Yes
Lack of control over marine resources	Yes
People not living on country	No
Lack of transmission of knowledge	No
People not looking after country	No
Pearling leases	Yes
Illegal fishing	No
Safety of visitors and tourists	No
Visitors to Sea Country not being respectful	Yes

4.6.8.11 Marine Parks

The EMBA overlaps Sea Country which is described in State, Territory and Commonwealth Marine Park Management Plans (DNP, 2018a, DNP, 2018b), which

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identify natural, cultural and spiritual values associated with AMPs in the EMBA (refer Section 4.5.1).

The Australian Marine Park Management Plans include the objective to provide for the protection and conservation of biodiversity and other natural, cultural and heritage values of marine parks. The plans define cultural values as “living and cultural heritage recognising Indigenous beliefs, practices and obligations for country, places of cultural significance and cultural heritage sites” (DNP, 2018b). Australian Marine Park Management Plans list the Aboriginal people who have responsibilities for Sea Country in the Marine Parks, and the Native Title Representative Body for the region.

The various groups that have responsibilities for Sea Country within the Marine Parks within the EMBA are outlined below in Table 4-17.

Table 4-17: Cultural values and Traditional Custodians of marine parks within the EMBA

Marine Park	Traditional Custodians of Sea Country	Cultural Values
Oceanic Shoals AMP	Balanggarra, Wanumbal-Gaambera (Beaver et al. 2015) The Northern Land Council and the Kimberley Land Council are the Native Title Representative Bodies for the NT's northern region, and the Kimberley region. The Tiwi Land Council collectively represents Traditional Owners of the Tiwi Islands (DNP, 2018b).	Sea Country is valued for First Nations cultural identity, health and wellbeing for First Nations people across Australia who have been sustainably using and managing Sea Country for tens of thousands of years. The marine park contains culturally significant habitats which support a number of culturally significant species including sea turtles (DNP, 2018b).
Kimberley AMP	Wunambal Gaambera, Dambimangari, Mayala, Bardi Jawi and the Nyul Nyul	Sea Country for the Wunambal Gaambera, Dambimangari, Mayala, Bardi Jawi and the Nyul Nyul extends into the Kimberley Marine Park. Sea Country for the Wunambal Gaambera people includes daagu (deep waters), with approximately 3,400km ² of Wunambal Gaambera Sea Country located within the Kimberley Marine Park. Sea Country is valued for the cultural traditions, livelihoods and future socio-economic opportunities it provides. The Traditional Custodians of this Marine Park have an unbroken deep spiritual connection to Sea Country through Wunggurr (creator snakes) that still live in the sea. Traditional foods with cultural values include saltwater fish, turtles, dugong, crabs and oysters. The national heritage listing for the West Kimberley recognizes the following cultural heritage values: Wanjina Wunggurr Cultural Tradition which incorporates many culturally significant Sea Country sites

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Marine Park	Traditional Custodians of Sea Country	Cultural Values
		- Traditional log-raft maritime vessels, which involved using the tides and currents to access offshore warrurru (reefs) for fishing - Interactions with Makassan traders for sea foods over hundreds of years - Important pearl resources used for traditional trading through the wunun and in contemporary commercial agreements The First Nations people of this Marine Park consider that these values extend into the Marine Park and have the cultural responsibility to manage Sea Country, maintain the health of Sea Country, and all land, plants and animals that were put there by Wanjina Wunggurr (DNP, 2018a).
Joseph Bonaparte Gulf AMP	Miruwung, Gajerrong, Doolboong, Wardenybeng and Gija and Balanggarra	Sea Country is valued for First Nations cultural identity, health and wellbeing for First Nations people across Australia who have been sustainably using and managing Sea Country for tens of thousands of years. The marine park contains a reef, shoals and sandbanks which supports a number of culturally significant species such seabirds, shorebirds, sea turtles, whales, and dolphins (DNP, 2018b).

The natural, cultural and spiritual values associated with the Marine Parks in the EMBA are described in Section 4.5.1.

Eni acknowledges Commonwealth and State Marine Park Management Plans recognise cultural features of Traditional Owner groups. AMPs describe taking 'values into account' when making decisions and taking action in relation to AMPs. Furthermore, the WA North Kimberley Marine Park Joint Management Plan (DPAW, 2016) describes the opportunity for Parks and Wildlife and Traditional Owners to work together, with the wider community, to achieve cultural, ecological and social management of the marine park. Traditional knowledge and understanding of Saltwater Country will be incorporated into the management of the marine park, and Traditional Owners will be actively involved in managing the area.

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5 RELEVANT PERSON CONSULTATION

5.1 Overview

This section of the EP, in conjunction with Appendix C (Relevant Person Consultation), describes the consultation undertaken by Eni for the Petrel Survey Environmental Plan (EP).

In accordance with Regulation 24 of the OPGGS Regulations, the EP must contain:

b) a report on all consultations between the titleholder and any relevant person, 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.*

The Petrel Survey Operational Area is in the Joseph Bonaparte Gulf, with its southernmost point approximately 113km northwest of Eni's Northern Territory Yelcherr Gas Plant facilities and its northernmost point approximately 100km north of Eni's Blacktip facility. Eni has been operating its Blacktip and Yelcherr facilities since 2009, and as a result, is quite familiar with local communities and other users of the coastal and marine environment across the region.

There are four key appendices that support this 'Relevant Person Consultation' Section:

- Appendix C1: Bridging Document: – the relevant persons consultation methodology that has been developed for this specific Environment Plan that takes into account both Eni's corporate requirements, and the requirements under the OPGGS(E) regulations;
- Appendix C2: Relevant Persons Register: – a (stakeholder) register identifying all relevant persons that have been approached with regards to this Environment Plan;
- Appendix C3: Consultation Materials: – evidence/copies of all materials that were used for consultation such as maps and graphics, Fact sheet/s, web page, advertisements, public notices, correspondence, PowerPoint slide sets etc;
- Appendix C4: Consultation Efforts and Feedback: – a comprehensive report of Eni's engagement with all relevant persons', made up of the following two documents -
 - Appendix C4a: Relevant Persons Consultation Efforts Log: - a spreadsheet showing all monitoring efforts (email, phone, text) engage with relevant persons;

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- Appendix C4b: Relevant Persons Feedback Assessment: - a record of all relevant person claims, objections and relevant matters, with Eni's assessment, response (where required) and action.

For all consultation described in Section 5 of this EP and further presented throughout the above Appendices, the industry and regulatory guidelines considered are listed in Table 3-1 of the EP Consultation Methodology Bridging Document (Appendix C1).

5.2 Identified Relevant Persons

As per part 4.1 of Appendix C1 (Relevant Person Identification), stakeholders interacting with the Joseph Bonaparte region have been identified through Eni's newly created Northern Australia Stakeholder Register. With most of Eni's activities occurring in and around northern Australia, Eni has an ongoing engagement strategy to monitor and maintain its already strong relationships with interested and relevant persons across this region. To identify relevant persons for the Petrel Survey EP, additional inputs included:

- Consideration of the overall spatial extent of the petroleum activities (i.e. the Operational Area - OA; the zone of potential impact - ZPI; and the environment that may be affected - EMBA).
- A review of all interest and user groups active in the overall spatial extent.
- Consideration of the adoption of newly identified relevant persons from other EPs in proximity to the Petrel survey activities.
- Discussions with identified relevant persons, industry organisations and other general engagement stakeholders to identify other potentially relevant persons.

To further and fully identify relevant persons, additional desktop work was carried out to ensure the identification of all relevant persons that traverse the Bonaparte Gulf general zone – a broader, socio-economic footprint which encompasses communities of Darwin, Tiwi Islands, Wadeye, Kununurra, Wyndham and Kalumburu.

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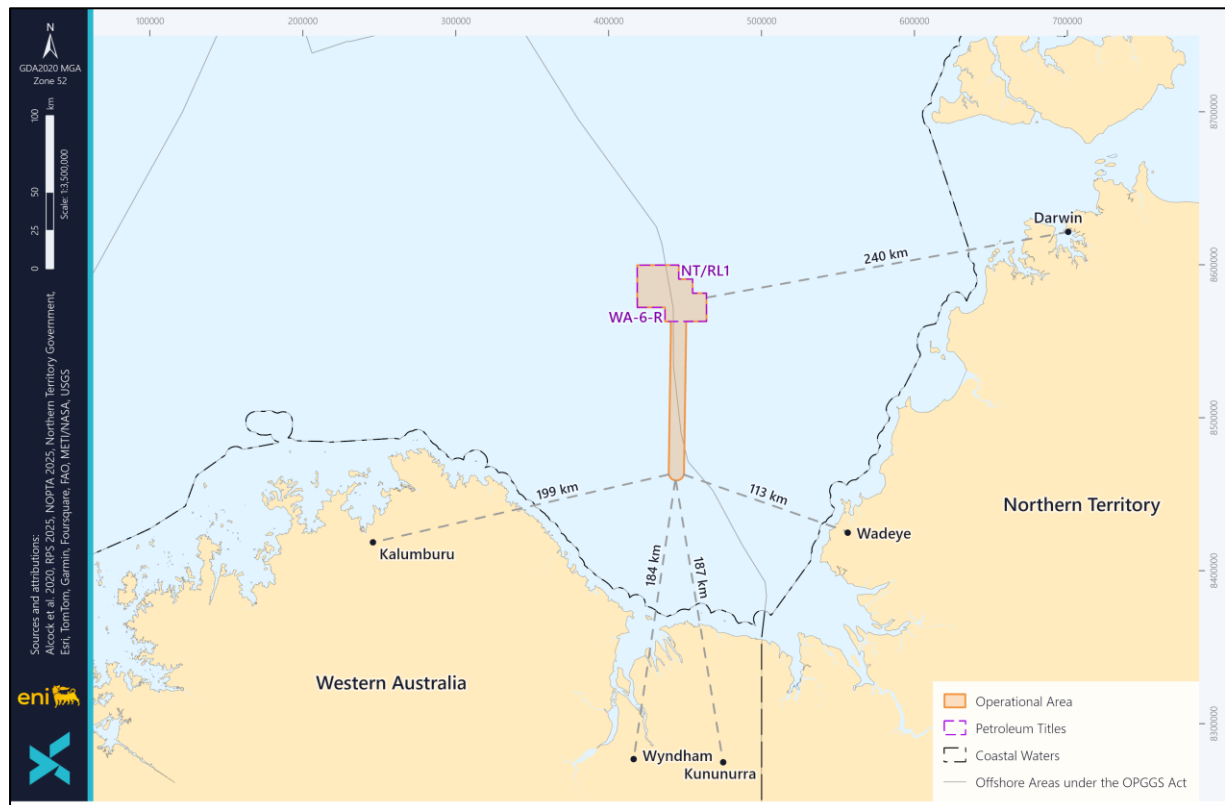


Figure 5-1: Communities within the Bonaparte Gulf General Zone

5.2.1 Petrel Internal Stakeholder Mapping Workshop

Eni further developed the Petrel Survey EP relevant person identification and analysis through the strategic implementation of an internal Relevant Person Mapping Workshop held on 10 December 2025. This was an important first step to not only identify and profile relevant persons, but also to be able to assess their priority target groupings in preparation for Planning for the Tracking of Effective Consultation (part 5.2.1 of Appendix C1). The following attendees participated in the Workshop:

- Eni's Petrel Project and Exploration Team
- Eni's Health, Safety, Environment and Quality Team
- Eni Stakeholder Engagement and Sustainability Team
- Third party environment and communications subject matter experts (SMEs)

Participants aligned on the Project overview; confirming roles and responsibilities; relevant person identification, analysis, and priority target group classification; the consultation process (as per Appendix C1) and communications tools to be utilised.

As result of the workshop, Eni was able to finalise the Petrel Relevant Person Register fully encompassing all categories as defined by sub-regulation 25(1) (a)-(e) of the OPGGS(E) Regulations. Relevant persons that were identified included:

- Commonwealth, Territory, State and Local Government departments

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- State and territory commercial fishing licensees
- Maritime user groups
- Traditional Owner and other Indigenous organisations
- National, state, territory and local businesses
- Industry bodies and associations
- Neighbouring permit titleholders; and
- Non-government organisations and interest groups.

Further to the process described above, additional opportunities for identifying relevant persons were implemented throughout the consultation period – including being informed of others through local connections, in face-to-face meetings and in relevant person self-identification through the approach outlined in part 6.2 of Appendix C1 (Extended Enquiry - Broader Consultation).

In summary, a complete register of 165 relevant persons that are applicable to the Petrel Survey EP is presented in Appendix C2 (Relevant Persons Register).

5.3 Preparing for Consultation

Outside of, but highly correlated with ensuring good preparation for EP consultation, is Eni's mandate outside of any legislative requirement for consultation. This is to create long-lasting, trust-based and transparent relationships with stakeholders in and around its general areas of operations; to be able to contribute together towards sustainable development. This is clearly outlined in part 2.1 of Appendix C1 (Eni's Corporate Management System Documentation)

As outlined in part 5 of Appendix C1 (Relevant Person Consultation Planning), Eni undertook the following strategic planning and preparation to ensure effective and appropriate consultation could take place:

- Collation of all technical information for consultation materials
- Development of materials for the high-level information pack (e.g., email script, web landing page, activity flyer / fact sheet, risks and mitigations, FAQs, NOPSEMA information brochure, and dedicated email/phone contacts)
- Development of content, lay-out and QR code for posters and newspaper advertisements, and preparation of script for radio advertisements
- Development of relevant person slide-set for scheduled in-person presentations
- Mapping the prioritisation of relevant persons into target groups (to plan for the tracking of effective consultation)
- Planning the consultation effort to be applied for each of the target groups.
- Consideration of specific strategies for certain groups of relevant persons.

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5.3.1 Collation of Information for Consultation Materials

Both Eni's project and stakeholder engagement teams collaborated to ensure the provision of all accurate information to relevant persons. This included:

- information around, 'What is an Environment Plan?'
- activity description, location, timing and duration
- high-level descriptions of the Operational Area, Zone of Potential Impact (ZPI) and environment that may be affected (EMBA)
- summary of potential impacts and risks associated with the activity, from both planned and unplanned events, and a summary of management controls to be implemented.
- Provision of, and referral to, the NOPSEMA Information Brochure, 'Consultation on Offshore Petroleum Environment Plans - Information for the Community'.

5.3.2 Development of Materials for Initial Consultation Information Package

A scripted email was drafted to include the following general information:

- Company name and plan for Petrel geophysical and geotechnical survey activities;
- Summary of activity description, including location, timing and duration, including distances from the Australian coastline and a map with coordinates listed;
- Notification of, and QR code for, the web landing page (petreleni.com.au); and
- Invitation to provide feedback, the management of sensitive information, and the option to 'opt out'.

An attached activity flyer / fact sheet was developed for distribution with the email. This flyer had the following information included within it:

- Further details regarding the company; proposed activities; location, timing and duration
- Information regarding the need to consult with relevant persons whose functions, interests and activities may be affected by the proposed activities with information about NOPSEMA and OPGGS (E) Regulations
- Contact details for the provision of relevant person comment and feedback
- Information about the EMBA
- Inclusion of QR code and website links
- A specific project-related email (info@petreleni.com.au) and a dedicated telephone answering service (1300 155 616) to provide a constantly monitored service

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- Summary tables of potential planned and unplanned environmental impacts/risks associated with the activity, including a high-level description of emissions, discharges and wastes and summary of key management controls to be implemented.

A web landing page (petreleni.com.au) has been previously developed for activities in the WA-6-R and NT/RL1 permits under other plans and proposals. As the activities under this Petrel Survey Environmental Plan fall within the same permits, it was logical to extend the tabs on this landing page to also allow for the Petrel Survey information. The 'Petrel Surveys' tab was made 'live' on 27 January 2026 - with the following inclusions:

- Information about Eni, its current activities in other locations and the two Petrel retention leases
- Details of the Petrel Survey activities – including timeline
- An explanation of what an environment plan is
- A map showing the location and the Operational Area, Zone of Potential Impact (ZPI) and Environment that May Be Affected (EMBA)
- links to the activity flyer / fact sheet, Risks and Mitigations Tables and to frequently asked questions (FAQs)
- An explanation box 'Should I be consulted' with a link to the definition of relevant person and further link to NOPSEMA's information brochure, 'Consultation on offshore petroleum environment plans; Information for the community'
- contact details with dedicated email and 1300 phone number
- a 'register your interest in engagement' section with user fields for completion.

Examples and copies of the above consultation materials are presented in Appendix C3 (Consultation Materials).

5.3.3 Development of Advertisements

As a component of the Petrel Survey EP consultation, efforts were initiated to develop a series of information posters, local and state newspaper advertisements and scripts for radio station advertisements.

These were made up of similar information to that outlined above for the initial scripted email, attached activity flyer / fact sheet, and web landing page. Importantly these contained the information for the specific project-related email (info@petreleni.com.au), dedicated 1300 phone answering service, and for the visual media, the inclusion of the QR code that links to the web landing page (petreleni.com.au).

Information pertaining to newspaper and radio advertisements is further elaborated on in Section 5.6 (Extended Enquiry - Broader Consultation).

Examples and copies of all advertising materials are presented in Appendix C3 (Consultation Materials).

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5.3.4 Development of Relevant Person Slide Set

To ensure the opportunity for authentic and responsive two-way dialogue for the Petrel Survey EP consultation, it is acknowledged that there may be the need to engage in person with numerous relevant persons. As a matter of protocol, and as per part 5 of Appendix C1 (Relevant Person Consultation Planning), Eni ensured the development of a deeper level information slide-set in preparation for targeted regional roadshow visits.

The slide-set for in-person presentations was developed with the intention of summarising the content of the EP for Petrel geophysical, environmental and geotechnical surveys in a format most suitable for the public and align with Regulation 25(2), and NOPSEMA's Guideline: 'Consultation in the course of preparing an environment plan'. The slides were collaboratively developed with input from Eni's project, exploration environment, and stakeholder engagement teams.

Whilst this slide set was presented to most relevant persons that Eni met face-to-face, it was adapted slightly in a few cases (language, terminology, relevance) and this was dependent on the specific relevant person that Eni was meeting with. A copy of the base slide set as well as the title slides for every in-person meeting is presented in Appendix C3 (Consultation Materials).

5.3.5 Mapping Prioritisation of Relevant Persons

As outlined in part 5.2.1 in Appendix C1 (Planning for the Tracking of Effective Consultation), Eni assessed identified all relevant persons in the Relevant Person Mapping Workshop (refer to Section 5.2.1 above) and arranged them into priority target groups based on the following criteria:

- **Priority Group 1:** Relevant persons have a potentially negative disposition towards the Project and have high relevance (high influence / dependence / networking ability). Of the total 165 RPs, 8 (5%) fell into group 1.
- **Priority Group 2:** Relevant persons have a neutral or positive disposition towards the Project and have high relevance (high influence / dependence / networking ability). Of the total 165 RPs, 23 (14%) fell into group 2.
- **Priority Group 3:** Relevant persons have a neutral or positive disposition towards the Project and have intermediate relevance (intermediate influence / dependence / networking ability). Of the total 165 RPs, 48 (29%) fell into group 3.
- **Priority Group 4:** Relevant persons have a neutral or positive disposition towards the Project and have marginal relevance (low influence / dependence / networking ability). Of the total 165 RPs, 87 (52%) fell into group 4.

5.3.6 Implementing Planned Consultation Effort for Target Groups

Assigning priority groups is not intended to diminish the importance of any relevant person. Eni is committed to optimising efforts for meaningful two-way dialogue with each and every relevant person where possible. Priority grouping ensured a comprehensive focus seeking to guarantee active engagement in order

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of priority. An initial default response period (inviting comments) of 30 business days was provided, and throughout that time, Eni continued to strategically follow-up with each relevant person that had been sent an information package.

Priority groups 1 and 2 relevant persons were the primary focus of effort to fully ensure two-way dialogue. Eni applied intensive effort to assure two-way dialogue with these relevant persons. In addition to emailing information packages, this effort included direct follow-up with multiple telephone calls, emails and in numerous cases, mobile phone texts. It also included approaching relevant persons during coordinated regional roadshow visits for the opportunity to directly engage in focused in-person consultation presentations. For these relevant persons, Eni also ensured direct internal engagement with key focal points across disciplines to provide tailored information. As a result of such intensive efforts, Eni was successful in engaging in two-way dialogue with 94% of group 1 and 2 relevant persons (7 of 8 in group 1; and 22 of 23 in group 2).

For priority group 3, Eni continued to implement considerable efforts to engage. Multiple, scheduled telephone calls and follow-up correspondence occurred to ensure receipt of information packages and to invite feedback. For certain types of relevant persons within group 3, where it was deemed that specific efforts needed to occur (for example with commercial fishing licensees) additional strategies were implemented. Primarily, due to a significant number of commercial fishers being in this group (see Section 5.5.2), Eni was only able to fully engage with 24 of the 48 relevant persons from group 3. This still equates to successful two-way dialogue with half (50%) of this group.

For priority group 4, where relevant persons have a neutral or positive disposition towards the Project and have marginal relevance, it is appreciated that these relevant persons may be indirectly impacted or have interests in potential unplanned activities. Whilst Eni made significant efforts to consult with relevant persons in this group, it was also expected that these relevant persons would make effort to reply to consultation efforts if they needed to. With group 4 relevant persons particularly (but noting its usefulness to all relevant persons), in addition to them already personally receiving the tailored information packages, Eni implemented an extended enquiry approach, with informative radio advertisements providing contact details and newspaper advertisements and posters with a QR code that linked the audience to the information package. For certain types of relevant persons within group 4, where it was deemed that specific efforts needed to occur (for example the remaining commercial fishing licensees) additional strategies were implemented. Given considerable effort to follow up with all relevant persons was still a part of the approach, and despite the majority of commercial fishers being in this group (see Section 5.5.2), Eni was successful in directly liaising with one third (31 of 87) of the relevant persons in group 4.

So, in summary, across all relevant persons and regardless of groupings, Eni was successful in engaging in two-way dialogue with over half of all 165 relevant persons (for those relevant persons that did not respond please see section 5.5).

5.4 Consultation Approaches and Activities

Eni commenced consultation on 27 January 2026 and sought feedback before the planned end date of the consultation period – set for 17 March 2026. This allowed at least 30 business days to allow relevant persons a reasonable opportunity for

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consultation to occur. As the development of the EP successfully progressed and regional in-person consultation was successful in being achieved within the allotted time, Eni closed the consultation period on 17 March 2026 as initially planned.

Following identification of relevant persons, and as outlined in part 6.1 of Appendix C1 (Consultation Approach), Eni's undertook the following consultation methodology:

1. Established a dedicated Petrel web landing page with detailed information about the activities (petreleni.com.au); a dedicated email address (info@petreleni.com.au); and a dedicated phone number (1300 155 616) for any relevant persons to either get in contact, or to self-identify as per Section 5.2.1.
2. Issued emails with information packages providing a summary of activities to all identified relevant persons, seeking feedback (should they wish to provide) by 17 March 2026.
3. 'Extended Enquiry' utilising newspaper and radio advertising alongside issuance of newsletter scripts and posters to advocacy organisations for posting at their offices and in their representative newsletters.
4. Posted (via certified mail) hard copy correspondence and information pack (with a follow-up mail out) to selected identified relevant persons who historically, have not responded or been contactable (e.g. commercial fishers). At the same time proactively reached out to associated advocacy/representative groups.
5. Emailed to relevant persons (already provided information package) ahead of time, announcement of targeted regional roadshows.
6. Further follow-up of initial emails and correspondence with emails, phone calls and texts (for known mobile contacts) to all relevant persons, with a second round of correspondence to those relevant persons who were posted hard copies.
7. Updating/reviewing/tracking of Relevant Persons Consultations Efforts Log (Appendix C4a) to ensure appropriate consultation was progressing as expected and implemented remedial interventions for relevant persons not responding.
8. Implemented targeted East Kimberley and Northern Territory roadshow visits (refer Figure 5 1), with Eni consultation personnel and technical SMEs presenting slide-sets with question-and-answer sessions to individuals, groups and associations. Follow-up emails with copies of the slide-set presentation were provided.
9. On-request online presentations by Eni consultation personnel and technical SMEs with follow-up emails and copies of the slide-set presentation provided.

5.4.1 Consultation During Environment Plan Development

On 27 January 2026, Eni commenced consultation, regarding the proposed planned activities described in this EP, with relevant persons. As described above, activity consultation material was sent to each individual, group and organisation identified in the Relevant Person Register (Appendix C2). A consultation period

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closing date of 17 March 2026 (approx. 30 business days from commencement) was indicatively set and outlined within the consultation material.

Print, digital and radio advertising for the activity commenced within a week and all was occurring by 2 February 2026. The last date for all advertising occurred on 11 March, providing a final week for prospective relevant persons to respond regarding the proposed EP.

In a robust and comprehensive effort to ensure appropriate consultation, Eni continued to follow-up with all relevant persons with multiple attempts, on at least four scheduled occasions throughout 27 January to 17 March 2026. Where no response was received utilising one method of communication, Eni engaged alternative methods (e.g., phone call, personal texts, online form submissions, in-person approaches, seeking alternative contacts).

Over the course of consultation for the EP, some relevant persons requested or may have required a different approach to engagement. In these instances, additional information was provided to allow that person to make an informed decision about whether there were any consequences or impacts to their specific functions, interests, or activities with regards to the proposed Petrel Survey activities. For the first time in an EP process for Eni, two government departments outside the Petrel region requested virtual meetings with presentations and provided key input regarding the activities.

As noted in the Relevant Persons Consultations Efforts Log (Appendix C4a), several relevant persons acknowledged receipt of the consultation material while indicating their ability to assess and respond was limited due to a lack of resources or a focus on higher priority assessments. As mentioned, around half of the total 165 relevant persons (of which 60% were the commercial fishers – see Section 5.5.2) chose not to engage with or provide feedback to Eni.

As per Section 26(8) of the OPGGS (E) Regulations, the full records of all correspondence and interactions with relevant persons are discretely provided in the sensitive information part of this Environmental Plan.

5.5 Specific Consultation Approaches for Relevant Persons

As outlined in Section 5.3.5 and Section 5.3.6, a specific priority-based approach for consultation was carefully implemented to ensure relevant persons received information and materials and were afforded the appropriate amount of opportunity to be able to provide feedback. In most circumstances, consultation interaction occurred through the process as outlined in Section 5.3.6.

Eni sent a Petrel Survey EP, consultation team to travel directly to locations in the Northern Territory and East Kimberley to hold in-person 'regional roadshow' presentations with relevant persons in these regions. All relevant persons within the locations were contacted prior via email, text and phone to pre-organise the visits and to seek an audience.

In the Northern Territory 15 of 19 relevant persons that were contacted were met and consulted and in the East Kimberley 11 of 12 relevant persons that were contacted were directly engaged with. A complete overview of Northern Territory and East Kimberley efforts to engage can be found in the Relevant Persons Consultations Efforts Log (Appendix C4a). Copies of all in-person presentations

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delivered to Northern Territory and East Kimberley relevant persons are included in Appendix C3 (Consultation Materials).

However, to ensure the greatest possible opportunities for effective two-way dialogue across all relevant persons, it was determined that targeted strategies should be employed for specific groups. These strategies are outlined below.

5.5.1 Approaches to Other Petroleum or Greenhouse Gas Titleholders

As per part 5.2.2 of Appendix C1 (Specific Consultation Approaches and Information Requirements), Eni provided via email, a factsheet to titleholders with ongoing interests within a 100km proximity radius of the EP Operational Area. Most neighbouring titleholders responded regarding the activities.

5.5.2 Approaches to the Commercial, Recreational and Amateur Fishing Industry

As mentioned in Part 5.2.2 of Appendix C1 (Specific Consultation Approaches and Information Requirements), the designated licenced areas of many of the fisheries are extensive over the Australian coast, including within the EMBA.

As demonstrated in section 4 (Description of the Environment), Eni carried out significant research to identify the various fish species and associated Commonwealth-managed, State-managed, and Territory-managed commercial fisheries that were found to intersect the EMBA and/or with the associated petroleum activities. The EP provides an assessment of the potential interaction of these fisheries, based on the nature of the fishery and historic effort and catch data. Eni utilised WA and NT fisheries data sources and maps to understand any impacts on fisheries by examining fisheries traversing the OA, ZPI and overall EMBA that could be potentially impacted by the activities. Historical catch data around Fisheries Management Areas and fishing intensity effort for the OA over the last 5 years was considered.

Given the minimal amount of fishing activity identified near the proposed activities, interception with fishers is, in the main, not anticipated. Nevertheless, given the historical observations that fishing licensees have not responded or have not been contactable, and as a matter of consistent protocol for previous EP consultations, Eni mailed (via certified mail) hard copy correspondence and information pack (with follow-up mail outs) to commercial fishing licensees – including Aboriginal Coastal Licence Holders.

In a previous EP consultation process, Eni was fortunate to gain an in-person meeting with a commercial fisher who gave an on-the-ground perspective as to why license holders may not respond to titleholders:

- License holders are often 'at sea' for extended periods of time;
- License holders experience significant consultation fatigue - receiving up to seven emails and mail-outs per quarter from an array of titleholders with many being irrelevant to them;
- Email is not a preferred method of contact for many, who are offshore without wifi, and when they return to shore there are so many emails that they are generally disregarded;

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- Nevertheless, hard copies were considered useful and are often placed with other correspondence to be taken offshore to be read at sea. However, feedback, if necessary, could not be provided until returning;
- Print, digital and radio advertising to reach individual licensees are considered appreciated modes of providing information about the activities.

Despite attempts for past EPs reflecting minimal direct interaction with relevant persons from commercial fishers, Eni received feedback from six (6) licensees this time around.

To ensure the widest reach for optimal interaction with all associated across the fishing industry, Eni has also determined as a general principle, that both the government and peak bodies representing the commercial, amateur and recreational fishers are considered the established representatives and essential to consult. These include:

- Department of Agriculture and Fisheries (NT)
- Department of Primary Industries and Regional Development – Fisheries (WA)
- Northern Territory Seafood Council (NTSC)
- Western Australia Fishing Industry Council (WAFIC)
- Northern Territory Guided Fishing Industry Association (NTGFIA)
- The Amateur Fishermen's Association of the Northern Territory (AFANT)
- Tuna Australia
- Recfishwest

Eni directly engaged face-to-face with four of the abovementioned relevant persons and ensured two-way dialogue via email and phone with the remaining four. Where Eni had the opportunity, the support of peak bodies was utilised to share information via their regular newsletter to their members or by their executive staff sharing information with members at their discretion.

Contributing to its approach in Section 5.7, the assessment of the potential interaction of fisheries in the Joseph Bonaparte Gulf, based on their nature and historic effort and catch data, allowed Eni to determine the potential for entering into consultation agreements. As such, Eni commenced discussions with one new peak body in the above list. These discussions are ongoing whilst the relevant person considers their availability to engage regarding such.

A final target group highlighted by NT Fisheries were the Aboriginal Coastal Licence holders. A review of the location of those fishers' activity determined they were located well away from the EMBA. Regardless, Eni's intention was to hold a meeting with individuals in person when visiting Wadeye where they all were based. Two of the five identified Aboriginal Coastal Licence holders were in Wadeye at the time Eni visited and direct consultation occurred with these two relevant persons.

In summary, as evidenced in Appendix C4a (Relevant Persons Consultations Efforts Log), Eni's efforts to authentically and genuinely consult across the fishing

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industry was more successful than for any of its previous EPs. All industry peak bodies were consulted; a greater number of individual license holders were more responsive; and direct face-to-face consultation with relevant persons in this group was at its highest.

5.5.3 Approaches to First Nations Relevant Persons

As described in Appendix C1 (EP Consultation Methodology Bridging Document), for the Petrel Survey consultation, Eni continued to make concerted efforts to target coastal land councils. Relationships with one such land council has been increasingly successful, and Eni continues to meet in person, gather new information and increase knowledge about the associated First Nations groups. In initial EP consultations, Eni was advised by this land council to proceed with Traditional Owner consultation without its involvement. Notwithstanding the importance of that advice, Eni now also consults with this land council as a relevant person in its own right, to provide EP information. Eni continued to offer availability the second key coastal land council, and whilst this land council accepted an in-person meeting for Eni to provide information, they were firm in stating that the meeting does not in any way, constitute consultation. Due to the EMBA's distance from one coastal land council, and considering this land council's approach, Eni chose not to meet in person for this EP.

Prescribed Bodies Corporate (PBCs), and Aboriginal Community-Controlled Organisations (ACCOs) that have potential to overlap Petrel's overall spatial extent (i.e. the OA, ZPI and/or EMBA), were also key relevant persons that Eni strategically planned to meet in person where possible. Once initial email information packs had been issued directly to CEOs and/or Chairpersons, Eni commenced active engagement through direct contact, offering to hold in-person presentations as a part of its regional roadshows to continue relationship building and to provide opportunities to understand the activities associated with the Petrel Survey.

Subject matter experts provided guidance on culturally appropriate consultation approaches for First Nations people to account for culturally appropriate engagement, and to ensure local traditions, customs and protocols were considered prior to scheduling engagements.

As a result of the above approaches, the following land councils, PBCs and ACCOs were consulted face-to-face or via direct telephone two-way dialogue as Eni ventured on its Petrel Survey consultation roadshows:

- **Thamarrurr Region (NT):** Wadeye Aboriginal Coastal Fishing Licensees; NLC Council Members in Wadeye; Thamarrurr Development Corporation; and Thamarrurr Rangers.
- **Darwin Region (NT):** Kenbi (Cox Peninsula) land claimants; Larrakia Development Corporation; NIAA Darwin; and Northern Land Council.
- **East Kimberley Region (WA):** Balanggarra Aboriginal Corporation; Balanggarra and Quini Ranger representatives; MG Corp; NIAA Kununurra; and Wunan Foundation

At the time of the East Kimberley Roadshow visit outlined below, Eni was unable to secure an opportunity to meet directly with people in Kalumburu. As for past EP consultations, despite persistent, repeated attempts to consult, contact with

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Wunambal Gaambera Aboriginal Corporation has been limited. Eni was able to successfully meet with representatives for the Balanggarra Quini people (who mostly live in Kalumburu) in Wyndham and Kununurra.

Highly motivated to ensure authentic two-way dialogue with First Nations people within the consultation period, the concept of providing (virtual) presentations to groups utilising Microsoft TEAMS was considered. However, this and/or other online approaches, is generally understood to be not an appropriate medium of delivery to First Nations relevant persons.

5.5.4 Other Thamarrurr Region Consultation (NT)

With Wadeye in close proximity to, and already linked with, Eni's other activities, the company already has a close relationship with the community of Wadeye. Eni has more regular community interaction, liaises with Wadeye-based state and local government departments and utilises local supplier contracts where available – especially with the Thamarrurr Rangers. Eni initiated its Wadeye Regional Roadshow from 27 to 30 January 2026.

Eni has been successful in liaising directly with, and providing local context about Eni's activity to, the local government, West Daly Regional Council in Wadeye. Additionally, Eni presented to the Territory government's West Daly Regional Director for the Department of the Chief Minister and Cabinet. Eni attempted to locate the Commonwealth government's NIAA representative for Wadeye but was later informed (by NIAA Darwin) that the position is based in Darwin at present.

There were some relevant persons that were not actually in the community in the week that Eni visited to commence its regional roadshow presentations. The two key elders from the key Traditional Owner clans associated with Eni (Yek Maninh and Yek Diminin) were both out of the community and in Darwin. However, throughout the process of trying to meet face-to-face, Eni's consultation team continued to liaise with Thamarrurr relevant persons seeking feedback on the Petrel Survey information package that was sent on 27 January.

5.5.5 Other Broader NT Consultation

Eni initiated its NT-Darwin Regional Roadshow from 2 to 6 February 2026 and, in addition to presenting to key traditional custodian representative groups, was able to secure an opportunity to meet, present to, and conclude consultation efforts with locally based State government departments, and other NT interest and representative groups whose functions, interests or activities may be affected by the activities to be carried out under the Petrel Survey Environment Plan.

Darwin-based face-to-face meetings were successfully held with the numerous fishing industry groups including the NT Department of Agriculture and Fisheries; NTSC; AFANT; and the NTGFIA. This is the first time Eni has been able to meet N.T. Guided Fishing Industry Association (often due to resource/schedule constraints) and the consultation team gained valuable insight into this industry which showed clear interest on associated vessel activity in Darwin Harbour as opposed to the spatial extent of the actual petroleum activities.

Other interested parties consulted with face-to-face presentations were the Department of the Chief Minister and Cabinet; and interest group Environment Centre NT, who provided detailed feedback for consideration into the EP.

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5.5.6 Other East Kimberley Region Consultation (WA)

With the East Kimberley being in proximity to Petrel's general zone including the communities of Kununurra, Wyndham and Kalumburu, Eni initiated an East Kimberley Regional Roadshow from 16 to 20 February 2026. In addition to those First Nations groups outlined in section 5.5.3, East Kimberley regional consultation included all Kimberley stakeholders that were identified as relevant persons for this Petrel Survey Environment Plan. This included locally based commonwealth, state and local government departments, and all other East Kimberley individuals or groups whose functions, interests or activities may be affected by the activities to be carried out under this EP.

As well as First Nations groups, East Kimberley Roadshow face-to-face meetings were also successfully held with representatives from Shire of Wyndham, East Kimberley; East Kimberley CCI; DBCA Kununurra; CGL (Cambridge Gulf Ltd) Wyndham Port and Kimberley Development Commission. For each of these meetings, Eni presented the prepared slides and then followed up with tailored emails to each relevant person.

For the first time across any of its EP consultations, a combined meeting was requested with Department Biodiversity, Conservation and Attractions: Parks and Wildlife, and representatives from the Balangarra and Quini Rangers. On behalf of the North Kimberley Marine Park, attendees to this meeting had an interest in understanding whether Eni could consider joint support for ranger groups along the coast in preparing for an oil spill response along the coast. This was discussed as a part of the face-to-face consultation meeting.

5.6 Relevant Persons seeking Further Information

Should relevant persons wish to understand information associated with the activities of the Petrel Survey EP in greater detail, Eni always aims to offer to further consult utilising alternative options. These include but are not limited to further discussing how the relevant person can participate; arranging additional face-to-face meetings; providing materials in alternative formats; allowing additional time to consider information; having technical staff facilitating presentations, explanations and clarifications; and offering further assistance to support understanding of the information.

5.6.1 Relevant Persons Seeking Virtual Meetings

During this Petrel Survey EP consultation, two relevant persons sought an online, virtual Microsoft TEAMS meeting where Eni was able to share the presentation it provided during its consultation roadshows. One relevant person was unavailable at the time Eni was in the region, and the second was based in Canberra, some 4000 kms away from the overall spatial extent of the petroleum activities.

Not only did this strategy support Eni's robust approach to optimise (appropriate) avenues to ensure two-way dialogue with as many relevant persons as possible, but indeed confirmed the absolute success of doing so, as the relevant matters that were received from one of these relevant persons was pertinent to consideration for this Environmental Plan.

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5.6.2 Relevant Persons Requesting Specific Information

During the Consultation phase, there were two relevant persons that requested alternative modes of information, and this was assessed by Eni to be inconsistent with its consultation approach. One relevant person (RP1) responded that with regards to the information package provided, the activities were not described in enough detail to enable an accurate response. They then proposed the information to be provided in a specific checklist format. Upon reviewing this checklist, it was clear Eni had indeed provided all required information and/or had confirmed assurances of what would be included into the EP. A second relevant person (RP2), who has no regulatory capacity, acknowledged the information provided, but claimed that in order to be satisfied they were consulted, they required copies of numerous detailed plans for full review prior to those plans' submission to any Regulator.

Eni determined that the EP consultation process would be inefficient should different relevant persons consider they can request information in specific formats or can request detailed plans for 'assessment before submission'. Agreeing to such requests sets an impractical precedent for other relevant persons to make similar requests.

As a matter of consistent process, Eni provides all relevant persons with the same information package, and also offers presentations where further explanation is required, including the detailed information on the petreleni.com.au landing page. Eni also proactively offers the alternative options outlined above (Section 5.6).

Eni responded to RP1 confirming all information was included in the flyer already sent. The relevant person replied, again reiterating their checklist contains the necessary information required. Eni reasserted all information had been already provided in an information package that is consistently developed for the benefit of every relevant person and invited RP1 to detail specifically what it is that was missing. To this, the relevant person responded with general recommendations, and closed out their involvement.

Eni responded to RP2, providing clarification about its consultation process, reiterating that for transparency and consistency, all relevant persons are provided with the same information package, and that Eni does not provide, as a component of the consultation phase, copies of any detailed plans to relevant persons under this process. RP2 responded again stating that without receipt of the plans, they did not consider themselves to be appropriately consulted. Eni then met in person with RP2 to explain how a standard documentation package was prepared for all Relevant Persons to seek input. Eni was firm in stating that feedback and clarifications were welcome with regards to the materials in the information package, and the information on the website. RP2 responded acknowledging receipt of the package and confirmed that no more information was required.

In summary, as a matter of principle, and noting sufficient information has been provided in accordance with Section 25(2) of the OPGGS(E) Regulations, to enable relevant persons to make an informed assessment of the potential impacts on their functions, interests or activities, Eni does not accommodate stakeholder-specific formatting or individualised documentation requests that fall outside its established consultation approach. This does not preclude providing information in appropriate, accessible formats to support legitimate accessibility needs and

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enable audience understanding as outlined in part 5.1 Appendix C1 (Provision of Information to Relevant Persons).

5.7 Extended Enquiry – Broader Consultation

It is acknowledged that there may well be other persons, organisations, departments or agencies who may consider themselves, a relevant person and wish to be included in the consultation process. The intention of the extended enquiry approach was for Eni to reach out as widely to relevant persons as possible, and to seek out those who may wish to self-identify as relevant persons and potentially log an objection of claim.

- As an additional proactive step, Eni undertook the following:
- Local/regional newspaper advertisement campaigns;
- Local/regional radio advertisement campaigns;
- Forwarding a 'Petrel Survey EP' poster to East Kimberley Chamber of Commerce (EKCCI) for inclusion into their newsletter;
- Newsletter distribution via the NT Seafood Council (NTSC) Weekly Wrap Newsletter.

The objective of this approach was to help identify any other relevant persons that may not have already been identified. Whilst providing an opportunity to identify new relevant persons, the extended enquiry activities also provided another means of broadcasting information to existing relevant persons. Eni has received positive feedback when meeting with existing relevant persons in person, that they appreciated this far-reaching broadcasting approach.

Table 5-1 provides details on the broader enquiry efforts in newspapers and radio where the consultation information was broadcasted.

Table 5-1: Extended Enquiry Efforts

Method	Broadcast Medium	Dates
Print & Digital	The NT News (daily edition)	February 2026: 3, 6, 10, 13, 16, 18, 21, 23 March 2026: 3, 11
	The West Australian (daily edition)	February 2026: 2, 4, 7, 9, 11, 17, 24, 27 March 2026: 4, 6, 10
	Kimberly Echo (weekly edition)	February 2026: 5, 12, 19, 26 March 2026: 5
	NTSC Weekly Wrap Newsletter	January 2026: 30
	EKCCI public space posters	Emailed 18 February 2026
Radio	Darwin's Mix 104.9	1 min in length February 2026: 4, 11, 18, 26 March 2026: 5, 11
	First Nations FM 94.5	1 min in length February 2026: 2, 6, 9, 13, 16, 20, 23, 27 March 2026: 3, 9
	First Nations AR 913 National	1 min in length February 2026: 2, 6, 9, 13, 16, 20, 23, 27

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		March 2026: 3, 9
	Palmerston FM 88	1 min in length February 2026: 3, 10, 17, 24 March 2026: 4, 10

Whilst Eni has undertaken a range of approaches to capture a broad audience and recognises the benefits of this, Eni has also made considerable in-person efforts during the consultation roadshow process, which arguably outweigh efforts made through advertisement campaigns.

At the conclusion of the consultation phase on 17 March and notwithstanding the potential for future self-identified relevant persons to self-identify post submission of this EP, no new or existing relevant person notifications were received as a result of the extended enquiry efforts.

5.8 Requests for Fees and Service Agreements

There have been several occasions throughout this, and previous EP consultations, where relevant persons have responded with a request for fees via a financial consultation agreement. Eni does not consider that on all occasions and in all instances, that a financial consultation agreement is necessary to allow consultation to occur. This is also clarified in the 'Consultation on offshore petroleum environment plans - Information for the community' brochure that relevant persons receive as a part of the EP consultation information package.

The level of consultation for any EP needs to be proportionate to the differing complexities of activities outlined in that EP. It is not considered (in terms of fee structures) that a 'one size fits all' model is appropriate. Most importantly, providing financial payment to 'facilitate' stakeholders to enter into consultation, is an issue that conflicts with Eni's company values.

Eni maintains its clear commitment towards genuine consultation, which includes:

- Relevant persons being issued with a Consultation Information Pack with links to further comprehensive information on its web landing page (petreleni.com.au);
- Offering availability to discuss alternative consultation options such as providing information in a different format; providing more time to consider information; and/or providing help to understand the information.
- Following consideration and determination to decline a request for fees from a relevant person, offering to engage on alternative options as outlined in Section 5.6.

Notwithstanding the above, Eni has also undertaken explicit research to understand the impacts of the activities described in the EP on each relevant person that has requested fees via a financial consultation agreement. As examples, all historical catch data was utilised to assess fisheries that were impacted by the activities; and areas were considered against specific Traditional Owner groups' sea country. These determinations, alongside other factors, aided in the consideration to enter into any consultation agreements. Eni was able to transparently and confidently communicate to some representative bodies, reasons why an agreement was not warranted. Alternatively, Eni was also able to

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commence negotiations with other organisations to initiate entering into an appropriate consultation agreement.

For previous EPs, where organisations still explicitly objected to Eni not adhering to their mandatory fee structures, Eni consistently communicated that a comprehensive Consultation Information Pack had already been provided, which was sufficient to enable an informed assessment. This position was not required for the present Petrel Survey EP.

5.9 Consultation Outcomes

In accordance with Section 24(b) of the OPGGS(E) Regulations, reporting on all consultations (and consultations efforts) from the Petrel Survey EP consultation campaign are presented as Appendix C4. Appendix C4 has been deconstructed into Appendix C4a and Appendix C4b to clearly reflect the Relevant Persons Consultations Efforts Log (Appendix C4a) and the Relevant Persons Consultations Feedback Assessment (Appendix C4b), which also outlines Eni's statements of responses to relevant matters, objections and/or claims.

As outlined in part 7.3 of Appendix C1 (Assessment of Merit - Objections or Claims and Relevant Matters), and in alignment with OPGGS(E) Regulation 24, application, interpretation and timely responsiveness with regards to all feedback received from relevant persons was undertaken at all times. For relevant persons who provided feedback, and following assessment of the merits of their objection or claim, Eni provided a response to the relevant person advising them of the assessment and invited them to further respond. This is reflected in the Relevant Persons Consultations Feedback Assessment (Appendix C4b). For statements issued by Eni of both acceptance and rejection of objections and/or claims, there were numerous relevant persons that chose not to further respond.

Despite Eni's best efforts, there was a percentage of relevant persons that chose not to reply to Eni at all, and as described in part 6.4 of Appendix C1 (Follow-Up with No Response), where no response or acknowledgement of receipt of consultation materials was received by Eni, the actions undertaken were:

- continued follow-up emails to non-responders post issue of initial consultation materials;
- alternative methods of contact where appropriate and available (e.g., phone call, personal texts, in-person approaches, alternative contacts).

Following multiple attempts to robustly consult for 30 business days, including sending targeted information packages via email and certified mail; extensive print, radio and newspaper advertising; reaching out in regional roadshows; engaging alternative methods of contact; and at least four scheduled attempted interactions, where still no response or feedback was received, Eni determined that this consultation approach had allowed reasonable time and opportunity for relevant persons to have provided feedback.

There were minor instances where Eni attempted to identify relevant persons but was unable to confirm individual contact details (contact details of individual commercial fishers and some associations were an example of this). Eni undertook the following best endeavours to ensure contact with relevant persons:

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- Contacting government departments who may have had contact details of individual relevant persons;
- Contacting associated organisations and/or advocacy groups who may have had contact details of individual relevant persons;
- Leveraging off other relevant persons who had contact details of certain individual relevant persons;
- Comprehensive desktop research to exhaust all public domains of information of potential contact details.

To conclude, Eni considers that the 30-business-day duration with robust follow-up of relevant persons between 27 January 2026 and 17 March 2026, is considered a reasonable time for relevant persons to have had the opportunity to make an informed assessment of the possible consequences of the petroleum activities on their functions, interests or activities, and to provide a response. Under these circumstances, Eni deems consultation in the course of the preparation of the EP has been completed in accordance with OPGGS[E] regulations.

Although consultation for the purposes of compliance with the OPGGS(E) Section 25 has been completed, Eni continues to maintain ongoing communication with all stakeholders. This includes all those within the 'Bonaparte Gulf general zone' (encompassing Darwin, Tiwi Islands, Wadeye, Kununurra, Wyndham and Kalumburu) as well as those organisations who have been identified as being potentially impacted by Eni's Bonaparte activities. This continues to enable opportunity for feedback during and post acceptance of this EP in accordance with part 9 of Appendix C1 (EP Implementation Engagement).

5.10 Ongoing Consultation

Relevant and interested person consultation for the Petrel Survey activities will be ongoing, post-acceptance of this EP in accordance with Section 22(15) of the OPGGS(E) Regulations. Eni will continue to work with relevant and interested persons and organisations to develop and maintain a current and comprehensive view of relevant persons' and organisations' functions, interests and activities, and provide opportunity for enquiries, objections or claims in the lead up to and during the conduct of the planned activities.

As outlined in part 4.1 of Appendix C1 (Relevant Person Identification), should any new relevant persons and/or organisations be identified, they will be added to the relevant person database and included in all future consultation as required, including specific activity notifications.

As outlined in part 2.3 and part 9 of Appendix C1, outside of regulatory compliance and hence outside of this specific EP consultation process, Eni's 'best practice' strategy has always been to develop and maintain long-term relationships with stakeholders (which includes relevant persons) in and around its operations, both onshore and offshore. Eni's position is that it is good corporate social responsibility to engage with stakeholders within or near our footprint; we look to build partnerships and potential long-term value proposition opportunities; and by continuing to talk to stakeholders, we gain better knowledge of the context, needs and interests of these stakeholders.

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So, well before, and independent to this specific EP consultation period, Eni has already conducted, and continues to conduct, 'meet and greet' sessions across the Kimberley and Northern Territory regions. Whilst these assist in building and maintaining of relationships with prospective relevant persons, they are not considered part of any EP consultation process.

Eni's intention is to consistently visit Northern Territory (including Tiwi Islands) and Kimberley communities. The purpose of this is to engage in an ongoing way, with interested and relevant persons and organisations. Where the opportunity arises, Eni will seek to consistently engage with the various groups to:

- Continue to provide quarterly updates about the progress of the activities;
- Respond in person to clarifications raised in collaboratively coordinated meetings across the two regions;
- Respond in person to informal clarifications; and
- Invite and respond to feedback from relevant persons and where necessary adjust the EP through the Management of Change processes.

In accordance with Section 22(15) of the OPGGS (E) Regulations, Eni will continue to accept feedback from all relevant and interested persons and organisations during the assessment of this EP and throughout the duration of the accepted EP. Where any new information is received, that is assessed as a new relevant matter or objection/claim with merit, the EP will be updated in accordance with the Management of Change (MoC) process described in Section 10.12 ensuring risks remain managed to ALARP and acceptable levels.

Additional consultation with relevant persons will occur in the event there is a significant change to the proposed activities.

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6 ENVIRONMENTAL RISK ASSESSMENT METHODOLOGY

6.1 Risk Assessment

In accordance with Section 21(5) of the OPGGS (E) Regulations 2023, the EP must contain:

- (a) details of the environmental impacts and risks for the activity,
- (b) an evaluation of all the impacts and risks, appropriate to the nature and scale of each impact or risk, and
- (c) details of the control measures that will be used to reduce the impacts and risks of the activity to as low as reasonably practicable and an acceptable level.

To meet this requirement, Eni has implemented its HSE Risk Management and Reporting (PRO-HSE-001-EAL). The purpose of the procedure is to ensure the HSE, asset and reputational hazards are identified, risk-assessed and managed in a systematic and consistent way. In this way, risks associated with projects and operational changes are effectively managed and addressed in compliance with company and legislative requirements.

The procedure is based on Eni's philosophy that to manage environmental risks is to eliminate or mitigate the risk during the planning phase. Managing risks through design is contingent upon identifying, at an early stage in the project, the sources and pathways by which environmental impacts can occur, and the sensitivities of the receiving environment in which the project is situated. Where risks and impacts are unable to be eliminated at the project planning phase, the HSE Risk Management and Reporting provides a robust framework that must be applied to understand the residual risk and impact from the key project activities covered in this EP.

The procedure is consistent with the Australian Standard for Risk Management: ISO 31000:2018 Risk Management – Principles and Guidelines and ISO 14001:2015 Environmental Management Systems. A general outline of the formal risk management process is provided in Figure 6-1.

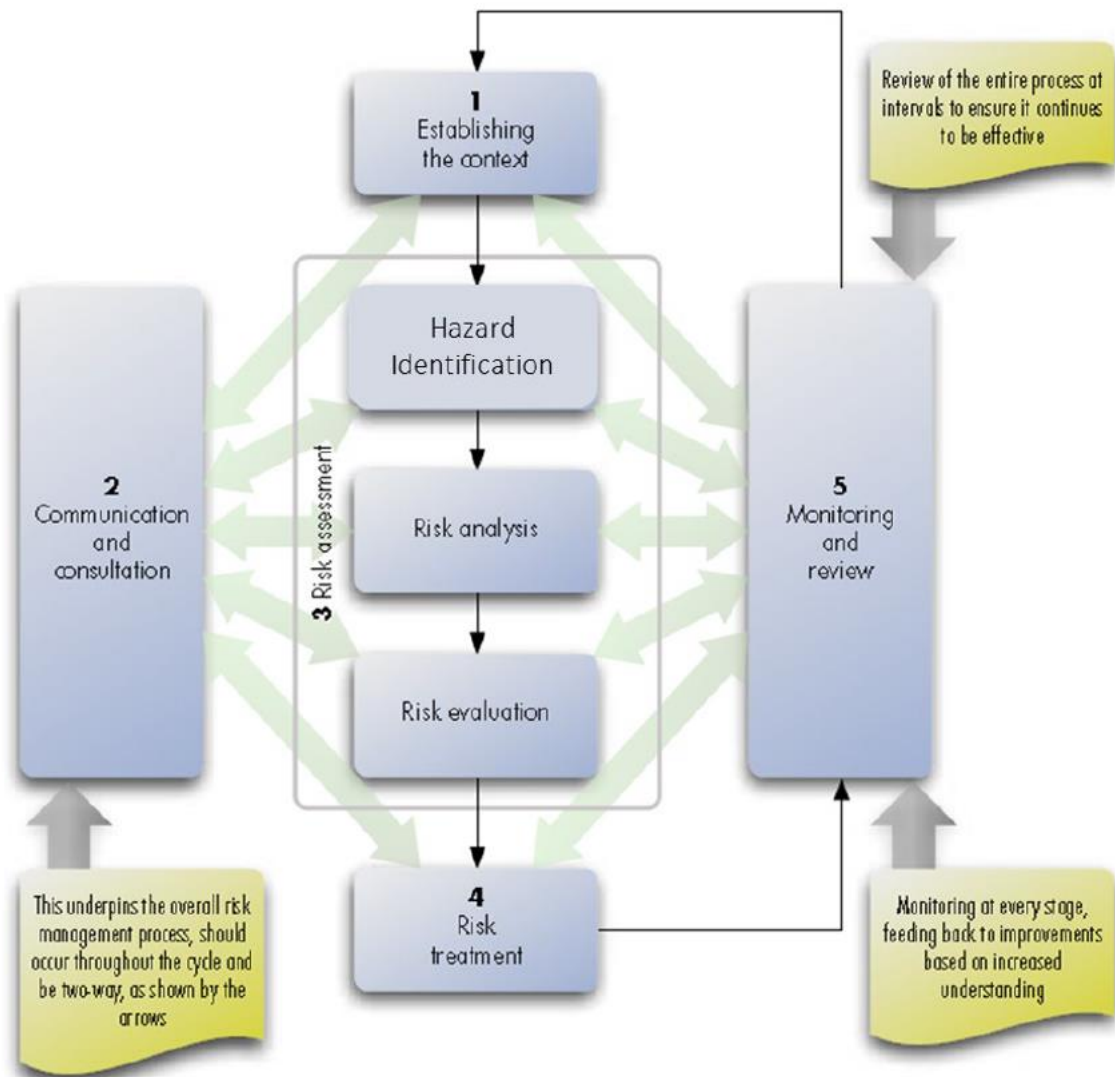


Figure 6-1: Overview of the risk management process

Before commencing a systematic risk assessment process, it is essential to ensure the context of the risk assessment (why, when, who, what, where) is fully understood. This is achieved by identifying the:

- Project activities and tasks, the sources of impact and risk, and the associated environmental aspects; and
- Environmental values and sensitivities within and adjacent to the Zone of Potential Impact, Operational Area and the EMBA.

Using that information, the process continues by:

- Defining the potential environmental effects (impacts and risks) of aspects identified in Step 1 on the values identified in Step 2;
- Identifying the potential environmental consequences and severity of the impact (Figure 6-2);

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- Identifying the likelihood of occurrence of the consequence, according to a six-level scale (Table 6-1);
- Evaluating overall environmental risk levels using the Eni environmental risk matrix (Figure 6-3); and

Identifying mitigation measures, assigning management actions and further recommended risk reduction measures according to the hierarchy of controls (Table 6-2), with consideration of the risk management actions (Table 6-3), to reduce the risk to an acceptable level.

Inherent risk levels assume inherent controls are in place. Residual risk levels are based on the inherent controls and the application of additional risk reduction measures.

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Magnitude	Environment Risk	Description
1	Negligible/ reversible effects	- Temporary localized impact to areas, sections of the plant or in a limited non sensitive external areas without consequences - Temporary minor effects within normal range of variation of habitat and species - Limited unease for professionals/population (smells/ noises/ light pollution/visual impact) - Impact on Flaring < 1% - Impact on GHG emission intensity < 1%
2	Limited scale effects	- Impact involving several areas/sections of the site/plant or a limited non sensitive external areas with temporary consequences - Short-term small effects on nearby habitat and on few not threatened species - Minor spill without lasting consequences - Unease for professionals/population (smells/ noises/ light pollution/ visual impact leading to reports of unease from single subjects coming from inside/outside) 1% < Impact on Flaring < 5% 1% < impact on GHG emission intensity < 5%
3	Local scale effects	- Impact involving the site/plant and moderate non sensitive areas around the plant or limited sensitive external area - Relevant effects on multiple habitat functioning and species abundance, without compromising long-term viability - Spill without lasting consequences - Unease for professionals/population (smells/ noises/ light pollution/ visual impact leading to periodic reports coming from inside/outside/Authorities) 5% < Impact on Flaring < 10% 5% < impact on GHG emission intensity < 10%
4	High scale effects	- Impact involving the site/plant and wide non sensitive areas around the plant or moderate sensitive external area - Effects compromising long-term viability of habitat and species, or impacts on national protected areas, natural habitat or threatened species - Spill with potentially lasting consequences - Unease for professionals/population (smells/ noises/ light pollution/ visual impact leading to periodic and lasting in time reports coming from inside/outside/Authorities) 10% < Impact on Flaring < 20% 10% < impact on GHG emission intensity < 20%
5	Extended effects	- Impact involving the site/plant and a wide sensitive external area - Permanent impacts on natural or critical habitat, on international protected areas, or causing significant decline in species abundance - Huge spill with lasting consequences - Global unease for the territory - Impact on Flaring > 20% - Impact on GHG emission intensity > 20%

Figure 6-2: Environmental consequence descriptors

Note – from opi hse 008 eni spa 'Analysis of Environmental Aspects and Impacts/Risk/Opportunities for the Environment and the Organization'.

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Descriptor	Description	
	(1) Negligible/ reversible effects	No stakeholder impact OR temporary impact on the area. Involved area less than 0.1 sq mile. Spill less than 1m ³ – no sensitive impact on ground. Small discharges with confined and temporary impact on the area. No noticeable impact on water/air/soil and biodiversity. Negligible impact due to GHG emissions. Good materials/energy/water selection and use. Negligible financial consequences.
	(2) Limited scale effects	Some local stakeholder concern or less than one week for clean-up OR one year for natural recovery OR impact on a small number of uncompromised species. Involved area less than 1 sq mile. Spill less than 10m ³ – impact on localised ground. Sufficiently large discharges to impact the environment, but no long lasting effect. Short term, localised impact on water/air/soil and biodiversity (on a limited number of non-threatened species). Slight impact due to GHG emissions. Adequate materials/energy/water selection and use. Single breach of statutory or prescribed limit, or single complaint.
	(3) Local scale effects	Regional stakeholder concern OR one to two years for natural recovery OR one week for clean-up OR threatening to some species or impact on protected natural areas. Involved area less than 10 sq miles. Spill less than 100m ³ . Limited discharges affecting the neighbourhood and damaging the environment with longer effects. Short term, more widespread impact on water/air/soil and biodiversity (on a higher number of non threatened species). Limited impact due to GHG emissions. Inadequate materials/energy/water selection and use. Repeated breaches of statutory or prescribed limit, or many complaints.
	(4) High scale effects	National stakeholder concern OR impact on licences OR 2 to 5 years for natural recovery OR up to 5 months for clean-up OR threatening to biodiversity or impact on interesting areas for science. Involved area less than 100 sq miles. Spill less than 1000m ³ . Large discharges with severe and long-lasting environmental damage. Medium-term, widespread impact on water/air/soil and biodiversity (on some threatened species and/or one ecosystem function). Extensive measures (financially significant) required to restore the impacted area. Significant impact due to GHG emissions. Poor materials/energy/water selection and use. Extended breaches of statutory or prescribed limits, or widespread nuisance.
	(5) Extended effects	International stakeholder concern OR impact on licences/acquisitions OR greater than 5 years for natural recovery OR greater than 5 months for clean-up OR reduction of biodiversity OR impact on special conservation areas. Involved area greater than 100 sq miles. Spill greater than 1000m ³ . Large discharges with severe and persistent environmental damage. Long-term, large-scale impact on water/air/soil and biodiversity (likely permanent species loss and impact on ecosystem function). Very poor materials/energy/water selection and use. Extensive impact due to GHG emissions. Major financial consequences for the Company. Ongoing breaches well above statutory or prescribed limits.

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Table 6-1: Likelihood scale

ID	Likelihood	Frequency (occurrence per year)
A	Very Rare	Could happen in relevant industry
B	Rare	Reported for relevant industry
C	Unlikely	Has occurred at least once in the organization in the last 3 years
D	Probable	Has occurred several times/y in the organization in the last 3 years
F	Very Probable	Happens one or more times/y in the organization
E	Frequent	Happens several times/y in one work site

Table 6-2: Hierarchy of controls

Control Category	Description
Elimination	Measures to eliminate the hazards
Prevention	Measures to prevent realization of the hazards
Mitigation	Measures to mitigate the effects of scenarios derived from the hazard
Minimization	Measures to minimise: exposure of personnel to hazards, impact to environment, impact to asset
Collective safety measures	Collective safety measures rather than individual measures
Muster and evacuation	Measure to improve safe mustering and evacuation

Note – from opi hse 041 eni spa 'ALARP Demonstration Methodology'

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Table 6-3: Risk management actions

Risk Rating	Significance	Risk Management Actions
Low (green)	Continuous improvement	The level of risk that requires continuous monitoring to prevent deterioration.
Medium (yellow)	Risk reduction measures	The level of risk that requires generic control measures provided that is demonstrated that the implementation of such measures is not disproportionate to the benefits (ALARP).
Medium High (orange)	Risk reduction measures	The level of risk shall be mandatorily reduced applying suitable corrective measures, provided that is demonstrated that the implementation of such measures is not disproportionate to the benefits (ALARP).
High (red)	Intolerable risk	The level of risk is not acceptable and risk control measures are required to move the risk figure to the previous areas.

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					Probability/Frequency					
RISK					A	B	C	D	E	F
Severity	People	Environment	Assets	Organization	Very Rare Occurrence	Rare Occurrence	Unlikely Occurrence	Probable Occurance	Very Probable Occurance	Frequent Occurrence
					Could Happen in relevant industry	Reported for relevant industry	Has occurred at least once in the organisation in the last 3 years	Has occurred several times/y in the organisation in the last 3 years	Happens one or more times/y in the organisation	Happens several times/y in one work site
1	Slight injury (with no LWDC)	Negligible/ Reversible effect	Slight damage	Slight impact	Continuous improvement					
2	Minor injury (LWDC<30d)	Limited scale effects	Limited damage	Limited impact						
3	Major injury (LWDC≥30d)	Local scale effects	Local damage	Local impact					Risk reduction measures	
4	PPD or PTD or 1 fatality	High scale effects	Major damage	National impact						
5	Multiple fatalities or PTDs or 1 fatality in public	Extended effects	Extensive damage	International impact				Intolerable risk		

Figure 6-3: Eni environmental risk matrix

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6.1.1 Environmental Risk

An environmental risk identification and assessment workshop for the petroleum activities was undertaken in February 2026. The workshop was attended by a representative cross-section of the Survey EP workforce, including Eni technical and HSE personnel.

All the credible risks from the petroleum activities were assessed and Environmental Performance Objectives (EPOs), Environmental Performance Standards (EPSs) and Measurement Criteria (MC) to reduce impacts and risks to ALARP and acceptable levels were developed, as detailed in Sections 7 and 8; and summarised in Section 9.

6.2 Cumulative Impacts

As part of the environmental risk assessment, Eni has assessed the potential for cumulative impacts arising from the Petrel survey activities in relation to other relevant activities that could realistically overlap both temporally and spatially. Other activities that directly overlap the Operational Area are described in Section 4.6. Review of these activities identified the Santos Eos 3D Seismic Survey (Eos 3DSS), as well as Eni's Petrel-3 and Petrel-4 Monitoring and Decommissioning activities and Blacktip Operations, as occurring within or directly adjacent to the Operational Area. Where relevant, this EP considers the potential for cumulative impacts between the Petrel survey activities and nearby oil and gas activities.

Cumulative impacts from the Petrel survey activities are only considered credible in the event of simultaneous operations with the Eos 3DSS. In contrast, no potential cumulative impacts are expected from the Petrel-3 and Petrel-4 Monitoring and Decommissioning activities or from the Blacktip Project Operations activities. This is because these Eni activities involve either low-intensity, intermittent inspection and maintenance tasks with negligible acoustic output, or routine production operations that occur at fixed infrastructure well outside the acoustic footprint and spatial extent of the Petrel survey activities. Additionally, these activities do not introduce overlapping noise sources, vessel presence, or seabed disturbances that would interact with the Petrel survey activities in a manner that could elevate environmental risks. Accordingly, cumulative impacts are discussed only for those sources of risk where overlap is deemed possible—namely, underwater noise emissions associated with potential concurrent operations of the Petrel survey and the Eos 3DSS.

6.3 Risk Reduction

Impacts or risks identified as requiring additional controls (the application of mitigation and management measures beyond what is standard practice for offshore petroleum activities) are subject to further review to identify the controls that are required to be provided or modified in order to reduce the residual risk.

Risk assessment is an iterative process of:

- Identifying a risk;
- Assessing a risk;
- Deciding whether residual risk is tolerable;

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- If not tolerable, generating a new risk or mitigation measures; and
- Assessing the effectiveness of the mitigation measures.

The acceptability of a risk, after controls and mitigation measures have been applied, is determined in accordance with ratings and associated management actions outlined in Table 6-3.

6.4 As Low as Reasonably Practicable and Acceptance Criteria

6.4.1 As Low as Reasonably Practicable Criteria

The ALARP principle recognises no industrial activity is entirely risk free. ALARP is defined as a level of impact and risk that is not unacceptable and cannot be reduced further without the expenditure of costs that are disproportionate to the benefit gained. Cost may be in terms of financial, health, safety and schedule implications.

Section 34 of the OPGGS(E) Regulations require a demonstration that environmental impacts will be reduced to ALARP. For risks to be considered as reduced to ALARP, one of the following criteria must apply:

- There are no reasonably practicable alternatives to the activity; and
- The cost (in other words, sacrifice) for implementing further measure is disproportionate to the reduction in risk.

When deciding whether risks are managed to ALARP, the items considered were:

- Risk level;
- Existing layers of protection, including both preventive and mitigative controls;
- Feasibility of additional controls or alternative arrangements;
- Practicality of additional controls or alternative arrangements;
- Cost of additional controls or alternative arrangements;
- Effectiveness of additional controls or alternative arrangements; and
- Impact on risks from additional controls or alternative arrangements.

6.4.2 Acceptance Criteria

Section 34 of the OPGGS(E) Regulations requires a demonstration that environmental impacts are of an acceptable level.

Eni considered a range of factors when evaluating the acceptability of environmental impacts associated with its activities. The evaluation criteria are outlined in Table 6-4.

Table 6-4: Eni acceptability factors

Demonstration of acceptability	
Compliance with legal requirements, laws, and standards	Considers the legal aspect, particularly compliance with applicable legislative prescriptions and regulations in force which imply specific

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Demonstration of acceptability	
	procedures to be performed by the Titleholder to control the environmental aspect.
Policy compliance	The risk or impact must be compliant with the objectives of Eni policies.
Social acceptability	Considers the 'social' aspects that can alter stakeholder perception of the Titleholder's commitment regarding the safeguard and protection of the environment and that can cause serious harm to the Titleholder's public image.
Area sensitivity/biodiversity	The proposed risk or impact controls, EPOs and EPSs must be consistent with the nature of the receiving environment.
Environmentally sustainable development (ESD) principles	The overall activity is consistent with principles of ESD1 (as defined in Section 3A of the Commonwealth EPBC Act), as detailed below.
a). 'Integration Principle' Decision-making processes should effectively integrate both long-term and short-term economic, environmental, social and equitable considerations.	This principle is met through consideration and response to public comments, evaluation of environmental impacts and risk to the socio-economic, cultural and ecological features of the environment that may be affected by the project; and demonstration of how environmental impacts and risks will be acceptable. This principle is inherently met through the EP assessment process. This principal is not considered separately for each acceptability evaluation.
b). 'Precautionary Principle' If there are threats of serious or irreversible environmental damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation.	This principle is met through evaluation of environmental impacts and risks; reasons and evidence in support of how the impacts and risks will be of an acceptable level; the level of scientific uncertainty associated with predictions of environmental impacts and risks and the effectiveness of management measures in controlling impacts and risks; commitments to apply measures designed to manage residual scientific uncertainty; and the predicted severity, and persistence (including recovery potential) of environmental impacts and risks.
c). 'Intergenerational Principle' 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.	This principle is met through commitment to measures to avoid and minimise environmental impacts and risks such that they will be managed to be an acceptable level for the duration of the environmental impact(s) generated by project; The case made in the EP that environmental impacts and risks of the project will not forego the health, diversity and productivity of the environment for future generations.
d). 'Biodiversity Principle' The conservation of biological diversity and ecological integrity should be a fundamental consideration in decision-making.	This principle is met through evaluation of environmental impacts to the biodiversity and ecological values of the environment affected, including matters of National Environmental Significance; and the levels of performance for management.
e). 'Valuation Principle' Improved valuation, pricing and incentive mechanisms should be promoted.	This principle is met through provision to bear the cost of environmental management for the whole of project life to ensure that the environmental impacts and risks are managed to an acceptable level. This principal is not considered relevant for acceptability evaluation in an EP.
ALARP	There is a consensus among the risk assessment team that risks, or impacts are ALARP.

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7 ENVIRONMENTAL IMPACT ASSESSMENT – PLANNED OPERATIONS

7.1 Seabed Disturbance

7.1.1 Summary of Environmental Impact Assessment

Hazard	Seabed Disturbance		
	Frequency	Severity	Risk
Residual Risk	C	1	L

7.1.2 Description of Hazard

During the petroleum activities, seabed disturbance will occur as a result of:

- Geotechnical surveys; and
- Environmental surveys.

7.1.2.1 Geotechnical surveys

During the geotechnical surveys, samples of the seabed are taken and testing is carried out.

Downhole geotechnical drilling will be carried out using seabed drilling systems [thin-wall push (Shelby tube) or piston-type sampler]. A seabed frame or clamp will be required for a vessel-mounted drilling system to provide stability during sampling. The overall disturbance area attributed to seabed sampling at the Petrel Development area is expected to be 1.1m². A total of 500m³ of cuttings will be discharged to deposited to the seafloor. Should the seabed frame be deployed, an additional 125m² of seabed disturbance could be generated.

CPT involves pushing a penetrometer into the seabed to detect fine changes in stratigraphy. The overall disturbance area attributed from CPT is expected to be 37.5m². A seabed frame might be deployed in the presence of very soft shallow foundation soils (mud). The seabed frame will generate an additional 950m² of seabed disturbance.

Gravity piston coring will be used to retrieve samples from the upper 100m of seabed for analysis. A steel sample tube will penetrate the seabed under it's own weight, not requiring hydraulic systems or electrical connections. The overall disturbance area attributed from piston coring is expected to be 37.5m²

A box corer equipped with Mini-Tbar testing apparatus will be deployed to collect seabed sediments for sediment analysis. The overall disturbance area attributed from box core sampling is expected to be 36.75m².

The total direct disturbance footprint from geotechnical surveys for the initial campaigns is up to ~1,188m². Any future survey campaigns are expected to be similar.

All equipment deployed onto the seabed will be recovered following completion of sampling.

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7.1.2.2 Environmental surveys

Sediment sampling using a box corer, day grab or modified Van Veen grab sampler will be conducted to determine sediment quality. These methods are likely to leave holes in the seabed sediment.

The total direct disturbance footprint from environmental surveys for the initial campaigns is ~17m². Any future survey campaigns are expected to be similar. The samples acquired for sediment sampling will be used for infaunal analysis. No further seabed disturbance will be attributed from benthic characterisation.

7.1.3 Potential Environmental Impact

Seabed disturbance has the potential to result in:

- Change in water quality;
- Change in habitat;
- Change in behaviour; and
- Change in cultural heritage.

Potential receptors that may be impacted are:

- Water quality;
- Benthic habitats and communities;
- Fish; and
- Cultural heritage values.

There are no marine protected areas or KEFs within the Operational Area.

There are several species of marine mammals and marine reptiles that may interact with the seabed (i.e. to feed or rest), but they are not considered demersal species (i.e. that live close to or on the seafloor). The PMST reports indicated that a number of BIAs were intersected by the Operational Area for marine turtles (see Section 4.4.4). However, given the highly mobile nature of these pelagic species, which can transit through the entire water column, and the absence of significant sources of benthic foraging habitat with the Operational Area, potential impacts from seabed disturbance are not expected. In addition, the water depth of the Operational Area (~50-107m) means marine turtles are unlikely to be exposed to turbidity. Further, no habitats critical to the survival of marine reptiles were identified within the Operational Area (Section 4.4.4.1), therefore, potential threats due to habitat modification are not credible.

There are no BIAs for fish, sharks or marine mammals within the Operational Area. The area of influence from seabed disturbance will be highly localised and is not expected to result in a change in population viability of species.

Seabed disturbance may potentially impact fish (in particular demersal fish). However, as disturbance is highly localised, it is not expected to result in a change in the viability of the population of commercially important species. One Commonwealth-managed fishery, 3 NT-managed fisheries and two WA-managed fisheries have recorded historical fishing within the Operational Area (Section 4.6.1). Of these, only 3 utilise trawl or trap-based fishing targeting demersal fish species

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(the Commonwealth managed Northern Prawn Fishery, NT-managed Demersal Fishery and WA-managed Northern Demersal Scalefish Fishery). Therefore, given the limited nature and scale of activities associated with seabed disturbance as assessed below, impacts to commercial fisheries are not expected, and have not been evaluated further.

Eni commissioned a preliminary investigation into the baseline benthic community and habitat within the Operational Area (O2 Marine, 2025), which did not identify fish assemblages or benthic habitats which support fish assemblages.

Therefore, potential impacts to marine reptiles, marine mammals, fish and commercial fisheries have not been evaluated further.

7.1.3.1 Water quality

Change in water quality

A change in water quality may result from a temporary increase in turbidity near the seabed during geotechnical and environmental sampling at the seabed.

Past surveys have demonstrated that the seabed within the Operational Area is characterised predominantly by sand, with gravel, silt and clay (Section 4.3.6).

The maximum footprint of seabed disturbance for the initial campaigns will be up to 1,205m² as a result of geotechnical and environmental survey methods, including seabed frame deployment to provide stability to sample retrieval. The temporary turbidity associated with the sampling and seabed frame is not considered likely to cause environmental impact given the sparseness of benthic cover and the highly localised impact zone. The high settling velocity of sand (and coarser) material would ensure that the particles do not remain in suspension for an extended period of time.

The location of the Operational Area within a homogenous seabed area, and lack of sensitive benthic features, means that turbidity resulting from the described activities is expected to result in only temporary and very localised change in water quality.

7.1.3.2 Benthic habitats and communities

Benthic habitat may be disturbed when infrastructure comes into contact with the seabed. The seabed within the Operational Area is characterised by sand (with gravel, silt and clay) and sparse sessile epibenthic organisms, as shown by past surveys (Section 4.3.6). Unvegetated soft sediments are a widespread habitat in the region.

The preliminary benthic survey carried across the Operation Area found that the composition and cover of biota was relatively low across all sites, with majority of sites dominated by sediment with no biota (O2 Marine, 2025). Where biota was recorded, observations included scattered ascidians, sponges, hydroids, soft corals, and occasional octocorals, with a cover between the 0–1% and 1–10% cover ranges.

Geotechnical and environment survey methods are likely to leave small holes in the seabed sediment. The sediments are very soft, and the holes created from sediment sampling and benthic characterisation techniques are expected to collapse and fill in with sediment.

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The maximum footprint of seabed disturbance for the initial campaigns will be up to 1,025m² as a result of geotechnical and environmental survey methods, including seabed frame deployment to provide stability to sample retrieval. Any impact will be limited to the immediate vicinity of each of the seabed sampling locations, and thus the extent of potential impact is considered to be very localised.

Given the lack of sensitive benthic receptors, and that potential damage would only occur within a small area, it is expected that any areas impacted would rapidly recolonise and recover from any disturbance.

7.1.3.3 Cultural heritage values

Change in cultural heritage values

Seabed disturbance may result in changes to:

- maritime heritage values through direct disturbance (i.e. damage) or smothering; or
- First Nations heritage values through direct disturbance to cultural heritage sites, or alteration of benthic habitats or injury or mortality to marine fauna of heritage value.

A search of the Australasian Underwater Cultural Heritage Database found one shipwreck site, the SEDCO Helen located within the Operational Area (<75 years old). The SEDCO Helen was lost in 1970 and relocated by Santos Ltd using SSS in June 2010 (WAM, 2025). An exclusion zone of 800m will be imposed around the wreck for the Petrel survey activities. No other sites were identified by the Australasian Underwater Cultural Heritage Database within the Operational Area.

There are no known First Nations artefacts or specific sites of cultural value associated with the seabed within the Operational Area.

A Cultural Heritage Study Report was undertaken of all publicly available information on First Nations cultural heritage values, and did not identify any particular values in the Operational Area (WSP, 2025).

No claims or objections were made by First Nations Owner stakeholder groups regarding seabed disturbance within the Operational Area.

The maximum footprint of seabed disturbance for the initial campaigns will be up to 1,025m² as a result of geotechnical and environmental survey methods, including seabed frame deployment to provide stability to sample retrieval. Any impact will be limited to the immediate vicinity of each of the seabed sampling locations, and thus the extent of potential impact is considered to be very localised.

7.1.3.4 Residual risk summary

The worst-case residual severity to water quality, benthic habitat and cultural heritage values from seabed disturbance is evaluated as Negligible (1), given the temporary, highly localised nature of the disturbance, and the lack of sensitive benthic features and sites of cultural heritage value.

The likelihood of impact from seabed disturbance occurring as a result of the activities is considered Credible (C).

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Therefore, the residual risk of seabed disturbance due to the petroleum activities is considered Low.

7.1.4 Environmental Performance Outcomes and Control Measures

Environmental Performance Outcomes (EPOs) relating to this risk include:

- Seabed disturbance limited to planned activities (EPO-01).

Control measures (CMs) relating to this risk include:

- Recovery of all deployed equipment (CM-01);
- No anchoring within the Operational Area (CM-02);
- Exclusion zone around SEDCO Helen (CM-03); and
- Lifting Management System Procedure (ENI-LOG-PR-017) (CM-04).

Environmental Performance Standards (EPSs) and Measurement Criteria (MC) relating to the above are presented in Section 9.1.

7.1.5 As Low as Reasonably Practicable Demonstration

Demonstration of ALARP			
Type	Control/Management	Evaluation	Adoption?
Eliminate	Eliminate use of geotechnical survey	This control would eliminate seabed disturbance from seabed sampling. However, geotechnical survey methods are required to gather seabed characteristics to inform subsea structure design and infrastructure location for the Petrel Development and to determine future exploration campaign drilling methods. The direct disturbance footprint of the geotechnical survey is small (1,188m ²).	✖
	Eliminate use of environmental survey	This control would eliminate seabed disturbance from seabed sampling. However, environmental survey methods are required to gather baseline data to better understand the environmental conditions for the Petrel Development area. The direct disturbance footprint of the environmental survey is small (1,025m ²).	✖
	No anchoring of vessels in the Operational Area	Vessels will not need to anchor in the Operational Area. This will avoid an assumed footprint of up to 1,300m ² associated with anchoring within water depths >70m with a single anchor.	✓ (CM-02)
Substitute	Not applicable	N/A	N/A
Engineering	Exclusion zone around cultural values	Exclusion zone (800m) will be implemented around the SEDCO Helen shipwreck site to protect cultural values.	✓ (CM-03)
Isolation	Not applicable	N/A	N/A

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Demonstration of ALARP			
Type	Control/ Management	Evaluation	Adoption?
Administrative	Recovery of deployed equipment	Prevents ongoing impact to the seabed due to equipment being left in-situ. Minimal additional cost to recover equipment.	✓ (CM-01)
	Engage a qualified underwater archaeologist to help manage the project risk to protected underwater heritage places	Seabed disturbance is very small and highly localised, and the survey is far offshore, outside areas of known cultural heritage sensitivity. No claims or objections were made by First Nations Owner stakeholder groups regarding seabed disturbance within the Operational Area. The potential impact to UCH is negligible.	✗

7.1.6 Acceptability Demonstration

Demonstration of acceptability	
Compliance with Legal Requirements, Laws and Standards	The petroleum activities will be undertaken to ensure there is no impact upon cultural heritage properties protected under the <i>Underwater Cultural Heritage Act 2018</i>. There is one known shipwreck (SEDCO Helen) within the Operational Area. The <i>Underwater Cultural Heritage Act 2018</i> and <i>Assessing and Managing Impacts to Underwater Cultural Heritage in Australian Waters – Guidelines on the application of the Underwater Cultural Heritage Act 2018</i> (DoEE, 2019a) requires that protected cultural heritage sites (shipwrecks, sunken aircraft and other UCH) (older than 75 years) are identified and any impacts and risks to these sites are assessed. The SEDCO Helen shipwreck is <75 years old (lost in 1970) and therefore not protected under the <i>Underwater Cultural Heritage Act 2018</i> at present. However, to ensure protection an 800m exclusion zone will be implemented around the SEDCO Helen shipwreck site during the Petrel survey activities (CM-03).
Policy Compliance	The management of seabed disturbance is aligned with Eni policies and standards. The residual risk is Low, which is acceptable. The EPOs, CMs and EPSs that will be implemented are consistent with Eni internal requirements.

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Demonstration of acceptability	
Social Acceptability	Stakeholder consultation has been undertaken (refer Section 5). During engagement (APPENDIX C), the DCCEE Underwater Heritage branch requested notification within 21 days if any suspected underwater cultural heritage (UCH) is discovered during survey activities, in accordance with Section 40 of the <i>Underwater Cultural Heritage Act 2018</i> (UCH Act). The DNP and WA Museum recommended engagement of a qualified underwater archaeologist to help manage the project risk to protected underwater heritage places. This control measure was assessed in the ALARP evaluation and was not adopted due to the very small area of disturbance. Eni confirmed the recommendation for engagement of an underwater archaeologist has been taken under advisement and, acknowledged anomalies on the seabed floor may arise during the survey. which could trigger the requirement for further investigation. AFMA requested further information and consideration regarding the scale of impacts from seabed disturbance. Seabed disturbance resulting from geotechnical activities is highly localised, producing only small, discrete sampling footprints that are negligible in comparison to the overall extent of benthic habitats and fishing grounds (APPENDIX C). An ongoing consultation program will consider statements and claims made by stakeholders when assessing impacts and risks.
Area Sensitivity/ Biodiversity	The benthic environment within the Operational Area is characterised by sand (with gravel, silt and clay) and sparse sessile epibenthic organisms (Section 4.3.6). Impacts to the marine environment from seabed disturbance will be highly localised (1,025m²). There are no KEFs or AMPs overlapping the Operational Area. The evaluation of impacts and risks indicates significant impacts to MNES will not result from seabed disturbance. Seabed disturbance has not been identified as a threat in any recovery plans or conservation advice for threatened and migratory species.
ESD Principles	The activity is consistent with the principles of ESD because: • The worst-case impact associated with this aspect is Negligible (1); and the residual risk is Low. • Precautionary Principle: There are no threats of serious or irreversible environmental damage; and there is no scientific uncertainty associated with the potential impact. • Intergenerational Principle: Impacts from this aspect will not forego the health, diversity and productivity of the environment for future generations. • Biodiversity Principle: Impacts from this aspect are not considered to have the potential to affect biological diversity or ecological integrity.
ALARP	The residual risk has been demonstrated to be ALARP.

Given the highly localised seabed disturbance from these activities, and lack of sensitive benthic habitat or features, the potential impacts associated with seabed disturbance are considered to be Negligible (1). The residual risk is considered Low, which is acceptable in accordance with Eni's acceptability criteria (Table 6-4). Potential impacts associated with seabed disturbance are acceptable and ALARP.

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7.2 Physical Interaction – Other Marine Users

7.2.1 Summary of Environmental Impact Assessment

Hazard	Physical Interaction – Other Marine Users		
	Frequency	Severity	Risk
Residual Risk	B	1	Low

7.2.2 Description of Hazard

During the petroleum activities, interaction with other marine users may occur as a result of:

- Vessel operations.

Vessel transit outside of the Operational Area is not within scope of this EP and comes under the *Navigation Act 2012*.

There is no physical presence of infrastructure associated with this EP.

7.2.2.1 Vessel Operations

The presence of vessels within the Operational Area during the petroleum activities has the potential to result in interactions with other marine users. The Operational Area covers the retention leases (WA-6-R and NT/RL1), 5km buffer area on each side of the proposed GEP route and a 5km radius around the Blacktip GEP tie-in point.

During the geophysical, geotechnical and environmental survey activities, there will be only one survey vessel present in the Operational Area at any one time. Although the initial 2026 development and exploration campaigns have an expected total duration of 100 and 40 days respectively, the longest individual campaign is 40 days (Section 3.1.2). Any future survey campaigns are expected to be similar.

The Petrel field lies approximately 240km west of Darwin within retention leases NT/RL1 and WA-6-R. The titles are ~136km to the closest point on the NT coastline, near Wadeye, and ~145km from the closest point on the WA coastline.

There will not be a formal Petroleum Safety Zone in place. However, exclusion and cautionary zones will be in place during activities.

The presence of vessels has the potential to exclude or displace some activities by other marine users.

7.2.3 Potential Environmental Impact

Interaction with other marine users has the potential to result in:

- Change to the functions, interests and activities of other marine users.

Potential receptors that may be impacted are:

- Commercial fisheries;
- Defence; and

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- Offshore industry.

Potential impacts to tourism and recreational fishing, and First Nations traditional use of resources have not been considered here, as the Operational Area is approximately 160km from coastlines and does not contain any islands or emergent features (features of relevance to these receptors). Also, as there are no subsea cables and no recognised major commercial shipping routes, these receptors are not further evaluated.

7.2.3.1 Commercial fisheries

Change to the functions, interests and activities of other marine users

The Annual Fishery Status Reports published by the Australian Bureau of Agricultural and Resource Economics and Sciences (ABARES) were used to identify if Commonwealth managed fisheries have fished and were active within the Operational Area and EMBA in the last five years (2019-2024). FishCube data was also requested from the WA Department of Primary Industries and Regional Development (DPIRD) and NT Fisheries for the most recently available five-year period of fishery catch and effort data (2018-2023 and 2019-2023, respectively), to analyse the potential for interaction of fisheries with the Operational Area. Data was reviewed from the last complete five years data series, as an indication of past fishing effort. This was deemed an appropriate period to represent potential future fishing effort during this EP.

Based on an analysis of the current fishery closures, depth range of activity, historical fishing effort data, fishing methods (diver-based or shoreline collection) and consultation feedback (refer to Section 5), many of the fisheries which overlap the Operational Area are not considered active (Section 4.6.1) and were considered unlikely to interact with the Operational Area in the future.

A total of 4 Commonwealth, 6 NT and 8 WA-managed fisheries are located within the Operational Area (Section 4.6.1). Of these, one Commonwealth, 3 NT and 2 WA-managed fisheries are considered active within the Operational Area and have intersecting historical fishing activity. An assessment was undertaken to identify potential interactions based on historic catch data and intensity, sourced from relevant datasets.

Based on the assessment in Table 4-10, the following is a summary of fisheries that overlap with the Operational Area; and those considered active in the Operational Area (within the data range):

- Commonwealth-managed fisheries: 4 fisheries overlap the Operational Area (Northern Prawn Fishery, Southern Bluefin Tuna Fishery, Western Skipjack Fishery and Western Tuna and Billfish Fishery).
 - Based on the catch-effort assessment, only one of these fisheries (Northern Prawn Fishery) is considered active within the Operational Area.
- Western Australian-managed fisheries: 8 fisheries overlap the Operational Area (Abalone Managed Fishery, Kimberley Crab Managed Fishery, Mackerel Managed Fishery, Marine Aquarium Managed Fishery, Northern Demersal Scalefish Fishery, South West Coast Salmon Managed Fishery, Specimen Shell Managed Fishery and West Coast Deep Sea Crustacean Managed Fishery).

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- Based on the catch-effort assessment from the 60 NM dataset, only two of these fisheries (Mackerel Managed Fishery and Northern Demersal Scalefish Fishery) are considered active within the Operational Area.
- Northern Territory-managed fisheries: 6 fisheries overlap the Operational Area (Aquarium Fishery, Demersal Fishery, Development (Small Pelagic) Fishery, Offshore Net and Line Fishery, Spanish Mackerel Fishery and NT Tour Operators).
 - Based on the catch-effort assessment, only three of these fisheries (Demersal Fishery, Offshore Net and Line Fishery and Tour Operator Fishery Northern Demersal Scalefish Fishery) are considered active within the Operational Area.

A detailed assessment of the fisheries identified above with the potential for displacement and interaction is below.

Commonwealth Northern Prawn Fishery

The Northern Prawn Fishery (NPF) is a trawl fishery active within the Operational Area and operates using otter trawl gear. Analysis of fishing intensity data (2016-20242010-2022) shows low-medium fishing intensity within the Operational Area (ABARES; Summerson, 2024). Fisheries vessels tow conical-shaped nets over the seabed, which are separated by steel or timber boards (Meteyard, 20254). Highest intensity fishing efforts during the 20196-20242 seasons took place in the nearshore coastal NT waters (Butler et al., 20253). There is no snagging risk associated with this EP, as there is no subsea infrastructure.

The NPF within the JBG primarily targets the redleg banana prawn (*Penaeus indicus*), accounting for 95% of species catch. The NPF fishing effort within the JBG, occurs away from other NPF catch effort, which occurs in the nearshore waters surrounding Darwin and the Gulf of Carpentaria (targeting other species). The fishing effort for the redleg banana prawn is targeted to the waters adjacent to Cape Londonderry, with highest catches of banana prawns taken offshore from mangrove forests, which serve as the juvenile nursery areas (Butler et al., 20254). The targeted redleg banana prawn fishery is managed via a single stock assessment for the JBG region. In 2021, following significant management strategy evaluation of the stock within the fishery, seasonal closures have resulted in the catch of redleg banana prawn now tending to be concentrated in July - August (Plagányi et al. 2023). Other species caught within the fishery include the tiger (*Penaeus esculentus* and *P. semisulcatus*) and endeavour (*Metapenaeus endeavouri* and *M. ensis*). Most catches of tiger prawns come from the southern and western Gulf of Carpentaria, and along the Arnhem Land coast, with the highest catches coming from areas near coastal seagrass beds, the nursery habitat for tiger prawns. Endeavour prawns are mainly caught as a byproduct species (Butler et al., 2025).

The JPG is primarily a banana prawn fishing ground. However, unlike the Operational Area, with depths greater than 50m, banana prawns typically inhabit shallower waters. The common variety thrives in depths less than 45m, while the Indian white prawn is found between 45-85m (NPF25, 1994). Moreover, the NPF has experienced a significant decline in vessel numbers over the past four decades, from a peak of 292 licenced vessels in the 1980s to just 52 today. This reduction has curtailed

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exploratory fishing activities, leading to less frequent fishing in remote areas like the JPG.

During Consultation, NPFI amended its preferred timing for the activity to after 15 October (APPENDIX C). However, the timing of the Petrel survey activities is subject to vessel availability in the region as well as weather conditions; and given the nature of the work, it is not feasible to commit to limiting work to specific periods of the year. Given the short duration of activities (with the longest campaign ~40 days), the potential impact to the NPF from transiting vessels is considered acceptable.

WA Northern Demersal Scalefish Managed Fishery

The Northern Demersal Scalefish Managed Fishery (NDSMF) operates via handline, dropline, and fish traps in the offshore JBG region. NDSMF uses fish traps in the area zoned for the fishery, however, as there is no subsea infrastructure, there is no risk of snagging. NDSMF uses fish traps in the area zoned for the fishery. Given there is no subsea infrastructure, and exclusion and cautionary zones will be implemented during survey activities, there is no risk of snagging. The NDSMF have recorded low catch-effort in the Operational Area, with <3 vessels active, throughout the 2019 – 2023 seasons.

The presence of the survey vessel in the Operational Area may present the potential to cause a temporary and/or slight deviation to fishing vessels active in the Operational Area.

WA Mackerel Managed Fishery

The Mackerel Managed Fishery operates through a series of management zones from the West Coast Bioregion to the WA/NT border and is active within the Operational Area. The Mackerel Managed Fishery operate via line-surface trolling for pelagic species. Given there is no subsea infrastructure, and exclusion and cautionary zones will be implemented during survey activities, there is no risk of snagging.

The 60NM grid dataset indicated active fishing effort within the OA; however, the granular 10NM grid dataset revealed no activity (Figure 4-19). Despite the absence of fine-scale evidence, for impact assessment purposes, the Mackerel Managed Fishery is considered active within the Operational Area.

The presence of the survey vessel in the Operational Area may present the potential to cause a temporary and/or slight deviation to fishing vessels active in the Operational Area.

NT Demersal Fishery

The Petrel Operational Area overlaps with the NT Demersal Fishery, which includes Zone B of the allowable trawl area. The fishery targets a variety of tropical snappers (*Lutjanus* spp. and *Pristipomoides* spp.), using different gear types such as demersal trawl, traps, and lines (Knuckey et al. 2022).

Demersal trawl fishing in the NT Demersal Fishery is managed through the application of designated areas (Zone A and B), input controls, utilising semi-demersal trawl, traps and hook gear to harvest largely red (crimson and saddletail snapper) and goldband snappers, along with a number of associated finfish species (Northern Territory Government, 2015). According to the application for reassessment report of the NT Demersal Fishery (DPIRPRI, 2019), the area fished

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was <3% of the total area zoned for trawling. Effort within the fishery is managed through input controls, which limit the amount of licences permitted to trawl.

Trawling within the NT Demersal Fishery is permitted in Zone A (eastward of Darwin and into the Gulf of Carpentaria), and Zone B in the JBG; which overlaps a small portion the Operational Area (Figure 4-21). There is no snagging risk associated with this EP, as there is no subsea infrastructure.

Other fishing in the NT Demersal Fishery operating via line and fish-trap, have been assessed as having recorded catch in the Operational Area. Less than 5 licences have been active during the 2019 – 2023 season assessed, with efforts concentrated in other regions of the management area.

NT Offshore Net and Line Fishery

The Offshore Net and Line Fishery operates via demersal or pelagic long lines or pelagic nets. Fishing effort data within the Operational Area shows a total of 1 day fished between 2019 and 2023. Although the management area overlaps with the NT portion of the Operational Area most fishing is within in the coastal zone (12nm or 22.22km of the coast) and immediately offshore in the Gulf of Carpentaria (Northern Territory Government, 2024b). The Operational Area is 160km from the nearest coastline. Given the catch-methodology, spatial range of the fishery and the most recent fishing effort data within the Operational Area, the potential for displacement is not considered likely.

NT Fishing Tour Operators

Fishing Tour Operators do not have a designated management area, with 2 licenced operators overlapping the Operational Area. Fishing effort data within the Operational Area shows a total of 0.5 days fished between 2019 and 2023. Charter fishing operates from Darwin and the Kimberley region. These fisheries target areas of offshore reef areas supporting pelagic species of high value. Given the distance of operations from suitable habitat and the recent fishing effort data within the Operational Area, the potential for interaction with fishing tour operators from snagging or displacement is not considered likely.

Summary

During the geophysical, geotechnical and environmental survey activities, there will be only one survey vessel present in the Operational Area at any one time. The longest individual campaign is 40 days (Section 3.1.2). Any future survey campaigns are expected to be similar.

There are no formal PSZs in place. There will be exclusion and cautionary zones communicated to other marine users during survey activities.

There is no subsea infrastructure associated with this EP that could cause snagging of fishing equipment, and no on-going physical presence.

The petroleum activities are anticipated to only result in a temporary disruption to commercial fishing, as the exclusion and cautionary zones from vessel operations are small, fishing intensity in the Operational Area is low, and the duration is relatively short (with the longest survey being 40 days).

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7.2.3.2 Defence

Change to the functions, interests and activities of other marine users

The Northern Australia Exercise Area military zone overlaps the Operational Area. This zone is mainly utilised for activities associated with border protection including surveillance, illegal immigration, and illegal fishing. This area is occasionally used for live firing military exercises.

UXO may also be present on or in the seafloor of the Operational Area. Eni commissioned Milsearch Pty Ltd. (2008) to undertake a study of the probability of UXO existing on the seabed in the vicinity of the Blacktip Gas field. The study reviewed available military records, sea dumping records and official marine wrecks records. In addition to historical sources, the study considered potential Defence-related UXO due to the project's location within the wider Northern Australian Exercise Area (NAXA). During consultation, Defence advised that live-fire activities in Restricted Airspace R225 occur around 20 km from the pipeline corridor and that probability of UXO presence within the Blacktip area of interest is considered low (1).

The petroleum activities are anticipated to only result in a temporary disruption to Defence exercise activities, as the exclusion and cautionary zones are small and the duration is relatively short (with the longest survey being 40 days).

There are no formal PSZs in place. There will be exclusion and cautionary zones communicated to other marine users during survey activities.

During the geophysical, geotechnical and environmental survey activities, there will be only one survey vessel present in the Operational Area at any one time. The longest individual campaign is 40 days (Section 3.1.2). Any future survey campaigns are expected to be similar.

Consequently, it is unlikely that the petroleum activities will pose a challenge to future Defence activities in the Operational Area.

7.2.3.3 Offshore industry

Change to the functions, interests and activities of other marine users

There are several petroleum or CCS activities within the Bonaparte Basin.

Two CCS permits, G-7-AP and G-11-AP, are located within the JBG and border the retention lease portion of the Operational Area to the east and west. As a result, direct interaction with CCS activities is not anticipated within the retention lease portion of the Operational Area. However, the GEP portion of the Operational Area overlaps with 37km of G-7-AP, creating the potential for future CCS development to directly interact with Petrel survey activities in the overlapping GEP area.

At the time of writing, there were 2 publicly available, accepted EPs on the NOPSEMA website associated with G-7-AP. The Bonaparte Basin Exploration Drilling EP GHG activity consists of pre-drill site surveys, and the drilling and evaluation of two initial exploration wells, which was completed in September 2024. The Bonaparte Basin drilling project area does not overlap with the Operational Area of the Petrel Development (INPEX, 2022).

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The G-7-AP Vessel-Based Geophysical and Geotechnical Survey EP was accepted by NOPSEMA in August 2025. The EP allows for up to 120 days of survey activities spread across multiple campaigns and up to two calendar years (2025-2027; INPEX, 2025). The survey area does not overlap with the Operational Area of the Petrel survey activities.

Santos' Eos 3D Marine Seismic Survey for G-11-AP was accepted by NOPSEMA in February 2026. The Eos Operational Area overlaps the Petrel survey Operational Area. The EP allows for up to 50 days of survey activity, between EP acceptance and the end of 2027 (Santos, 2026).

The GEP will tie-in to the Blacktip GEP, approximately 100m from the Blacktip WHP within WA-33-L. Eni is also the titleholder for this permit and will manage interactions between the Petrel and Blacktip developments. There are no third-party pipeline crossings required for the GEP.

Petrel-3 and Petrel-4 were drilled and suspended in 1981 and 1988 respectively, with wellheads remaining in-situ. Eni plans to permanently abandon these wells, with the Petrel-3 and Petrel-4 Monitoring and Decommissioning EP accepted by NOPSEMA in October 2025 (Eni, 2025). Petrel-3 and Petrel-4 are located within the Operational Area, in the retention lease NT/RL1. Eni plans to permanently abandon these two suspended wellheads by Q4 2027 (Eni, 2025). Eni proposes to undertake future exploration and appraisal drilling in the NT/RL-1 and WA-6-R retention leases. The first drilling campaign is potentially in 2028, and subsequent campaigns within the 5-year validity of the EP (which is under early development at time of writing).

Other petroleum activities within the Bonaparte Basin are outlined in Section 4.6.5. Of the other petroleum activities mentioned above, those that could overlap temporally and spatially with the Petrel survey activities include Santos' Eos 3DSS, as well as Eni's Petrel-3 and Petrel-4 Monitoring and Decommissioning activities and ongoing Blacktip Operations. Eni will manage any simultaneous operations (SIMOPS) associated with the decommissioning, exploration and appraisal drilling activities and Blacktip Operations through schedule management, risk-based planning, and the application of relevant procedures and exclusion zones.

Potential SIMOPS between the Petrel survey and Santos' Eos 3DSS will be managed through avoidance, achieved by coordinating survey timing and spatial planning. This approach provides a clear environmental benefit by eliminating any potential change to Santos' functions, interests, or activities relating to the Eos 3DSS.

There are no formal PSZs in place. There will be exclusion and cautionary zones communicated to other marine users during survey activities.

There is no subsea infrastructure associated with this EP or any on-going physical presence.

Exclusion and cautionary zones will have a small radius and be temporary (with the longest campaign of 40 days); therefore, any interaction would be minor and short-term.

The nearest subsea cable is approximately 75km from the northern retention lease boundary. No subsea cables intersect with the Operational Area.

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7.2.3.4 Commercial Shipping

Change to the functions, interests and activities of other marine users

Vessel operations within the Operational Area have the potential to interact with or displace commercial shipping activities in the JBG.

No major shipping routes or fairways are located within the Operational Area (Section 4.6.3). However, considering commercial shipping is not restricted to specific routes or fairways, vessels may still pass through. Shipping fairways are areas designated by AMSA within which commercial vessels are advised to navigate within, while major shipping routes are regular lines of travel followed by merchant vessels. Most shipping activity is concentrated in coastal waters near the Port of Darwin, 240km east of the Operational Area. The nearest shipping fairway is located over 500km from the Operational Area.

Given all commercial shipping vessels and support vessels, MODU and the platform used by the Petrel Development are required to comply with the International Regulations for Preventing Collisions at Sea, the *Navigation Act 2012* and associated Marine Orders, it is expected navigational and communicative aids are sufficient to prevent any negative interactions beyond basic avoidance.

There are no formal PSZs in place. There will be exclusion and cautionary zones communicated to other marine users during survey activities.

There is no subsea infrastructure associated with this EP or any on-going physical presence

Exclusion and cautionary zones will have a small radius and be temporary (with the longest campaign of 40 days); therefore, any deviations would be minor and thus have a negligible impact on travel times or fuel use of commercial shipping vessels.

7.2.3.5 Residual risk summary

The worst-case residual severity to other marine users from the presence of vessels is evaluated as Negligible (1), given the low activity of commercial fishing activity in the Operational Area, short duration of vessel activity and small exclusion/cautionary zones.

The likelihood of changing the functions, interests and activities of other marine users from Petrel petroleum activities is considered Rare (B) due to:

- Low intensity of fishing effort in the Operational Area; and
- Engagement with other offshore industry activities within the Operational Area to avoid concurrent activities.

Therefore, the residual risk of interactions with other marine users due to the petroleum activities is considered Low.

7.2.4 Environmental Performance Outcomes and Control Measures

EPOs relating to this risk include:

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- Information is provided to relevant persons to manage impacts on their functions, interests, and activities (EPO-02); and
- Activities are managed in accordance with navigational and safety requirements (EPO-03).

CMs relating to this risk include:

- Navigation equipment and procedures (CM-05);
- Consultation with relevant persons (including notification requirements) (CM-06).
- Eni petroleum activities SIMOPS management (CM-07);
- Avoid SIMOPs with Santos Eos 3D MSS (CM-08); and

EPSs and MC relating to the above are presented in Section 9.

7.2.5 As Low as Reasonably Practicable Demonstration

Demonstration of ALARP			
Type	Control/management	Evaluation	Adoption?
Eliminate	Eliminating the use of vessels in the Operational Area	Not considered feasible as the vessels are the only form of equipment that can undertake the activities.	×
	Manage the timing of the activity to avoid peak marine user periods (e.g., commercial fisheries, tourism and recreational fishing)	Northern Prawn Fishery Industry amended its preferred timing for the activity to be undertaken after 15 October. Raptis and Sons requested the southern range of the surveys to take place in Q4 to reduce impact on fishing operations. However, the activity involves only one vessel at a time, and the risk is minimal in the context of all marine activity in the region. The timing of the Petrel survey activities is subject to vessel availability in the region and weather conditions, and given the nature of the work, it is not feasible to commit to limiting work to specific periods of the year. Given the short duration of activities (with the longest campaign ~40 days), the potential impact on commercial fisheries from transiting vessels is considered reduced to ALARP. Stakeholders and shipping in the area are present all year round. Cost grossly disproportionate to low socio-economic benefit, given the location of the activity has low usage by commercial fishers or areas of tourism. The potential impact to commercial fish species and fisheries from the petroleum activities is assessed in relevant sections in Section 7 and 8; and is considered acceptable and reduced to ALARP.	×

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Demonstration of ALARP			
Type	Control/management	Evaluation	Adoption?
Substitute	N/A	N/A	N/A
Engineering	Navigation equipment and procedures	Ensures the vessels are seen by other marine users. Reduces risk of environmental impact from vessel collisions due to ensuring safety requirements are fulfilled. Negligible costs of operating navigational equipment. A requirement under Marine Orders, requires vessels to have navigational equipment to avoid collisions.	✓ (CM-05)
Isolation	N/A	N/A	N/A
Administrative	Consultation with relevant persons (refer Section 5)	Relevant persons consultation ensures marine users are aware of the survey activities, reducing the likelihood of unplanned interactions. Provides marine users an opportunity to request practicable interface control measures. This includes notice to mariners as outlined in Table 10-3. Enables identification of potential Sea Country protection or enhancement initiatives, and implementation where practicable. To ensure Eni activities do not conflict with Defence training in the future, Eni will notify Defence a minimum of four weeks before the actual commencement of activities. Notification will need to be provided to offshore.petroleum@defence.gov.au. Minor administrative costs in notifying Defence. Ensures Defence is aware of the activities, reducing likelihood of interactions. Eni will also notify DoD if any metal anomalies found during the surveys are identified as a potential UXO (Table 10-3).	✓ (CM-06)
	Eni petroleum activities SIMOPS management	Managing SIMOPS between the survey activity and other Eni-operated petroleum activities—such as the Petrel-3 and Petrel-4 Monitoring and Decommissioning activities and ongoing Blacktip Operations—is essential to maintaining safe and environmentally responsible execution of all activities. SIMOPS management enables proactive coordination of schedules, spatial separation of incompatible activities, and the implementation of procedural controls and exclusion zones that effectively reduce the likelihood of unintended	✓ (CM-07)

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Demonstration of ALARP			
Type	Control/management	Evaluation	Adoption?
		interactions between vessels and equipment associated with different Eni operations. These measures directly reduce the risk of physical interaction, navigational conflict, and operational overlap, which in turn reduces potential environmental consequences such as vessel collision, unplanned discharges, or disturbance to marine fauna. SIMOPS controls are already embedded in Eni's operational planning processes and make use of existing procedures, communication protocols, and HSE frameworks; therefore, the cost of implementing SIMOPS management is low and proportionate to the environmental and safety benefit delivered.	
	Avoid SIMOPS with Santos Eos 3D MSS	Avoiding SIMOPS with Santos' Eos 3DSS is a highly effective control that directly eliminates the primary pathway for interference with the functions, interests or activities of another titleholder (i.e. Santos), triggering regulatory non-compliance risks. This control requires only administrative coordination and schedule planning, leveraging existing communication channels between Eni and Santos. Consequently, the cost and logistical effort associated with this measure are low. Avoidance is also consistent with the expectations of the OPGGS(E) Regulations for consultation and minimising interference with other marine users. Given the material reduction of potential impacts and negligible implementation cost, avoidance of SIMOPS with Santos' Eos 3D MSS will be adopted.	✓ (CM-08)

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7.2.6 Acceptability Demonstration

Demonstration of acceptability	
Compliance with Legal Requirements, Laws and Standards	Physical presence of petroleum activities is managed in accordance with relevant legislative requirements, including compliance with international maritime conventions and Australian legislation, being: • International Convention on Standards of Training, Certification and Watchkeeping for Seafarers 1978 • International Convention for the Safety of Life at Sea 1974 • International Regulations for Preventing Collisions at Sea 1972 • <i>Navigation Act 2012</i>, including, as appropriate to vessel class: • Marine Order 21: Safety and emergency arrangements) • Marine Order 30: Prevention of Collisions) • Marine Order 71: Masters and Deck Officers. Eni will not interfere with the rights of other marine users to a greater extent than is necessary for the reasonable exercise of right conferred by the titles granted, as per Section 280 of the OPGGS Act.
Policy Compliance	The management of physical presence of the petroleum activities is aligned with Eni policies and standards. The residual risk is Low, which is acceptable. The EPOs, CMs and EPSs that will be implemented are consistent with Eni internal requirements.

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Demonstration of acceptability

Social Acceptability	During stakeholder consultation (APPENDIX C), DoD highlighted a high likelihood of historical unexploded ordnance (UXO) in the Petrel survey area. Eni confirmed the survey vessel will include a magnometer at the rear, which may identify metal anomalies on the seafloor for assessment. If a metal anomaly is identified as a potential UXO, Eni will notify DoD accordingly (Table 10-3). The Department of Agriculture and Fisheries NT requested confirmation from Eni that it will provide the call sign, vessel name, and coordinates upon commencement of the activity. AFMA queried if the fishing departments, peak bodies and AFMA had been consulted. Eni confirmed the consultation process included Commonwealth, Territory and State fishing departments and peak fishing bodies along with individual licences. DPIRD raised queries regarding current commercial fisheries data available, potential impacts to commercial fisheries, consultation with WA peak fishing bodies and relevant Traditional Owners. Engagement with the NPF confirmed that NPF operators do not object to the proposed surveys of the Petrel field, provided that activities do not occur between 1 August and 20 November each year. NPF later amended the preferred timing for the activity to after 15 October, to limit any impacts on fishing operations from Eni vessel transit. However, the timing of the Petrel survey activities is subject to vessel availability in the region and weather conditions, and given the nature of the work, it is not feasible to commit to limiting work to specific periods of the year. Given the short duration of activities (with the longest campaign ~40 days), the potential impact on the NPF from transiting vessels is considered acceptable. Raptis and Sons requested the southern range of the surveys to take place in Q4 to reduce impact on fishing operations. Eni acknowledged the relevant person preference for activity timing and committed to providing notification of activity timing. However, the activity involves only one vessel at a time, and the risk is minimal in the context of all marine activity in the region. Feedback from the Western Tuna and Billfish Fishery indicated growing interest from fishers seeking access following the WA government demersal trawl fisheries ban. However, this fishery is not considered active within the EMBA. Inligo Networks highlighted the potential activity in the region and may require simultaneous operations, communication, and facilitation. AFANT, NT Department of Agriculture and Fisheries and Inligo Networks requested to be notified prior to activities commencing (Section 5); and have been included in routine external notifications (Table 10-3). Eni will notify Defence a minimum of five weeks before the actual commencement of activities. An ongoing consultation program will consider statements and claims made by stakeholders when assessing impacts and risks.
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Demonstration of acceptability	
ESD Principles	The petroleum activities are consistent with the principles of ESD because: • The worst-case impact associated with this aspect is Negligible (1); and the residual risk is Low. • Precautionary Principle: There are no threats of serious or irreversible environmental damage. The analysis of available fishing data and usage information was supplemented with consultation where knowledge gaps were identified. • Intergenerational Principle: Impacts from this aspect will not forego the health, diversity and productivity of the environment for future generations. • Biodiversity Principle: Impacts from this aspect are not considered to have the potential to affect biological diversity or ecological integrity.
Area Sensitivity/ Biodiversity	The following fisheries that overlap the Operational Area; and of those the following are considered active: • Commonwealth-managed fisheries: 4 fisheries overlap with the Operational Area; only one is considered active. • Western Australian-managed fisheries: 8 fisheries overlap the Operational Area, only two are considered active. • Northern Territory-managed fisheries: 6 fisheries overlap the Operational area, only three are considered active. The Operational Area overlaps with low effort fishing area and/or low number of licences for the following fisheries: • Commonwealth Northern Prawn fishery (<0.1 - <0.5 day annually between 2018-2023); • WA Mackerel Managed Fishery (less than 3 vessels); • WA Northern Demersal Scalefish Fishery (less than 3 vessels); • NT Demersal Fishery (less than 5 vessels); • NT Offshore Net and Line Fishery (less than 5 vessels); and • NT Tour Operators (less than 5 vessels). Some fisheries are not currently considered active in the Operational Area, given the spatial and catch-method limitations, in place to manage the fishery stocks. These fisheries may have access rights in the future; however, it is not expected these fisheries would be significantly affected given the short duration of the vessel operations. One CCS permit overlaps with the GEP portion of the Operational Area, therefore there is the potential for future interference with any future CCS activities. The Eos 3D Seismic Survey for G-11-AP overlaps with the Operational Area for the Petrel survey. The Eos EP allows for up to 50 days of survey activity, expected 2026-2027. Eni will manage the potential of SIMOPs between other Eni petroleum activities and the survey activity (CM-07) and also will avoid SIMOPs with Santos' 3DSS to ensure no interference with the functions, interests or activities of another titleholder (CM-08).
ALARP	The residual risk has been demonstrated to be ALARP.

Given the low intensity of fishing effort, the short duration of activities and small exclusion/cautionary zones, the potential impacts are considered to be Negligible (1). The residual risk is considered Low, which is acceptable in accordance with Eni's acceptability criteria (Table 6-4). Potential impact associated with interactions with other marine users is considered acceptable and ALARP.

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7.3 Atmospheric Emissions and Greenhouse Gas

7.3.1 Summary of Environmental Impact Assessment

Hazard	Atmospheric Emissions and Greenhouse Gas		
	Frequency	Severity	Risk
Residual Risk	C	1	Low

7.3.2 Description of Hazard

7.3.2.1 Scoping

During the petroleum activities, atmospheric and greenhouse gas (GHG) emissions will be generated from:

- Vessel operations.

GHG emissions are described as Scope 1, 2 or 3, which relate to who has operational control of those emissions (Clean Energy Regulator, 2021). Scope 1 is defined as direct emissions created as a result of the activities, for example, emissions released as a result of burning fuel during offshore campaigns. Scope 2 is related to GHG emissions when electricity is purchased from the grid. Scope 3 emissions occur as a consequence of the activities of a facility, but from sources not owned or controlled by that facility's business, for example, material use and waste disposal.

7.3.2.2 Vessel Operations

Survey vessels require the use of onboard diesel generators for power generation and will use either MDO or MGO. Non-GHG emissions include sulphur oxides (SO_x), volatile organic compounds (VOC) and nitrous oxides (NO_x), and may be released to the atmosphere during fuel combustion and vessel operations. Vessels may utilise ozone-depleting substances (ODS) in closed-system rechargeable refrigeration systems. There is no planned release of ODS to the atmosphere.

During the geophysical, geotechnical and environmental survey activities, there will be only one survey vessel present in the Operational Area at any one time. Although the initial 2026 development and exploration campaigns have an expected total duration of 100 and 40 days respectively (Section 3.1.2). Any future survey campaigns are expected to be similar.

The vessels will not use an incinerator to dispose of waste.

7.3.2.3 GHG modelling

The boundary of assessment for the GHG emissions estimation is outlined in Table 7-1.

There are no Scope 1 or 2 emissions. Scope 3 emissions sources include vessel operations.

The use of fuel (specifically marine-grade diesel) to power vessel engines, generators, and mobile and fixed plant (e.g., ROV, back-deck crane, generator), will result in GHG emissions of greenhouse gases such as carbon dioxide (CO₂), methane

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(CH₄) and nitrous oxide (N₂O). These gases are recognised to also contribute to the GHG emissions loading globally, which could in turn contribute to climate change.

Table 7-1: Boundary of assessment for GHG emissions estimation

Scope / Project Activities	Survey Activities
Scope 1	N/A
Scope 2	N/A
Scope 3	Vessels¹

¹ The general transit to and from the Operational Area is excluded from the scope of the EP.

GHG emissions were estimated by multiplying the activities with the emissions factors in accordance with the methods in NGER Determination 2008. Diesel oil for transportation and kerosene emissions factors from NGER Determination were used for estimating the emissions from vessel operations. The embodied carbon emissions factors of the major materials used were taken from the ICE database. It was assumed that all the retrieved materials will be landfilled as industrial waste, with the emissions factor taken from UK GHG Conversion Factors.

Table 7-2 shows the GHG emissions for the project activities.

There were no Scope 1 or Scope 2 emissions for the survey activities. The total Scope 3 emissions were estimated to be approximately 6,760kt CO₂-e, less than ~0.0016% of the Australian carbon budgets for 2026.

Estimates have been made for the initial Development and Exploration campaigns, and to allow for future campaigns this value has been doubled.

Table 7-2: GHG emissions estimation for the project activities

Emissions Scope	Survey Activities
Scope 1 (t CO ₂ -e)	0
Scope 2 (t CO ₂ -e)	0
Scope 3 (t CO ₂ -e) ¹	6,760
Total (t CO ₂ -e)	6,760

¹ Assumed contingencies include in the durations/timing, transit speed of 4 knots within the Operational Area.

7.3.3 Potential Environmental Impact

Atmospheric and GHG emissions have the potential to result in:

- Change in air quality.

Potential receptors that may be impacted are:

- Air quality.

Given the relatively short duration of the campaigns and therefore minimal fuel usage, the contribution of GHG emissions to the global carbon budget is expected to be insignificant and is not evaluated further.

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There are no marine protected areas or KEFs located within the Operational Area.

7.3.3.1 Air Quality

Change in air quality

Hydrocarbon combustion may result in a temporary, localised reduction of air quality in the environment immediately surrounding the emission source.

The quantities of gaseous emissions are small and will quickly dissipate into the surrounding atmosphere. Atmospheric emissions will be similar to other vessels operating in the region for both petroleum and non-petroleum activities.

Local impacts typically associated with the atmospheric emissions are mitigated by the dispersive nature of the offshore environment. Any potential local elevated concentrations of emissions will be short-lived and unlikely to be detectable, except in the near vicinity of the release (i.e., within a 500m radius).

As the activity will occur in open-ocean offshore waters, the combustion of fuels in such remote location will not impact on air quality in coastal towns, considering that the nearest township is Wadeye, located ~113km southeast of the closest boundary of the Operational Area. The quantities of CO₂ emissions are relatively small (6,7660t CO₂-e for all of the survey activities) and will quickly dissipate into the surrounding atmosphere.

Accidental release and fugitive emissions of Ozone Depleting Substances (ODS) has the potential to contribute to ozone layer depletion. Maintenance of refrigeration systems containing ODS is on a routine, but infrequent basis, and with controls implemented, the likelihood of an accidental ODS release of material volume is considered rare.

Potential impacts are expected to be short-term, localised air quality changes, limited to the air shed local to the Operational Area. Atmospheric emission impacts are not expected to have direct or cumulative impacts on sensitive environmental receptors, or above National Environmental Protection (Ambient Air Quality) measures. Given the low sensitivity of the receiving environment – open offshore location away from coastal communities – the impact on air quality is anticipated to be slight.

Emissions will be small in quantity and will dissipate quickly into the surrounding atmosphere, therefore any reduction in air quality is not expected to result in any measurable effect.

7.3.3.2 Residual risk summary

The worst-case residual severity to air quality from atmospheric emissions is evaluated as Negligible (1), given the low volume of emissions from the activity.

The likelihood of atmospheric and GHG emissions causing this severity as a result of the activities is considered Unlikely (C). Therefore, the residual risk of atmospheric and GHG emissions due to the petroleum activities is considered Low.

7.3.4 Environmental Performance Outcomes and Control Measures

EPOs relating to this risk include:

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- No significant decrease in air quality (EPO-04).

CMs relating to this risk include:

- Waste Incineration (CM-09);
- Vessel fuel quality (CM-10);
- International Air pollution prevention certification (CM-11);
- Ozone-depleting substance handling procedures (ENI-HSE-PR-029_02) (CM-12);
- Management of Maritime Operations and Service (OPI-OPE-083-ENI-SPA-R01 (CM-13); and
- Planned Maintenance System (PMS) (CM-014).

7.3.5 As Low as Reasonably Practicable Demonstration

Demonstration of ALARP			
Type	Control/management	Evaluation	Adoption?
Eliminate	Eliminate the use of the vessels in the Operational Area	Vessels are required to perform equipment removal activities and vessel use cannot be eliminated.	✗
	Waste incineration	Ensure vessels' incinerators are managed in a way that is responsible and as per international standards.	✓ (CM-09)
Substitute	Use green energy sources on the vessels	Alternatives such as renewable energy generators (wind and sun) are not viable options as they are weather dependent and do not supply continuous base load power. Vessels powered by renewables is not currently accepted technology, are not widely available and engaging them would have significant cost and schedule impacts. For the short duration of the campaigns, the benefit is considered grossly disproportionate. The vessels will use MDO, which is low in sulphur dioxide, in accordance with Marine Order 97.	✗
	Vessel fuel quality (in compliance with Marine Order 97)	Reduces emissions through use of low sulphur fuel in accordance with Marine Order 97. Minimal cost as vessels are required to comply with Marine Orders.	✓ (CM-10)
Engineering	N/A	N/A	N/A
Isolation	N/A	N/A	N/A
Administrative	Vessel International air pollution prevention certificate (in	Reduces the probability of potential impacts to air quality. Minimal cost, as vessels are required to comply with Marine Orders.	✓ (CM-11)

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Demonstration of ALARP			
Type	Control/management	Evaluation	Adoption?
	compliance Marine Order 97)		
	Ozone-depleting substance handling procedures (ENI-HSE-PR-029_02)	Where present, ensure vessel's ODS are managed in a way that is responsible and as per international standards.	✓ (CM-12)
	Planned Maintenance System	Ensures vessels are running efficiently and are as per manufacture specifications. Routine maintenance endeavours to ensure emissions are minimal. No additional costs, is industry best practice.	✓ (CM-13)

7.3.6 Acceptability Demonstration

Demonstration of acceptability	
Compliance with Legal Requirements, Laws and Standards	Atmospheric emissions will be managed in accordance with relevant legislative requirements, including compliance with international maritime conventions and Australian legislation, specifically: • MARPOL 73/78: Annex VI: Regulations for the prevention of air pollution from ships; • Marine Order 97: Marine Pollution Prevention – Air Pollution; and • Relevant requirements of the National Pollutant Inventory National Environmental Protection Measure.
Policy Compliance	The management of atmospheric emissions from the petroleum activities are aligned with Eni policies and standards. The residual risk is Low, which is acceptable. The EPO, CM and EPS that will be implemented are consistent with Eni internal requirements.
Social Acceptability	During stakeholder consultation (APPENDIX C), the Australian Marine Conservation Society requested the proposed GHG control measures, which Eni provided. To date, no relevant person concerns have been raised regarding atmospheric emission impacts (refer Section 5). An ongoing consultation program will consider statements and claims made by stakeholders when assessing impacts and risks.
Area Sensitivity/Biodiversity	Offshore location means winds will disperse and dilute emissions rapidly. The estimated volume of total CO ₂ emissions (6,760kt CO ₂ -e for survey activities) is relatively low. No human settlements nearby. Atmospheric emissions have not been identified as a threat in any recovery plans or conservation advice for EPBC Act listed threatened and migratory species.

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Demonstration of acceptability	
ESD Principles	The activity is consistent with the principles of ESD because: • The worst-case impact associated with this aspect is Negligible (1); and the residual risk is Low. • Precautionary Principle: There are no threats of serious or irreversible environmental damage; and there is no scientific uncertainty associated with the potential impact. • Intergenerational Principle: Impacts from this aspect will not forego the health, diversity and productivity of the environment for future generations. • Biodiversity Principle: Impacts from this aspect are not considered to have the potential to affect biological diversity or ecological integrity.
ALARP	The residual risk has been demonstrated to be ALARP.

Potential impacts associated with atmospheric emissions are Negligible (1) due to the relatively low total volume of emissions. The residual risk is considered Low, which is acceptable in accordance with Eni's acceptability criteria (Table 6-4). Potential impact associated with atmospheric emissions is considered acceptable and ALARP.

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7.4 Noise Emissions

7.4.1 Summary of Environmental Impact Assessment

Hazard	Seabed Disturbance		
	Frequency	Severity	Risk
Residual Risk	C	1	L

7.4.2 Description of Hazard

During the petroleum activities, noise emissions will be generated from:

- Geophysical surveys;
- Geotechnical surveys; and
- Vessel operations.

Vessel transit outside of the Operational Area is not within scope of this EP and comes under the *Navigation Act 2012*.

7.4.2.1 Geophysical Surveys (SBP, SSS, SBES, MBES, USBL, SVP, and DVL)

Geophysical survey techniques, specifically SBP, SSS, SBES, MBES, USBL, SVP, and DVL, are designed to characterise the seabed topography, bathymetry, potential geohazards, and other seafloor features using impulsive sound sources. Impulsive noise can be defined as a series of pulsed sound events that are brief, broadband, atonal and transient. The geophysical surveys will be undertaken using a multi-purpose catamaran or single hull vessel and are expected to last for approximately 40 days at the Operational area (development campaign) and 20 days at the retention leases only (exploration campaign).

Impulsive sound sources generated by relevant geophysical survey techniques are detailed in Table 7-3.

Table 7-3: Summary of noise emissions source levels of geophysical activities (SBP, SSS, SBES, MBES, USBL, SVP, and DVL)

Noise Source	Source levels	Frequency	Literature source
SBP	SPL: 161–230dB re 1μPa @ 1m	2-16kHz	(Seiche, 2020)
SSS	SPL: 200 – 234dB re 1μPa @ 1m	10-900kHz	(Seiche, 2020)
SBES	SPL: 180–210 dB re 1μPa @ 1m	12-200kHz	(Seiche, 2020)
MBES	SPL: 210-247dB re 1μPa @ 1m	10-900kHz	(Seiche, 2020)
USBL	SPL: 187–202 dB re 1μPa @ 1m	19-34kHz	(Seiche, 2020)
SVP	SPL: 180–190 dB re 1μPa @ 1m	2500kHz	(Valeport, 2022)
DVL	SPL: 214–219 dB re 1μPa @ 1m	500kHz	(Sonardyne, 2024)

The high operating frequencies for SSS, SBES, MBES, USBL, SVP, and DVL (as detailed in Table 7-3) produce narrow sound beams primarily directed at the seabed (Seiche, 2020). This results in limited horizontal sound spread and rapid sound energy dissipation. The high frequency pulses of sound are produced in a highly directional and narrow beams, which rapidly attenuate outside of the beam (JASCO, 2013).

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SBP uses lower frequencies (2-16kHz) within the hearing range of most marine fauna. SBP also focuses sound energy towards the seabed, minimising horizontal sound propagation. SBPs produce directional beams of sound towards the seabed and therefore sound propagation tends to be downwards in the water column with limited horizontal propagation.

Noise modelling studies conducted by McPherson and Wood (2017) and Wood and McPherson (2019) for the Beach Energy geophysical and geotechnical seabed survey EP modelled impulsive SBP noise sources. Due to its lower frequency (within the hearing range of most marine fauna) and greater sound-propagation potential, SBP is considered the conservative analogue for other geophysical survey techniques (including SSS, SBES, MBES, USBL, SVP and DVL). These studies show that SBP noise exhibits limited horizontal propagation outside the main acoustic beam and is therefore an appropriate proxy for these geophysical survey techniques, given the similarity in survey methods and seabed characteristics (cemented calcarenite caprock with coarse carbonate sand). Model predictions indicate that noise-effect thresholds (Section 7.4.3.1) would only be exceeded for plankton, fish, turtles and marine mammals within approximately 10 m of the sound source, while thresholds for invertebrates, lobsters and squid were not reached. A complementary vessel-noise modelling study by Koessler and McPherson (2020) predicted that effect criteria for vessel operations are reached within 4.57km (Section 7.4.3). As this distance is substantially larger than the 10 m range predicted for SBP, SSS, SBES, MBES, USBL, SVP, and DVL geophysical techniques, noise generated by these techniques are expected to be indistinguishable from vessel noise at lower frequencies.

As the predicted spatial extent of geophysical survey noise is very limited, cumulative impacts are also unlikely. Geophysical noise from SBP, SSS, SBES, MBES, USBL, SVP, and DVL is therefore considered within the broader assessment of vessel noise.

7.4.2.2 Geophysical Surveys (2DHR and VHR Surveys)

Geophysical survey techniques, specifically the 2DHR and VHR surveys, are designed to characterise drilling conditions across the top-hole section.

The 2DHR and VHR survey systems will comprise a multichannel single-cable 2DHR setup using a 4 × 40 in³ airgun array operated at a source depth of 3 m ± 0.5 m, along with a VHR system employing a single-channel streamer sparker (Dura-Spark).

Impulsive sound sources generated by 2DHR and VHR Surveys are detailed in Table 7-4.

Table 7-4: Summary of noise emissions source levels of geophysical activities (2DHR and VHR Surveys)

Noise Source	Source levels	Frequency	Literature source
2DHR 4 × 40 in ³ airgun array	Broadside Peak SPL: 237.6dB dB re 1 µPa ² ·s m ²	5 Hz to 2 kHz	(Connell and Koessler, 2026)
VHR 3000 J sparker source	Broadside Peak SPL: 219.4dB dB re 1 µPa ² ·s m ²	5 Hz to 25 kHz	(Connell and Koessler, 2026)

The frequency range for the 2DHR and VHR surveys is within the hearing range of most marine fauna. The surveys produce directional beams of sound towards the seabed. Once the sound hits the seabed, it reflects and can scatter and travel

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horizontally through the water column at greater distances than SBP (Section 7.4.2.1) however significantly less than large scale seismic surveys. Based on this uncertainty, Eni commissioned JASCO to undertake a modelling study of underwater sound levels associated with the 2DHR and VHR surveys (APPENDIX F; Connell and Koessler, 2026). Model predictions indicate that noise-effect thresholds (Section 7.4.3.1) would only be exceeded for invertebrates (no effect), fish, turtles and marine mammals within approximately 3km from the sound source. A complementary vessel-noise modelling study by Koessler and McPherson (2020) predicted that effect criteria for vessel operations are reached within 4.57km (Section 7.4.2.4). Review of both studies found some criteria within the Connell and Koessler (2026) study for the 2DHR and VHR surveys are met at greater ranges than the vessel noise study by Koessler and McPherson (2020). However, given the greatest distance to criteria from the vessel noise study is substantially larger than the 3km range predicted for the 2DHR and VHR surveys, noise generated by these geophysical techniques are expected to be indistinguishable from vessel noise at lower frequencies.

As the predicted spatial extent of geophysical survey noise is very limited, cumulative impacts are also unlikely. Geophysical noise from the 2DHR and VHR surveys is therefore considered within the broader assessment of vessel noise. Where ranges to relevant acoustic criteria for the 2DHR and VHR surveys exceed the equivalent criteria in the vessel-noise study, those greater distances will be conservatively adopted as the defining range of potential impact to receptors. This ensures that assessment of underwater noise exposure is based on the most precautionary (i.e., largest) predicted ranges across both modelling studies and provides a robust basis for evaluating potential impacts.

7.4.2.3 Geotechnical Surveys

During geotechnical surveys, the primary sources generated of underwater noise are the downhole geotechnical boreholes drilled into the seabed. The boreholes will be drilled with either conventional rotary drilling with wireline sampling or seabed drilling systems. Rotary coring will be performed when hard soil/rock is encountered. Erbe and McPherson (2017) measured noise levels associated with standard penetration testing and small-core drilling in waters off WA. Penetration testing produced broadband (20Hz–24kHz) source levels of 151–160dB re 1 $\mu\text{Pa}^2 \cdot \text{s}$ SEL at 1m (approximately 160–170dB re 1 μPa SPL at 1m), with received levels decreasing to around 141–146 dB re 1 μPa SPL within 20m of the source. Drilling for boreholes generated broadband (30Hz–2kHz) source levels of 142–145dB re 1 μPa SPL at 1m (Erbe and McPherson, 2017).

These noise levels are tens of decibels lower than those produced by other activities described in this EP (refer to Table 7-4 and Table 7-5). Although underwater noise from geotechnical seabed activities (rotary drilling or rotary coring) may influence the behaviour of nearby marine fauna, any effects are expected to be highly localised (within approximately 10m) and short-term. Noise levels are well below thresholds associated with injury or hearing impairment (Erbe and McPherson, 2017). Given the limited spatial extent of noise emissions from geotechnical equipment, cumulative impacts are also unlikely. Consequently, noise generated by vessel operations has been assessed separately as part of the overall noise assessment.

7.4.2.4 Vessel Operations

Vessel operations generate continuous noise from propellor cavitation, thrusters, hydrodynamic flow around the hull, and the operations of machinery and equipment.

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Vessel-based operations have an expected duration of 10 days to 40 days, depending on the survey activity and campaign (Section 3.1.2). Any future survey campaigns are expected to be similar. The timing of these activities are outlined in Table 3-1. During the geophysical, geotechnical and environmental survey activities within each campaign, there will be a maximum of one vessel within the Operational Area at any one time.

Vessels typically produce sound levels around 160-180dB re 1μPa at 1m, generally dominated by low frequencies during transit and drop with reduced speed. The sound produced usually increases with increasing vessel size; varying from 160 to 175dB (re 1μPa) for small vessel (<50m), to 165 to 180dB (re 1μPa) for vessels in the 50 to 100m size class, and up to 190dB re 1μPa SPL for large ships (Gotz et al., 2009).

Noise levels are the highest when vessels are holding position, with the use of thrusters to maintain position (under DP). A vessel using DP produces noise of low frequency, less than 1kHz, with broadband values from 177dB re 1μPa at 1m (Simmonds et al., 2004). More recently, Welch et al., (2023), modelled underwater sound levels from a support vessel as 173.0dB re 1μPa whilst slowly transiting, up to 190.0dB re 1μPa whilst under DP. Similar noise levels are expected to be generated by the vessels used for the development and exploration survey campaigns.

Table 7-5 provides a summary of the continuous sound sources relevant to this activity and relevant literature sources for each.

Table 7-5: Summary of noise emissions source levels from survey activities

Noise Source	Source levels	Literature source
Support Vessel under DP	Broadband SPL: 190.0dB re 1μPa	(Welch et al., 2023)
Support Vessel in slow transit ¹	Broadband SPL: 173.0dB re 1μPa	(Welch et al., 2023)

Broadband SPL calculated over 10Hz to 25kHz range.

¹Only within the Operational Area. Transit out with the Operational Area is not within the scope of this EP.

7.4.2.5 ROV Operations

ROV operations will be undertaken during the petroleum activities, notably to support the geophysical and environmental survey activities and in the event of dropped objects. The ROV will be deployed from the vessel, and the continuous noise generated will typically be of considerably lower intensity than the DP vessel noise. It is expected that the underwater noise generated by ROV operations will be largely indistinguishable from background vessel noise at lower frequencies. Consequently, the noise produced by ROV operations will be considered as part of noise generated by vessel operations.

7.4.3 Noise Emission Modelling

Eni commissioned JASCO to undertake two underwater acoustic modelling studies: one assessing sound levels generated by the 2DHR and VHR surveys (Connell and Koessler, 2026), and another evaluating vessel-related underwater noise associated with the Petrel Development (Warren et al., 2024). In addition to these studies, Eni identified a comparable acoustic modelling assessment undertaken for Santos' Dorado Development (Koessler and McPherson, 2020). This additional study was

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considered appropriate and conservative for characterising underwater noise from a single vessel—representing the maximum number of vessels expected within the Operational Area during the Activity (Section 3.3.1), because the Warren et al. (2024) modelled scenario for the Petrel Development assumes a minimum of two vessels operating concurrently within the Operational Area.

The additional study by Koessler and McPherson (2020) is considered a comparable, appropriate and conservative proxy to characterise underwater noise from a single survey vessel given:

- the continuous noise propagation ranges modelled by Koessler and McPherson (2020) are relevant to, and conservative for, the continuous noise expected from the survey vessel;
- the seabed lithology assumed in Koessler and McPherson (2020)—medium carbonate sand and calcarenite—is comparable to the carbonate sands anticipated within the Operational Area (Section 4.3.3), a key factor influencing underwater sound propagation; and
- the water depths modelled in Koessler and McPherson (2020) (approximately 90m) fall within the range of depths present in the Operational Area (50 – 107m), providing a suitable representative and conservative basis.

Given the nature and scale of the activities, the modelling is conservative and considered applicable in informing the noise impact assessment (Section 7.4.4).

7.4.3.1 Noise threshold criteria

Different species groups perceive and respond to underwater sound differently, so a range of exposure criteria has been applied to assess potential impacts across taxa.

For impulsive sound sources, the study by Connell and Koessler (2026) modelled received levels (PK, SPL, SEL) from the 2DHR and VHR surveys and compared results against receptor-specific impulsive noise effect criteria to determine whether impacts may occur. These criteria are based on published scientific studies, as summarised in Table 7-6 and the relevant receptor sections. Thresholds were defined for both the per-pulse energy released and the accumulated sound energy across multiple pulses. A 24-hour accumulation period was applied, reflecting the timeframes within which fish recover from temporary threshold shift (TTS) (18–24 hours; Popper et al., 2014) and consistent with NMFS (2024) guidance for marine mammals, which requires assessment over 24 hours or the duration of exposure, whichever is shorter. This approach assumes continuous exposure over the 24-hour period.

For continuous sound sources, the study by Warren et al. (2024) for the Petrel Development applied the following thresholds (as summarised in Table 7-7):

- Frequency-weighted accumulated sound exposure levels (SEL_{24h}) from NMFS (2024) for the onset of AINJ and TTS in marine mammals;
- Un-weighted SPL for behavioural threshold for marine mammals based on NOAA technical guidance (2024);
- Frequency-weighted accumulated sound exposure levels (SEL_{24h}) from Accomando et al., (2025) for the onset of AINJ and TTS in marine turtles;

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- Sound exposure guidelines for fish, fish eggs, and larvae (Popper et al., 2014);
- Current available literature on the sound exposure impacts to marine invertebrates for continuous noise is limited. Information is only available to define threshold levels for assessment for impulsive sources. Consequently, impacts to invertebrates have not been discussed further in this section; and
- There are no thresholds for underwater sound impacts to birds.

Recent Commonwealth guidance has defined “injury to blue whales” as both PTS and TTS hearing impairment, as well as any other form of physical harm arising from anthropogenic sources of underwater sound (DAWE, 2021).

The additional study by Koessler and McPherson (2020) also used the behavioural threshold for marine mammals based on NOAA technical guidance (2024), however relied on superseded criteria for the onset of PTS and TTS to marine mammals and marine turtles (Southall et al., 2019; Finneran et al., 2017).

As a conservative approach, the modelling results applied for this impact assessment use the ranges to behavioural thresholds for marine mammals from Koessler and McPherson (2020), while the ranges to auditory injury (including PTS) and TTS are taken from Warren et al. (2025). This ensures the use of the current best available science for noise-effect criteria cited in Accomando et al. (2025), NMFS (2024) and NOAA (2024). Using Koessler and McPherson (2020) for behavioural thresholds provides an appropriate representation of a single survey vessel, whereas using Warren et al. (2025) for the auditory-injury and TTS thresholds provides a highly conservative basis, given that the Warren et al. (2025) modelling scenario assumes two transiting vessels within the Operational Area to represent the effect of a single survey vessel.

7.4.3.2 Noise modelling results

Table 7-6 and Table 7-7 present the maximum predicted ranges to underwater noise thresholds for the 2DHR and VHR impulsive sources and for continuous vessel noise, respectively. These tables are provided to allow a direct comparison of the relative acoustic footprints of impulsive versus continuous sources associated with the survey activities.

Although the ranges to impulsive sound thresholds for the 2DHR and VHR surveys are presented for completeness, impulsive underwater noise from these sources are expected to be acoustically indistinguishable from vessel noise at lower frequencies. As shown in Table 7-6, the maximum predicted range to thresholds from impulsive noise (3.02km) is substantially smaller than the maximum predicted range to thresholds from continuous-noise (4.57km) presented in Table 7-7, demonstrating that vessel-generated continuous noise dominates sound exposure within the Operational Area. This comparison confirms that, in practice, the impulsive underwater noise from the 2DHR and VHR surveys will not extend the overall noise footprint beyond that already defined by the continuous underwater noise generated by the survey vessel.

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Table 7-6: Impulsive sound effect criteria used and the applicable results for representative single pulse sites (PK) and for accumulated SEL scenarios (Connell and Koessler, 2026)

Hearing Group	Potential Impact	Noise Effect Criteria	Maximum (R_{max}) Horizontal Distance (km) for Scenario 1 (2DHR 4 × 40 in ³ airgun array)	Noise Effect Criteria Reference
Fish eggs and larvae (including plankton)	Mortality/ potential mortal injury	207 dB PK 210 dB SEL _{24h}	0.03 0.06	Popper et al., 2014
Fishes (swim bladder)	Mortality/ potential mortal injury	207 dB PK or 207 dB SEL _{24h}	0.03 0.10	Popper et al., 2014
	Recoverable injury	207 dB PK or 203 dB SEL _{24h}	0.03 0.18	Popper et al., 2014
Fishes (no swim bladder)	Mortality/ potential mortal injury	213 dB PK or 219 dB SEL _{24h}	- 0.02	Popper et al., 2014
	Recoverable injury	213 dB PK or 216 dB SEL _{24h}	- 0.03	Popper et al., 2014
Fishes (swim bladder or no swim bladder)	TTS	186 dB SEL _{24h}	1.01	Popper et al., 2014
Marine Turtles	Behavioural disturbance	175 dB SPL	0.16	McCauley et al., 2000
	Behavioural response	166 dB SPL	0.39	McCauley et al., 2000
	TTS	224 dB PK 169 dB SEL _{24h}	- 2.33	Accomando et al., 2025
	Auditory Injury	230 dB PK 184 dB SEL _{24h}	- 0.87	Accomando et al., 2025
Marine mammals	Behavioural	160 dB SPL	0.68	NOAA 2024
Low-frequency	TTS	216 dB PK 168 dB SEL _{24h}	- 3.02	NMFS 2024

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Hearing Group	Potential Impact	Noise Effect Criteria	Maximum (R_{max}) Horizontal Distance (km) for Scenario 1 (2DHR 4 × 40 in ³ airgun array)	Noise Effect Criteria Reference
(LF) cetaceans (humpback and pygmy blue whales)	Auditory Injury	222 dB PK 183 dB SEL _{24h}	- 1.01	NMFS 2024
High-frequency (HF) cetaceans (dolphins, beaked whales, sperm whales)	TTS	224 dB PK 178 dB SEL _{24h}	- 0.24	NMFS 2024
	Auditory Injury	230 dB PK 193 dB SEL _{24h}	- 0.03	NMFS 2024
Very High frequency (VHF) cetaceans: (porpoises, pygmy and dwarf sperm whales)	TTS	196 dB PK 144 dB SEL _{24h}	0.12 1.23	NMFS 2024
	Auditory Injury	202 dB PK 159 dB SEL _{24h}	0.06 0.22	NMFS 2024
Sirenians (dugong)	TTS	219 dB PK 171 dB SEL _{24h}	- 0.13	Accomando et al. 2025
	Auditory Injury	225 dB PK 186 dB SEL _{24h}	- 0.02	Accomando et al. 2025
Benthic Invertebrates	No effect	202 PK-PK	0.07	Payne et al. 2008
	Potential impairment	209-212 PK-PK	-	Day et al. 2016 Day et al. 2019
	Physiological harm or behavioural disruption	212 PK-PK	-	Day et al. 2017

Note: A dash indicates the level was not reached within the limits of the modelled resolution.

Only the results of Scenario 1 (2DHR 4 × 40 in³ airgun array) are summarised, as this scenario produces the greatest ranges to thresholds. Predictions from the VHR scenarios (Scenarios 2, 3 and 4) indicate substantially smaller ranges, and therefore are not presented here (refer to Appendix F for details).

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Table 7-7: The maximum distance (km) from the continuous sound source to reach the noise effect criteria (Koessler and McPherson, 2020; Warren et al., 2025)

Hearing Group	Potential Impact	Noise Effect Criteria	Maximum (R_{max} Horizontal Distance (km) (values based on Scenario 3 from Warren et al. (2025) unless stated otherwise)	Noise Effect Criteria Reference
Fishes (swim bladder involved in hearing)	Recoverable Injury	207 dB PK or 207 dB SEL _{24h}	-	Popper et al., 2014
	TTS	207 dB PK or 203 dB SEL _{24h}	0.09	Popper et al., 2014
Marine Turtles	TTS	178 dB SEL _{24h}	1.33	Accomando et al., 2025
	Auditory Injury	198 dB SEL _{24h}	0.08	Accomando et al., 2025
Marine mammals	Behavioural	120 dB SPL	4.57 (Koessler and McPherson, 2020)	NOAA 2024
Low-frequency (LF) cetaceans (humpback and pygmy blue whales)	TTS	177 dB SEL _{24h}	3.92	NMFS 2024
	Auditory Injury	197 dB SEL _{24h}	0.08	NMFS 2024
High-frequency (HF) cetaceans (dolphins, beaked whales, sperm whales)	TTS	181 dB SEL _{24h}	0.32	NMFS 2024
	Auditory Injury	201 dB SEL _{24h}	0.03	NMFS 2024
Very High frequency (VHF) cetaceans: (porpoises, pygmy and dwarf sperm whales)	TTS	161 dB SEL _{24h}	1.07	NMFS 2024
	Auditory Injury	181 dB SEL _{24h}	0.05	NMFS 2024
Sirenians (dugong)	TTS	180 dB SEL _{24h}	0.06	Accomando et al., 2025

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Hearing Group	Potential Impact	Noise Effect Criteria	Maximum (R_{max} Horizontal Distance (km) (values based on Scenario 3 from Warren et al. (2025) unless stated otherwise)	Noise Effect Criteria Reference
	Auditory Injury	200 dB SEL _{24h}	0.03	Accomando et al., 2025

Note: A dash indicates the level was not reached within the limits of the modelled resolution.

7.4.4 Potential Environmental Impact

Continuous noise emissions have the potential to result in:

- Change in fauna behaviour, including:
 - Disturbance – disturbance to marine fauna leading to behavioural changes or displacement from important areas; and
 - Masking - interfering with other biologically important sounds, including vocal communication, echolocation, signals, and sounds produced by predators or prey.
- Injury/mortality to marine fauna, such as:
 - Recoverable injury – direct physical effects which the individual can recover from;
 - Mortality or potential mortal injuries - direct physical effects on hearing or other organs resulting in mortality / potential mortality;
 - Temporary Threshold Shift (TTS) – temporary reduction in the ability to perceive sound after being exposed to noise, with hearing returning to normal; and
 - Auditory Injury (AINJ) – is a form of damage to the auditory system caused by intense noise exposure, which includes, but is not limited to, permanent threshold shift (PTS). PTS is a permanent reduction in the ability to perceive sound after being exposed to noise.

Potential receptors that may be impacted are:

- Plankton;
- Fish;
- Marine reptiles; and
- Marine mammals.

Although fish may be potentially impacted by underwater sound emissions, the area of influence is considered highly localised and no discernible impacts to behaviour and distribution at the population level are expected. Therefore, given the limited nature and scale of activities associated with impulsive underwater sound emissions, socio-economic impacts on commercial fisheries are not expected, and have not been evaluated further.

Marine invertebrates have not been evaluated further, given the modelled sound levels did not reach any of the established thresholds associated with physiological damage, behavioural change, or impairment (Table 7-6). As none of the marine

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invertebrate effects related criteria were triggered, impact assessment for this group is not required.

The following impact assessment is based on exposure to continuous underwater noise generated by operation of the survey vessel. Impulsive underwater noise emissions from geophysical survey techniques are not expected to propagate beyond, or exceed, the maximum range to threshold criteria for continuous underwater noise emitted by the vessel. Given that impulsive noise dissipates rapidly with distance and becomes acoustically indistinguishable from vessel noise at lower frequencies, any cumulative impacts arising from the combined impulsive and continuous noise sources are not considered credible. Where predicted ranges to relevant acoustic criteria for the 2DHR and VHR surveys exceed those from the vessel-noise study, the greater distances will be conservatively applied to define the potential impact range for receptors.

7.4.4.1 Plankton

Plankton are found in nearshore and open waters beneath the surface and form the basis for the marine food web. Plankton typically have naturally high levels of mortality rates and patchy distribution that is highly correlated to localised and seasonal productivity (DEWHA, 2008a). The Operational Area does not overlap any known areas for upwelling or areas of high productivity (Section 4.4.1).

Injury/mortality to marine fauna

Plankton, including fish eggs and larvae, may be impacted by exposure to underwater continuous noise. Studies have identified plankton, including fish eggs and larvae to have low relative risk of impact (including impairment, mortality and potential mortal injury) from vessel noise exposure (Popper et al., 2014). Currently, quantitative threshold criteria for behavioural responses of fishes from underwater sound do not exist (Popper et al., 2014).

The Operational Area does not contain habitats that encourages high productivity; therefore, the presence and distribution of plankton is expected to be patchy if present. Continuous noise generated during the activity may temporarily impact low levels plankton if present within the Operational Area. Potential localised and temporary impacts to plankton including fish eggs and larvae in the Operational Area are not expected to cause impacts at an ecosystem or population level.

The worst-case residual severity to plankton from noise emissions is evaluated as Negligible (1), given the highly localised, short-term exposure and the anticipated rapid recovery rates resulting in negligible impacts that are not expected to impact species at a population level.

The likelihood of an impact to plankton from noise emissions associated with the activity is considered Unlikely (C) as any impacts are predicted to be short-term and not impact species at a population level due to the limited spatial extent of plankton in the Operational Area and short duration of the noise emission.

7.4.4.2 Fish

Fish and sharks present within the Operational Area and surrounds are expected to be transient individuals, based on the absence of BIAs and critical habitat (see Section 4.4.6).

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Change in behaviour

Studies have identified fish and sharks to be susceptible to behavioural change from vessel noise, with documented observations of behavioural responses, such as avoidance (Chapius et al., 2019; Popper et al., 2014). However, currently, quantitative threshold criteria for behavioural responses of fishes from underwater sound do not exist (Popper et al., 2014).

However, majority of the EPBC listed fish species identified to potentially occur in the area (Table 4-4; APPENDIX B), are highly mobile species, and therefore are expected to be transitory in nature. Mobile species are expected to actively move away from the sound source. Based on the absence of suitable habitat for site-attached fish, with the area expected to be predominantly bare sediment with occasional low density of epifauna (e.g. sponges), only transient individuals are expected to be within the Operational Area and subject to temporary behavioural changes close to the source of noise emissions. Potential localised and temporary behavioural changes to individual fish in the Operational Area is not expected to impact fish populations.

The worst-case residual severity to fish and sharks from noise emissions is evaluated as Negligible (1), given the expected low numbers of fish and sharks, limited exposure extent, and expected short-term impacts to species of recognized conservation value, and is not expected to impact species at a population level.

The likelihood of an impact from noise emissions associated with the activity is considered Unlikely (C) as any impacts are predicted to be short-term and not impact species at a population level due to the limited spatial extent and short duration.

Injury/mortality to marine fauna

Popper et al., (2014) has classified fishes into categories based on the presence of a swim bladder (or other gas volumes) which aids in hearing by transmitting vibrations to the inner ear, and consequently would potentially enhance the impact of noise emissions. Currently, only quantitative threshold criteria for impairment of fishes from continuous sound exist for fish with swim bladders used for hearing (Popper et al., 2014). Whereas, Table 7-6 outlines the different noise effect thresholds modelled for fish with swim bladders used for hearing and summarises the results for the worst-case maximum distances to reach impulsive thresholds. As a conservative approach, this assessment will consider potential impacts to all fish categories using the maximum range predicted for potential impairment to fish with swim bladders used for hearing for both continuous and impulsive sound sources.

The maximum distance to reach fish impact threshold criteria is within 1.01km of the impulsive sound source for the onset of TTS (Table 7-6).

The onset of auditory impairment, TTS and PTS to fish requires either chronic exposure (over 24 hours) or sudden intense sound exposure (Popper et al., 2014). Given no habitats likely to support site-attached fish have been identified within the Operational Area (Section 4.4.6), it is unlikely that fish species would be present within 1.01km for a period of 24 hours whilst survey activities are occurring. Based on the predominantly transient and highly mobile nature of fish and their ability to move away from noise sources, the potential for individuals to experience injury or potential mortality due to underwater noise within the Operational Area is not considered credible.

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7.4.4.3 Marine reptiles

The Operational Area overlaps BIAs for four species of marine reptiles that are sensitive to changes in underwater noise emissions as identified by the EPBC Act PMST:

- Green turtle – foraging;
- Olive Ridley turtle – foraging;
- Flatback turtle – foraging; and
- Loggerhead turtle – foraging.

The only species which has habitat critical to the survival of the species identified within proximity of the noise effect criteria was the flatback turtle; the internesting buffer is ~5km south of the Operational Area (outside of the predicted range to noise effect criteria threshold), and the internesting habitat itself is >100km away (see Section 4.4.8 for further details on the importance of this habitat to the flatback turtle).

Change in behaviour

Marine turtles are not reported to use sound for communication; however, studies have identified marine reptiles to be susceptible to behavioural change from vessel noise, with documented observations of behavioural and acoustic responses, auditory masking, and avoidance (Popper et al., 2014). Marine turtles use sounds for navigation, to avoid predators and to find prey (Dow Piniack, 2012). The Recovery Plan for Marine Turtles in Australia (CoA, 2017c) highlights noise interference from anthropogenic activities as a threat to marine turtles. The plan refers to vessel noise as a source of chronic (continuous) noise in the marine environment, of which exposure may lead to avoidance of important turtle habitat. However, specific data on behavioural response thresholds, such as avoidance or masking, of marine turtles to sound emissions does not exist, and therefore, thresholds have not been defined (Popper et al. 2014).

Marine turtles, such as the flatback and logger head turtle have been shown to forage within the in-reef habitats and around the pinnacles on the mid-shelf of the Joseph Bonaparte Gulf (Galaiduk et al., 2018). The Pinnacles of the Bonaparte Basin does not directly overlap the Operational area; however, they are located in close proximity (<1km) from the Operational Area (Section 4.5.2). Considering the water depths of the Operational Area (50-107m) and the known presence of Olive Ridley turtles utilising the JBG for foraging behaviours it is considered likely that they will be present within the Operational Area and may be exhibiting foraging behaviours (Section 4.4.4). However, the Operational Area does not overlap any habitat critical to the survival of the species.

Based on the absence of habitat critical to the survival of the species and suitable foraging habitats directly within the Operational Area, it is expected that only transient individuals, opportunistically foraging, are expected to be within the Operational Area and subject to temporary behavioural changes close to the source of noise emissions. The Recovery Plan for Marine Turtles in Australia states that potential behavioural changes to individual marine turtles are not expected to impact turtle populations (CoA, 2017c). Therefore, any impact from underwater noise during survey activities to marine turtle behaviour is expected to be localised, short-term, and not affect population functioning.

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The worst-case residual severity to marine reptiles from noise emissions is evaluated as Negligible (1), given the expected low numbers of marine turtles, limited exposure extent, absence of aggregation areas of habitats critical to the survival of the species and expected short-term impacts to species of recognised conservation value and is not expected to impact species at a population level.

The likelihood of an impact from continuous noise emissions associated with the activity is considered Unlikely (C) as any change in behaviour impacts are predicted to be short-term and not impact species at a population level due to expected low numbers of marine turtles within the Operational Area, limited exposure extent, lack of habitats critical to survival of the species.

Injury/mortality to marine fauna

There is limited data on the impacts of underwater noise emissions to marine turtles. In general, they are known to have poor auditory sensitivity (Dow Piniak et al., 2012; Finneran et al., 2017). Table 7-6 and Table 7-7 outlines the different noise effect thresholds modelled for these categories and summarises the results for the worst-case maximum distances to reach these thresholds.

The maximum distance to reach the marine turtle impact threshold criteria is within 2.33 km of the impulsive sound source for the onset of TTS (Table 7-6).

Therefore, it is possible for TTS and AINJ impacts to occur during the survey activities. However, there is a lack of aggregation areas or habitat critical to the survival of the species, with the closest being the internesting buffer for flatback turtles, located ~5km from the edge of the Operational Area, therefore, marine turtle species are not likely to be resident or occur in the Operational Area in significant numbers. Marine turtles present within the area, are likely to be transient individuals, opportunistically foraging.

The onset of TTS and AINJ requires chronic exposure (over 24 hours), therefore it is unlikely that individual marine turtles will remain within these distances for 24 hours whilst activities are occurring. Consequently, given the transient nature of marine turtles and their ability to move away from noise sources, the potential of individuals to experience the onset of TTS and/or AINJ is not reasonably expected.

The potential impact is not reasonably expected given that the onset of injury/mortality (TTS and AINJ) requires chronic exposure (over 24 hours), and absence of aggregation areas of habitats critical to the survival of the species within these distances, does not encourage marine turtles to remain within these distances for 24 hours whilst activities are occurring for the onset of injury/mortality to occur.

Therefore, there is no risk of injury/mortality to marine reptiles from noise emissions.

7.4.4.4 Marine mammals

Several species of marine mammals have been identified to potentially be present within the Operational Area including low frequency (baleen whales such as blue, fin, sei, humpback and Omura's whale), high frequency (odontocetes such as orca and sperm whale), very high frequency (such as dolphins) cetaceans, and sirenians (dugongs). However, the Operational Area overlaps no known aggregation, resting, breeding or feeding BIAs or habitat critical to the survival of the species for marine mammals that are identified by the EPBC Act PMST (Section 4.4.7).

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Change in behaviour

Marine mammals have been shown to be susceptible to behavioural change from vessel noise, with documented observations of behavioural and acoustic responses, auditory masking, and avoidance (Erbe et al., 2019). Behavioural changes to transient marine mammal individuals include avoidance, increase or decrease in vocalisations, dive duration, travel speed and number of breaches (Erbe et al., 2019). Vessel noise has also been shown to reduce foraging efficiency for specific species, such as sperm whales (Erbe et al., 2019).

Auditory masking impacts may occur when there is a reduction in audibility for one sound (signal) caused by the presence of another sound (noise). This may result in a subsequential change in behaviour. For this to occur the noise must be loud enough and have a similar frequency to the signal and both signal and noise must occur at the same time. Therefore, the closer the marine mammal is to the sound source, and the more overlap there is with their vocalisation frequencies, the higher the probability of masking. The potential for masking and communication impacts is therefore more likely to occur near the source (tens of meters), with decreasing impacts, further from the source (Clark et al., 2009).

Continuous sound levels greater than 120dB re 1µPa (SPL) is currently accepted as the behavioural threshold for marine mammals including sirenians, otariid seals, low-frequency cetaceans, high-frequency cetaceans and very high-frequency cetaceans (NOAA, 2019). Table 7-7 outlines the different noise effect thresholds modelled for these categories and summarises the results for the worst-case maximum distances to reach these thresholds.

The maximum distance to the behavioural response criteria threshold for marine mammals predicted by the underwater sound modelling was 4.57km (Table 7-7).

Given the short duration (i.e., expected duration of 10 days to 40 days, depending on the survey activity and campaign), the localised extent of potential behavioural changes (e.g., a maximum distance of 4.57km), the lack of BIAs or habitat critical to the survival of the species, the consequence has been evaluated to potentially result in localised short-term impacts to individuals of conservation value, however, not affect local ecosystem functioning or populations.

The survey activities are not inconsistent with the objectives and actions detailed in the recovery plans and approved conservation advice. Considering there are no regionally significant feeding, breeding or aggregation areas for marine mammals in the Operational Area, change in behaviour impacts are likely to be limited to individuals only. Therefore, any potential impact will be limited to transiting individuals that may be present within the area and will not result in impacts at a population or ecosystem level.

The worst-case residual severity to marine mammals from noise emissions is evaluated as Negligible (1), given the expected low numbers of marine mammals, limited exposure extent and expected short-term impacts to species of recognised conservation value and is not expected to impact species at a population level.

The likelihood of an impact from continuous noise emissions associated with the activity is considered Unlikely (C) as any change in behaviour impacts are predicted to be short-term and not impact species at a population level due to the limited spatial extent and short duration of the noise emission.

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Injury/mortality to marine fauna

The noise effect criteria and the distances at which modelling predicted these could be reached are summarised in Table 7-6 and Table 7-7. Literature provides weighted sound exposure levels (SELs) as the primary metric for assessing auditory impairment in marine mammals (Table 8 59). SEL integrates noise exposure over time, and a 24-hour period is used to estimate this value for TTS and AINJ. Therefore, for the onset of TTS and AINJ to occur marine mammals would need to remain within the noise effect criteria threshold for each hearing group for 24-hours.

Table 7-6 and Table 7-7 outlines the different noise effect thresholds modelled for these categories and summarises the results for the worst-case maximum distances to reach these thresholds.

The maximum distance to reach the 24-hr TTS criteria threshold for the different marine mammal categories was 3.02km from the impulsive sound source for LF cetaceans (Table 7-6).

The maximum distance to reach the 24-hr AINJ criteria threshold for the different marine mammal categories was 1.01km from the impulsive sound source LF cetaceans (Table 7-6).

The onset of TTS and AINJ requires chronic exposure (over 24 hours) of marine mammals to continuous noise emissions. Given the Operational Area only provides habitat for transiting individuals it is not credible for marine mammals will remain within these distances for 24 hours whilst activities are occurring. The lack of marine mammals BIAs or habitat critical to the survival of the species overlapped by the Operational Area, indicates that the number of marine mammals will be low. Further, the highly transient nature of marine mammals and their ability to move away from noise sources, prevents the potential for individuals to experience TTS or AINJ due to continuous underwater noise within the Operational Area.

Currently, the Omura's whale is not listed in any management or conservation policies in Australia, therefore BIAs or habitat critical to the survival of the species have not been assigned. The Omura's whale may be present within the Operational Area based on studies by Browne et al., (2024) and McPherson et al., (2016) detecting Omura's whale vocalisations in the Joseph Bonaparte Gulf and the species movements across the Barossa field and the Timor Sea. Continuous noise emissions associated with the Petrel Development may impact this species at a behavioural level (as discussed above), however it is not considered credible for these emissions to result in injury. The Operational Area is in offshore open waters that allows for high mobility of cetaceans in the area. Based on the species movements across the region it is inferred the Omura's whale is highly mobile. It is unlikely this species would stay within the predicted localised ensonified areas that could cause injury for a full 24 hours. Consequently, given the mobility of Omura's whales and the offshore open waters in the Operational Area which allow the species to avoid prolonged exposure to injury inducing ensonified fields, the potential for injury to Omura's whales from noise emissions associated with the activity is considered not credible.

The potential impact is not reasonably expected given that the onset of injury/mortality (TTS and AINJ) requires chronic exposure (over 24 hours), the highly mobile nature of these species, and the lack of marine mammal BIAs and habitat critical to the survival of the species within these distances, does not encourage marine mammals to remain within these distances for 24 hours whilst activities are occurring for the onset of injury/mortality to occur.

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Therefore, there is no risk of injury/mortality to marine mammals from noise emissions.

7.4.4.5 Cumulative Impacts

Eni has considered all potential noise-emitting activities that could overlap temporally and spatially with the Petrel survey activities. This assessment identified Santos' Eos 3DSS, as well as Eni's Petrel-3 and Petrel-4 Monitoring and Decommissioning activities and ongoing Blacktip Operations. Of these, only the Eos 3DSS presents a credible potential for cumulative impacts with the Petrel survey activity.

There is a potential for the Eos 3DSS to operate within areas adjacent to, or overlapping with, the Operational Area. However, it is not expected that more than one survey vessel would operate simultaneously within the Operational Area. Concurrent operation of the Eos 3DSS and the Petrel survey would compromise the quality of data acquisition for both activities due to interference from overlapping acoustic signals. To avoid this, the surveys are expected to be scheduled sequentially and with sufficient spatial separation to prevent operational interference.

The survey activity produces substantially lower acoustic outputs than a full 3D marine seismic survey (MSS). Operating both surveys concurrently in overlapping or adjacent areas could unnecessarily increase cumulative noise exposure to marine fauna and elevate the likelihood of overlapping vessel footprints with third-party activities. Avoiding simultaneous operations (SIMOPs)—through coordination of survey timing and spatial planning—provides a clear environmental benefit by reducing the potential for cumulative behavioural disturbance to sensitive receptors and removing the risk of operational interference between vessels (CM-08).

Review of Eni's Petrel-3 and Petrel-4 Monitoring and Decommissioning activities and the Blacktip Operations confirmed that these activities do not introduce noise sources of a type, scale or duration that could interact cumulatively with the Petrel survey activities. These operations are low-intensity, intermittent, and spatially separated from the survey area, and therefore do not pose a credible pathway for cumulative acoustic impacts.

Accordingly, cumulative noise impacts are only considered relevant in the context of potential overlap with the Eos 3DSS. With scheduling and operational coordination in place to avoid such overlap, no cumulative noise impacts are expected.

7.4.4.6 Residual risk summary

The worst-case residual severity of underwater noise exposure to plankton, fish, marine reptiles, and marine mammals is assessed as Negligible (1). This conclusion reflects:

- The absence of critical habitats (e.g., migration corridors, breeding, calving or nesting areas) for fish, marine mammals or marine reptiles within the Operational Area;
- Rapid attenuation characteristics of the acoustic sources, particularly high-frequency systems whose impacts are confined to the near-field; and

Given these constraints and controls, no injury or mortality to marine fauna is predicted, and any behavioural responses would be temporary, reversible, and restricted to individuals, with no population-level consequences.

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The likelihood of a change in behaviour from noise emissions occurring as a result of the survey activity is considered Unlikely (C) based on:

- The limited spatial extent of potential behavioural effects from all geophysical and vessel-based noise sources—up to 3 km for impulsive geophysical sources (e.g., 2DHR/VHR) and up to 4.57 km for continuous vessel noise, as identified in the quantitative noise assessment;
- The short duration of survey activities (10–40 days per campaign, one vessel at a time), which prevents chronic or cumulative exposure;
- The application of the full suite of noise control measures, including compliance with EPBC Regulations Part 8 for fauna interaction, trained MFOs, vessel speed limits, and scheduling controls to avoid concurrent cumulative exposure from SIMOPs between the Santos' Eos 3DSS and the survey activity within the Operational Area.

Therefore, the residual risk of noise emissions due to the petroleum activities is considered Low.

7.4.5 Environmental Performance Outcomes and Control Measures

EPOs relating to this risk include:

- No injury or mortality to EPBC Act listed fauna during operational activities (EPO-05).
- Underwater noise emissions will not displace marine turtles from identified habitat critical to the survival of the species⁸ (EPO-06).
- Underwater noise emissions will allow marine turtles to continue to undertake biologically important behaviours⁹ (EPO-07).

CMs relating to this risk include:

- Planned Maintenance System (PMS) (CM-14);
- Regulations and measures for interacting with fauna (CM-15);
- All crew will receive Marine Fauna Observer (MFO) training / awareness (CM-16);
- Management of Maritime Operations and Service (OPI-OPE-083-ENI-SPAR01) (CM-13); and
- Avoid simultaneous operations (SIMOPs) with Santos Eos 3D MSS (CM-08).

EPSs and MC relating to the above are presented in Section 9.1.

⁸ Where habitat critical to the survival of marine turtle species is defined in Table 6 of the Recovery Plan for Marine Turtles in Australia (CoA, 2017c).

⁹ Where biologically important behaviours are defined as behaviour associated with critical life functions (e.g. reproduction, foraging, migration, and resting) in the Recovery Plan for Marine Turtles in Australia (CoA, 2017c).

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7.4.6 As Low as Reasonably Practicable Demonstration

Demonstration of ALARP			
Type	Control/management	Evaluation	Adoption?
Eliminate	No use of vessel on DP	Noise from operational noise sources is well understood (eg DP) and these sources cannot be eliminated due to operating requirements. Cost disproportionate to increase in environmental benefit given the rapid reduction in noise levels from vessels and the low level behavioural response expected.	x
Substitute	Substitute vessels	The survey vessel will be contracted to meet the specifications of the scheduled work and cannot be substituted.	N/A
Engineering	N/A	N/A	N/A
Isolation	N/A	N/A	N/A
Administrative	PMS	Ensures equipment which generates noise on the vessels is operating optimally and sound sources levels are appropriately verified and within desired operating range. PMS is routine and there are no additional costs.	✓ (CM-14)
	Regulations and measures for interacting with marine fauna (e.g., EPBC Regulations 8 (Part 8))	Minor cost in complying. Reduces risk of physical and behavioural impacts to marine fauna. EPBC Regulations include restrictions such as vessel speed and direction when in proximity to marine fauna and are based on legislated requirements.	✓ (CM-15)
	Implement EPBC Regulations 8 (Part 8) for the survey vessel and towed equipment	The Operational Area overlaps only very small portions of turtle foraging BIAs, and although turtles may occur year-round, any potential behavioural responses would occur within short distances of the vessel—typically within tens of metres for continuous noise sources and well within the interaction zone. By implementing EPBC Regulations 8 (Part 8) for the survey vessel only, the likelihood of material impact is further reduced. The activity will not restrict turtle movement, as the relevant BIAs and associated habitat use areas are extensive, and any disturbance would be temporary and highly localised. Extending Part 8 requirements to towed equipment would provide negligible additional environmental benefit while introducing disproportionate operational burden.	x

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		The Operational Area does not overlap any habitats of particular importance for marine mammals, with the nearest BIA (blue whale migration) located more than 425km away. Low-frequency cetaceans such as blue whales passing through the region, if present, are not expected to experience TTS or auditory injury (Section 7.4.4.4). Applying EPBC Regulations 8 (Part8) to the survey vessel is therefore sufficient to manage the already very low likelihood of marine mammal interactions. Given the small spatial extent of potential effects, the absence of biologically significant habitat within or near the Operational Area, and the minimal additional environmental value provided by extending EPBC Regulations 8 (Part8) to towed equipment, this control is not considered reasonably practicable.	
Implement EPBC Act Policy Statement 2.1—Interaction between Offshore Seismic Exploration and Whales: Industry Guidelines procedures for marine mammals and turtles including:	• Pre-start-up visual observation • Soft start • Start-up delay • Operations • Power-down and Stop work • Night-time and Low Visibility	The Operational Area intersects foraging BIAs for four marine turtle species. The Operational Area does not overlap any BIAs or habitat critical for marine mammals. Noise emissions modelling for the activity indicates that the range for behavioural response in turtles and marine mammals is approximately 390m and 680m, respectively. However, the predicted distances for the onset of TTS and auditory injury are greater, at 2.33km and 0.87km for turtles; and 3.02km and 1.01km for marine mammals, respectively. Assuming marine turtles and mammals may not be deterred by vessel noise alone and could remain within the range of potential injury, the implementation of EPBC Act Policy Statement 2.1 procedures is considered warranted. The following precaution zones—adapted from EPBC Act Policy Statement 2.1—will be implemented: • Observation Zone: ≥3.5km horizontal radius from the acoustic source (to monitor for turtle and marine mammals presence beyond the range of TTS). • Low Power Zone: 3.5km horizontal radius from the acoustic source (to reflect range of TTS). • Shut-down Zone: 1.5km horizontal radius from the acoustic source (to reflect range of auditory injury). These precaution zones are considered conservative, as they exceed the predicted ranges for both behavioural response and	✓ (CM-16)

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		auditory injury. The application of EPBC Act Policy Statement 2.1 procedures specifically for marine turtles and mammals is deemed both warranted and practicable, providing a robust control framework to mitigate the risk of potential injury to marine turtles and mammals during survey activities.	
	Use of passive acoustic monitoring (PAM)	The use of passive acoustic monitoring (PAM) would not materially reduce the already low potential for impacts to marine fauna. PAM provides limited detection capability for the species expected to occur in the Operational Area, particularly for turtles and many fish species, which do not produce detectable vocalisations, and for low-frequency cetaceans whose calls may not be reliably detected in shallow, high-noise environments typical of the region. Given that noise emissions from the survey activities will only result in potential short-term and localised behavioural disturbance, any additional benefit from PAM would be negligible. Implementing PAM would require specialised equipment and trained personnel, significantly increasing operational cost and complexity. This cost is disproportionate to the minimal, if any, environmental benefit that PAM would provide. On this basis, the use of PAM is not considered reasonably practicable.	*
	Operational activities to avoid coinciding with sensitive periods for marine fauna present in the operational area	The operational area overlaps with very small portions of the turtle foraging BIA, and these species could be present all year round. However, the potential impacts to turtles, if they occur, would be well within 500 m of the vessel and equipment (behavioural impacts within tens of metres of the vessel for continuous source). With the controls in place to manage interaction with fauna within 500 m of the vessel, the potential for impact is significantly reduced. The activity will not restrict the movement of any species within the area as the BIA and the area within which they are distributed in is widespread. Cost is disproportionate to increase in environmental benefit.	*

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	Dedicated marine fauna observer on vessels to spot marine fauna	May improve ability to spot and identify marine fauna at risk of impact from noise. However, the high cost of contracting marine fauna observers is grossly disproportionate to the low risk (refer to Section 7.4.1) of vessel noise sources on marine fauna.	*
	All crew will receive Marine Fauna Observer (MFO) training / awareness	An environmental awareness induction onboard vessel may improve the crew's ability to identify large marine fauna (e.g. marine mammals, whale sharks, turtles) to assist with managing marine fauna requirements in accordance with this EP. The training is low-cost, simple to implement, and enhances the overall effectiveness of existing management measures. Given the modest cost and clear environmental benefit, ensuring all crew receive MFO awareness training is considered reasonably practicable.	✓ (CM-16)
	Avoid simultaneous operations with Santos Eos 3D MSS	Although the survey activity produces much lower acoustic outputs than a full 3D MSS, operating concurrently within overlapping or adjacent areas could unnecessarily increase cumulative noise exposure for marine fauna and elevate the likelihood of spatial overlap with third-party vessels. Avoiding SIMOPs—through coordination of timing and spatial separation—provides a clear environmental benefit by reducing the potential for cumulative behavioural disturbance to sensitive receptors and eliminating the risk of operational interference between survey vessels. The control is simple to implement, requiring only routine communication and planning between operators (e.g., confirming timing, proximity, and operational boundaries). Costs and logistical implications are minimal and proportionate to the risk reduction achieved. Given the modest effort required and the meaningful reduction in both environmental and operational risk, avoiding SIMOPs with the Santos Eos 3D MSS is considered reasonably practicable and will be adopted as a control measure.	✓ (CM-08)

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7.4.7 Acceptability Demonstration

Demonstration of acceptability	
Compliance with Legal Requirements, Laws, and Standards	Noise emissions from petroleum activities are managed in accordance with relevant legislative requirements, including compliance with international maritime conventions and Australian legislation. Noise emissions from petroleum activities are managed in accordance with EPBC Regulations 2000 – Part 8 Division 8.1 (Interacting with cetaceans). Helicopters will comply with EPBC Regulations 2000 – Part 8 Division 8.3 (Reg 8.07).
Policy Compliance	The management of noise emissions from the petroleum activities are aligned with Eni policies and standards. The residual risk is Low, which is acceptable. The EPOs, CMs and EPSs that will be implemented are consistent with Eni internal requirements.
Social Acceptability	During consultation (APPENDIX C), the Australian Fisheries Management Authority (AFMA) requested further information and assessment regarding the potential impacts of underwater noise on prawn and crustacean populations. Eni informed AFMA that the modelled sound levels did not reach established thresholds for physiological damage, behavioural disturbance, or impairment. Since none of the marine invertebrate-specific criteria were exceeded, underwater noise from the vessel or geophysical equipment is not expected to adversely affect prawn or crustacean populations, including those targeted by the Northern Prawn Fishery. No other relevant person concerns have been raised regarding noise emissions (refer Section 5). An ongoing consultation program will consider statements and claims made by stakeholders when assessing impacts and risks.
Area Sensitivity/ Biodiversity	The Operational Area does not intersect with any State or Territory marine protected areas, AMPs, wetlands of international or national importance, World, National or Commonwealth heritage properties or places, or KEFs. The Operational Area does not contain any BIAs for marine mammal species. The Operational Area overlaps foraging BIAs for loggerhead turtles, green turtles, Olive Ridley turtles and flatback turtles. Eni has considered information contained in relevant Recovery plans and approved conservation advice that identify noise emissions as a threat (as listed in Table 2-3). This includes: Conservation Advice - Conservation Advice for <i>Balaenoptera borealis</i> (Sei Whale) (TSSC, 2015) identifies noise as a threat however no relevant conservation actions or objectives are identified. - Conservation Advice for <i>Balaenoptera physalus</i> (Fin Whale) (TSSC, 2015a) identifies noise as a threat however no relevant conservation actions or objectives are identified. - Conservation Advice for <i>Orcaella heinsohni</i> (Australian snubfin dolphin) (DCCEEW, 2025) identifies noise as a threat however no relevant conservation actions or objectives are identified. - Conservation Advice for <i>Sousa sahulensis</i> (Australian humpback dolphin) (DCCEEW, 2025c) identifies noise as a threat however no relevant conservation actions or objectives are identified. Recovery/Management Plans The petroleum activity is consistent with the objectives and actions of the plans identified below through adoption of EPO-04, EPO-06 and EPO-07 and the control measures outlined in Section 7.4.5:

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Demonstration of acceptability	
	- Recovery Plan for Marine Turtles in Australia (CoA, 2017) identifies noise interference as a threat to marine turtles. There are no explicit relevant management actions. The long-term recovery objective of minimising anthropogenic threats will be managed through the adoption and implementation of CM-15 to meet EPO-04, EPO-06 and EPO-07. - Conservation Management Plan for the Blue Whale 2015–2025 (DoE, 2015) identifies noise interference as a threat to blue whales. Action Area A.2: Assessing and addressing anthropogenic noise: Assess the effect of anthropogenic noise on blue whale behaviour. Section 7.4.4.4 addresses and assesses noise emissions from survey activities on marine mammals including low-frequency cetaceans (i.e. blue whales). Anthropogenic noise in biologically important areas will be managed such that any blue whale continues to utilise the area without injury and is not displaced from a foraging area. The assessment in Section 7.4.4.4 confirms blue whales will not be injured or displaced from a foraging area as a result of survey activities. Recovery Plans/ Conservation Advice for other EPBC Act listed threatened and migratory species that may occur in the Operational Area do not identify noise emissions as a key threat or have explicit relevant objectives or management actions related to noise emissions. The control measures outlined in Section 7.5.5 are consistent with the objectives and actions in these publications. The petroleum activities are not inconsistent with the objectives and actions in the relevant recovery plans/conservation advice.
ESD Principles	The activity is consistent with the principles of ESD because: - The worst-case impact associated with this aspect is Negligible (1); and the residual risk is Low. - Precautionary Principle: There are no threats of serious or irreversible environmental damage. Conservative assumptions have been applied to the impact assessment. - Intergenerational Principle: Impacts from this aspect will not forego the health, diversity and productivity of the environment for future generations - Biodiversity Principle: Impacts from this aspect are not considered to have the potential to affect biological diversity or ecological integrity.
ALARP	The residual risk has been demonstrated to be ALARP.

Given the relatively short duration of the survey activities, and sensitivity of marine fauna to the vessels noise emissions, potential impacts are Negligible (1). Controls have been evaluated above and adopted in accordance with the ALARP criteria (Section 6.4). The residual risk is considered Low, which is acceptable in accordance with Eni's acceptability criteria (Table 6-4). Potential impacts are therefore acceptable and ALARP.

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7.5 Light Emissions

7.5.1 Summary of Environmental Impact Assessment

Hazard	Light Emissions		
	Frequency	Severity	Risk
Residual Risk	A	1	Low

7.5.2 Description of Hazard

Lighting is used to allow safe operations during night hours, as well as to communicate the presence of support vessels to other marine users (i.e. navigation lights). Lighting is required for safe operation and cannot be reasonably eliminated.

During the petroleum activities, light emissions will be generated from support operations including:

- Vessel operations; and
- ROV operations.

Vessel transit outside of the Operational Area is not within scope of this EP and comes under the *Navigation Act 2012*.

7.5.2.1 Vessel Operations

Lights on the vessels will be required on a 24-hour basis during the activities for safety and navigational purposes, in accordance with requirements of the *Navigation Act 2012* (Marine Order Part 30 – Prevention of collisions). External lighting on the vessels is located on the decks, with most external lighting directed towards working areas. However, the external lights on the vessels will generate light glow and direct illumination of surrounding surface waters.

The distance at which direct light and sky glow may be visible from sources within the Operational Area depend on the characteristics of the lighting and environmental conditions.

During the geophysical, geotechnical and environmental survey activities, there will be only one survey vessel present in the Operational Area at any one time. Although the initial 2026 campaigns have an expected total duration of 140 days respectively (Section 3.1.2), with the longest single campaign of 40 days. Any future survey campaigns are expected to be similar.

7.5.2.2 ROV Operations

The ROV will be used during the surveys, and it will require the use of spot lighting while it is operating under water during nighttime. Lighting will typically consist of bright white (i.e. metal halide, halogen, fluorescent) lights.

ROV lighting is required underwater and during deployment and recovery to/from the vessel, therefore it cannot be eliminated if the proposed activity is to proceed.

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7.5.3 Light Emissions Modelling

The spatial extent of artificial light emissions from the survey vessel has been inferred from the light modelling study conducted for the Petrel Development (Xodus, 2026). Scenario 3 – periodic single-vessel operations – represents a single source of artificial light and is therefore the most comparable scenario for survey activities.

A pipelay vessel was used as the modelled light source in Scenario 3. Given a pipelay vessel is substantially larger and has a higher lighting intensity than a typical survey vessel, the resulting light footprint is considered conservative. Accordingly, Scenario 3 provides a suitable and precautionary proxy for estimating the potential spatial extent of light emissions from the survey vessel.

To determine the spatial extent of light emissions from the vessel, the light modelling study (Xodus, 2026) used the minimum light threshold as defined in National Light Pollution Guidelines for Wildlife (DCCEW, 2023). This threshold corresponds to an illuminance of 0.001 lux, the equivalent of a new moon, such that fauna undertake nocturnal activities under the natural range of full moon to new moon without known adverse impacts (Xodus, 2023; Pendoley Environmental, 2022; Woodside, 2020; ERM, 2010).

Comparisons of natural light sources and illuminance are provided below in Table 7-8. The light modelling study (Xodus, 2026) is considered to provide conservative predictions as calculations to the threshold extent does not account for atmospheric or topographic interactions such as shadowing, absorption or scattering which would naturally occur to some degree. It is therefore likely to overestimate the illuminance distance, making the defined potential impact areas to be conservative extents to assess potential impact from artificial light emissions.

Areas beyond the potential impact area extents are expected to have no measurable change to ambient light intensity levels.

Table 7-8: Summary of natural light illuminance (ERM, 2010)

Natural Light Source	Light Illuminance
Direct sunlight	100,00–130,000
Full daylight, indirect sunlight	10,000–20,000
Overcast day	1,000
Very dark day	100
Twilight	10
Deep twilight	1
Full moon	0.1
Quarter moon	0.01
Moonless clear night sky (new moon)	0.001
Moonless overcast night sky	0.0001

Table 7-9 provides the range to threshold (illuminance of 0.001 lux) for a periodic single-vessel operating within the Operational Area

Table 7-9: Range to threshold (illuminance of 0.001 lux) for a periodic single-vessel (Xodus, 2026)

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Scenario		Description	Duration	Extent
3	Periodic single-vessel operations within the Operational Area	A single source of artificial light from vessel operations (Section 7.5.2.1).	Vessel-based operations have an expected duration of 10 days to 40 days, depending on the survey activity and campaign (Section 3.1.2).	17km

The light EMBA is defined as a 17 km buffer around the Operational Area, based on the extent of the potential light-impact threshold, which is predicted to remain within 17 km of the survey vessel.

7.5.4 Potential Environmental Impact

Artificial light can be received by the environment in three ways, being:

- Directly visible light;
- Skyglow, the diffuse scattering of light in the atmosphere above the horizon; and
- Light spill, the trespass of light outside the area intended, such as the sea surface.

Potential receptors that may be impacted by light emissions within the light EMBA are:

- Seabirds;
- Marine reptiles; and
- Plankton, fish (pelagic) and sharks.

7.5.4.1 Seabirds

Change in fauna behaviour

Light emissions have the potential to change behaviour of seabirds. Artificial light can have a variety of effects on seabirds, depending upon the species and the life stage or behaviours being undertaken at the time. Negative responses of birds to artificial light may include collision, entrapment, stranding, grounding, disorientation, or interference with navigation – being drawn off course from their usual migration route – potentially resulting in reduced fitness, in injury or death (DCCEEW, 2023a).

Species with a nocturnal component of their life history, such as procellariiforms (shearwaters, petrels and storm petrels), are at greater risk of negative impacts. The most significant impacts recorded, in terms of numbers of individuals impacted, have been associated with the synchronised mass exodus of procellariiform fledglings from nesting sites at night (Deppe et al., 2017; Raine et al., 2007; Rodriguez et al., 2015a; Rodriguez et al., 2015b; Le Corre et al., 2002; Reed et al., 1985).

No BIAs for seabirds occur within the light EMBA. The nearest breeding BIAs for the lesser crested tern, roseate tern and lesser frigatebird are 32km, 148km and 153km south-west of the light EMBA, respectively (inferred based on distances to BIAs from the Operational Area as detailed in Table 4-5: Biologically important areas within the

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Operational Area, ZPI and EMBA). Given these large separation distances, the survey activity should not significantly impact seabird behaviour.

No important nesting sites for procellariiform species are located within approximately 500km of the light EMBA; therefore, impacts to breeding adults or fledgling procellariiforms are not expected.

Nocturnal foraging at sea is known to occur across the procellariiform order, with preferences for bioluminescent prey (Imber, 1975). This is likely linked to the vertical migration of prey in the water column; the greater abundance of prey closer to the sea surface under darkness enables more efficient foraging by birds compared to during daylight. While no foraging BIAs for procellariiforms overlap with or occur within approximately 500km of the light EMBA, nocturnal seabirds, such as the streaked shearwater, may traverse the area and forage in low numbers.

Reports of procellariiforms being attracted to vessels and oil and gas facilities exist (Black, 2005; Merkel & Johansen, 2011; Montevecchi, 2006); however, interaction events are usually associated with weather conditions providing poor visibility. These conditions are not common within the region, suggesting any interaction between procellariiforms and the vessels would be limited to individuals rather than populations.

Diurnal seabird species, such as terns, noddies, frigatebirds and tropicbirds, in contrast to procellariiforms, are less vulnerable to impacts of artificial light, given the absence of nocturnal behaviours. However, the presence of vessels can alter foraging behaviours, potentially in response to aggregation of increased prey density or due to light sources artificially extending day length and foraging activities. Although such attraction increases the risk of collision with facilities, incidents of collision of these species, or similar taxonomic groups, are few (Ronconi et al., 2015).

Artificial lighting has been shown to influence the foraging behaviour in shorebirds, with increased foraging success in areas illuminated by artificial light (Santos et al., 2010). Although shorebirds may be attracted to foraging areas with increased illumination, artificial light near nocturnal roosting sites may displace shorebirds if they select darker roost areas, where risk of predation is perceived to be lower (Rogers et al., 2006). Given the lack of natural roost sites or intertidal foraging areas in the vicinity of the Operational Area, artificial light is unlikely to impact these behaviours.

Artificial light may attract migratory shorebirds in flight (Longcore et al., 2013), influencing stop-over selection and impacting successful migration and decreasing fitness (McLaren et al., 2018). The Cobourg Peninsula Ramsar site is located approximately 380km east of the light EMBA. Twenty-one species of migratory shorebirds overwinter at this site, and while migration patterns are poorly understood, may migrate over waters of the light EMBA from breeding sites in the northern hemisphere. Sage (1979, cited in Ronconi et al., 2015) reports incidents of an undefined number of migrating waders colliding with offshore platforms, though whether this was due to attraction by artificial light is unknown.

In addition, long wavelength red light has been shown to impact migration of passerines via disruption of magnetic orientation in the laboratory (Wiltschko et al., 1993) and in the field (Poot et al., 2008). Studies indicate some migratory shorebirds possess a magnetic compass and suggest magnetic cues are of primary directional importance – for example, sanderling (Gudmundsson and Sandberg, 2000). While

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untested, it is possible long wavelength red light could result in disorientation of shorebirds undertaking long-distance migrations.

Although migration pathways are poorly defined, the numbers of individual species traversing the area are expected to be a small proportion of the total population, given the availability of wetland habitat along the entire north Australian coastline. It is possible migratory shorebirds may be attracted to, or disorientated by, artificial light sources associated with the survey activity; however, any impacts are expected to be limited to individuals rather than populations.

Given the lack of natural roosting sites or foraging areas for seabirds and migratory shorebirds within the light EMBA (Section 7.5.3), artificial light is unlikely to impact the biologically important behaviours of seabirds and migratory shorebirds.

Vessel presence in the Operational Area for the initial 2026 campaigns has an expected total duration of 140 days, with only one vessel at a time (Section 3.1.2). Any future survey campaigns are expected to be similar.

Given this limited and intermittent presence, artificial light from vessel operational and navigational lighting will be short-term and infrequent. Artificial light emissions will also be highly localised, with the spatial extent defined as a 17 km radius from the survey vessel at night, based on light-modelling results.

7.5.4.2 Marine reptiles

Change to marine fauna behaviour

Light emissions have the potential to change behaviour of marine reptiles. The behavioural response of marine turtles to artificial light depends upon the life stage or behaviours being undertaken at the time and the characteristics of the light sources themselves. The main implication of artificial lighting for marine turtles is the disruption of hatchling sea-finding behaviour.

The light EMBA overlaps a foraging BIA for the flatback turtle, green turtle, loggerhead turtle, and olive ridley turtle (Section 4.4.8). The light EMBA is limited to offshore waters and do not overlap onshore habitats. The light EMBA overlaps with an internesting buffer BIA for flatback turtles. No habitat critical for the survival of species including flatback turtles (including nesting habitats) are within the potential impact areas (Table 4-4, Figure 4-5). Nesting habitat critical to the survival of the flatback turtle spans from Brace Point to One Tree Point in the NT. The nearest marine turtle nesting sites for the flatback turtle occur on the north side of Cape Domett and at Lacrosse Island, which is located approximately 79 km south of the southern extent of the light EMBA (Sections 4.4.8.1).

Wavelength particularly has been shown to significantly affect the vulnerability of individuals to artificial light. In general, artificial light rich in short wavelength blue and green light are most disruptive (Fritsches, 2012; Pendoley, 2005; Witherington & Bjorndal, 1991). Although longer wavelengths of light are less attractive than shorter wavelengths, long wavelength light can still disrupt sea-finding of hatchlings (Robertson et al., 2016; Pendoley, 2005; Pendoley & Kamrowski, 2015), and if bright enough, can elicit a similar response to shorter wavelength light (Mrosovsky, 1972; Mrosovsky & Shettleworth, 1968; Pendoley & Kamrowski, 2015; Cruz et al., 2018).

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Turtles transiting or foraging in the surroundings of the Operational Area may be disturbed by the lights from the vessel, however, given the large distances typically covered by foraging individuals, lighting from the support vessels should not impact foraging behaviour. Light cues are not thought to guide migration and no evidence to date suggests artificial light disrupts migration or leads to disorientation in adult marine turtles. Foraging adult turtles have been observed feeding on prey presumed to be attracted by lights of oil production platforms in the Gulf of Mexico (Kebodeaux, 1994). However, illumination of fishing gear has been implemented as a measure to reduce by-catch, as the light sources allow individuals to avoid the net (Ortiz et al., 2016). This suggests marine turtles are most likely attracted to increased prey abundance around offshore facilities, rather than the light sources itself.

Although the light EMBA overlaps the foraging BIAs for the loggerhead turtle, green turtle, Olive Ridley turtle and flatback turtle, the number of individuals likely to be present is expected to be low. Suitable interinteresting habitat for flatback turtles is typically defined as water depths shallower than 16m (Whittock et al., 2016). Interinteresting Olive Ridley turtles remain relatively close to nesting beaches during the nesting period (in comparison to post-nesting movements); tagged turtles remained within 48km of the nesting beach in waters typically <30 m water depth (Hamel et al., 2008). Water depth in the vicinity of the light EMBA is ranges between 89m and 107m (inferred based on Operational Area water depths) and the nearest marine turtle nesting sites are located approximately 79km south of the light EMBA. It is therefore reasonable to assume the light EMBA is not used as a significant foraging or interinteresting location.

If individual adult turtles are present, light emissions are unlikely to be of concern. There is no evidence, published or anecdotal, to suggest interinteresting turtles are impacted by light from offshore vessels, and nothing in their biology would indicate this as a plausible threat (Witherington & Martin, 2003). Potential impacts to foraging turtles are limited to local attraction to prey species attracted to light (Kebodeaux, 1994). As such, the impact to adult marine turtles from light is anticipated to be slight and temporary.

The effects of artificial light on female nesting and hatchling emergence behaviour have been well documented, and include:

- disrupted nest site selection and orientation of females on the beach (Witherington & Martin, 2003);
- lower nesting density on beaches with significant light spill; for example, from urban development adjacent to nesting beaches (Salmon, 2003; Hu et al., 2018);
- disrupted hatchling sea-finding behaviour (Withington & Martin, 2003; Pendoley & Kamrowski, 2015; Kamrowski et al., 2014); and
- hatchlings disoriented or misoriented by artificial lighting, such that they may take longer, or fail, to reach the sea. This may result in increased mortality through dehydration, predation, or exhaustion (Salmon & Witherington, 1995).

Given the light EMBA is located approximately 78km north of the nearest marine turtle nesting sites on the north side of Cape Domett and at Lacrosse Island, light emissions are not expected to affect the sea finding behaviour of hatchling turtles or hatchling dispersal. Light emissions from the survey vessel at approximately 17km

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from the source will not be visible from the nearest marine turtle nesting sites. It should also be noted that the duration of the survey activity is only 10 days to 40 days, depending on the survey activity and campaign. Impacts are not anticipated to hatchling emergence.

Given the shallowest water depth in the vicinity of the light EMBA is approximately 50m it is reasonable to assume the area encompassed by the light EMBA is not used as significant foraging or internesting sites. Potential impacts to foraging turtles are limited to local attraction to prey species attracted to light (Kebodeaux, 1994). As such, the impact to adult marine turtles from light is anticipated to be slight and temporary.

Vessel presence in the Operational Area for the initial 2026 campaigns has an expected total duration of 140 days, with only one vessel at a time (Section 3.1.2). Any future survey campaigns are expected to be similar.

Given this limited and intermittent presence, artificial light from vessel operational and navigational lighting will be short-term and infrequent. Artificial light emissions will also be highly localised, with the spatial extent defined as a 17 km radius from the survey vessel at night, based on light-modelling results.

Given the localised potential impact (a 17km radius from the survey vessel at night), and the large distance between marine turtle nesting areas (i.e. for those life stages and behaviours sensitive to artificial light), it will not be visible from the closest nesting site.

7.5.4.3 Plankton, fish (pelagic), sharks and rays

Change to marine fauna behaviour

The behavioural responses of plankton, fish (pelagic), sharks and rays to artificial light are well documented (Marchesan et al., 2005; Nguyen and Winger, 2019) with 4 key types of response (Nguyen and Winger, 2019), being:

- Phototaxis, movement towards or away from light;
- Photokinesis, movement or lack of movement in response to light;
- Aggregation; and
- diel vertical migration (DVM), for plankton.

These behavioural responses are influenced by both wavelength and intensity (Nguyen and Winger, 2019).

Since many predatory fish rely on visual cues to locate and capture prey, increased light can lead to changes in predator-prey interactions. For example, the proportion of herring (*Clupea harengus*) feeding increased with prey density in high light-intensity experiments, while under dark conditions, increased food availability failed to trigger a similar result (Batty et al., 1990). Although artificial light is shown to prevent hatching of fish eggs, the spawning frequency and duration was no different under artificial light conditions compared to natural conditions (Fobert et al., 2019).

Artificial light can also influence DVM patterns of plankton (including planktonic life stages of some fish species) in the surface waters and lead to migrations that occur outside of the optimal window for that species (Gibson et al. 2001, cited in Morandi

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2018). The aggregation of plankton from light may result in the presence of whale sharks foraging as they are filter feeders, that primarily feed on plankton and zooplankton.

Behavioural responses to artificial light emissions are expected to be limited to areas where light is directly visible to plankton, pelagic fish, sharks and rays, such as the zones of light spill on the ocean surface. Light spill can influence diel vertical migration (DVM) patterns of plankton—including planktonic life stages of some fish species—by prompting vertical movements outside of the species' optimal migration window (Gibson et al. 2001, cited in Morandi 2018). This, in turn, may result in temporary avoidance or aggregation of pelagic fish and sharks due to changes in plankton distribution within the illuminated area.

These food-chain effects are well-documented for fixed, high-intensity offshore light sources; however, for temporary or moving light sources, such as those associated with a survey vessel, the likelihood and magnitude of these responses are considered substantially lower.

Eight threatened fish species have been identified by the PMST report: Dwarf Sawfish, Green Sawfish, Largetooth Sawfish, Northern River Shark, Speartooth shark, Scalloped Hammerhead¹⁰, Whale Shark and White Shark (Section 4.4.6). Relevant Conservation Advice and Recovery Plans for these species do not identify light emissions as a threat (Table 2-2). Light emissions from the survey activity may result in temporary avoidance or aggregation of pelagic fish and sharks due to changes in plankton distribution within the light EMBA however it is unlikely to impede critical behaviours of these species, such as breeding or migration, or population persistence of prey species.

Vessel presence in the Operational Area for the initial 2026 campaigns has an expected total duration of 140 days, with only one vessel at a time (Section 3.3.1). Any future survey campaigns are expected to be similar.

Given this limited and intermittent presence, artificial light from vessel operational and navigational lighting will be short-term and infrequent. Artificial light emissions will also be highly localised, with the spatial extent defined as a 17 km radius from the survey vessel at night, based on light-modelling results.

7.5.4.4 Residual risk summary

The worst-case residual severity of light emissions to seabirds, marine reptiles, plankton, pelagic fish and sharks is assessed as Negligible (1). This assessment reflects:

- The limited spatial extent of detectable artificial light, which reduces to 0.001 lux at a radius of ~17 km around the survey vessel;
- The deep-water nature (50–107 m) of the light EMBA means that, although turtle foraging BIAs overlap the light EMBA, these depths are not used as significant foraging or interneresting habitat. As a result, behavioural disruption from temporary vessel lighting is expected to be minimal; and

¹⁰ Conservation dependant at the time of writing (January 2026).

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- Evidence that any responses of plankton, pelagic fish or sharks to temporary, moving light sources are localised, small-scale and reversible, with no population-level consequences.

The following factors, validate the residual likelihood of a change in behaviour from light emissions as Very Rare (A):

- The significant distances between the Operational Area and all seabird breeding BIAs (32–153 km away) and marine turtle nesting habitats, with the nearest nesting beach located ~79 km from the Operational Area;
- The short duration of survey campaigns (10–40 days), and the fact that only one vessel operates at a time, substantially reducing exposure potential;

Therefore, the residual risk of light emissions due to the petroleum activities is considered Low.

7.5.5 Environmental Performance Outcomes and Control Measures

EPOs relating to this risk include:

- No injury or mortality to EPBC Act listed fauna during operational activities (EPO-05).
- Light emissions will not displace marine turtles from identified habitat critical to the survival of the species¹¹ (EPO-08).

CMs relating to this risk include:

- Lighting will be used as required for safe work conditions and navigational purposes. (CM-17).

EPSs and MC relating to the above are presented in Section 9.

7.5.6 As Low as Reasonably Practicable Demonstration

Demonstration of ALARP			
Type	Control/management	Evaluation	Adoption?
Eliminate	Eliminate light sources on the vessels	Lighting levels cannot be reduced or eliminated as this would introduce navigational and occupational safety hazards and non-compliance with codes and regulations.	✗
	No night-time operations	Eliminating lighting at night would restrict the activity hours to during the daytime, resulting in the activity taking approximately twice as long to complete. Given the low levels of lighting already on the vessels, there would be little environmental benefit. Additionally, if the activity was to take twice as long to complete, emissions would be doubled	✗

¹¹ Where habitat critical to the survival of marine turtle species is defined in Table 6 of the Recovery Plan for Marine Turtles in Australia (CoA, 2017c).

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Demonstration of ALARP			
Type	Control/management	Evaluation	Adoption?
		and the risk of accidents would increase due to more movements to and from shore.	
Substitute	Adopt measures on the vessels designed to minimise impacts to marine turtles as per National Light Pollution Guidelines for Wildlife (DCCEEW, 2023a): Use non-reflective, dark-coloured surfaces (best practice design principle 5) Replace some or all lights with reduced or filtered blue, violet, and ultraviolet wavelengths (best practice design principle 6)	Substituting external lighting or redesigning vessel lighting systems in accordance with the National Light Pollution Guidelines for Wildlife (DCCEEW, 2023a) would require significant modification of vessel infrastructure, result in substantial cost and procurement delays, and introduce operational inefficiencies. These measures are primarily intended for fixed or long-duration coastal or near-shore installations, whereas the survey activity involves short-duration, temporary offshore operations where light exposure is inherently limited. Given the considerable distance between the Operational Area and all marine turtle nesting habitats ($\geq \sim 79$ km) and seabird breeding areas (≥ 32–153 km), as well as the limited spatial extent of detectable light (~ 17 km radius from the survey vessel) and single-vessel, short-campaign duration, the potential environmental benefit of adopting specialised lighting is very small. The predicted effects of artificial light from the survey vessel are slight, localised and temporary, and do not intersect sensitive habitats. Lighting on the survey vessel is already restricted to the minimum required for safe navigation and safe working conditions in accordance with maritime regulations. Additional substitution measures would therefore impose disproportionate cost and operational burden relative to the negligible reduction in environmental risk. Accordingly, substituting existing lighting with wildlife-specific lighting is not reasonably practicable.	✖
Engineering	N/A	N/A	N/A
Isolation	N/A	N/A	N/A
Administrative	Lighting will be used as required for safe work conditions and navigational purposes	Lighting is assessed to only provide necessary lighting for safety and navigation during the activity. Reducing the potential for additional light pollution to the environment, thus reducing the potential impacts to fauna.	✓ (CM-17)

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7.5.7 Acceptability Demonstration

Demonstration of acceptability	
Compliance with Legal Requirements, Laws and Standards	Light emissions from petroleum activities are managed in accordance with relevant legislative requirements, including compliance with international maritime conventions and Australian legislation. Light emissions from petroleum activities are managed in accordance with EPBC Act Policy Statement 3.21 Industry guidelines for avoiding, assessing, and mitigating impacts on EPBC Act listed Migratory shorebird species (CoA, 2015a).
Policy Compliance	The management of lighting from the petroleum activities is aligned with Eni policies and standards. The residual risk is Low, which is acceptable. The EPOs, CMs and EPSs that will be implemented are consistent with Eni internal requirements.
Social Acceptability	To date, no relevant person concerns have been raised regarding light (refer Section 5). An ongoing consultation program will consider statements and claims made by stakeholders when assessing impacts and risks.
Area Sensitivity/ Biodiversity	The light EMBA does not intersect with any State or Territory marine protected areas, AMPs, wetlands of international or national importance, World, National or Commonwealth heritage properties or places. The light EMBA intersects one AMP (Oceanic Shoals Marine Park) and 2 KEFs (Pinnacles of the Bonaparte Basin KEF and Carbonate bank and terrace system of the Sahul Shelf). The Oceanic Shoals AMP includes foraging BIAs and internesting habitat for marine turtles. Foraging BIAs for the loggerhead turtle, green turtle, Olive Ridley turtle and flatback turtle overlap the light EMBA. No BIAs for migratory shorebirds or seabirds overlap these areas. Light emissions may have temporary and localised behavioural disturbance to individual marine turtles, however, is not anticipated to displace marine turtles from critical habitats or impact nesting adults and emerging and dispersing hatchlings. Eni has considered information contained in relevant recovery plans and approved conservation advice for EPBC Act listed species that identify light pollution as a threat (as listed in Table 2-3). This includes: Conservation Advice - Conservation Advice for <i>Numenius madagascariensis</i> (Far Eastern Curlew) states actions that have indirect impacts on habitat critical to the survival (such as light pollution) should be minimised. - Conservation Advice for <i>Calidris acuminata</i> (sharp-tailed sandpiper) states actions that have indirect impacts on habitat critical to the survival (such as light pollution) should be minimised. Recovery/Management Plans The petroleum activity is consistent with the objectives and actions of the plans identified below through adoption of EPO-05 and CM-17 outlined in Section 2.1.2.2. - National Light Pollution Guidelines for Wildlife including Marine Turtles, Seabirds and Migratory Shorebirds (DCCEEW, 2023a). The management of artificial light emissions are aligned with the objectives of this plan through the adoption of the EPO-05, EPO-08 and CM-17. - Recovery Plan for Marine Turtles in Australia 2017–2027 (CoA, 2017) identifies light pollution as a threat to marine turtles. The light EMBA does not overlap nesting or internesting BIAs or habitat critical to the survival of the species, however does overlap foraging BIAs for the green turtle and Olive Ridley turtle. The petroleum activities are consistent with Action Area A8 of the plan (minimise light pollution) through the adoption of the EPO-05, EPO-08 and CM-17.

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Demonstration of acceptability	
	- Wildlife Conservation Plan for Seabirds (CoA, 2020) identifies light pollution as a threat to seabirds. The petroleum activities are consistent with Objective 2 of this plan (to identify and protect seabirds and their habitats) through the adoption of the EPO-05, EPO-08 and CM-17. - The Wildlife Conservation Plan for Migratory Shorebirds (CoA, 2015a) identifies artificial lighting as part of anthropogenic disturbance and a threat to migratory shorebirds. The petroleum activities are consistent with the objective of this plan 'anthropogenic threats to migratory shorebirds in Australia are minimised or, where possible, eliminated', through the adoption of EPO-05, EPO-08 and CM-17. Recovery Plans/Conservation Advice for other EPBC Act listed threatened and migratory species that may occur in the Operational Area do not identify light pollution as a threat or have explicit objectives or management actions related to light pollution. The control measures outlined in Section 7.5.5 are consistent with the objectives and actions in these publications. The petroleum activities are not inconsistent with the objectives and actions in the relevant recovery plans/conservation advice.
ESD Principles	The activity is consistent with the principles of ESD because: - The worst-case impact associated with this aspect is Negligible (1); and the residual risk is Low. - Precautionary Principle: There are no threats of serious or irreversible environmental damage. Conservative assumptions have been applied to the impact assessment. - Intergenerational Principle: Impacts from this aspect will not forego the health, diversity and productivity of the environment for future generations. - Biodiversity Principle: Impacts from this aspect are not considered to have the potential to affect biological diversity or ecological integrity.
ALARP	The residual risk has been demonstrated to be ALARP.

Given the relatively short duration of the survey activities, and sensitivity of marine fauna to the vessels light emissions, potential impacts are Negligible (1). Controls have been evaluated above and adopted in accordance with the ALARP criteria (Section 6.4). The residual risk is considered Low, which is acceptable in accordance with Eni's acceptability criteria (Table 6-4). Potential impacts are therefore acceptable and ALARP.

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7.6 Planned Discharges

7.6.1 Summary of Environmental Impact Assessment

Hazard	Planned Discharges		
	Frequency	Severity	Risk
Residual Risk	C	1	Low

7.6.2 Description of Hazard

During the petroleum activities, discharges will be generated from:

- Vessel operations.

Vessel transit outside of the Operational Area is not within scope of this EP and comes under the *Navigation Act 2012*.

7.6.2.1 Vessel Operations

During the petroleum activities, the vessels will generate the following routine planned discharges:

- Sewage;
- Grey water;
- Food/putrescible waste;
- Cooling water and brine; and
- Deck drainage and bilge water.

Grey water and sewage as well as food wastes will be generated on-board the vessels, with volumes being directly proportional to the persons on board (POB). This will range from approximately 22 POB for single hulled vessels (geophysical and environmental surveys), to 58 POB for a larger support vessel (geotechnical surveys); see Section 3.3 for further details. Based on information presented by National Energy Resources Australia (2017), it is estimated 0.04 to 0.45m³ of sewage and greywater, per person per day, will be released to the marine environment during petroleum activities.

The generation of food waste from feeding personnel will result in the discharge of food waste. The scraps are macerated and discharged within the Operational Area as permitted under the Marine Order requirements. The volume of putrescible wastes varies depending on persons on board; however, it is predicted approximately 1 to 2kg of wastes per day per person.

Concentrated brine is a waste stream created through the vessel desalination equipment for potable water generation. Brine generated from the water supply systems on-board the vessel will be discharged to the ocean at a salinity of approximately 10% higher than seawater. The volume of the discharge is dependent on the requirement for fresh (or potable) water and would vary between vessels and the number of people on-board.

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Cooling water is used as a heat exchange medium for the cooling of machinery engines on the vessels. Seawater is drawn from the ocean and flows counter-current through closed-circuit heat exchangers, transferring heat from engines and machinery to the seawater. The seawater is then discharged to the ocean. Cooling water temperatures vary depending upon the vessel engine's workload and activity; however, may be in the vicinity of 32°C.

Bilge water is generated on the support vessels and consists of deck drainage and machinery space water that has been directed to a bilge water tank. Sources of contamination include chemical spills on deck. Bilge water will be diverted to a holding tank either for onshore disposal at an appropriately licenced facility, or for discharge with an oil content of less than 15 parts per million (ppm) in accordance with Marine Order 91.

During the geophysical, geotechnical and environmental survey activities, there will be only one survey vessel present in the Operational Area at any one time. The geotechnical survey supporting the development campaign is the most prolonged activity, lasting approximately 40 days (Section 3.1.2). Any future survey campaigns are expected to be similar.

7.6.3 Potential Environmental Impact

Discharges from vessel operations have the potential to result in various environmental impacts to receptors, including:

- Change in water quality;
- Change in fauna behaviour; and
- Injury or mortality of marine fauna.

Potential receptors that may be impacted are:

- Water quality; and
- Marine fauna (plankton, marine invertebrates, marine mammals, marine reptiles, fish, sharks and rays).

There are no marine protected areas or KEFs within the Operational Area.

7.6.3.1 Water quality

Change in water quality

Vessel discharges will result in localised impact on water quality from increased temperature, salinity, nutrients, and chemical toxicity. The planned discharges from the petroleum activity will be small and intermittent, with quantities determined by the specific activity.

Temperature

The release of cooling water into the marine environment will increase the ambient temperature of the surrounding water. Modelling produced for Woodside found that discharged water temperature decreases quickly as it mixes with the receiving waters, with the discharge water temperature being <1°C above ambient within 100m (horizontally) of the discharge point, and 10m vertically (Woodside, 2014). As

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such, given the nature of discharge and the open ocean metocean conditions, a highly localised increase in temperature is expected to be negligible and within the immediate area of the discharge.

Salinity

Concentrated brine is a waste stream created through the vessel desalination equipment for potable water generation. Due to its greater density compared to seawater, brine will sink and subsequently disperse into the water column from ocean currents. Studies indicate that most marine species are able to tolerate short-term fluctuations in salinity (20–30‰) (Walker and McComb, 1990), and it is expected that most pelagic species would be able to tolerate short-term exposure to the slight increase in salinity caused by the discharged brine. Given the relatively low volume and intermittent nature of brine discharge and the open ocean metocean conditions, a localised increase in salinity is expected to be negligible and within the immediate area of the discharge.

Nutrients

Contaminants found in routine discharges may result in localised increase in nutrients in the marine environment, which can increase nutrient availability, algal growth and subsequently eutrophication (NERA, 2017). Sewage is typically composed of more than 99% fresh water, with small amounts of contaminants and nutrients such as organic carbon, nitrogen, and phosphorus. However, elevated nutrient levels from sewage, putrescible waste, and grey water discharges, are anticipated to either dilute in the receiving waters, settle out of the water column, chemically break down or be consumed by bacteria (NERA, 2017).

Chemical Toxicity

The release of chemical contaminants found in bilge water, such as oily fluids, lubricants, and cleaning fluids, and in the scale inhibitors and biocides, used in heat exchange and desalination process, and treatment of bilge and deck drainage, have the potential to increase the toxicity of the surrounding water.

Modelling by Shell (2009) indicates that upon discharge, hydrocarbon and other chemical concentrations are rapidly diluted and expected to be below Predicted No Effect Concentration (PNEC) within less than 100m of the discharge point, within a relatively short period of time. The biocides typically used in the industry are highly reactive and degrade rapidly (Black et al., 1994). Standard marine vessel discharges typically use these chemicals in low concentrations, which upon discharge, rapidly dilute to below PNEC. Any chemicals are selected in accordance with the Eni Chemical Assessment Process to ensure ecotoxicity profiles are of an acceptable level.

Vessel discharges are short-duration events, with infrequent occurrences from a single vessel at a time. The geotechnical survey supporting the development campaign is the most prolonged activity, lasting approximately 40 days (Section 3.1.2).

Any future survey campaigns are expected to be similar.

The offshore open ocean metocean conditions will rapidly dilute the discharge due to the mixing of the surface and near surface waters driven by current and tidal action.

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Therefore, any changes to the water quality from routine discharges are anticipated to be temporary and localised.

7.6.3.2 Marine fauna

Change in fauna behaviour

The release of vessel discharges may result in a change to the behaviour of marine fauna. The discharge of sewage and food wastes will create a localised and temporary food source and may attract marine fauna to the source. As discussed above, the discharge extent for all planned discharges is anticipated to be localised and rapidly dilute within the open ocean environment. This is likely to limit the impacts of putrescible waste discharges to within the vicinity of the discharge and to be temporary in nature. Furthermore, marine fauna found within the Operational Area are likely to be transient.

Vessel discharges are short-duration events, with infrequent occurrences from a single vessel at a time. The geotechnical survey supporting the development campaign is the most prolonged activity, lasting approximately 40 days (Section 3.1.2).

Any changes to marine fauna behaviour are anticipated to be short-term due to the rapid dispersion of the plume and the transient fauna movement.

Given the nature of discharged chemicals, the small volumes that could be released to the marine environment and the nature of the marine environment within the vicinity of the Operational Area, the operational planned discharges are not predicted to have ecologically significant effects.

Injury or mortality to marine fauna

The release of certain fluids into the marine environment during the vessel activities has the potential to cause an increase of chemical toxicity within the marine environment and potential to cause injury, or mortality, to marine fauna.

A change in water quality as a result of routine vessel discharges is unlikely to lead to injury or mortality of plankton at a measurable level given the small discharge quantities and rapid dilution anticipation following the release. Plankton are known to accumulate rapidly, due to their small size and high surface area to volume ratio, therefore populations are typically not sensitive to the impacts of contaminants in the water column (Hook et al., 2016). The ability of plankton to rapidly reproduce and their inherent population dynamics means they can quickly recover from temporary disturbances.

Vessel discharges are short-duration events, with infrequent occurrences from a single vessel at a time. The geotechnical survey supporting the development campaign is the most prolonged activity, lasting approximately 40 days. The Operational Area does not overlap any areas known for upwelling, known for high productivity. Therefore, the consequence of any impacts to plankton from planned discharges from the petroleum activities are expected to be negligible and not cause impacts at an ecosystem or population level.

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7.6.3.3 Residual risk summary

The worst-case residual severity to water quality and marine fauna from routine discharges is evaluated as Negligible (1), given the short duration of vessel activities, low quantities of the discharges, the low toxicity of the contaminants, and the open ocean metocean conditions causing the discharges to rapidly disperse and dilute in the marine environment.

The likelihood of a change to water quality from routine discharges occurring as a result of the activities is considered Unlikely (C).

Therefore, the residual risk of changes to water quality and marine fauna behaviour due to the petroleum activities is considered Low.

7.6.4 Environmental Performance Outcomes and Control Measures

EPOs relating to this risk include:

- No unplanned discharges to sea of untreated sewage, greywater, putrescible wastes, bilge, and deck drainage (EPO-09); and
- No unplanned discharge of oily water or chemicals (EPO-10).

CMs relating to this risk include:

- Management of Maritime Operations and Services (OPI-OPE-083-ENI-SPA-R01) (CM-13);
- Planned Maintenance System (PMS) (CM-14);
- Vessels comply with Marine Order 96 (Marine pollution prevention – sewage) (CM-18);
- Vessels comply with Marine Order 95 (Marine pollution prevention – garbage) (CM-19);
- Vessels comply with Marine Order 91 (Marine pollution prevention – oil) (CM-20);
- Hazardous and non-hazardous waste management processes (CM-21); and
- Chemical risk assessment process (CM-22).

EPSs and MC relating to the above are presented in Section 9.

7.6.5 As Low as Reasonably Practicable Demonstration

Demonstration of ALARP			
Type	Control/management	Evaluation	Adoption?
Eliminate	Eliminating discharge on vessels	The generation of sewage, greywater, putrescible waste, bilge and deck drainage by personnel cannot be eliminated on the vessels, as storing the waste would present a safety issue.	×

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Demonstration of ALARP			
Type	Control/management	Evaluation	Adoption?
		Storage space required for containment and an increase in transfers to shore for disposal would be required. Transportation to shore was considered as an alternative to ocean discharge; however, this would be excessively costly and impractical, due to the lack of storage capacity onboard the vessels and would result in increased vessel transits to provide ship-to-shore services. It also provides an increased exposure to biological health hazards, and safety hazards such as bulk transfer and heavy lifting operations. This discharge is permitted under Marine Orders and is not anticipated to present significant environmental impact.	
Substitute	N/A	N/A	N/A
Engineering	Equip vessels with oily water prevention system and IMO-approved oil filtering equipment	Reduces potential impacts of planned discharge of oily water to the environment, with minor administrative and maintenance cost.	✓ (Through compliance with Marine Order 91 – CM-20)
	Continually plug the deck drains on vessels to prevent deck drainage	Would eliminate potential impacts of contaminants being discharged to sea from deck water; however, would present increased health and safety risks from wet deck and water on a vessel deck can also cause stability issues. Storage space required for containment of drained liquids and increase in transfers to vessels, resulting in increased potential impacts and risks.	*
	Sewage treatment system	Reduces potential impacts of inappropriate discharge of sewage at sea or additional emissions associated with ship to shore of waste.	✓ (Through compliance with Marine Order 96 – CM-18)
Isolation	Capture contaminated waters/bilge water	Fixed equipment, such as engines and generators, are contained and captured in the bilge water tank for treatment via the oil in water (OIW) separator (on vessels) in compliance with Marine Order 91.	✓ (Through compliance with Marine Order 91 – CM-20)

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Demonstration of ALARP			
Type	Control/management	Evaluation	Adoption?
Administrative	Implementation of measures in Marine Order 95 (Marine pollution prevention – garbage)	Marine Order 95 reduces potential impacts of inappropriate discharge of sewage. Stipulates putrescible (food) waste disposal conditions and limitations. Environmental benefit outweighs the minor administrative costs in implementing the Marine Order.	✓ (CM-19)
	Implementation of measures in Marine Order 96 (Prevention of pollution – sewage)	Marine Order 96 reduces probability of garbage being discharged to sea. Environmental benefit outweighs the minor administrative costs in implementing the Marine Order.	✓ (CM-18)
	Vessels comply with Marine Order 91: Marine pollution prevention – oil	Marine Order 91 stipulates the oily water prevention system and treatment requirements for oil in water discharge from vessels. Environmental benefit outweighs the minor administrative costs in implementing the Marine Order.	✓ (CM-20)
	Chemical risk assessment process	Ensures that planned discharges to sea meet the criteria for not being harmful to the marine environment according to MARPOL Annex V; or Gold/Silver/D or E rated through OCNS; or have a completed chemical risk assessment so that only environmentally acceptable products are used.	✓ (CM-22)

7.6.6 Acceptability Demonstration

Demonstration of acceptability	
Compliance with Legal Requirements, Laws and Standards	Vessel discharges comply with the requirements of the <i>Protection of the Sea (Prevention of Pollution from Ships) Act 1983</i>, which in Australian waters reflects MARPOL, and is enacted by: • Marine Order 91: Marine pollution prevention – oil • Marine Order 95: Marine pollution prevention – garbage • Marine Order 96: Marine pollution prevention – sewage. Planned discharges from petroleum activities are managed in accordance with relevant legislative requirements, including compliance with international maritime conventions and Australian legislation.
Policy Compliance	The management of the discharge is aligned with Eni policies and standards. The residual risk is Low, which is acceptable. The EPOs and the controls that will be implemented are consistent with Eni internal requirements.
Social Acceptability	To date, no relevant person concerns have been raised regarding light (refer Section 5).

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Demonstration of acceptability	
	An ongoing consultation program will consider statements and claims made by stakeholders when assessing impacts and risks.
Area Sensitivity/ Biodiversity	The Operational Area does not intersect with any State or Territory marine protected areas, AMPs, wetlands of international or national importance, World, National or Commonwealth heritage properties or places, or KEFs. Foraging BIAs for the loggerhead turtle, green turtle, Olive Ridley turtle and flatback turtle overlap the Operational Area. Other marine fauna are likely to be transient in the Operational Area. The discharge extent for all planned discharges is anticipated to be localised and rapidly dilute within the open-ocean environment. Eni has considered information contained in relevant recovery plans and approved conservation advice for EPBC Act listed species that identify chemical discharges, pollution and habitat degradation or modification as a threat (as listed in Table 2-3). This includes: Conservation Advice • Approved Conservation Advice for <i>Balaenoptera borealis</i> (Sei Whale) identifies pollution (persistent toxic pollutants) as a threat. • Approved Conservation Advice for <i>Balaenoptera physalus</i> (Fin Whale) identifies pollution (persistent toxic pollutants) as a threat. • Approved Conservation Advice for <i>Dermochelys coriacea</i> (Leatherback turtle) lists habitat disturbance and modification as a threat. • Approved Conservation Advice for <i>Aipysurus apraefrontalis</i> (Short-nosed Sea Snake) lists habitat degradation as a threat. • Approved Conservation Advice for Green Sawfish lists habitat degradation or modification as a threat. • Approved Conservation Advice for <i>Pristis clavata</i> (Dwarf Sawfish) lists habitat degradation or modification as a threat. • Approved Conservation Advice for Green Sawfish lists habitat degradation or modification as a threat. • Approved Conservation Advice for <i>Pristis pristis</i> (Large Tooth Sawfish) lists habitat degradation or modification as a threat. • Approved Conservation Advice for <i>Glyphis garricki</i> (Northern River Shark) lists habitat degradation or modification as a threat. • Approved Conservation Advice for <i>Glyphis glyphis</i> (Spear-tooth Shark) lists habitat degradation or modification as a threat. • Approved Conservation Advice for <i>Orcaella heinsohni</i> (Australian snubfin dolphin) lists pollution and habitat degradation as a threat. • Approved Conservation Advice for <i>Sousa sahalensis</i> (Australian humpback dolphin) lists pollution and habitat degradation as a threat. • Approved Conservation Advice for <i>Rhincodon typus</i> (Whale Shark) lists habitat degradation or modification as a threat. Recovery/ Management Plans The petroleum activity is consistent with the objectives and actions of the plans identified below through adoption of EPO-09 and EPO-10 and the control measures outlined in Section 7.6.4: • Conservation Management Plan for the Blue Whale 2015–2025 (DoE, 2015) identifies habitat modification, including acute and chronic chemical discharge, as a threat. There are no BIAs for the blue whale overlapping the Operational Area. There are no explicit relevant management actions in this plan. The petroleum activity is consistent with the long-term recovery objective to 'minimise anthropogenic threats to allow the conservation status of the blue whale to improve so that it can be removed from the threatened species list under the EPBC Act' through the adoption of the EPOs.

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Demonstration of acceptability	
	- Recovery plan for Marine Turtles in Australia (CoA, 2017) identifies acute chemical and terrestrial discharge as a threat. Foraging BIAs for the green loggerhead, Olive Ridley, and flatback turtles overlap the Operational Area. Action Area A4 to minimise chemical and terrestrial discharge is met through the adoption of the EPOs. - Sawfish and River Shark Multispecies Recovery Plan (CoA, 2015) lists habitat degradation or modification as a threat. No habitat critical or BIAs have been identified for sawfish or river sharks within the Operational Area. The petroleum activity is consistent with Objective 5 of this plan to 'reduce and, where possible, eliminate adverse impacts of habitat degradation and modification on sawfish and river shark species', through adoption of the EPOs. - Recovery Plan for the White Shark (<i>Carcharodon carcharias</i>) (2013) identifies habitat modification as a threat. No habitat critical or BIAs have been identified for white sharks within the Operational Area. The petroleum activity is consistent with the objective of this plan to ensure anthropogenic activities do not hinder recovery in the near future, or impact on the conservation status of the species in the future through adoption of the EPOs. - Recovery Plan for the Grey Nurse Shark (<i>Carcharias taurus</i>) (DoE, 2014a) identifies pollution as a threat. No habitat critical or BIAs for the grey nurse shark have been identified in the Operational Area. The petroleum activity is consistent with the objective of this plan to ensure anthropogenic activities do not hinder recovery in the near future, or impact on the conservation status of the species in the future, through the adoption of the EPOs. Recovery Plans/Conservation Advice for other EPBC Act listed threatened and migratory species that may occur in the Operational Area do not identify chemical discharges, pollution and habitat degradation or modification as a key threat or have explicit relevant objectives or management actions related to these threats. The control measures outlined in Section 7.6.4 are consistent with the objectives and actions in these publications. The petroleum activities are not inconsistent with the objectives and actions in the relevant recovery plans/ conservation advice.
ESD Principles	The petroleum activities are consistent with the principles of ESD because: - The worst-case impact associated with this aspect is Negligible (1); and the residual risk is Low. - Precautionary Principle: There are no threats of serious or irreversible environmental damage; and there is no scientific uncertainty associated with the potential impact. - Intergenerational Principle: Impacts from this aspect will not forego the health, diversity and productivity of the environment for future generations. - Biodiversity Principle: Impacts from this aspect are not considered to have the potential to affect biological diversity or ecological integrity.
ALARP	The residual risk has been demonstrated to be ALARP.

Given the short duration of the activities and dispersive offshore marine environment in the Operational Area, the potential impacts associated with vessel discharges are considered to be Negligible (1). Controls have been evaluated above and adopted in accordance with the ALARP criteria (Section 6.4).

The residual risk is considered to be Low, which is acceptable in accordance with Eni's acceptability criteria (Table 6-4). Therefore, the potential impacts associated with routine discharges are acceptable and ALARP.

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8 ENVIRONMENTAL RISK ASSESSMENT – UNPLANNED EVENTS

8.1 Marine Fauna Interaction

8.1.1 Summary of Environmental Risk Assessment

Hazard	Marine Fauna Interaction		
	Frequency	Severity	Risk
Residual Risk	A	2	Low

8.1.2 Description of Hazard

Marine fauna interaction may occur as a result of:

- Vessel operations.

There is the potential for the vessels to interact with marine fauna, via strike or collision.

Vessel transit outside of the Operational Area is not within scope of this EP and comes under the *Navigation Act 2012*.

There are no helicopter activities within scope of this EP.

8.1.2.1 Vessel operations

Vessel-based operations have an expected duration of 10 days to 40 days, depending on the survey activity and campaign (Section 3.1.2). Any future survey campaigns are expected to be similar. During the geophysical, geotechnical and environmental survey activities within each campaign, there will be a maximum of one vessel within the Operational Area at any one time.

Vessels will operate within the Operational Area and will move at slow speeds during the activities.

8.1.3 Potential Environmental Impact

Interaction with marine fauna has the potential to result in:

- Injury/mortality of marine fauna.

Potential receptors that may be impacted are:

- Fish;
- Marine reptiles; and
- Marine mammals.

8.1.3.1 Marine fauna

Injury / mortality of marine fauna

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Injury or mortality to marine fauna from vessel strike is limited to surface waters within the Operational Area where vessel activities occur.

Megaafauna comprising marine mammals, turtles and whale sharks are the species most at risk from this potential impact. As identified in Section 4.4.3, several marine mammals (whales and dolphins), turtle species and whale sharks listed as threatened and/or migratory and/or a listed marine species under the EPBC Act have the potential to occur within the Operational Area. Most of these species are expected to transit through, rather than aggregate within the Operational Area.

The Operational Area is located within a foraging BIA for loggerhead turtle, green turtle, Olive Ridley turtle and flatback turtle. Whiting et al., (2007) observed foraging behaviours by the olive ridley turtle in the northern and southern JBG within shallow coastal waters and on the continental shelf and slope. Maximum dive able depths for this species were found to be 150-200m with depths in foraging areas ranging from 20-150m (Whiting et al., 2007). Another study conducted on the flatback turtle within the NWMR found a foraging preference of depths between 60-90m in association with complex, benthic geomorphology (banks, shoals, terraces, deep holes and valleys) (Thums et al., 2017). Considering the water depths of the Operational Area (50-107m) and the known presence of marine turtles utilising the JBG for foraging behaviours it is considered likely that they will be present within the Operational Area. Marine turtle mortality due to vessel strike has been identified as an issue in Queensland waters in the Recovery Plan for Marine Turtles in Australia 2017–2027 (CoA, 2017c). However, this is considered to be more of an issue in shallow coastal foraging and interesting areas. Although vessel strike is a contributor to stock level decline, vessel strike as a standalone threat is not considered to cause decline in stock level. (CoA, 2017c).

There is limited data regarding strikes to fauna such as turtles and whale sharks, possibly due to lack of collisions being noticed and lack of reporting. However, marks observed on animals show that strikes have occurred (Peel et al., 2016). Cetaceans provide a representative case to enable an evaluation of consequence to be undertaken.

The PMST search indicates that 12 species of marine mammal are likely to or may occur within the Operational Area (Section 4.4.3) including 3 listed as Threatened; and no BIAs. Cetaceans are naturally curious and can demonstrate varied behaviours in response to vessels and offshore facilities. Some species remain motionless when near a vessel, while others may approach vessels that have stopped or are slow moving, although they generally do not approach, and sometimes avoid, faster-moving vessels (Laist et al., 2001). It is not anticipated that marine mammals will be present within the Operational Area in significant numbers and, if present, would only be in the vicinity for short periods of time when transiting through the area. Therefore, impacts are likely to be limited to individuals only.

Cetaceans are naturally inquisitive marine mammals that are often attracted to offshore vessels and facilities. The reaction of whales to the approach of a vessel is quite variable. Some species remain motionless when in the vicinity of a vessel, while others are curious and often approach ships that have stopped or are slow moving (Richardson et al., 1995). They generally do not approach, and sometimes avoid, faster-moving ships (Richardson et al., 1995).

Collisions between larger vessels with reduced manoeuvrability and large, slow-moving cetaceans occur more frequently where high vessel traffic and cetacean

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habitat occurs. Larger vessels with reduced manoeuvrability moving in excess of 10 knots may cause fatal or severe injuries to cetaceans, with the most severe injuries caused by vessels travelling faster than 14 knots (Laist et al., 2001). Vessels typically used to undertake petroleum activities do not have the same limitations on manoeuvrability and would not be moving at these speeds when conducting activities inside the Operational Area.

The National Strategy for Mitigating Vessel Strike of Marine Megafauna 2017 (CoA, 2017b), states that areas surrounding major ports where shipping activity is high may be cause for concern for large cetaceans. Most of the reported vessel collisions for whales in Australian waters between 1990 and 2015 have occurred along eastern or south-eastern Australia, with no reported incidences in NT waters (CoA, 2017b).

The probability and consequence of a vessel strike between a vessel and cetacean is proportionate to the speed at which the vessel is travelling. The chance of a vessel strike causing a lethal injury to a large whale will increase from 20% at 8.6 knots to 80% at 15 knots (Vanderlaan and Taggart, 2007). Similarly, an increase in vessel numbers increases the likelihood of strike (Silber and Bettridge, 2012).

Peel et al., (2016) reviewed vessel strike data (1997-2015) for marine species in Australian waters and identified the following:

- Whales including the humpback, pygmy blue, Antarctic blue, southern right, dwarf minke, Antarctic minke, fin, Bryde's, pygmy right, sperm, pygmy sperm and pilot species were identified as having interacted with vessels. The humpback whale exhibited the highest incidence of interaction followed by the southern right whale. A number of these species may migrate through the waters of the Operational Area; and
- Dolphins including the Australian humpback, common bottlenose, indo-pacific bottlenose and Risso's dolphin species were also identified as interacting with vessels. The common bottlenose dolphin exhibited the highest incidence of interaction. A number of these species may reside in or pass through the waters of the Operational Area.

Vessel presence in the Operational Area for the initial 2026 campaigns has an expected total duration of 140 days, with only one vessel present at a time (Section 3.1.2). Any future survey campaigns are expected to be similar.

The risk of marine fauna entanglement during is also considered negligible due to the specific equipment configuration being used. Unlike traditional seismic surveys, which deploy multiple wide-reaching streamers and spreader vanes, the geophysical survey will utilise a single cable. Additionally, the survey cable is maintained under constant tension while being towed, ensuring it remains linear. As a result, the absence of complex towing arrays the formation of loops or slack in the line significantly reduces the physical footprint and eliminates trapping points where marine fauna might be at risk.

The worst potential impact from vessel collision is likely to be mortality or serious injury to an individual. For species that are considered threatened and that have populations that are not recovering, there is potential that loss of an individual due to mortality from vessel collision could have a greater impact on the population (CoA, 2017b). Vessels undertaking activities in the Operational Area will typically move at

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slow speeds, therefore, the potential of collision with marine mammals is considered unlikely.

If a fauna strike occurred and resulted in death, it is not expected that it would have a detrimental effect on the overall population of the species or ecosystem function.

8.1.3.2 Residual risk summary

The worst-case residual severity to marine fauna from interaction with the vessels is evaluated as Limited (2), given the short duration of vessel activities, slow speeds and a lethal interaction will not impact species population or ecosystem function in most species.

The likelihood of injury or mortality of marine fauna from interaction with the vessels occurring as a result of the activities is considered Very Rare (A) due to the slow speeds of vessels in the Operational Area and the low numbers of fauna expected to be present.

Therefore, the residual risk of marine fauna interaction due to the petroleum activities is considered Low.

8.1.4 Environmental Performance Outcomes and Control Measures

EPOs relating to this event include:

- No injury or mortality to EPBC Act listed fauna during operational activities (EPO-05).

CMs relating to this risk include:

- Regulations and measures for interacting with marine fauna (CM-15).

EPSs and MC relating to the above are presented in Section 9.1

8.1.5 As Low as Reasonably Practicable Demonstration

Demonstration of ALARP			
Type	Control/management	Evaluation	Adoption?
Eliminate	N/A	N/A	N/A
Substitute	N/A	N/A	N/A
Engineering	N/A	N/A	N/A
Isolation	N/A	N/A	N/A
Administrative	Regulations and measures for interacting with marine fauna (e.g., EPBC Regulations 8 (Part 8))	Minor cost in complying. Reduces risk of physical and behavioural impacts to marine fauna. EPBC Regulations include restrictions such as vessel speed and direction when in proximity to marine fauna and are based on legislated requirements.	✓ (CM-15)

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Demonstration of ALARP			
Type	Control/management	Evaluation	Adoption?
	Use of a dedicated marine fauna observer	Improves ability to spot and identify marine fauna at risk of collision. However, costs involved with implementing a dedicated marine fauna observer is grossly disproportional to the environmental benefit, given low risk.	x
	Use of spotter planes to identify marine fauna in the region	Improves ability to spot and identify marine fauna at risk of collision. However, costs involved with implementing a dedicated marine fauna observer is grossly disproportional to the environmental benefit, given the low densities of marine mammals expected in the Operational Area. The Operational Area does not overlap any critical habitats (i.e. feeding, breeding, calving areas) or a constricted migratory pathway for marine mammals. It is not anticipated that marine mammals will be present within the Operational Area in significant numbers and, if present, would only be in the vicinity for short periods of time when transiting through the area.	x
	Plan vessel movements during periods when sensitive marine fauna are not present	The timing of the petroleum activities will be subject to vessel availability and weather conditions. Additionally, the costs involved in restricting activities to avoid sensitive marine fauna periods are grossly disproportionate to the environmental benefit. Furthermore, the Operational Area only overlaps the foraging BIA for marine turtles. Given the low risk to marine fauna in the region, rescheduling the activity will not result in significant environmental benefit. The Operational Area does not overlap any critical habitats (i.e. feeding, breeding, calving areas) or a constricted migratory pathway for marine mammals. It is not anticipated that marine mammals will be present within the Operational Area in significant numbers and, if present, would only be in the vicinity for short periods of time when transiting through the area.	x

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Demonstration of ALARP			
Type	Control/management	Evaluation	Adoption?
	Use of a turtle guard on towed geophysical cable.	Reduces likelihood of entanglement of marine turtles. However, as the geophysical cable will be a single cable and less than 500m long, and adoption of CM-15 Regulations and measures for interacting with marine fauna, the risk of causing entanglement is not considered credible.	x

8.1.6 Acceptability Demonstration

Demonstration of acceptability	
Compliance with Legal Requirements, Laws and Standards	Vessels and towed equipment will comply with EPBC Regulations 2000 – Part 8 (Interacting with cetaceans) and the Australian National Guidelines for Whale and Dolphin Watching 2017 (DEE, 2017b). Specifically: Vessels and towed equipment will comply with EPBC Regulations 2000 – Part 8 Division 8.1 (Interacting with cetaceans).
Policy Compliance	The management of marine fauna interaction is aligned with Eni policies and standards. The residual risk is Low, which is acceptable. The EPOs, CMs and EPSs that will be implemented are consistent with Eni internal requirements.
Social Acceptability	To date, no relevant person concerns have been raised regarding marine fauna interaction (refer Section 5). An ongoing consultation program will consider statements and claims made by stakeholders when assessing impacts and risks.
Area Sensitivity/ Biodiversity	The Operational Area does not intersect with any State or Territory marine protected areas, AMPs, wetlands of international or national importance, World, National or Commonwealth heritage properties or places, or KEFs. Mega fauna comprising marine mammals, turtles and whale sharks are the species most at risk from strike or collision. There are foraging BIAs for the loggerhead turtle, green turtle, Olive Ridley turtle and flatback overlapping the Operational Area. No other BIAs or habitat critical for EPBC listed species overlap the Operational Area. Eni has considered information contained in relevant recovery plans and approved conservation advice for marine fauna that identify collision or strike with vessels or helicopters as a threat (as listed in Table 2-3). The petroleum activities are consistent with the objectives and actions of the plans identified below through adoption of EPO-05 and CM-15 (Section 8.1.4). This includes: Conservation Advice - Approved Conservation Advice for <i>Dermochelys coriacea</i> (Leatherback Turtle) (DEWHA, 2008a) - Conservation Advice for <i>Orcaella heinsohni</i> (Australian snubfin dolphin) (DCCEEW, 2025d). - Conservation Advice for <i>Balaenoptera borealis</i> (sei whale) (TSSC, 2015). - Conservation Advice for <i>Balaenoptera physalus</i> (fin whale) (TSSC, 2015a). - Approved Conservation Advice for <i>Rhincodon typus</i> (Whale Shark) (TSSC, 2015b). Recovery/Management Plans

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Demonstration of acceptability	
	The monitoring activity is consistent with the objectives and actions of the plans identified below through adoption of EPO-10 and the control measures outlined in Section 8.1.4: - Wildlife Conservation Plan for Migratory Shorebirds (CoA, 2015a) identifies aircraft disturbance/strike as a threat to seabirds. The petroleum activities are consistent with the objective of this plan to ensure seabirds and their habitat are protected and managed. - Wildlife Conservation Plan for Seabirds (CoA, 2020) identifies aircrafts as a threat under anthropogenic disturbance. The petroleum activities are consistent with the objective of this plan to ensure anthropogenic threats are minimised or where possible, eliminated. - Recovery plan for marine turtles in Australia 2017–2027 (CoA, 2017) identifies vessel disturbance as a threat to marine turtles. The petroleum activities are consistent with Interim Objective 3 of this plan (anthropogenic threats are demonstrably minimised). - Conservation Management Plan for the Blue Whale 2015–2025 (DoE, 2015) identifies vessel disturbance as a threat. The petroleum activities are consistent with Action Area A4: Minimising vessel collisions. - National Strategy for Mitigating Vessel Strike of Marine Megafauna 2017 (DEE, 2017a). The petroleum activities are consistent with this plan. Recovery Plans/Conservation Advice for other EPBC Act listed threatened and migratory species that may occur in the Operational Area do not identify collision or strike with vessels or helicopters as a key threat or have explicit relevant objectives or management actions. The control measures outlined in Section 8.1.4 are consistent with the objectives and actions in these publications. The petroleum activities are not inconsistent with the objectives and actions in the relevant recovery plans/conservation advice.
ESD Principles	The risks of this unplanned event are consistent with the principles of ESD because: - The worst-case residual risk associated with this aspect is Low. - Precautionary Principle: There are no threats of serious or irreversible environmental damage. Conservative assumptions on scale of impact have been applied, including a conservative assumption on marine fauna presence. - Intergenerational Principle: Impacts from this aspect will not forego the health, diversity and productivity of the environment for future generations. - Biodiversity Principle: Impacts from this aspect are not considered to have the potential to affect biological diversity or ecological integrity.
ALARP	The residual risk has been demonstrated to be ALARP.

Given the short duration of the activities, low number and speed of vessels and lack of marine fauna aggregation areas in the Operational Area, the residual risk is considered Low, which is acceptable in accordance with Eni's acceptability criteria (Table 6-4). Potential impacts are acceptable and ALARP.

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8.2 Introduction of Marine Pest Species

8.2.1 Summary of Environmental Risk Assessment

Hazard	Introduction of Marine Pest Species		
	Frequency	Severity	Risk
Residual Risk	A	3	Low

8.2.2 Description of Hazard

Marine pest species or invasive marine species (IMS) are marine plants, animals and algae that have been introduced into a region that is beyond their natural range but that have the ability to survive and possibly thrive (DAFF, 2021).

Introduction of marine pest species may occur as a result of:

- Vessel operations.

The movement of vessels and mobile facilities into, out of, and within Commonwealth waters is a potential mechanism for the transfer of IMS into new areas. The establishment of IMS in Commonwealth waters may result in significant impacts to the marine environment, potentially compromising the viability of socio-economic commodities such as aquaculture, fishing and tourism as well as potentially widespread ecological impacts (NOPSEMA, 2020). Historically, once IMS are established, they are very difficult to control and fully eradicate (NOPSEMA, 2020).

In order for an IMS to be successfully introduced, it must colonise and establish on a vector (e.g. vessel,) in a donor region (e.g. port); then survive on the vector during transit; then colonise the receiving environment (e.g. by reproduction or dislodgement) and then successfully establish a viable new local population.

To become established within the Operational Area, IMS need suitable habitat and conditions, which includes water temperature, water depth and presence of predators. Hard substrates such as rocks or subsea infrastructure in shallow waters (where photosynthesis can occur) are suitable habitats. The Operational Area is ~95m deep, has strong currents and soft sediment on the sea floor, which are not conditions considered suitable for the establishment of IMS.

8.2.2.1 Vessel Operations

There are few vectors vector pathways for the introduction of IMS into an area, which are:

- Biofouling on support vessels including external/internal niches (e.g., sea chests, seawater systems);
- Biofouling on equipment that is routinely submerged in water (e.g. ROVs); and
- Discharge of ballast water.

Biofouling (vessels and ROV)

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Biofouling is the growth of marine organisms found on the hulls and niche areas of vessels and underwater surfaces of offshore facilities. Areas with high water movement, such as propellers, tend to have lower levels of biofouling compared to areas subject to low water movement, such as stationary vessels or slow-moving vessels. Biofouling is one of the most common ways that IMS are transferred within the marine environment (NOPSEMA, 2020). Research indicates that biofouling has been responsible for more foreign marine introductions than ballast water (DAFF, 2021). The potential biofouling risk presented by vessels will relate to:

- The length of time that these vessels and ROV have already been operating in Australian waters or, if they have been operating outside Australian waters;
- The locations of the operations they have been undertaking;
- The length of time spent at these locations; and
- Whether the vessels and ROV have undergone hull inspections, cleaning and application of new anti-foulant coating prior to returning to operate in Australia.

Ballast water

Ballast water is water adjusted on vessels to help manage weight and stability and improve manoeuvrability. During the uptake of ballast water from the surrounding environment in an international or domestic location, it is possible for a vessel to take in water that contains planktonic biota. This biota may then be discharged at the vessel's new location during ballast water exchange.

It is estimated that up to 30% of IMS in Australia have arrived via ballast water (DAWE, 2020). All saltwater from ports or coastal waters outside Australia's territorial seas presents a high risk of introducing foreign marine pests into Australia (AQIS, 2011).

Highly disturbed shallow-water marine ecosystems are more prone to marine pests colonisation, and the establishment of marine pests depends on the distance to shore (Paulay et al., 2002). Modelling of ballast water by the Bureau of Rural Sciences (BRS) has shown that the risk of IMS colonisation decreases with distance to shore with estimates as follows (BRS, 2007):

- 33% chance of colonisation at 3nm;
- 8% chance at 12nm; and
- 2% chance at 24nm.

The Operational Area (closest point to shore) is 160km to the WA coastline.

Since the introduction of mandatory ballast water requirements (DAWE, 2020), where ballast water must be exchanged outside territorial sea (12nm off the Australian coast, including islands), the risk of IMS from international shipping has been greatly reduced. Domestic ships that discharge or exchange water at any Australian port has variable risk ratings depending on where the ballast water was last acquired.

Summary

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No ballast water discharge or exchange is expected to occur within the Operational Area.

Vessels will not anchor in the Operational Area.

Vessel-based operations have an expected duration of 10 days to 40 days, depending on the survey activity and campaign (see Section 3.1.2).

8.2.3 Potential Environmental Impact

An introduction of marine pest species has the potential to result in:

- Displacement of native marine species
- Change to the functions, interests and activities of other marine users.

Potential receptors that may be impacted are:

- Benthic habitats and communities;
- Marine Fauna; and
- Commercial fisheries.

There are no marine protected areas or KEFs within the Operational Area.

8.2.3.1 Benthic habitats and communities

Changing in ecosystem dynamics

The establishment of IMS may result in direct and indirect impact to benthic habitats, including:

- Competition with native species for food;
- Competition with native species for hard substrate; and
- Predation of native species.

IMS are likely to have little or no natural competition or predators, thus potentially outcompeting native species for food or space, preying on native species, or changing the nature of the environment. It is estimated that Australia has more than 250 established marine pests, and it is estimated that approximately one in six introduced marine species becomes pests (DoE, 2015).

If left unmanaged, IMS can result in irreversible impact to the marine environment. IMS often significantly change the environment in which they are introduced (Bax et al., 2003). This change may include predation pressure on native organisms, smothering habitats or providing new structural habitat (Bax et al., 2003).

The establishment of an IMS can have a variety of effects on the environment that receives it and might possibly affect the ecological dynamics of a region. Because of the complexity of ecosystems and the number of interactions between and among biotic and abiotic components, it is impossible to anticipate how a particular species would interact with a foreign environment.

Marine pests have the potential to alter ecosystem functioning by:

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- competing for natural resources;
- reducing natural resource availability;
- predation;
- altering natural cycling processes;
- habitat segregation;
- virus spread;
- changing water quality;
- generating toxic chemicals;
- disturbing, injuring, or killing important ecosystem organisms (ecosystem engineers and fundamental species);
- changing surrounding ecosystems;
- changing conservation values of protected areas; and
- creating new environments.

IMS are difficult to eliminate once they are established (Hewitt et al., 2002). Eradication may be effective if detected early, but it will most likely be costly, disruptive, and, subject to the method used, damaging to other local marine species. Highly disturbed nearshore settings (such as marinas) have been found to be more vulnerable to colonisation than offshore ecosystems featuring intense dilutions and high degree of dispersal (Paulay et al., 2002).

Benthic habitat within the Operational Area is comprised of sand, coarse shell fragments and silt. Sediments in the Petrel field were dominated by sand with similar gravel, silt and clay proportions (ERM, 2011). No threatened ecological communities or protected areas are present in the Operational Area. Previous surveys have not identified any sensitive seabed habitats. IMS are generally unable to establish in deep-water ecosystems, most likely due to a lack of light or suitable habitat to sustain their growth and survival.

Successful colonisation in the recipient region would be difficult given the nature of the benthic habitats within the Operational Area and lack of light due to deep waters (i.e. >95m). The offshore open waters of the Operational Area are therefore not conducive to the settlement and establishment of IMS. It is unlikely that any marine organisms would become established at the field.

If a marine pest was introduced, and if it did colonise an area, it is expected that any colony would remain fragmented and isolated, and only within the vicinity of the well. Similarly, it would not be likely to propagate to nearshore environments, and protected marine areas present in the wider region.

8.2.3.2 Marine Fauna

Change in ecosystem dynamics

Changes to benthic communities, structure, diversity and abundance caused by IMS, may have the potential to affect the foraging success of marine turtles with foraging BIAs overlapping the Operational Area. Threatened and migratory species that inhabit the Operational Area are outlined in Section 4.4.3.

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Marine turtles may be affected if their target prey is reduced or eradicated from the introduction of IMS in the Operational Area. As mentioned in Section 4.4.8, marine turtles are not dependent on any species type. Given the open water location of the Operational Area, foraging in these locations is likely to be on pelagic mobile species such as squid or jellyfish. Benthic habitats in the Operational Area are sparsely inhabited and are not likely to contain significant assemblages of invertebrate species or seagrass meadows within marine turtles' diet.

If an IMS was introduced, and if it did successfully establish, there is the potential for that colony to result in a long-term impact to benthic habitats and communities and marine fauna, given the potential for IMS to cause a change in ecosystem dynamics. However, the offshore open waters of the Operational Area are not conducive to the settlement and establishment of IMS. It is unlikely that any marine organisms would become established at the field.

8.2.3.3 Commercial fisheries

Change to the functions, interests and activities of other marine users

The establishment of IMS may impact commercial fisheries directly or indirectly. It may cause changes to the abundance of prey for fish species and distribution or behaviour of fish species, subsequently resulting in impacts to the activities of commercial fisheries. Between 10% and 40% of Australia's fishing sector may be at risk from marine pest intrusion, which can reduce fishing areas and aquaculture stock (Domisse and Hough, 2004).

The establishment of IMS may result in increased abundance of prey for fish species targeted by commercial fisheries, although this is unlikely to result in any detectable change in the abundance of targeted fish or commercial by-catch.

Based on the assessment in Table 4-10, the following is a summary of fisheries that overlap with the Operational Area; and those considered active in the Operational Area (within the data range):

- Commonwealth-managed fisheries: 4 fisheries overlap with the Operational Area (Northern Prawn Fishery, Southern Bluefin Tuna Fishery, Western Skipjack Fishery and Western Tuna and Billfish Fishery). Based on the catch-effort assessment, only one is considered active within the OA: Northern Prawn Fishery.
- Western Australian-managed fisheries: 8 fisheries overlap the Operational Area (Abalone Managed Fishery, Kimberley Crab Fishery, Mackerel Managed Fishery, Marine Aquarium Fish Managed Fishery, Northern Demersal Scalefish Managed Fishery, South West Coast Salmon Fishery, Specimen Shell Managed Fishery and West Coast Deep Sea Crustacean Managed Fishery). Based on the catch-effort assessment, 2 are considered active within the Operational Area: Mackerel Managed Fishery and Northern Demersal Scalefish Fishery.
- Northern Territory-managed fisheries: 6 fisheries overlap the Operational Area (Aquarium Fishery, Demersal Fishery, Development Fishery (Small Pelagic), Offshore Net and Line Fishery, Spanish Mackerel Fishery and Tour operators). Based on the catch-effort assessment, 3 are considered active within the Operational Area: Demersal Fishery, Offshore Net and Line Fishery, and Mackerel Managed Fishery and Northern Demersal Scalefish Fishery.

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The Commonwealth-managed Southern Bluefin Tuna Fishery, Western Skipjack Fishery, and Western Tuna and Billfish Fishery overlap the Operational Area, however they have no previous catch-effort recorded and are not considered active within the Operational Area.

The WA Abalone Managed Fishery, Kimberley Crab Managed Fishery, Mackerel Managed Fishery, Marine Aquarium Managed Fishery, Northern Demersal Scalefish Fishery, South West Coast Salmon Managed Fishery, Specimen Shell Managed Fishery, and West Coast Deep Sea Managed Fishery overlap the Operational Area, however, they have no previous catch-effort recorded and are not considered active within the Operational Area.

The NT-managed Aquarium Fishery, Development Fishery (Small Pelagic) and Spanish Mackerel fisheries have management areas overlapping the Operational Area, however, they have no previous catch-effort recorded and are not considered active within the Operational Area.

Most of the IMS identified as being most likely to establish in Australia inhabit shallow waters with hard substrate (Marine Pest Sectoral Committee, 2018). Therefore, it is unlikely that IMS would establish within the Operational Area and impact nearby fisheries.

8.2.3.4 Residual risk summary

The worst-case residual severity to benthic habitats and communities, and commercial fisheries from the introduction of marine pest species is evaluated as Local (3), given the potential for marine pests to disrupt ecosystems.

The likelihood of ecosystem disruption from the introduction of marine pest species occurring as a result of the activities is considered Very Rare (A) due to the sparse nature of the benthic habitats in the Operational Area, the open ocean environment and the lack of light resulting from the water depth and short vessel-based activity only.

Therefore, the residual risk of the introduction of marine pest species due to the petroleum activities is considered Low.

8.2.4 Environmental Performance Outcomes and Control Measures

The EPO relating to this event is:

- No introduction of invasive marine species (EPO-12).

The CMs relating to this risk include:

- Implementation of an IMS risk assessment tool (CM-23);
- Ballast water management (CM-24); and
- Biofouling management (CM-25).

EPSs and MC relating to the above are presented in Section 9.1.

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8.2.5 As Low as Reasonably Practicable Demonstration

Demonstration of ALARP			
Type	Control/management	Evaluation	Adoption?
Eliminate	Do not use vessels	The use of vessels is unavoidable; therefore, the risk of exotic species being transported in ballast water or hull fouling cannot be completely eliminated.	✗
	Do not exchange ballast	Exchange of ballast water is a safety-critical activity for marine operations and elimination of exchange could put the vessel at risk.	✗
Substitute	Contract only local vessels	Contract vessels only operating in local, State or national waters to reduce potential for IMS; however, may present significant costs and delay in activity schedule.	✗
	Alternative ballast system which does not require a discharge	Using an alternative ballast system to avoid uptake/discharge of water would reduce the requirement for ballast water exchange; however, sourcing such vessels may present significant costs and delay in activity scheduling and ballast water exchange is standard practice on many vessels.	✗
Engineering	Heat treatment of ballast water to eliminate IMS	Heat treatment will reduce potential for IMS to establish by eliminating individuals present in ballast water itself. However, discharge of water at a much higher temperature than the surrounding marine environment would likely result in impact to local water quality and impact to marine species.	✗
Isolation	N/A	N/A	N/A
Administrative	Dry-docking before entering field to clean vessel and equipment and remove biofouling	Would minimise risk of IMS; however, presents significant cost and would lead to scheduling delays. Would be considered only to reduce IMS risk level.	✗
	Implementation of an IMS risk assessment tool	Ensures the vessels are assessed to low IMS risk before mobilising for the activity. Minimal cost involved in demonstrating the vessels are of 'low risk' of introducing IMS through completion of an IMS risk assessment. IMS management measures will be applied to vessels according to risk to minimise the likelihood of IMS being introduced, such as the treatment of internal systems, IMS inspections or cleaning.	✓ (CM-23)
	Ballast water management	Pursuant to the <i>Biosecurity Act 2015</i> , vessels carrying ballast water and engaged in international voyages will manage ballast water in accordance with a Ballast Water Management Plan. Reduces IMS risk and minimal cost to manage. Vessels should already have a plan in place to meet vessel legislative and Eni vessel contracting requirements.	✓ (CM-24)

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Demonstration of ALARP			
Type	Control/management	Evaluation	Adoption?
	Biofouling management	The likelihood of introducing IMS from vessels is reduced due to anti foulant systems in accordance with IMO Guidelines for the control and management of ships' biofouling to minimise the transfer of invasive aquatic species (IMO, 2023). Includes marine growth prevention systems on the seawater intakes and ballast pumps.	✓ (CM-25)

8.2.6 Acceptability Demonstration

Demonstration of acceptability	
Compliance with Legal Requirements, Laws and Standards	The risk of introducing IMS will be managed in accordance with: • Australian Ballast Water Requirements (DAWE, 2020); • Offshore Installations – Biosecurity Guide (DAFF, 2023b); • IMO's Guidelines for the Control and Management of Ships' Biofouling to Minimise the Transfer of Invasive Aquatic Species (IMO, 2023); • <i>Biosecurity Act</i> 2015; • Fish Resources Management Regulations 1995 (WA); • National biofouling management guidelines for the petroleum production and exploration industry (Marine Pest Sectoral Committee, 2018); • Australian Biofouling Management Requirements (DAFF, 2023a); • <i>Protection of the Sea (Harmful Antifouling Systems) Act</i> 2006; and • WA DPIRD Biofouling and Biosecurity Policy.
Policy Compliance	The management of IMS is aligned with Eni policies and standards. The residual risk is Low, which is acceptable. The EPOs, CMs and EPSs that will be implemented are consistent with Eni internal requirements.
Social Acceptability	To date, no relevant person concerns have been raised regarding light (refer Section 5). An ongoing consultation program will consider statements and claims made by stakeholders when assessing impacts and risks.
Area Sensitivity/ Biodiversity	The Operational Area does not intersect with any State or Territory marine protected areas, AMPs, wetlands of international or national importance, World, National or Commonwealth heritage properties or places, or KEFs. The main risks associated with the introduction of marine pest species are the displacement of native species or interference with ecosystem processes in other ways (such as through predation). Provided the biosecurity controls are implemented during the activities, the risk of introduction of marine pest species is deemed Low. IMS has not been identified as a threat in any recovery plans or conservation advice for Threatened and Migratory species. However, Eni has considered information contained in relevant recovery plans and approved conservation advice for habitat modification (which could occur as a result of IMS establishing) (listed in Table 2-2 or Table 2-3). The petroleum activities are not inconsistent with the objectives and actions detailed in the recovery plans and approved conservation advice.
ESD Principles	The residual risk impact from this event is not inconsistent with the principles of ESD because: • The worst-case residual risk associated with this aspect is Low. While the nature and scale of impacts have the potential to result in lasting change to

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Demonstration of acceptability	
	benthic community dynamics, the controls that will be implemented reduce the risk to an acceptable level, the environment is not conducive to IMS settlement and vessel presence will be of short duration. • Precautionary Principle: There are no threats of serious or irreversible environmental damage. Conservative assumptions have been applied to the impact assessment, including assuming conditions in the Operational Area are conducive for IMS to establish and that vessels mobilised to the Operational Area are a vector for IMS. • Intergenerational Principle: Impacts from this aspect will not forego the health, diversity and productivity of the environment for future generations. • Biodiversity Principle: Impacts from this aspect are not considered to have the potential to affect biological diversity or ecological integrity.
ALARP	The residual risk has been demonstrated to be ALARP.

Given the short duration of the activities, the water depths and the lack of hard substrates in the Operational Area, and distance from shore, the potential impacts associated with the unplanned introduction of IMS are considered to be Local. The residual risk is considered Low, which is acceptable in accordance with Eni's acceptability criteria (Table 6-4). Potential impacts associated with the unplanned introduction of IMS are acceptable and ALARP.

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8.3 Accidental Release – Waste and Solid Objects

8.3.1 Summary of Environmental Risk Assessment

Hazard	Accidental Release – Waste and Solid Object		
	Frequency	Severity	Risk
Residual Risk	B	1	Low

8.3.2 Description of Hazard

Accidental release of waste or solid objects to the marine environment may occur as a result of:

- Vessel operations.

Vessel transit outside of the Operational Area is not within scope of this EP and comes under the *Navigation Act 2012*.

8.3.2.1 Vessel operations

The handling and storage of materials and waste on board the vessels generates the potential for accidental over-boarding of hazardous/non-hazardous materials and waste.

Solid waste materials with the potential to be accidentally lost to the marine environment include:

- Non-hazardous solid wastes, such as paper, cardboard, plastics, scrap steel, rope and glass;
- Hazardous solid wastes, such as paints, hydrocarbon-contaminated materials, batteries, fluorescent tubes, aerosol cans and medical wastes; and
- Equipment and materials, such as hard hats and tools or supplies backloaded to support vessels.

Non-hazardous, hazardous and smaller items may be accidentally lost from vessels, as a result of human error, incorrect or inappropriate waste storage, mechanical failure or breakdown of equipment, or dropped objects. Based on industry experience, the most common solid material accidentally lost includes articles of personal protective equipment, such as hard hats or gloves, and small tools or equipment that may be dropped by vessel personnel.

Vessel-based operations have an expected duration of 10 days to 40 days, depending on the survey activity and campaign (Section 3.1.2). Any future survey campaigns are expected to be similar. During the geophysical, geotechnical and environmental survey activities within each campaign, there will be a maximum of one vessel within the Operational Area at any one time.

8.3.3 Potential Environmental Impact

The accidental release of waste or solid objects may result in:

- Change in habitat;

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- Change in water quality; and
- Injury / mortality of marine fauna.

Potential receptors that may be impacted are:

- Benthic habitat and communities; and

Marine fauna (birds, fish, marine mammals and marine turtles).

There are no marine protected areas or KEFs within the Operational Area.

8.3.3.1 Benthic habitat and communities

Change in habitat

Benthic ecosystems may be temporarily and locally disturbed by objects lost overboard during the petroleum activities in the Operational Area. The area of potential seabed disturbance due to release of a heavier solid would be restricted to the Operational Area.

The largest item with potential to drop to the seabed would be the seabed frame used during geotechnical drilling surveys (if required). The seabed frame has a footprint of 25m². The frequency of dropped objects from a crane has been calculated by Eni as 1.6 x 10⁻⁵ per lift (Kent, 2023). This equates to 1.6 dropped objects per 100,000 lifts, making it rare.

While soft sediment benthic habitats will not be destroyed, disturbance of the communities on and within the sediment (in other words, the epifauna and infauna) will occur in the event of a dropped object. Depressions may remain on the seabed for some time after removal of the dropped object as they gradually infill over time. The seafloor of this bioregion is strongly affected by cyclonic storms, long-period swells and large internal tides, which can resuspend sediments within the water column and move sediment across the seafloor. In this context, any potential sediment movement caused by the event is likely to have minimal impacts.

As described in Section 4.3.6, the benthic habitat within the Petrel field is characterised by primarily sand, coarse shell fragments and silt; with infauna assemblages and sparse coverage of sessile epibenthic organisms. The habitat type in the Operational Area is widely distributed and well represented in the region (the wider Sahul Shelf). Consequently, the potential risk of alteration of benthic habitats and associated communities from accidental release of waste is considered minor given the short duration and limited size of the Operational Area.

8.3.3.2 Marine fauna

Change in water quality

Water quality will temporarily change due to the constituents of accidentally lost hazardous material leaching into the marine environment. The level of impact to water quality depends on the nature of the hazardous materials lost. Typical examples of potential dropped objects are paint cans and oily rags, which are likely to have residual volumes (less than 1m³) of hazardous material (i.e., paint or oil). Due to wave action and metocean currents, minor releases of residual hazardous material will rapidly disperse and dilute close to the release location. This results in

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temporary and highly localised changes to the water quality. Non-hazardous material is inert; however, may result in impact to marine fauna from ingestion or entanglement, which has been assessed further below.

Impacts from a change in water quality to marine fauna, such as fish, marine mammals, and marine reptiles, are not anticipated, given the localised nature of the water quality change and the transient nature of these species.

Injury or mortality of marine fauna

An accidental loss of solid material may impact marine fauna through ingestion of, and entanglement with, waste. Marine fauna that ingest or become entangled in solid materials – particularly floating, non-biodegradable marine debris such as plastic – may be subject to physical harm that limits or inhibits physiological processes, potentially resulting in fauna fatality. Loss of plastics is of particular concern to seabirds and marine turtles. Wilcox et al., (2015) note foraging seabirds ingesting plastics may be subject to gut obstruction or reduced stomach volume, resulting in a loss of fitness. Turtles have been known to ingest plastics when mistaking it for food sources, such as jellyfish (Mrosovsky et al., 2009). It is recognised that fishing gear (e.g., ropes and nets made from synthetic fibres), balloons and plastic bags are the biggest entanglement threat to marine fauna, and plastic bags and utensils are the biggest ingestion risk for seabirds, turtles and marine mammals (Wilcox et al., 2016, cited in CoA, 2018).

If plastic waste is accidentally released, it is likely to be buoyant and may therefore move beyond the Operational Area. The most common solid material accidentally lost includes articles of personal protective equipment, such as hard hats or gloves, and small tools or equipment that may be dropped by vessel personnel. Such items would not be a threat to marine fauna in the way that plastic bags and fishing gear are.

The Operational Area does not overlap any BIAs for marine mammals. While marine mammals may be present within the Operational Area, it is not anticipated that species will be present in significant numbers and, if present, would only be in the vicinity for short periods of time; for example, transiting through the area. Potential impacts to marine mammals from either entangling or ingesting lost plastics, will be limited to a small number of individuals. Any impact is anticipated to be minor and will not result in impacts at a population level.

The Operational Area overlaps the foraging BIAs for loggerhead, green, Olive Ridley and flatback turtles. However, it is expected that these species will be transiting/foraging for short periods only and are not likely to be resident or occur in the area in significant numbers.

8.3.3.3 Residual Risk Summary

The worst-case residual severity to benthic habitat and marine fauna from accidental release of waste and solid objects is evaluated as Negligible (1), given the localised extent of potential impact, the ability of benthic habitats to recover and the limited number of individuals that would be impacted.

The likelihood of a change in habitat or mortality of marine fauna from accidental release of waste and solid objects occurring as a result of the activities is considered

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Rare (B) due to the low probability of a dropped object during lifting and the low numbers of marine fauna in the Operational Area.

Therefore, the residual risk of accidental release of waste and solid objects due to the petroleum activities is considered Low.

8.3.4 Environmental Performance Outcomes and Control Measures

EPOs relating to this event include:

- No injury or mortality to EPBC Act listed fauna during operational activities (EPO-05); and
- No unplanned objects, emissions or discharges to sea or air (EPO-13).

CMs relating to this risk include:

- Lifting Management System Procedure (ENI-LOG-PR-017) (CM-04);
- Management of Maritime Operations and Services (OPI-OPE-083-ENI-SPA-R01) (CM-13);
- Hazardous and non-hazardous waste management processes (CM-21);
- Dropped objects to be retrieved where possible (CM-26); and
- Hazardous Materials Management Standard (ENI-HSE-ST-009_05) (CM-27).

EPSs and MC relating to the above are presented in Section 9.1.

8.3.5 As Low as Reasonably Practicable Demonstration

Demonstration of ALARP			
Type	Control/management	Evaluation	Adoption?
Eliminate	Eliminate production of non-hazardous and hazardous waste	Eliminates the risk of releasing non-hazardous solids to the marine environment; however, eliminating the use of consumable products is not possible due to operational requirements. Waste will therefore be generated.	✗
	Eliminate lifting operations	Lifting operations are required for the development and exploration survey activities to deploy equipment.	✗
Substitute	N/A	N/A	N/A
Engineering	Management of Maritime Operations and Services (OPI-OPE-083-ENI-SPA-R01)	Securing of cargo and containers on vessels will reduce the likelihood of items being lost to the marine environment. Minor costs involved.	✓ (CM-13)
Isolation	Hazardous and non-hazardous processes	Securely segregating and isolating the hazardous and non-hazardous waste on the support vessels will reduce the likelihood of it being lost to the marine environment. Minor cost involved in segregating the hazardous and non-hazardous waste.	✓ (CM-21)

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Demonstration of ALARP			
Type	Control/management	Evaluation	Adoption?
Administrative	Lifting Management System Procedure (ENI-LOG-PR-017)	Details processes to reduce risk of dropped objects, including: Competency of persons undertaking lift Planning and preparation process for undertaking lifts. Reducing the risk of dropped object outweighs the personnel cost associated with implementing standard.	✓ (CM-04)
	Dropped objects to be retrieved where possible	Retrieving dropped objects where possible reduces the likelihood of the objects either impacting benthic habitat in the longer-term; or being ingested by marine fauna.	✓ (CM-26)
	Hazardous Materials Management Standard (ENI-HSE-ST-009_05)	Securely segregating and isolating the hazardous and non-hazardous waste on vessels, in accordance with Marine Order 95, will reduce the likelihood of it being lost to the marine environment. Minor cost involved in segregating the hazardous and non-hazardous waste.	✓ (CM-27)

8.3.6 Acceptability Demonstration

Demonstration of acceptability	
Compliance with Legal Requirements, Laws and Standards	Waste management complies with the requirements of Marine Order 95 (particularly Regulations 6.1 and 6.4). Securing of cargo complies with the requirements of Marine Order 42.
Policy Compliance	The management of waste and solid objects risks is aligned with Eni policies and standards, including the waste stewardship process for asset removal. The residual risk is Low, which is acceptable. The EPOs, CMs and EPSs that will be implemented are consistent with Eni internal requirements.
Social Acceptability	To date, no relevant person concerns have been raised regarding unplanned loss of solid wastes (refer Section 5). An ongoing consultation program will consider statements and claims made by stakeholders when assessing impacts and risks.
Area Sensitivity/ Biodiversity	The Operational Area does not intersect with any State or Territory marine protected areas, AMPs, wetlands of international or national importance, World, National or Commonwealth heritage properties or places, or KEFs. The Operational Area does not overlap any BIAs for marine mammal species. Foraging BIAs for the loggerhead turtle, green turtle, Olive Ridley turtle and flatback turtle overlap the Operational Area. Other marine fauna are likely to be transient in the Operational Area. The discharge extent for all accidental release of waste and solid objects is anticipated to be localised.

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Demonstration of acceptability

The benthic environment within the Operational Area is characterised by sand (with gravel, silt and clay) and sparse sessile epibenthic organisms (Section 4.3.6). Impacts to the benthic environment from dropped objects will be highly localised.

Eni has considered information contained in relevant recovery plans and approved conservation advice for EPBC Act listed species that identify pollution, marine debris, and habitat degradation or modification as a threat (as listed in Table 2-3). This includes:

Conservation Advice:

- Conservation Advice for *Sousa sahalensis* (Australian humpback dolphin)
- Conservation Advice for *Orcaella heinsohni* (Australian snubfin dolphin)
- Approved Conservation Advice for *Balaenoptera borealis* (Sei Whale)
- Approved Conservation Advice for *Balaenoptera physalus* (Fin Whale)
- Approved Conservation Advice for *Dermochelys coriacea* (Leatherback Turtle)
- Approved Conservation Advice on *Aipysurus foliosquama* (Leaf-Scaled Sea Snake)
- Approved Conservation Advice for *Aipysurus apraefrontalis* (Short-nosed Sea Snake)
- Approved Conservation Advice for *Pristis clavata* (Dwarf Sawfish)
- Approved Conservation Advice for Green Sawfish
- Approved Conservation Advice for *Pristis pristis* (Large Tooth Sawfish)
- Approved Conservation Advice for *Glyphis garricki* (Northern River Shark)
- Approved Conservation Advice for *Glyphis glyphis* (Speartooth Shark)
- Approved Conservation Advice for *Rhincodon typus* (Whale Shark).

Recovery/Management Plans

The petroleum activity is consistent with the objectives and actions of the plans identified below through adoption of EPO-05 and EPO-13 and the control measures outlined in Section 8.4.4:

- Conservation Management Plan for the Blue Whale 2015–2025 (DoE, 2015) identifies habitat modification, including acute and chronic chemical discharge, as a threat. There are no BIAs for the blue whale overlapping the Operational Area. There are no explicit relevant management actions in this plan. The petroleum activity is consistent with the long-term recovery objective to 'minimise anthropogenic threats to allow the conservation status of the blue whale to improve so that it can be removed from the threatened species list under the EPBC Act' through the adoption of the EPOs.
- Recovery plan for Marine Turtles in Australia (CoA, 2017) identifies acute chemical and terrestrial discharge as a threat. Foraging BIAs for the loggerhead turtle, green turtle, Olive Ridley turtle and flatback overlap the Operational Area. Action Area A4 to minimise chemical and terrestrial discharge is met through the adoption of the EPOs.
- Sawfish and River Shark Multispecies Recovery Plan (CoA, 2015) lists habitat degradation or modification and marine debris as a threat. No habitat critical or BIAs have been identified for sawfish or river sharks within the Operational Area. The petroleum activity is consistent with Objective 5 of this plan to 'reduce and, where possible, eliminate adverse impacts of habitat degradation and modification on sawfish and river shark species', through adoption of the EPOs.
- Recovery Plan for the White Shark (*Carcharodon carcharias*) (2013) identifies habitat modification as a threat. No habitat critical or BIAs have been identified for white sharks within the Operational Area. The petroleum activity is consistent with the objective of this plan to ensure anthropogenic activities do not hinder recovery in the near future, or impact on the

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Demonstration of acceptability	
	conservation status of the species in the future through adoption of the EPOs. - Recovery Plan for the Grey Nurse Shark (<i>Carcharias taurus</i>) (DoE, 2014a) identifies pollution as a threat. No habitat critical or BIAs for the grey nurse shark have been identified in the Operational Area. The petroleum activity is consistent with the objective of this plan to ensure anthropogenic activities do not hinder recovery in the near future, or impact on the conservation status of the species in the future, through the adoption of the EPOs. - Threat abatement plan for the impacts of marine debris on the vertebrate wildlife of Australia's coasts and oceans (CoA, 2018). Recovery Plans/Conservation Advice for other EPBC Act listed threatened and migratory species that may occur in the Operational Area do not identify pollution, marine debris, and habitat degradation or modification as a key threat or have explicit relevant objectives or management actions related to these threats. The control measures outlined in Section 8.4.5 are consistent with the objectives and actions in these publications. The petroleum activities are not inconsistent with the objectives and actions in the relevant recovery plans/conservation advice.
ESD Principles	The risks of this unplanned event are consistent with the principles of ESD because: - The worst-case residual risk associated with this aspect is Low. - Precautionary Principle: There are no threats of serious or irreversible environmental damage. Conservative assumptions on scale of impact have been applied. - Intergenerational Principle: Impacts from this aspect will not forego the health, diversity and productivity of the environment for future generations. - Biodiversity Principle: Impacts from this aspect are not considered to have the potential to affect biological diversity or ecological integrity.
ALARP	The residual risk has been demonstrated to be ALARP.

Given the short duration of the activities, the minor quantities of material that could be lost to the marine environment and the limited footprint of a potential dropped object (<25m²), residual risk is considered Low, which is acceptable in accordance with Eni's acceptability criteria (Table 6-4). Potential impacts are acceptable and ALARP.

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8.4 Accidental Release – Minor Loss of Containment

8.4.1 Summary of Environmental Risk Assessment

Hazard	Accidental Release – Minor Loss of Containment		
	Frequency	Severity	Risk
Residual Risk	B	1	Low

8.4.2 Description of Hazard

Minor loss of containment may occur as a result of:

- Vessel operations; and
- ROV operations.

Vessel transit outside of the Operational Area is not within scope of this EP and comes under the *Navigation Act 2012*.

8.4.2.1 Vessel and ROV Operations

Minor volumes of hydrocarbons or other chemicals (e.g. hydraulic fluids, deck spill or MDO) may accidentally be discharged to the environment as a result of:

- ROV failure (including oil seal, hydraulic system hose and quick disconnect system failures);
- Loss of primary containment (drums, tanks, Intermediate Bulk Containers (IBC), etc) due to handling;
- Storage and dropped objects (e.g. swinging load during ROV lifting activities); and
- Vessel pipework failure or rupture, hydraulic hose failure, inadequate bunding and lifting.

The types of fluids stored on the vessels include fuel, lubricating fluids, hydraulic fluids, and cooling fluids. Leaks could occur due to a failure of a mechanical component, fitting, or hose.

Based on the activities described in this EP, the following potential minor release scenarios were identified:

- Using, handling, and transferring hazardous materials and chemicals on board (<1m³), the maximum credible volume associated with a single-point failure was estimated to be ~1m³ based on the loss of an entire IBC due to rupture while handling; and
- Hydraulic line failure from equipment (<1m³).

No refuelling in the Operational Area is planned.

Vessel-based operations have an expected duration of 10 days to 40 days, depending on the survey activity and campaign (Section 3.1.2). Any future survey campaigns are expected to be similar. During the geophysical, geotechnical and environmental

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survey activities within each campaign, there will be a maximum of one vessel within the Operational Area at any one time.

8.4.3 Potential Environmental Impact

Minor loss of containment has the potential to result in:

- Change in water quality.; and
- Change in sediment quality.

Potential receptors for this impact are:

- Water quality, and
- Sediment quality.

There are no marine protected areas or KEFs within the Operational Area.

If individual marine fauna passes through the release plume, any impacts are expected to be highly localised. Given the small volumes, mobility of fauna and short exposure time due to rapid dilution through wave and current activity, chronic impacts to marine fauna are not expected and therefore have not been assessed further.

8.4.3.1 Water quality

Change in water quality

The volume of any hydrocarbons or chemicals accidentally released to the environment would be small, up to 1m³.

The hydraulic fluid typically used during vessel operations is a water-based hydraulic fluid, reported to have a low toxicity to the marine environment (classified under the OCNS as Class D). It has been used widely in marine environments worldwide with no observed environmental effect. All operational chemicals will be selected to reduce environmental impacts to ALARP.

Hydraulic fluids are medium oils of light to moderate viscosity and have a relatively rapid spreading rate and, like MDO, will dissipate quickly, particularly in high sea states. More detail on impacts specific to a spill of MDO and its behaviour in the marine environment is presented in Section 8.5.

Water quality will temporarily reduce due to the constituents of chemicals and hydrocarbon releasing into the marine environment, some of which will be toxic. The level of impact to water quality depends on the nature and volume of the chemical lost, which are typically low volumes.

Hydrocarbons and chemicals accidentally released into the marine environment through minor onboard spills and leaks directed through deck drainage or from a release of hydraulic oil from an ROV umbilical would disperse quickly in waters within the vicinity of the Operational Area. Due to wave action and metocean currents and the low volumes potentially lost, minor accidental releases will rapidly disperse and dilute local to the release site, resulting in temporary (hours) and highly localised reduction in water quality. No long-term reduction in water quality is expected.

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It is anticipated that the minor volume of hydrocarbons or chemicals would spread and dilute quickly, with a notable decrease in discharge concentrations soon after the release site. Changes in the water quality outside the Operational Area is considered highly unlikely.

8.4.3.2 Sediment quality

Change in sediment quality

The volume of hydrocarbons or chemicals that could be accidentally released to the marine environment is small (up to 1m³).

As explained above, both MDO and water-based hydraulic fluids spread rapidly on the sea surface and are subject to evaporation, dissolution, and dispersion, particularly under the high-energy metocean conditions characteristic of the Bonaparte Basin. As a result, any accidental release would lead to a temporary and highly localised reduction in water quality, driven by the presence of hydrocarbons or chemical constituents, some of which may be toxic at the point of release. However, due to the small volumes involved and the strong mixing regime in the offshore marine environment, these effects are expected to persist only for hours, with no long-term reduction in water quality anticipated. More detailed information on the behaviour and fate of MDO in the marine environment is provided in established spill-response literature.

Given the offshore setting, only a small fraction of a 1m³ release would be expected to reach the seabed. Light oils such as MDO have low persistence in sediments, and any residues that do settle are likely to be highly localised and transient. Hydraulic fluids, while less volatile, also tend to disperse rapidly and show limited accumulation potential. Consequently, impacts to sediment quality would be minor and short-term, with natural attenuation processes expected to return conditions to baseline levels. Changes in sediment quality outside the Operational Area are considered highly unlikely.

8.4.3.3 Residual risk summary

The worst-case residual severity to water quality and sediment quality from a minor loss of containment is evaluated as Negligible (1), as this type of event may result in localised, short-term effects that are expected to recover rapidly.

The likelihood of a minor loss of containment occurring as a result of the activities is considered Rare (B). Therefore, the residual risk of a minor loss of containment due to the petroleum activities is considered Low.

8.4.4 Environmental Performance Outcomes and Control Measures

EPOs relating to this event include:

- No unplanned objects, emissions or discharges to sea or air (EPO-13).

CMs relating to this risk include:

- PMS (CM-14);
- Hazardous Materials Management Standard (ENI-HSE-ST-009_05) (CM-27);
- Maritime Dangerous Goods Code (CM-28);

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- NOPSEMA-accepted OPEP and OSMP (CM-29);
- Vessel SOPEP/emergency management plan (CM-30);
- ROV inspection and maintenance procedures as per maintenance regime (CM-31)

EPSs and MC relating to the above are presented in Section 9.1.

8.4.5 As Low as Reasonably Practicable Demonstration

Demonstration of ALARP			
Type	Control/management	Evaluation	Adoption?
Eliminate	Eliminate hydraulic systems and ROVs	Would eliminate the environmental risk associated with minor spill and leaks. The requirement for hydraulic systems and their hoses and connections cannot be eliminated and are required for operations.	✗
Substitute	N/A	N/A	N/A
Engineering	N/A	N/A	N/A
Isolation	N/A	N/A	N/A
Administrative	On-board spill response kits on vessels.	Environmental benefit outweighs minor costs in implementing and locating spill response kits in proximity to hydrocarbon storage/bunkering areas on vessels. Contained within the vessel SOPEP/emergency management plan.	✓ (CM-30)
	SOPEP, which contains plans to prevent spills reaching the marine environment	Environmental benefit outweighs minor costs in implementing and testing the vessel spill response plan (SOPEP), which contains plans to prevent spills reaching the marine environment. The SOPEP is a requirement under MARPOL Annex 1 requirements (all vessels over 400 gross tonnages have SOPEP or Shipboard Marine Pollution Emergency Plans outlining options to control the source of a hydrocarbon spill).	✓ (CM-30)
	Hazardous Materials Management Standard (ENI-HSE-ST-009_05)	Securely segregating and isolating the hazardous and non-hazardous waste on vessels, in accordance with Marine Order 95, will reduce the likelihood of it being lost to the marine environment. Minor cost involved in segregating the hazardous and non-hazardous waste.	✓ (CM-27)
	Maritime Dangerous Goods Code	Dangerous goods managed in accordance with International Maritime Dangerous Goods Code (IMDG Code) to reduce the risk of an environmental incident, such as an accidental release to sea or unintended chemical reaction. Minimal cost to implement.	✓ (CM-28)

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Demonstration of ALARP			
Type	Control/management	Evaluation	Adoption?
	NOPSEMA-accepted OPEP and OSMP	Implements response plan to deal with an unplanned hydrocarbon spill quickly and efficiently in order to reduce impacts to the marine environment. Costs associated with ongoing spill response preparedness and training of personnel.	✓ (CM-29)
	PMS	Proper maintenance of equipment (e.g. hydraulic hoses, secondary containment) will prevent accidental release. Low cost of maintaining equipment.	✓ (CM-14)
	ROV inspection and maintenance procedures as per maintenance regime	Preventative maintenance on ROV as scheduled will reduce the risk of hydraulic fluid releases to sea. Low cost of maintaining equipment.	✓ (CM-31)

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8.4.6 Acceptability Demonstration

Demonstration of acceptability	
Compliance with Legal Requirements, Laws and Standards	Chemical management complies with the requirements of the Maritime Dangerous Goods Code, the <i>Navigation Act 2012</i> , and requirements of the NOPSEMA-accepted OPEP and OSMP.
Policy Compliance	The management of accidental/minor spills is aligned with Eni policies and standards. The residual risk is Low, which is acceptable. The EPOs, CMs and EPSs that will be implemented are consistent with Eni internal requirements.
Social Acceptability	To date, no relevant person concerns have been raised regarding accidental/minor spills (refer Section 5). An ongoing consultation program will consider statements and claims made by stakeholders when assessing impacts and risks.
Area Sensitivity/ Biodiversity	The Operational Area does not intersect with any State or Territory marine protected areas, AMPs, wetlands of international or national importance, World, National or Commonwealth heritage properties or places, or KEFs. Impacts to the marine environment from a minor loss of containment will be highly localised. There are no expected impacts to marine fauna; and there are no relevant recovery plans or approved conservation advices.
ESD Principles	The risk of this unplanned event is consistent with the principles of ESD because: • The worst-case residual risk associated with this aspect is Low. • Precautionary Principle: There are no threats of serious or irreversible environmental damage. Conservative assumptions on scale of impact have been applied. • Intergenerational Principle: Impacts from this aspect will not forego the health, diversity and productivity of the environment for future generations. • Biodiversity Principle: Impacts from this aspect are not considered to have the potential to affect biological diversity or ecological integrity.
ALARP	The residual risk has been demonstrated to be ALARP.

Given the relatively short duration of the petroleum activities and low volumes of chemical or hydrocarbons that may be accidentally released to the environment, the residual risk is considered Low, which is acceptable in accordance with Eni's acceptability criteria (Table 6-4). Potential impacts are acceptable and ALARP.

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8.5 Accidental Release of Hydrocarbons

8.5.1 Summary of Environmental Risk Assessment

Hazard	Accidental Release of Hydrocarbons		
	Frequency	Severity	Risk
Residual Risk	A	3	Low

8.5.2 Description of Hazard

An accidental release of Marine Diesel Oil (MDO) may occur during refuelling operations or due to collision between a vessel and a third-party vessel that results in tank rupture and a loss of MDO into the marine environment. This can occur during:

- Vessel operations.

Vessel transit outside of the Operational Area is not within scope of this EP and comes under the *Navigation Act 2012*.

8.5.2.1 Vessel Operations

Vessel collisions typically occurs as a result of:

- Mechanical failure/loss of Dynamic Positioning (DP) system;
- Navigational error; and/or
- Foundering due to weather.

Vessel-based operations have an expected duration of 10 days to 40 days, depending on the survey activity and campaign (Section 3.1.2). Any future survey campaigns are expected to be similar. During the geophysical, geotechnical and environmental survey activities within each campaign, there will be a maximum of one vessel within the Operational Area at any one time.

No refuelling in the Operational Area is planned.

The worst-case release of MDO is due to a vessel collision rupturing a fuel tank. The Technical Guidelines for the Preparation of Marine Pollution Contingency Plans for Marine and Coastal Facilities (AMSA, 2015) identify the volume of the single largest fuel tank as the worst-case credible scenario for the type of offshore activities covered in this EP. The largest single fuel tank on the vessels expected to be used under this EP has a volume of 130m³.

8.5.2.2 Spill Modelling

To understand the potential consequences of a MDO spill, and the response preparedness required, stochastic modelling was undertaken (RPS, 2025; Appendix G). Model inputs, parameters, and predetermined concentration and exposure assessment thresholds are summarised in Table 8-1.

One credible scenario for a surface release of MDO following a vessel collision were identified for the Petrel survey activities:

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- 130m³ surface release of MDO over 1 hour following a vessel collision.

This has been modelled at 3 release locations, to represent vessel activity throughout the Operational Area:

- proposed Petrel platform location;
- Blacktip tie-in point; and
- the mid-point of the GEP between the Blacktip tie-in point and the Petrel platform.

The spill modelling was carried out using a purpose-developed oil spill trajectory and fates model, SIMAP (Spill Impact Mapping Analysis Program). This model is designed to simulate the transport and weathering processes that affect the outcomes of hydrocarbon spills to the sea, accounting for the specific hydrocarbon type, spill scenario, and prevailing wind and current circulation patterns (RPS, 2025).

SIMAP includes algorithms to account for both physical transport and weathering processes. The latter are important for accounting for the partitioning of the spilled mass over time between the water surface (surface slick), water column (entrained oil and dissolved compounds), atmosphere (evaporated compounds) and land (stranded oil). The model also accounts for the interaction between weathering and transport processes.

The hydrocarbon spill model, the method and analysis applied herein use modelling algorithms which have been peer reviewed and published in international journals.

Table 8-1: Summary of the Vessel Collision (MDO) Spill Modelling Inputs (RPS, 2025)

Parameter	Details					
Scenario	An instantaneous surface spill of marine diesel oil (MDO) of 130m ³ from a vessel incident					
Location	Blacktip tie-in point		Petrel platform		Mid-point of GEP between the Blacktip tie-in point and Petrel platform	
	Latitude:	Longitude:	Latitude:	Longitude:	Latitude:	Longitude:
	13° 53' 37.63" S	128° 29' 3.31" S	12° 53' 23.50" S	128° 30' 33.9" S	13° 23' 41.50" S	128° 29' 57.6" S
Hydrocarbon type	Marine Diesel Oil					
Total spill volume	130m ³					
Number of spill simulations	300 total (100 per season)					
Period of the year (season)	Summer (October to March) Transitional (April to September) Winter (May to August)					
Release Depth	Surface					
Release Duration	Instantaneous					

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Parameter	Details
Simulation length	20 days

8.5.2.3 Hydrocarbon Characteristics

Marine Diesel Oil

Marine Diesel Oil (MDO) is categorised as a group II oil (light-persistent) according to the International Tankers Owners Pollution Federation (ITOPF 2020) and US EPA/USCG classifications. The classification is based on the specific gravity of hydrocarbons in combination with relevant boiling point ranges. It is important to note that some of the heavier components contained in the MDO (i.e. low volatile and persistent portions) will have a strong tendency to physically entrain into the upper water column in the presence of moderate winds (i.e. >12 knots) and breaking waves but can re-float to the surface if these energies abate. The low viscosity (14cP) indicates that this oil will spread quickly when released and will form a thin to low thickness film on the sea surface, increasing the rate of evaporation.

Generally, about 4% of the MDO mass should evaporate within the first 12 hours (Boiling point (BP) < 180°C); a further 32% should evaporate within the first 24 hours (180°C < BP < 265°C) (RPS, 2025); and an additional 54% should evaporate over several days (265°C < BP < 380°C). Approximately 10% (by mass) of MDO will not evaporate, though will decay slowly over time. Table 8-2 details the physical characteristics and boiling point ranges for the MDO.

Table 8-2: Physical Properties for the MDO

Properties		Hydrocarbon	
Hydrocarbon Type		MDO	
API		27.5	
Density (kg/m ³)		890.0 (at 15°C)	
Dynamic viscosity (cP)		14.0 (at 25°C)	
Pour point (°C)		-9.0	
Hydrocarbon property category		Group II	
Hydrocarbon property classification		Light persistent	
Hydrocarbon Component		Boiling point (°C)	% of Total
Volatiles	Non- persistent	<180	4.0
Semi-volatiles		180-265	32.0
Low volatiles		265-380	54.0
Residual	Persistent	>380	10.0

8.5.2.4 Weathering and Fate

A series of weathering tests were conducted to illustrate the potential behaviour following a 50m³ instantaneous surface release of MDO. The tests included a model under calm wind conditions (5 knots) and under variable weather conditions (2-23 knots), assuming seasonal water temperature (27°C) and ambient tidal and drift currents. The first case is indicative of the potential weathering rates under calm conditions that would not generate entrainment, while the second case would be more representative of the moderate winds experienced over the region.

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The mass balance forecast for the constant wind case (Figure 8-1) shows that 36% of the MDO is predicted to evaporate within 24 hours. The remaining MDO on the water surface will weather at a slower rate and be subject to more gradual decay through biological and photochemical processes.

In the variable wind speeds test (Figure 8-2), characterized by stronger average winds and breaking waves, there is an increased entrainment of MDO into the water column. Approximately 24 hours into the spill, the forecast indicates that 65% of the MDO will have entrained, with an additional 30% expected to have evaporated. Approximately 2.6% of floating oil remains on the water surface. The low volatile and residual compounds are anticipated to entrain beneath the surface under conditions generating wind waves (winds approximately $> \sim 12$ knots).

While the MDO is entrained, it is forecast to decay at a higher rate of 2.3% per day or 16% after 7 days, attributed to biological and photochemical degradation. This is in contrast to a rate of 0.4% per day and a total of $\sim 2.8\%$ after 7 days for the constant-wind case. Given the proportion of entrained MDO and its tendency to remain mixed in the water column, the remaining hydrocarbons are expected to undergo decay over several weeks.

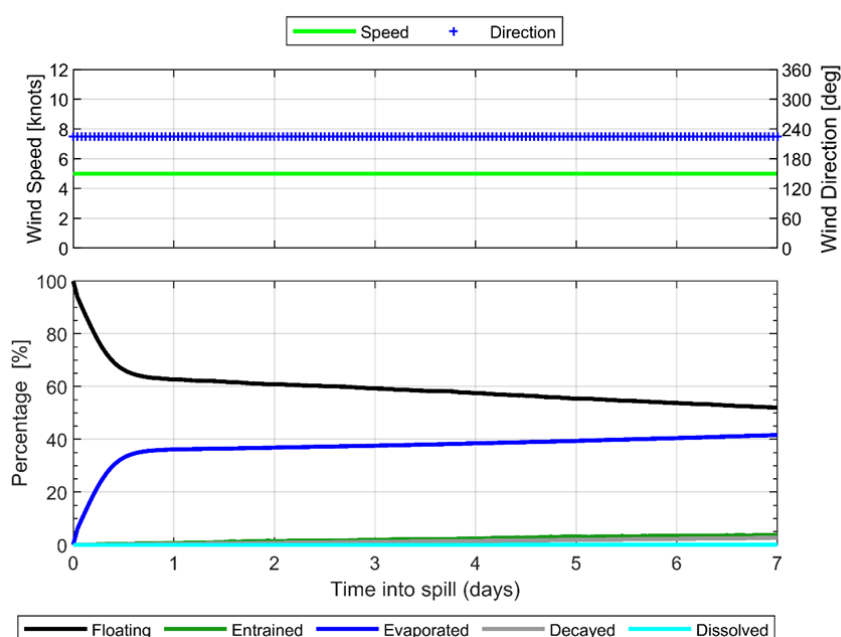


Figure 8-1: Mass balance plot for an instantaneous 50m³ surface release of MDO subjected to a constant 5 knot (2.6m/s) wind, currents and 27°C water temperature (RPS, 2025)

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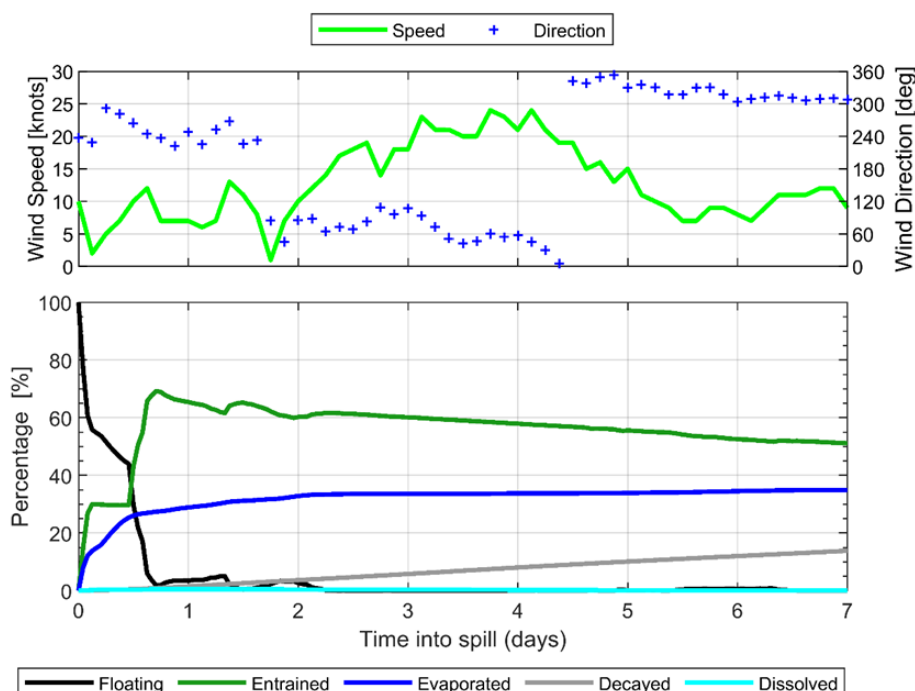


Figure 8-2: Mass balance plot for an instantaneous 50m³ surface release of MDO subjected to variable wind speeds (1 – 12m/s or 2 to 23 knots), currents and 27°C water temperature (RPS, 2025)

8.5.2.5 Exposure Thresholds

The SIMAP model tracks oil concentrations to very low levels, therefore it is important to define meaningful threshold concentrations for the recording of contact by oil components and determining the probability of exposure at a location (calculated from the number of replicate simulations in which this contact occurred). The thresholds presented for this EP are based on those outlined by NOPSEMA in the Application of oil spill modelling in Environment Plans Information Paper (NOPSEMA, 2025b), which are summarised in Table 8-3. Their relationship to exposure for the sea surface, shoreline, and water column (entrained and dissolved hydrocarbons) are discussed below.

Table 8-3: Hydrocarbon Exposure Thresholds (NOPSEMA, 2025b)

Exposure level	Threshold	Description
Floating oil		
Low	1g/m ²	Approximates range of socio-economic effects and establishes planning area for scientific monitoring
Moderate	10g/m ²	Approximates lower limit for harmful exposures to birds and marine mammals
High	50g/m ²	Approximates surface oil slick and informs response planning
Shoreline oil accumulation		
Low	10g/m ²	Predicts potential for some socio-economic impact
Moderate	100g/m ²	Loading predicts area likely to require clean-up effort

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Exposure level	Threshold	Description
High	1,000g/m ²	Loading predicts area likely to require intensive clean-up effort
Dissolved in-water oil		
Low	10ppb	Establishes planning area for scientific monitoring based on potential for exceedance of water quality triggers
Moderate	50ppb	Approximates potential toxic effects, particularly sublethal effects to sensitive species
High	300ppb	Approximates toxic effects including lethal effects to sensitive species
Entrained in-water oil		
Low	10ppb	Establishes planning area for scientific monitoring based on potential for exceedance of water quality triggers
Moderate	100ppb	As appropriate given oil characteristics for informing risk evaluation
High	1,000ppb	Approximates potential toxic effects, particularly sublethal effects to sensitive species

8.5.2.6 Spill Modelling Results

Table 8-4 provides a summary of the results from the stochastic modelling report for a surface release of MDO following vessel collision event occurring at the Blacktip tie-in point, the Petrel platform and the mid-point along the GEP (RPS, 2025; Appendix G).

The MDO ZPI and EMBA are shown in Figure 4-1.

Table 8-4: Modelling Output Summary of an Accidental Release of MDO (RPS, 2025)

Exposure Values	Blacktip tie-in point	Petrel platform	Mid-point between the Blacktip tie-in point and Petrel platform
Surface – Floating			
Low (1g/m ²)	- The maximum distance for floating hydrocarbon exposure from the source was predicted to be 44km. - The minimum time to floating hydrocarbon exposure at any given receptor(s) was 15 hours (North Marine Region). - The highest probability of intersect was identified at the North Marine Region at 4%; the Carbonate bank and terrace system of the Sahul Shelf KEF at 2%; and the Cape Domett and Lacrosse Island in the Cambridge Gulf 60	- The maximum distance for floating hydrocarbon exposure from the source was predicted to be 83km. - The minimum time to floating hydrocarbon exposure at any given receptor(s) was 3 hours (North-west Marine Region). - The highest probability of intersect was identified at the North-west Marine Region at 20%; and the Pinnacles of the	- The maximum distance for floating hydrocarbon exposure from the source was predicted to be 56km. - The minimum time to floating hydrocarbon exposure at any given receptor(s) was 1 hour (North-west Marine Region). - The highest probability of intersect was identified only at the North-west Marine Region at 40%.

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Exposure Values	Blacktip tie-in point	Petrel platform	Mid-point between the Blacktip tie-in point and Petrel platform
	km habitat critical interesting buffer for turtles at 1%.	Bonaparte Basin KEF at 1%.	
Moderate (10g/m ²)	- The maximum distance for floating hydrocarbon exposure from the source was predicted to be 19km. - No exposure was predicted to any receptor(s) at this threshold.	- The maximum distance for floating hydrocarbon exposure from the source was predicted to be 25km. - The minimum time to floating hydrocarbon exposure at any given receptor(s) was 3 hours (North-west Marine Region). - The highest probability of intersect was only identified at the North-west Marine Region at 12%.	- The maximum distance for floating hydrocarbon exposure from the source was predicted to be 21km. - The minimum time to floating hydrocarbon exposure at any given receptor(s) was 1 hour (North-west Marine Region). - The highest probability of intersect was only identified at the North-west Marine Region at 21%.
High (50g/m ²)	- The maximum distance for floating hydrocarbon exposure from the source was predicted to be 9km. - No exposure was predicted to any receptor(s) at this threshold.	- The maximum distance for floating hydrocarbon exposure from the source was predicted to be 8km. - No exposure was predicted to any receptor(s) at this threshold.	- The maximum distance for floating hydrocarbon exposure from the source was predicted to be 7km. - The highest probability of intersect was only identified at the North-west Marine Region at 1%.
Shoreline			
Low (10g/m ²)	No exposure at this threshold was predicted.	No exposure at this threshold was predicted.	No exposure at this threshold was predicted.
Moderate (100g/m ²)	No exposure at this threshold was predicted.	No exposure at this threshold was predicted.	No exposure at this threshold was predicted.
High (500g/m ²)	No exposure at this threshold was predicted.	No exposure at this threshold was predicted.	No exposure at this threshold was predicted.
In-Water - Dissolved			
Low (10ppb)	- The maximum distance for dissolved hydrocarbons at this exposure from the source was predicted to be 43km. - The minimum time to dissolved hydrocarbon exposure at any given receptor(s) was 13	- The maximum distance for dissolved hydrocarbons at this exposure from the source was predicted to be 41km. - The minimum time to dissolved	- The maximum distance for dissolved hydrocarbons at this exposure from the source was predicted to be 51km. - The minimum time to dissolved hydrocarbon exposure at any given receptor(s) was 2 hours

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Exposure Values	Blacktip tie-in point	Petrel platform	Mid-point between the Blacktip tie-in point and Petrel platform
	hours (North Marine Region). The highest probability of intersect was identified at the North Marine Region at 4% and the Carbonate bank and terrace system of the Sahul Shelf KEF at 1%.	hydrocarbon exposure at any given receptor(s) was 4 hours (North-west Marine Region). The highest probability of intersect was identified only at the North-west Marine Region at 11%.	(North-west Marine Region). The highest probability of intersect was identified at the North-west Marine Region at 18%.
Moderate (50ppb)	- The maximum distance for dissolved hydrocarbons at this exposure from the source was predicted to be 4km. - No exposure was predicted to any receptor(s) at this threshold.	- The maximum distance for dissolved hydrocarbons at this exposure from the source was predicted to be 1km. - No exposure was predicted to any receptor(s) at this threshold.	- The maximum distance for dissolved hydrocarbons at this exposure from the source was predicted to be 4km. - The highest probability of intersect was identified at the North-west Marine Region at 1%.
High (300ppb)	No exposure at this threshold was predicted.	No exposure at this threshold was predicted.	No exposure at this threshold was predicted.
In-Water - Entrained			
Low (10ppb)	- The maximum distance for entrained hydrocarbons at this exposure from the source was predicted to be 300km. - The minimum time to entrained hydrocarbon exposure at any given receptor(s) was 10 hours (North Marine Region). - The worst-case scenario probabilities of intersect was identified at: - Carbonate bank and terrace system of the Sahul Shelf KEF at 67%; - North Marine Region at 51%; - Cape Domett and Lacrosse Island in the Cambridge Gulf habitat critical 60km	- The maximum distance for entrained hydrocarbons at this exposure from the source was predicted to be 225km. - The minimum time to entrained hydrocarbon exposure at any given receptor(s) was 3 hours (North-west Marine Region). - The worst-case scenario probabilities of intersect was identified at: - North-west Marine Region at 67%; - Carbonate bank and terrace system of the Sahul Shelf KEF at 17%;	- The maximum distance for entrained hydrocarbons at this exposure from the source was predicted to be 263km. - The minimum time to entrained hydrocarbon exposure at any given receptor(s) was 1 hour (North-west Marine Region). - The worst-case scenario probabilities of intersect was identified at: - North-west Marine Region at 77%; - Carbonate bank and terrace system of the Sahul Shelf KEF at 23%; - Kimberley IMCRA at 7%; - Pinnacles of Bonaparte Basin KEF at 3%; - Cape Domett and Lacrosse Island in the Cambridge Gulf habitat critical 60km interesting buffer for turtles at 3%;

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Exposure Values	Blacktip tie-in point	Petrel platform	Mid-point between the Blacktip tie-in point and Petrel platform
	- interesting buffer for turtles at 31%; - North Kimberley Marine Park at 19%; - WA State Waters a 19%; - The West Kimberley National Heritage Place (Natural) at 19%; - Cambridge-Bonaparte IMCRA at 13%; - Joseph Bonaparte Gulf AMP at 13%; - Kimberely IMCRA at 9%; - Anson Beagle IMCRA at 6%; - Kimberely AMP at 3%; - Mainland east of Mary Island to mainland adjacent to Murrara Island including all offshore islands habitat critical 20 km interesting buffer for turtles at 2%; - East Holothuria Reef at 2%; - Holothuria Banks at 2%; and - Waigait Beach to south of Point Blaze, including all offshore islands 60km interesting buffer at 1%.	- Pinnacles of the Bonaparte Basin at 17%; - Carbonate bank and terrace system of the Sahul Shelf KEF at 15%; - Oceanic Shoals IMCRA at 7%; - Flat Top Bank RSB at 6%; - Brace Point to One Tree Point, including all offshore islands. 60km interesting buffer at 3%; - Oceanic Shoals AMP at 2%; - Kimberely IMCRA at 1%; - Carbonate bank and terrace system of the Van Diemen Rise KEF at 1%; and - Newby Shoal at 1%.	- Flat Top Bank at 2%; - Kimberely AMP at 2%; - Oceanic Shoals IMCRA at 2%; - North Kimberley Marine Park at 1%; - The West Kimberley National Heritage Place (Natural) at 1%; - Joseph Bonaparte Gulf AMP at 1%; - Cambridge-Bonaparte IMCRA at 1%; - Anson Beagle IMCRA at 1%; - WA State Waters a 1%; - Brace Point to One Tree Point, including all offshore islands habitat critical 60km interesting buffer for turtles at 1%; - Oceanic Shoals AMP at 1%; and - Holothuria Banks at 1%.
Moderate (100ppb)	- The maximum distance for entrained hydrocarbons at this exposure from the source was predicted to be 58km. - The minimum time to entrained hydrocarbon exposure at any given receptor(s) was 11 hours (North Marine Region). - The highest probability of intersect was identified at the North Marine Region at 29%; Carbonate bank and terrace system of the Sahul Shelf KEF at 24% and Cape Domett and Lacrosse Island in the	- The maximum distance for entrained hydrocarbons at this exposure from the source was predicted to be 70km. - The minimum time to entrained hydrocarbon exposure at any given receptor(s) was 3 hours (North-west Marine Region). - The highest probability of intersect was identified at the North-west Marine	- The maximum distance for entrained hydrocarbons at this exposure from the source was predicted to be 77km. - The minimum time to entrained hydrocarbon exposure at any given receptor(s) was 1 hour (North-west Marine Region). - The highest probability of intersect was identified only at the North-west Marine Region at 65%.

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Exposure Values	Blacktip tie-in point	Petrel platform	Mid-point between the Blacktip tie-in point and Petrel platform
	Cambridge Gulf habitat critical 60km interesting buffer for turtles at 2%.	Region at 47% and Oceanic Shoals IMCRA at 1%.	
High (1,000ppb)	- The maximum distance for entrained hydrocarbons at this exposure from the source was predicted to be 17km. - No exposure was predicted to any receptor(s) at this threshold.	- The maximum distance for entrained hydrocarbons at this exposure from the source was predicted to be 18km. - The minimum time to entrained hydrocarbon exposure at any given receptor(s) was 3 hours (North-west Marine Region). - The highest probability of intersect was only identified at the North-west Marine Region at 9%.	- The maximum distance for entrained hydrocarbons at this exposure from the source was predicted to be 16km. - The minimum time to entrained hydrocarbon exposure at any given receptor(s) was 1 hour (North-west Marine Region). - The highest probability of intersect as only identified at the North-west Marine Region at 20%.

8.5.3 Potential Environmental Impact

The accidental release of MDO may result in:

- Change in water quality

A change in water quality can result in various environmental impacts to receptors, including:

- Change in fauna behaviour;
- Injury or mortality of marine fauna;
- Change in ecosystem dynamics and conservation values;
- Changes to the functions, interests, or activities of other marine users; and
- Change in cultural heritage.

Potential receptors that may be impacted are:

- Marine fauna including:
 - Plankton;
 - Fish (including sharks);
 - Marine Reptiles;
 - Marine Mammals; and

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- Seabirds and Shorebirds
- Socioeconomic receptors, including:
 - Commercial Fisheries;
 - Tourism and Recreational Fishing;
 - Other Marine Users (Commercial shipping, defence, and offshore industry);
 - Maritime heritage;
 - Marine Parks and protected areas;
 - Key Ecological Features (KEFs); and
 - First Nations Heritage.

The potential impacts to these receptors from exposure to surface and in-water (dissolved and entrained) hydrocarbons has been evaluated in the sections below.

Sediment quality is not considered a credible impact because the spill occurs at the water surface. The depth of the water, absence of shoreline accumulation, and lack of intertidal zone contact make interaction between the sediment and MDO highly unlikely. Therefore, sediment quality is not evaluated further. Also, as the spill modelling predicted no exposure to shoreline accumulation (see Section 8.5.2.6); the impacts to shoreline receptors have not been assessed.

8.5.3.1 Water Quality

Change in water quality

An accidental release of MDO into the marine environment will result in a change in water quality. MDO is classified as a light non-persistent hydrocarbon (Group II), containing a high proportion of volatile components and only a small proportion of non-volatile (persistent) components. Based on weathering tests for constant wind conditions, up to approximately 36% may evaporate from the water surface within the first 24 hours in calm conditions. Under variable wind speed conditions, MDO has a strong tendency to entrain within the upper water column, with approximately 65% that will entrain within 24 hours, leaving a small proportion remaining on the water surface (RPS, 2025).

Entrained MDO will often remain in the upper water column until conditions are calm then will float to the surface and reform as a slick. A change in water quality is expected to be short-term based on the weathering behaviour described above.

Given the nature of the MDO, the weathering predicted (Section 8.5.2.4), and the offshore metocean conditions, the area of exposure following a spill event is anticipated to be localised and short-term. The water quality of the area exposed to hydrocarbons is expected to return to pre-spill conditions relatively rapidly. Long-term adverse impacts to the water quality are not anticipated.

8.5.3.2 Benthic Habitats and Communities

Benthic habitats have been assessed based on the hydrocarbon exposure thresholds that have the potential to cause harmful impacts (see Section 4.1). Therefore, the

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extent of the hydrocarbon exposure has been defined by using moderate hydrocarbon exposure thresholds for both surface and in-water (dissolved and entrained) hydrocarbons. This is defined as the Moderate Threshold Area (referred to as the ZPI).

Table 8-5 evaluates the potential impact that hydrocarbon spills for this activity may have on benthic habitat receptors found within the ZPI.

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Table 8-5: Potential Environmental Impact for MDO Exposure on Benthic Habitats and Communities

Benthic Habitats and Communities	
Exposure Evaluation:	
Benthic habitats, such as coral reef formations, and the associated communities present within the ZPI may be exposed to hydrocarbons following an accidental release of MDO. The maximum distance for dissolved and entrained hydrocarbons within the ZPI from the source was predicted to be 4km and 77km, respectively (RPS, 2025). The Operational Area lies within the Northwest Shelf Transition Provincial Bioregion. Benthic habitats such as coral, seagrass, macroalgae, and invertebrates, have been identified as Northwest Shelf Transition. Previous benthic habitat surveys in the Joseph Bonaparte Gulf identified the seabed to predominantly consists of sand, silt and shell fragments (see Section 4.3.6), which is typical of the infaunal plains that covers a large portion of the JBG. Sponges and reef-forming corals are found within the area; however, these are not a dominant habitat type identified for the region (see Section 4.3.6). Given the offshore location on the seabed of benthic habitats and communities, only exposure from in-water hydrocarbons are expected, as assessed below.	
Predicted Impact:	
In-water	
Entrained oil has the potential to coat contacted benthic habitats, such as coral reefs or shoals. Exposure of in-water hydrocarbons to shallow subtidal corals has the potential to result in lethal or sublethal toxic effects, resulting in acute impacts or death at moderate to high exposure thresholds (Shigenaka, 2011). Physical effects from entrained oil have the potential to coat contacted coral reefs. Contact with corals may lead to reduced growth rates, tissue decomposition, impaired fertilization and larval settlement, and poor resistance and mortality of sections of reef (NOAA, 2010). However, the phenomena of smothering of exposed coral surfaces or polyps by oil spills has only been reported where very large oil spill quantities, or very sticky oil slicks, have been encountered. Water quality in benthic habitats exposed to entrained hydrocarbons would be expected to return to background conditions within weeks to months of contact. Several studies have indicated that rapid recovery rates may occur even in cases of heavy oiling (National Academies Press, 2003). In-water exposure (dissolved or entrained) at relevant exposure thresholds is only predicted to occur within the upper 0–10m of the water column, therefore, corals found in water depths below 10m are not anticipated to be impacted by in-water hydrocarbon exposure. The open water conditions of the Operational Area are anticipated to rapidly disperse the MDO, through the mixing of surface waters and near surface waters, driven by tidal current and wave action (Section 4.3.3). Therefore, despite the potential widespread exposure of in-water hydrocarbons in the event of a worst-case MDO spill, rapid evaporation, entrainment and biological and photochemical degradation of MDO will ensure exposure will be limited to several weeks (RPS, 2025).	

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Predicted Impact Summary:

Given the lack of coral reef formations identified within the offshore location of the activity and the associated water depths which they occur in, exposure to hydrocarbons is not expected to occur. Any impacts that may occur are anticipated to be extremely limited and isolated events. Consequently, the potential consequence to submerged coral reefs are expected to result in localised, short-term impacts.

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8.5.3.3 Marine Fauna

Marine fauna have been assessed based on the hydrocarbon exposure thresholds that have the potential to cause harmful impacts (see Section 4.1). Therefore, the extent of the hydrocarbon exposure has been defined by using moderate hydrocarbon exposure thresholds for both surface and in-water (dissolved and entrained) hydrocarbons. This is defined as the Moderate Threshold Area (referred to as the ZPI).

Table 8-6 evaluates the potential impact that hydrocarbon spills for this activity may have on marine fauna receptors found within the ZPI.

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Table 8-6: Potential Environmental Impact for MDO Exposure on Marine Fauna

Plankton	
Exposure Evaluation:	
Plankton species, phytoplankton and zooplankton, recorded across the Petrel field was characteristic of offshore tropical waters (see Section 4.4.1), therefore, it is possible they may be exposed to surface hydrocarbons and, to a greater extent, hydrocarbons entrained in the water column. However, no specific sites of upwelling were identified within the ZPI. Plankton (phytoplankton and zooplankton) are found in nearshore and open waters beneath the surface and form the basis for the marine food web. Plankton species are known to be sensitive to the toxic effects of oil at low concentrations and large numbers of planktonic organisms may be affected in the event of a spill event (ITOPF, 2014). Plankton risk exposure through ingestion, inhalation and dermal contact. Modelling of the MDO spill scenarios predicted moderate exposure thresholds of surface hydrocarbons up to 25km (southeast) of the release location. Exposure in nearshore and open water areas is predicted to occur at moderate thresholds of dissolved and high thresholds of entrained (RPS, 2025).	
Predicted Impact:	
Surface	In-water
Plankton migrate vertically through the water column to feed in surface waters at night and, when doing so, may be exposed to surface hydrocarbons (NRDA, 2012). Phytoplankton (photosynthetic organisms) can accumulate rapidly, due to their small size and high surface area to volume ratio, therefore populations are typically not sensitive to the impacts of oil (Hook et al., 2016). However, if phytoplankton are exposed to hydrocarbons at the sea surface, their ability to photosynthesise via smothering may be directly affected and would have implications for the next trophic level in the food chain (e.g. small fish) (Hook et al., 2016). In addition, the presence of surface hydrocarbons may result in a reduction of light penetrating the water column, which may again affect the rate of photosynthesis, particularly in instances where there is prolonged presence of surface hydrocarbons over an extensive area. A reduction in the rate of photosynthesis may inhibit growth, depending on the concentration	Plankton are found in open waters within the water column and are likely to be exposed to hydrocarbons dissolved or entrained in the water column in the event of an oil spill (NRDA, 2012). Impacts, including injury and mortality, to planktonic species may occur due to a change in water quality following an unplanned hydrocarbon release. Plankton are widely dispersed throughout the water column, although exposure is predicted to occur within the 0-10m water depth, where plankton are most abundant. Effects will also be greatest in the area close to the spill source where hydrocarbon concentrations are likely to be highest. Relatively low concentrations of hydrocarbons are toxic to both plankton (including zooplankton and ichthyoplankton (fish eggs and larvae)). Plankton risk exposure through ingestion, inhalation and dermal contact with in-water hydrocarbons. Highly volatile hydrocarbons generally have higher toxicity levels when initially released due to the presence of the volatile components (Di Toro et al., 2007), however, with rapid weathering expected, this toxicity decreases. Furthermore, the

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range. For example, photosynthesis is stimulated by low concentrations of oil in the water column (10-30ppb) but becomes progressively inhibited above 50ppb. Conversely, photosynthesis can be stimulated below 100ppb for exposure to weathered oil (Volkman et al., 1994).	actual area of exposure is expected to be extremely localised and temporary due to the influence of waves, currents and weathering processes. Studies have shown minimal or transient effects on marine plankton (Volkman et al., 1994). Once background water quality conditions have re-established, the plankton community may take weeks to months to recover due to short generation times (ITOPF, 2011), allowing for seasonal influences on the assemblage characteristics.
Predicted Impact Summary:	
Consequently, the potential impacts and risks to plankton from a vessel collision event are expected to result in localised short-term impacts to species for a short duration but not expected to affect species populations or general ecosystem functioning.	
Marine Invertebrates	
Exposure Evaluation:	
Marine invertebrates identified within the region, including commercially important species, may be impacted by in-water exposure of hydrocarbons. Species such as sponges, cnidarians, molluscs, and echinoderms have been shown to be present within the region. Benthic habitat mapping found that generally the seabed composition was similar, with sparse sessile benthos except for an unidentified white colonial organism (presently recorded as a hydrozoa) across all sampled fields. Estimated percentage cover was low for octocorals and sponges (~2% for each) while the unidentified hydroid comprised between 11-30% at all sites (ERM, 2011). See Section 4.4.2 for further details. There are no protected invertebrates listed in the EPBA Act PMST search. Modelling of the MDO spill scenarios predicted the maximum dissolved and entrained hydrocarbon concentration for the MGO spill scenario at any given receptor(s) to be 51ppb and 5,739ppb, respectively (RPS, 2025).	
Predicted Impact:	
Surface	In-water
Given that invertebrates are only found in benthic habitats, exposure to surface (floating) hydrocarbons is not expected.	The primary modes of exposure for marine invertebrate communities include: • Direct exposure to dispersed oil (e.g., physical smothering) from a subsea release of hydrocarbons which remains at the sea floor, • Direct exposure to dispersed and non-dispersed oil (e.g., physical smothering) where oil sinks down from higher depths of the ocean,

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	• Direct exposure to dispersed and non-dispersed oil dissolved in sea water and/or partitioned onto sediment particles, • Indirect exposure to dispersed and non-dispersed oil through the food web (e.g., uptake of oiled plankton, detritus, prey, etc.) (NRDA, 2012), and • Acute or chronic exposure through surface contact and/or ingestion can result in toxicological risks. Entrained and dissolved hydrocarbons can have negative impacts on marine invertebrates and associated larval forms. In general, larval invertebrate and invertebrates without an exoskeleton (e.g. sea cucumbers) have been shown to be more sensitive to impacts compared to adult forms, as the presence of an exoskeleton (e.g. crustaceans) reduces the impact of hydrocarbon absorption through the surface membrane. Tissue taint may occur and remain for several months in some species however, this will be localised and low level with recovery expected. Water quality in benthic habitats exposed to entrained hydrocarbons would be expected to return to background conditions within weeks to months of contact. Several studies have indicated that rapid recovery rates may occur even in cases of heavy oiling (National Academies Press, 2003).
Predicted Impact Summary:	
Due to the characteristics of the hydrocarbons, and water depths, coating of benthic assemblages and prolonged exposure to hydrocarbons is considered highly unlikely. Consequently, the potential impacts to invertebrates are expected to result in localised short-term impacts to species/habitats of recognised conservation value but not affecting local ecosystem functioning.	
Fish (and Sharks)	
Exposure Evaluation:	
Several fish species may be present within the ZPI. 6 species were identified by the EPBC Act PMST as threatened within the ZPI (Section 4.4.3), these include: • Dwarf sawfish (EPBC listed as Vulnerable); • Green sawfish (EPBC listed as Vulnerable); • Largetooth sawfish (EPBC listed as Endangered); • Scalloped hammerhead (EPBC listed as Conservation Dependent);	

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- White shark (EPBC listed as Vulnerable);and
- Whale shark (EPBC listed as Vulnerable).

However, no BIAs for fish or shark species were found to intersect the ZPI. The closest BIA was the migration BIA for the blue whale, located approximately 402km from the ZPI.

Demersal species have been shown to be the most susceptible to oiled sediments, particularly species that are site restricted, however, only pelagic fish and shark species were identified within the area. Any pelagic fish and shark species that occupy the water column, specifically within the upper 0 – 10m of the water column the surface layers of the water column (where in-water hydrocarbon exposure is predicted), are more susceptible to entrained and dissolved hydrocarbons.

Predicted Impact:

Surface	In-water
Fish and sharks (including rays) are all pelagic species which rarely break the sea surface, therefore, exposure to surface hydrocarbons may occur only occur if individuals feed at the sea surface. Studies have shown that near the sea surface, fish are able to detect and avoid contact with surface slicks meaning fish mortalities rarely occur in the event of a hydrocarbon spill in open waters (Volkman et al., 1994). Therefore, there is a low likelihood that these species will be exposed at the surface due to the wide habitat distribution that have, and the weathering properties of MDO, where the slick will quickly disperse and evaporate, prolonged exposure to surface hydrocarbons by fish, shark and ray species is unlikely.	Fish and sharks can be exposed to in-water hydrocarbons droplets through a variety of pathways, including: • Direct dermal contact (e.g. whilst swimming through oil or waters with elevated dissolved hydrocarbon concentrations and other constituents, with diffusion across their gills (Hook et al., 2016); • Ingestion (e.g. directly or via food base, fish that have recently ingested contaminated prey may themselves be a source of contamination for their predators), and • Inhalation (e.g. elevated dissolved contaminant concentrations in water passing over the gills). Exposure to hydrocarbons entrained or dissolved in the water column can be toxic to fish, with their embryonic, larval and juvenile life stages being the most vulnerable. Studies have shown a range of impacts including changes in abundance, decreased size, inhibited swimming ability, changes to oxygen consumption and respiration, changes to reproduction, immune system responses, DNA damage, visible skin and organ lesions and increased parasitism. However, many fish species can metabolise toxic hydrocarbons, which reduces the risk of bioaccumulation of contaminants in the food web (and human exposure to contaminants through the consumption of seafood) (NRDA, 2012). However, generally these species are highly mobile species, and their patterns of movements makes it unlikely for them to remain within the area long enough to be

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	exposed to hydrocarbons to experience sub-lethal impacts (ITOPF, 2011). The exception would be in areas such as reefs and other seabed features where species are less likely to move away into open waters (i.e., site-attached species). Pelagic species fish are able to detect and avoid contact with surface slicks meaning fish mortalities rarely occur in the event of a hydrocarbon spill in open waters (Volkman et al., 1994). As a result, wide-ranging pelagic fish of the open ocean generally are not highly susceptible to impacts from surface hydrocarbons. Adult fish kills reported after oil spills, occur mainly to shallow water, near-shore benthic species (Volkman et al., 1994).
Predicted Impact Summary:	
As identified in Section 4.4.6, a number of fish and shark species may occur in the ZPI. Given the wide distribution of fish species in the region and the nature of the potential impacts, which are likely to be temporary and limited to a number of individuals, impact to an entire population or a population's overall viability is not anticipated. Further, the absence of BIAs for fish or shark species intersecting the ZPI indicate that any impacts are not anticipated to disrupt species use of habitats' critical to the survival of a species. Given the hydrocarbon characteristics of MDO and the open water conditions of the Operational Area; hydrocarbons are anticipated to rapidly disperse, through the mixing of surface waters and near surface waters, driven by tidal current and wave action. Consequently, the potential impacts and risks to fish and sharks from a vessel collision event are expected to result in localised short-term impacts to species of recognised conservation value for a short duration but not expected to affect species populations or general ecosystem functioning.	
Marine Reptiles	
Exposure Evaluation:	
There may be marine turtles foraging in the area predicted to be exposed to surface hydrocarbons. Foraging BIAs were defined for four species of marine turtles within the ZPI: • Loggerhead (EPBC listed as Endangered); • Green (EPBC listed as Vulnerable); • Olive Ridley (EPBC listed as Endangered); and • Flatback (EPBC listed as Vulnerable). Habitat critical for the survival of flatback turtles was identified within the ZPI. Modelling of the MDO spill scenarios predicted exposure at the Cape Domett and Lacrosse Island in the Cambridge Gulf 60km internersting buffer to occur at the moderate threshold for entrained (2%).	

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See Section 4.4.8 for further details on these species.

The Recovery Plan for Marine Turtles in Australia: 2017–2027 (CoA, 2017) highlights acute chemical discharge as one of several threats to marine turtles.

Marine turtles may be exposed to hydrocarbons when transiting through the in-water hydrocarbons, surfacing to breathe within the surface slick, or nesting on oiled shorelines. Marine sea turtles are vulnerable to the effects of oil at all life stages—eggs, post-hatchlings, juveniles, and adults in nearshore waters. Several aspects of marine turtle biology and behaviour place them at particular risk (NOAA 2010a), including a lack of avoidance behaviour, indiscriminate feeding in convergence zones, and large pre-dive inhalations.

Two species of sea snakes were identified by the PMST within the ZPI that are listed as threatened under the EPBC Act:

- Leaf-scaled sea snake (EPBC listed as Critically Endangered); and
- Short-nosed sea snake (EPBC listed as Critically Endangered).

However, no BIAs are identified for sea snake species. These species may be present in the ZPI; however, their presence is expected to be of a transitory nature only, given the absence of typical sea snake habitats, such as reefs.

Salt-water crocodiles may also be present within the ZPI; however, these species are only listed as migratory under the EPBC Act and have no BIAs identified. Therefore, their presence will likely be limited to individuals of transitory nature.

Predicted Impact:

Surface	In-water
Marine turtles make large, rapid inhalations before they dive which may result in inhalation of toxic vapours from hydrocarbons in surface waters (Milton and Lutz, 2003). This can lead to respiratory irritation, inflammation, emphysema or pneumonia (NOAA, 2010a). Ingested oil may cause harm to the internal organs of turtles. Visibly oiled turtles showed higher indicators of polycyclic aromatic hydrocarbons (PAH) in tissues, stomach content, colon content and faeces compared to non-visibly oiled turtles (Ylitalo et al., 2017). This exposure pathway may cause an increase in the production of white blood cells and may affect the functioning of their salt gland (Lutcavage et al., 1995). Oiling has the potential to cause mortality depending on the size of the individual and the extent of oiling (DWH Natural Resource Damage Assessment Trustees, 2016).	Oil exposure affects different turtle life stages in different ways. Turtles may be exposed to chemicals in oil in two ways: • Internally – eating or swallowing oil, consuming prey containing oil-based chemicals, or inhaling of volatile oil related compounds; and • Externally – swimming in oil or dispersants, or oil or dispersants on skin and body. Effects of oil on turtles include: • Increased egg mortality and developmental defects, • Direct mortality due to oiling in hatchlings, juveniles and adults. • Negative impacts to the skin, blood, digestive and immune systems (elevated susceptibility to infections (NOAA, 2010a) and salt glands resulting from hydrocarbons adhering to body surfaces (Gagnon and Rawson, 2010) and entering cavities such as the eyes, nostrils, or mouth. Records of oiled wildlife during spills rarely include marine turtles, even from areas where they are known to be relatively abundant (Short, 2011). An exception to this was the large number of marine turtles collected (613 dead and 536 live) during the

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Sea snakes undertaking foraging behaviours near the water surface may have an increased level of vulnerability to hydrocarbon exposure (Yaghmour et al., 2022).

Macondo spill in the Gulf of Mexico, although many of these animals did not show any sign of oil exposure (NOAA, 2017). Of the dead turtles found, 3.4% were visibly oiled and 85% of the live turtles found were oiled (NOAA, 2017). Of the captured animals, 88% were later released, suggesting that oiling does not inevitably lead to mortality.

The four species of marine turtles identified within the ZPI are all widely dispersed across North Australia and the North-West Shelf (NWS); therefore, it is unlikely that an individual will be foraging within the localised area exposed to hydrocarbons at the time of the spill incident. Any potential impact would be limited to individuals, with population impacts not anticipated.

Sea snakes found within the ZPI have the potential to be directly and indirectly impacted by hydrocarbons. In general, there is limited literature on the impacts of oil spills to sea snakes. A recent study by Yaghmour et al. (2022) is the only study to record lethal impacts to sea snakes following a crude oil spill in the Gulf of Oman. The study also identified varying levels of smothering, including over their eyes, snout, mouth, and oesophagus. Due to the hydrocarbon characteristics of the MDO, as a light, non-persistent hydrocarbon (Section 8.5.2.3), the impact would differ to spills of heavy crude as studied in Yaghmour et al. (2022).

There is a paucity of research on the impacts of hydrocarbons to salt-water crocodiles. Although it is assumed that salt-water crocodiles could be vulnerable to oil spills when swimming in the open ocean (Ruberg et al., 2021). Salt-water crocodiles have previously been reported in the vicinity of oil spills in Australia (Lipscombe, 2000).

Light oils, which are less likely to cause severe external oiling, may expose marine fauna to volatile PAHs during at the surface during inhalations. However, the number of sea snakes and salt-water crocodiles that may be exposed is expected to be low due to the offshore location, the lack of BIAs, the extent of exposure above the threshold, and the anticipated rapid weathering of the light-non persistent hydrocarbon (Section 8.5.2.3). Therefore, potential impacts would be limited to individuals, with population impacts not anticipated.

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Predicted Impact Summary:	
The number of marine turtles that may be exposed to hydrocarbons during a spill event is expected to be low due to the localised and temporary presence of surface hydrocarbons at moderate exposure levels. Given the hydrocarbon characteristics of MDO and the open water conditions of the Operational Area; hydrocarbons are anticipated to rapidly disperse, through the mixing of surface waters and near surface waters, driven by tidal current and wave action. The habitat critical for the Flatback turtle may be intersected by the ZPI; however, the main nesting beaches, which are located on the north side of Cape Domett are not anticipated to be contacted as the spill modelling does not reach this shoreline. Therefore, any potential impacts would be limited to individual transiting or foraging marine turtles, with not impacts to species populations or general ecosystem functioning anticipated. Due to the low number of sea snakes and salt-water crocodiles anticipated within the ZPI and the absence of BIAs or sea snake habitats, impacts at population levels are not anticipated. Consequently, the potential impacts and risks to marine reptiles from a release of MDO following vessel collision event are expected to result in localised medium-term impacts to species of recognised conservation value; but are not expected to affect species populations or general ecosystem functioning.	
Marine Mammals	
Exposure Evaluation:	
Several cetacean species (whales and dolphins) have the potential to be present within the ZPI. Six species were identified as threatened, migratory and/or listed as per the EPBC Act PMST, these include: • Australian Humpback Dolphin (EPBC listed as Vulnerable); • Australian Snubfin Dolphin (EPBC listed as Vulnerable); • Blue whale (EPBC listed as Endangered); • Fin Whale (EPBC listed as Vulnerable); • Sei Whale (EPBC listed as Vulnerable); and • Spotted Dolphin (EPBC listed as Endangered). There are no cetacean BIAs or habitat critical to the survival of the species identified within the ZPI. No pinniped species were identified within the ZPI. Marine mammals, such as cetaceans, can be exposed to the chemicals in oil through: • Dermal contact, by swimming in oil and having oil directly on the skin and body (NRDA, 2012; Hook et al., 2016); • Inhaling volatile oil compounds when surfacing to breathe; and • Internal exposure by consuming oil or contaminated prey.	
Predicted Impact:	
Surface	In-water

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Cetaceans may come into contact with surface hydrocarbons when surfacing. However, direct surface oil contact with hydrocarbons is considered to have little deleterious effect on cetaceans, and any effect is likely to be minor and temporary. This may be due to the skin's effectiveness as a barrier to toxicity (Geraci & St Aubin, 1988). Cetaceans have mostly smooth skins with limited areas of pelage (hair covered skin) or rough surfaces such as barnacled skin. Oil tends to adhere to rough surfaces, hair or calluses of animals, so contact with hydrocarbons by cetaceans is expected to cause only minor hydrocarbon adherence. The inhalation of oil droplets, vapours and fumes is a distinct possibility if cetaceans' surface in slicks to breathe. Exposure to hydrocarbons in this way could damage mucous membranes, damage airways, or even cause death. Given the mobility of whales, only a small proportion of a population is anticipated to surface in the affected areas, resulting in short-term and localised consequences, with no long-term population viability effects. The susceptibility to ingested hydrocarbons has also been shown to vary with feeding habits. Baleen whales (such as blue, southern right, and humpback whales) are not particularly susceptible to ingestion of oil in the water column but are susceptible to oil at the sea surface as they feed by skimming the surface. Oil may stick to the baleen while they 'filter feed' near slicks. Sticky, tar-like residues are particularly likely to foul the baleen plates.	Cetaceans exposed to entrained hydrocarbons can result in physical coating as well as ingestion (Geraci and St Aubin, 1988). Such impacts are associated with 'fresh' hydrocarbon, the risk of impact declines rapidly as the hydrocarbon weathers. The susceptibility to ingested hydrocarbon has also been shown to vary with feeding habits. Specifically, toothed whales and dolphins may be susceptible to ingestion of dissolved and entrained oil as they gulp feed at depth. There are reports of declines in the health of individual pods of killer whales (a toothed whale species), though not the population as a whole, in Prince William Sound after the Exxon Valdez vessel spill (heavy oil) (Hook et al., 2016). Geraci & St Aubin (1988) found little evidence of cetacean mortality from hydrocarbon spills; however, some behaviour disturbance (including avoidance of the area) may occur. Pelagic species have been said to avoid hydrocarbons, mainly because of its noxious odours, but this has not been proven. In the event that avoidance was to occur, the potential for physiological impacts from contact with hydrocarbons would be reduced, however, active avoidance of an area may disrupt behaviours such as migration, or displace individuals from important habitat, such as foraging, resting or breeding. Although, the strong attraction to specific areas for breeding or feeding may override any tendency for cetaceans to avoid the noxious presence of hydrocarbons. Dolphin populations from Barataria Bay, Louisiana, USA, which were exposed to prolonged and continuous oiling from the Macondo oil spill in 2010, had higher incidences of lung and kidney disease than those in the other urbanised environments (Hook et al., 2016). The spill may have also contributed to unusually high perinatal mortality in bottlenose dolphins (Hook et al., 2016).
Predicted Impact Summary:	

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As highly mobile species, in general it is very unlikely that cetaceans will be constantly exposed to concentrations of hydrocarbons in the water column for continuous durations that would lead to chronic toxicity effects.

Given the hydrocarbon characteristics of MDO and the open water conditions of the Operational Area; hydrocarbons are anticipated to rapidly disperse, through the mixing of surface waters and near surface waters, driven by tidal current and wave action (Section 8.5.2.4). Relatively fresh hydrocarbon (closer to the release location) are considered to have the greatest potential for impact. Therefore, the potential for environmental impacts would be limited to a relatively short period following the release and limited to individuals, given the absence of migration or aggregation events.

Given the wide distribution of marine mammal species in the region and the nature of the potential impacts, localised, medium-term impacts to species of recognised conservation value may occur; but are not expected to affect species populations or general ecosystem functioning.

Seabirds and Shorebirds

Exposure Evaluation:

Several EPBC threatened, migratory and/or listed marine species were identified within the ZPI and have the potential to be rafting, resting, diving and feeding within the area predicted to be contacted by surface hydrocarbons; and diving or foraging within in-water hydrocarbons.

Five of these species are listed as threatened under the EPBC Act (see APPENDIX B).

A breeding BIA for the lesser crested tern was identified to intersect the ZPI.

See Section 4.4.5.3 for further details on this species.

Predicted Impact:

Surface	In-water
Seabirds rafting, resting, diving or feeding within surface hydrocarbons may be exposed to surface hydrocarbons. Species most at risk include those that readily rest on the sea surface and surface plunging species such as terns. Direct contact with hydrocarbons is likely to foul plumage, which may result in hypothermia due to a reduction in the ability of the bird to thermo-regulate and impaired waterproofing (ITOPF, 2011a). Increased heat loss as a result of a loss of water-proofing results in an increased metabolism of food reserves in the body, which is not countered by a	Seabirds could be impacted by in-water hydrocarbon exposure directly (i.e. whilst diving through the water column foraging) or indirectly (i.e. by consuming hydrocarbon-tainted fish, resulting in sub-lethal or toxic impacts). As seabirds are top order predators, any impact on other marine life (e.g., pelagic fish) from hydrocarbon exposure may disrupt and limit food supply both for the maintenance of adults and the provisioning of young. However, the time spent within the water column is often time-limited, reducing the amount of exposure experienced whilst diving within the water column

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corresponding increase in food intake and may lead to emaciation (DSEWPac, 2011).

A bird suffering from cold, exhaustion and a loss of buoyancy (resulting from fouling of plumage) may dehydrate, drown or starve (ITOPF, 2011; DSEWPac, 2011; AMSA, 2013). Physical smothering may also result in impaired navigation and flight performance (Hook et al., 2016).

Toxic effects on birds, including internal tissue irritation in their lungs and stomachs, may also result where the oil is ingested as the bird attempts to preen its feathers (ITOPF, 2011). The preening process may also spread oil over otherwise clean areas of the body (ITOPF, 2011). Whether this toxicity ultimately results in mortality will depend on the amount consumed and other factors relating to the health and sensitivity of the bird.

In a review of 45 marine hydrocarbon spills, there was no correlation between the numbers of bird deaths and the volume of the spill (Burger & Fry, 1993).

Predicted Impact Summary:

Acute or chronic toxicity impacts (death or long-term poor health) to seabirds is possible. However, the exposure to MDO is expected to be limited due to the predicted rapid weathering and entrainment of the hydrocarbons (Section 8.5.2.4), limiting the area of surface exposure for seabirds to come into contact with. Indirect impacts to seabirds in offshore waters, consisting of effects such as reduced prey abundance, may occur.

The ZPI overlaps the breeding BIA for the lesser crested tern.

Consequently, the potential impacts and risks to seabirds from a release of MDO following vessel collision event are expected to result in localised medium-term impacts to species of recognised conservation value, but not expected to affect species populations or general ecosystem functioning.

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8.5.3.4 Protected and Significant Areas

Protected and significant areas have been assessed based on the hydrocarbon exposure thresholds that have the potential to cause harmful impacts (see Section 4.1). Therefore, the extent of the hydrocarbon exposure has been defined by using low hydrocarbon exposure thresholds for both surface and in-water (dissolved and entrained) hydrocarbons. This is defined as the EMBA.

Table 8-7 evaluates the potential impact that hydrocarbon spills for this activity may have on protected and significant areas found within the EMBA.

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Table 8-7: Potential Environmental Impact of MDO exposure on Protected and Significant Areas

Marine Parks
Exposure Evaluation:
Modelling predicted three Australian Marine Parks (AMPs) to intersect the EMBA (see Section 4.5.1.1): • The Oceanic Shoals AMP; • Joseph Bonaparte Gulf AMP; and • Kimberley AMP. One WA State Marine Park was identified to intersect the EMBA: • North Kimberley MP. The major conservation values for these AMPs have been identified within Section 4.5.1.1 and include unique submerged features, such as carbonate (limestone-like) banks, terraces and isolated pinnacles, and carbonate bank and terrace systems that both provide hard substrates for sponge gardens and associated benthic fauna, such as soft corals, sessile filter feeders, polychaetes and ascidians (Caley et al., 2015; DNP, 2018). The conservation values of these seabed features are recognised in marine bioregional plans through their assignment as KEFs of regional significance (CoA, 2012). All three AMPs and the MP support diverse marine fauna, including species listed as threatened, migratory, marine or cetacean under the EPBC Act. The Oceanic Shoals AMP is specifically associated with enhanced biological productivity, upwellings of nutrient-rich waters, covers four KEFs, and includes BIAs for foraging and interesting habitat for marine turtles (DNP, 2018b). Commercial fishing, mining and Sea Country are other important activities within the park (DNP 2018b). Joseph Bonaparte Gulf AMP is specifically associated with shallow seafloor features, large tidal ranges, coastal intertidal habitats such as nationally important wetlands, one KEF, interesting buffers and foraging BIAs for marine turtles, and foraging, reproduction, and resting BIAs for the Australian snubfin dolphin (DNP, 2018b). Tourism, commercial fishing, mining, Sea Country, and recreation including fishing, are important activities in the Marine Park. The Kimberley AMP is specifically associated with diverse marine fauna, including a foraging BIA for dugongs, and reproduction, resting and migration BIAs for the humpback whale, and reproduction, interesting buffers and foraging BIAs for marine turtles. Significant heritage and cultural values are also important activities in the Marine Park. The major conservation values for the North Kimberley MP have been identified within Section 4.5.1.2.1 and includes shallow coastal habitats, coral reef formations, culturally significant values, and diverse marine fauna, including numerous BIAs for threatened species under the EPBC Act, such as humpback whale (reproduction, resting and migration), Australian snubfin dolphin (foraging, reproduction, and resting), Australian humpback dolphin (reproduction and foraging), Indo-Pacific (spotted) bottlenose dolphin (reproduction and foraging), and marine turtles (reproduction, interesting and foraging) (DPAW, 2016). These sites and associated receptors may be impacted by exposure to surface and in-water hydrocarbons.

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Predicted Impact:	
Surface	In-water
The modelling did not predict contact by surface hydrocarbons for the Oceanic Shoals AMP, Joseph Bonaparte Gulf AMP or the Kimberley AMP at, or above the low, threshold. However, values identified with the AMP may have the potential to be impacted by surface hydrocarbons at the relevant thresholds outside of the AMP. Impact to these receptors from direct or indirect exposure to surface hydrocarbons may cause a subsequent negative impact to the value of the AMPs and Marine Park. However, the values associated with these AMPs are predominantly submerged values associated with the unique features, and are therefore, unlikely to be exposed to hydrocarbons at the sea surface. Refer also to: • Benthic Habitats • Seabirds • Marine Reptiles.	The values identified within these AMPs have the potential to be exposed to entrained hydrocarbons at, or above, the low threshold in the event of a spill incident. The modelling predicted that 13% of the Joseph Bonaparte Gulf AMP, 3% of the Kimberley AMP and 2% of the Oceanic Shoals AMP may be exposed to hydrocarbons only at relevant in-water (entrained) thresholds (RPS, 2025). The AMPs have all been identified as important foraging areas for marine turtles. There is a low probability that marine turtles will be exclusively feeding within the area exposed to hydrocarbons given their extensive foraging grounds (see Section 8.5.3.3). Therefore, there is a chance that foraging marine turtles will experience sub-lethal impacts from consuming contaminated prey, however, impacts will be limited to individuals and are not expected to cause impacts at a population-level. The Joseph Bonaparte Gulf AMP, Kimberley AMP, and North Kimberley Marine Park have all been identified as biologically important areas for marine mammal species. There is a low probability that species will be exclusively undertaking these activities within the area exposed to hydrocarbons. However, there is a chance that individuals may be impacted, however, not at a population level. The exposure of entrained hydrocarbons will be greatest within the upper 0-10m of the water column and areas close to the spill source. The Oceanic Shoals AMP are located within waters 15m to 500m, the Kimberley AMP ranging from 15m to 800m, and the Joseph Bonaparte Gulf AMP 15m to 74m respectively, therefore, conservation values within these AMPs, such as ecosystems, habitats and sea-floor features are not predicted to be impacted. Studies have suggested that the Oceanic Shoals AMP contributes larvae to the Montebello, Argo-Rowley Terrace, Mermaid Reef, Kimberley, Ashmore Reef, Cartier, Joseph Bonaparte gulf, Arafura and Arnhem AMP (Caley et al., 2015). Therefore,

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	due to this connectivity, hydrocarbon exposure may have indirect negative impacts to these AMPs. Impact to these receptors from direct or indirect exposure to in-water hydrocarbons may cause a subsequent negative impact to the value of the AMPs. Refer also to: • Benthic Habitats • Plankton • Seabirds • Fish and sharks • Marine Reptiles • Key Ecological Features
Predicted Impact Summary:	
The potential consequences to Marine Parks from exposure to hydrocarbons following a vessel collision has the potential for localised, medium-term impacts to habitats or species of recognised conservation value or to local ecosystem functioning.	
Key Ecological Features	
Exposure Evaluation:	
Modelling predicted 3 Key Ecological Features (KEFs) to intersect the EMBA (see Section 4.5.2), these include: • Carbonate bank and terrace system of the Sahul Shelf; • Carbonate bank and terrace system of the Van Diemen Rise; and • Pinnacles of the Bonaparte Basin. The furthest extent of dissolved and entrained hydrocarbons at the low threshold (10ppb) occurred up to 51km and 300km away, respectively (RPS, 2025), therefore a reduction in water quality will potentially extend outside of the Operational Area. The major conservation values for KEFs have been identified within Section 4.5.2 and include unique seafloor features with ecological properties of regional significance, such as hard substrates which support diverse species. The Carbonate bank and terrace system of the Sahul Shelf KEF provides areas of enhanced biological productivity, supporting a high diversity of organisms including reef fish, sponges, soft and hard corals, gorgonians, bryozoans, ascidians and other sessile filter feeders. The banks are known to be foraging areas for loggerhead, Olive Ridley and flatback turtles. Cetaceans and green and freshwater sawfish are likely to occur in the area (CoA, 2012). The Carbonate bank and terrace system of the Van Diemen Rise is associated with raised geomorphic features, banks, ridges and terraces, with relatively high proportions of hard substrate which support sponge and octocoral gardens.	

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Both the Carbonate bank and terrace system of the Van Diemen Rise and the Pinnacles of the Bonaparte Basin have been identified as a sponge biodiversity hotspots (Przeslawski et al., 2014; NERP MBH, 2014).

The conservation values of these seabed features are recognised in marine bioregional plans through their assignment as KEFs of regional significance (CoA, 2012). These sites may be impacted by exposure to surface and in-water hydrocarbons.

Predicted Impact:	
Surface	In-water
The values associated with these KEFs are identified as unique seafloor features with ecological properties of regional significance, such as hard substrates which support diverse species. As these features are predominantly submerged, they unlikely to be exposed to hydrocarbons at the sea surface. Therefore, only values of the KEFs that may come into contact with surface hydrocarbons, such as marine turtles, fish and sharks, and cetaceans, have the potential to be impacted by a hydrocarbon release. Refer also to: • Fish and sharks; • Marine Reptiles; and • Marine mammals.	The values identified within these KEFs have the potential to be exposed to entrained hydrocarbons at, or above, the low threshold. However, the exposure of entrained hydrocarbons will be greatest within the upper 0-10m of the water column and areas close to the spill source. Therefore, the spill is unlikely to intersect with majority of the values of the KEFs which are concentrated within the water column >10m deep or along the seafloor at varying water depths. Hydrocarbon exposure to the key receptors of the KEFs (e.g. marine turtles, sponges, fish species) may cause a subsequent negative impact to the value of the KEFs, however is expected to be limited to a small number of individuals, with no impacts to regional populations. Refer also to: • Benthic habitats and communities; • Plankton; • Fish and sharks; and • Marine reptiles.
Predicted Impact Summary:	
The potential consequence to the KEFs from exposure to hydrocarbons following a vessel collision has the potential for localised, medium-term impacts to habitats or species of recognised conservation value or to local ecosystem functioning.	

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8.5.3.5 Socioeconomic and Cultural

Socioeconomic receptors have been assessed based on the hydrocarbon exposure thresholds that have the potential to cause harmful impacts (see Section 4.1). Therefore, the extent of the hydrocarbon exposure has been defined by using low hydrocarbon exposure thresholds for both surface and in-water (dissolved and entrained) hydrocarbons. This is defined as the EMBA.

Table 8-8 evaluates the potential impact that hydrocarbon spills for this activity may have on socioeconomic and cultural receptors found within the EMBA.

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Table 8-8: Potential Environmental Impact for MDO Exposure on Socioeconomic and Cultural receptors

Commercial Fisheries
Exposure Evaluation:
The following fisheries overlap the EMBA (Section 4.6.1). These include: 4 Commonwealth-managed fisheries: - Northern Prawn Fishery; - Western Skipjack Fishery; - Southern Bluefin Tuna Fishery; and - Western Tuna and Billfish Fishery Of these fisheries, the Northern Prawn Fishery is the only fishery to have recorded fishing effort in the EMBA between 2018 – 2023 (Section 4.6.1). Engagement with NPF confirmed fishing effort. Therefore, it is considered that there is potential for interaction with this fishery within the EMBA. 12 Western Australian State Fisheries: - Abalone Managed Fishery; - Kimberley Crab Fishery; - Kimberley Gillnet and Barramundi Fishery; - Kimberley Prawn Fishery; - Mackerel Managed Fishery; - Marine Aquarium Managed Fishery; - Northern Demersal Scalefish Managed Fishery; - South West Coast Salmon Managed Fishery; - Specimen Shell Managed Fishery; - WA Tour Operator; - West Australian Sea Cucumber Fishery; and - West coast Deep Sea Crustacean Managed Fishery. Of these fisheries, 8 (the Kimberley Crab Managed Fishery, Kimberley Gillnet and Barramundi Fishery, Kimberley Prawn Fishery, Mackerel Managed Fishery, Marine Aquarium Managed Fishery, the Northern Demersal Scalefish Managed Fishery, West Australian Sea Cucumber Fishery and WA Tour Operator) are the only fisheries to have recorded fishing effort in the EMBA (between 2018 – 2023 Section 4.6.1). Therefore, it is considered that there is potential for interaction with these fisheries within the EMBA. 9 Northern Territory managed fisheries:

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- Aquarium Fishery;
- Demersal Fishery;
- Development Fishery (Small Pelagic);
- Offshore Net and Line Fishery;
- Pearl Oyster Fishery;
- Spanish Mackerel Fishery;
- Special Permits Fishery;
- Timor Reef Fishery; and
- NT Tour Operators.

Of these fisheries, activity has been recorded for Demersal Fishery, Offshore Net & Line Fishery, Pearl Oyster Fishery, Spanish Mackerel Fishery, Special Permits Fishery, Timor Reef Fishery and NT Tour Operator between 2018-2023 (Section 4.6.1).

Refer to Section 5.6.1 for further description of the fisheries located within the EMBA.

Predicted Impact:

Surface	In-water
Physical displacement of commercial fishers may occur due to the establishment of exclusion zones during the spill response. Visible surface hydrocarbons (i.e. a rainbow sheen) may have the potential to cause impact public perception of the industry, potentially causing a negative economic impact. The commercial fisheries identified within the EMBA predominantly target pelagic or demersal species. Demersal species live and feed near the bottom of the ocean, therefore, are not expected to be impacted by hydrocarbons floating at the surface. As this spill scenario is a surface spill, it is unlikely that demersal species will be impacted as the entrained hydrocarbons are expected to remain within the first 10-20m of the water column. Pelagic species rarely break the sea surface, and studies have shown that fish species are able to detect and avoid contact with surface hydrocarbon slicks (Volkman et al. 1994), therefore there is a low likelihood of exposure to commercially targeted species. Refer to:	As discussed in the relevant sections above (i.e. marine invertebrates and fish and sharks) exposure to in-water hydrocarbons has the potential to impact species, such as commercially important species. Due to their sensitivity, a small number of juvenile fish, larvae, invertebrates without exoskeletons and planktonic organisms, may be impacted. In-water hydrocarbon exposure may result in a reduction in commercially targeted marine species (i.e. marine invertebrates and fish and shark species), subsequently resulting in impacts to commercial fishing productivity. Contamination of target species can cause economic impacts to the industry. Exposure to entrained and dissolved hydrocarbon has been shown to result in the accumulation of oil in fish tissues to the extent that could result in hydrocarbon taint of fish flesh. A review study by Connell and Miller (1981) indicated that tainting of fish occurs when fish are exposed to ambient concentrations of 4 to 300ppm (4,000 to 300,000ppb) of hydrocarbons in the water, for durations of 24 hours or more. In general, fish are not expected to retain a taint for longer than a week after exposure to entrained or dissolved hydrocarbons (Gagnon & Holdway, 2000, cited in Westera

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- Fish and sharks.

& Babcock, 2016). Furthermore, many fish species can metabolise toxic hydrocarbons, which reduces the risk of bioaccumulation of contaminants in the food web (and human exposure to contaminants through the consumption of seafood) (NRDA, 2012).

The maximum concentration predicted for dissolved and entrained hydrocarbons was 51ppb and 5,739ppb, respectively (RPS, 2025). The maximum dissolved concentration is significantly below the concentration level required for fish tainting. The entrained is within the lower limit as per the review by Connell and Miller (1981), however, the given the nature of the hydrocarbon

In-water exposure is limited to the upper 0 – 10m of the water column, and not within the deeper areas of the water column where several of the commercial species are found. Weathering processes will also lower the content of soluble polycyclic aromatic hydrocarbons components over time, reducing the likelihood of tainting.

However, there remains a potential for economic impact to commercial fisheries. Impact may remain after any actual risk has subsided due to concerns around seafood safety.

The modelling predicted that in-water hydrocarbons may extend outside the Operational Area in the event of a vessel collision: up to 51km for dissolved hydrocarbons and 300km for entrained hydrocarbons (Table 8-4). Highly mobile pelagic species which are present within the EMBA are unlikely to remain in one area for long periods of time, which minimises the risk that they would be exposed to toxic levels of hydrocarbons for the length of time necessary to impart a lethal impact.

Therefore, any acute impacts are expected to be limited to individuals and not expected to cause impacts at a population level. Furthermore, impacts are not expected to affect population viability or recruitment.

Refer to:

- Marine Invertebrates
- Fish and sharks.

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Predicted Impact Summary:	
Due to the nature of the hydrocarbon being light, non-persistent with high anticipated evaporation and entrainment rates, any exclusion zones are not expected to be long-term and are unlikely to result in significant impacts.	
Tourism and Recreational Fishing	
Exposure Evaluation:	
The areas identified as potentially being overlapped by the EMBA are areas where very little recreational or charter fishing is expected to occur. This is due to the distance from boating facilities, slipways and the overall lack of natural attractions found within the Operational Area and the ZPI. See Section 4.6.2 for further details.	
Predicted Impact:	
Surface	In-water
Visible surface hydrocarbons (i.e. a rainbow sheen) have the potential to reduce the visual amenity of the area for tourism and discourage recreational activities. Recreation is also linked to the presence of marine fauna and direct impacts to marine fauna such as whales, birds, and pinnipeds can result in indirect impacts to recreational values. It is important to note that the impact from a public perception perspective may be even more conservative. This may deter tourists and locals from undertaking recreational activities. If this occurs, the attraction is temporarily closed, economic losses to the business are likely to eventuate. The extent of these losses would be dependent on how long the attraction remains closed. Refer also to: • Fish and sharks; • Seabirds and shorebirds; and • Marine mammals.	In general, recreational and tourism activities are restricted to shallower coastal waters and shorelines. Given the absence of accumulation of hydrocarbons along shorelines and impacts to coastal waters, any impact tourism and recreational is anticipated to be minimal. Precautionary exclusion from shorelines and coastal areas may be implemented by local governments until water quality monitoring verifies the absence of residual hydrocarbons. This could cause disruption to some recreational and tourism activities within that area. Very limited recreational or charter fishing is expected to occur within the offshore waters of the EMBA (see Section 4.6.2), therefore, impacts are anticipated to be minimal.

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Predicted Impact Summary:	
Given the nature of the hydrocarbon, being light and non-persistent, and the absence of shoreline impact, any impacts to recreation and tourism are expected to be localised and short-term.	
Other Marine Users	
Exposure Evaluation:	
Several other marine users may be overlapped by the EMBA, such as: • Commercial shipping, • Other offshore industries, • Subsea cables; • Defence activities; and • Maritime heritage. There are no known recognised major shipping routes through the permit areas, however vessels may occasionally pass through the EMBA. The nearest shipping fairway, designated by AMSA, is located more than 500km away from the Operational Area. Therefore, shipping traffic will likely be limited to infrequent visits by Northern Prawn Fishery and other fisheries (see Section 4.6.1 for further details). Several other offshore industries are located within the area, see Section 4.6.5 for further details. A network of submarine cables extends from Darwin through the Timor Sea and offshore waters of the Kimberley, linking Northern Australia with South-East Asia. No subsea cables intersect with the Operational Area. However, a subsea cable, the North West Cable System intersects the top North-East section of the EMBA and Subcom have proposed a new subsea cable which will also pass through the EMBA (see Section 4.6.6). The Operational Area overlaps one shipwreck site, the SEDCO Helen (Section 4.6.7). The SEDCO Helen was wrecked in approximately 97m of water depth. The Operational Area is located within the Northern Australia Exercise Area, which incorporates the majority of the Northern Territories portion of the Bonaparte Basin (see Section 4.6.4 for further details).	
Predicted Impact:	
Surface	In-water
Physical displacement of other marine users may occur due to the establishment of exclusion zones during the spill response.	<u>Commercial shipping</u> Precautionary exclusion from impacted areas following a hydrocarbon spill may be implemented until water quality monitoring verifies the absence of residual

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However, due to the comparatively small area of exposure, and the fact that exclusion zones are not expected to be long-term, significant impacts are not anticipated.

hydrocarbons. This could cause temporarily disrupt some commercial shipping within that area for the duration of the response (if applicable).

Other offshore industries

Precautionary exclusion from impacted areas following a hydrocarbon spill may be implemented until water quality monitoring verifies the absence of residual hydrocarbons. This could cause temporary disruption to some petroleum or CCS activities within that area for the duration of the response (if applicable).

Subsea cables

In general, in-water exposure is limited to the upper 0 – 10 m of the water column, and not within the deeper areas of the water column where subsea cables are found. Therefore, impacts are not expected.

Defence activities

Precautionary exclusion from impacted areas following a hydrocarbon spill may be implemented until water quality monitoring verifies the absence of residual hydrocarbons. This could cause temporarily disruptions to some defence activities within that area for the duration of the response (if applicable).

Maritime heritage

The potential for in-water hydrocarbons to impact on shipwrecks is poorly documented. However, it has been proposed that exposure to oil may alter bacterial community composition (biofilms) inhabiting shipwrecks, possibly altering corrosion potential (Salerno et al., 2019). The SEDCO Helen is found within the EMBA; however given the in-water exposure is typically limited to the upper 0 – 10m of the water column, impacts are not anticipated to occur to the shipwreck which is located in ~97m water depths (Section 4.6.7).

Predicted Impact Summary:

Due to the nature of the hydrocarbon, being light and non-persistent, with high anticipated evaporation and entrainment rates, exclusion zones are not expected to be long-term and are unlikely to result in significant impacts to other marine users.

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First Nation Heritage
Exposure Evaluation:
Sea Country, often known as saltwater country, refers to locations of the sea with which Aboriginal and Torres Strait Islander peoples have a special connection. It is a sea and land estate comprising sacred locations inhabited by ancient creatures who reside in both the physical and spiritual worlds. Aboriginal and Torres Strait Islander cultural identity, health, and wellbeing are valued in Sea Country (DNP 2018a, 2018b). Relevant First Nations groups were engaged during consultation (Section 5), however, there were no concerns raised regarding hydrocarbon spill as the spill modelling predicts no shoreline exposure. The Australian Marine Conservation Society requested information on the potential impacts and risks in relation to Sea Country and other areas of marine or terrestrial Aboriginal cultural significance and/or heritage, which Eni provided during the consultation period. Sea Country is valued for First Nations cultural identity, health, and wellbeing (Section 4.6.8). Across Australia, First Nations people have been sustainably using and managing their Sea Country for tens of thousands of years. First Nations Heritage consisting of Cultural Heritage Values and Sea Country are considered as socially important receptors. These include coastal and marine Aboriginal heritage sites and places, some of which are registered Aboriginal sites and sacred sites. An unplanned large-scale spill has the potential to impact First Nations Heritage consisting of Cultural Heritage Values including coastal areas and Sea Country. Maintaining relationships and facilitating ongoing discussions with First Nations people and communities connected to Sea Country allows for opportunities for ongoing improvements to spills preparedness, prevention and mitigation, building resilience and capacity in the community as well as the protection of socially important receptors. Coastal areas and Sea Country are most likely to be affected in the event of an unplanned large-scale spill such as loss of well containment compared to a small-scale spill of MDO as considered the worst-case credible scenario for the activities within this EP. An unplanned large-scale spill will impact Sea Country for a period, while the spill disperses and weathers. Impacts following a MDO release to the range of species to which First Nation people may have cultural connections to has been discussed throughout this table. Section 4.6.8 provides information on First Nation people's knowledge and First Nations Heritage specific to this region and Section 5.5.3 discusses Eni's approach to engaging First Nation people and other relevant persons in such conversation. It must be noted that the likelihood of a hydrocarbon spill occurring is assessed as highly unlikely and the actual area that may be affected from any single spill event would be considerably smaller than represented by the EMBA. Combining Traditional Owner knowledge and spill modelling data that considers geographic and metocean data as well as hydrocarbon exposure types, thresholds, concentrations, transport, dispersal, fate, and weathering assists with understanding potential impacts on social receptors in the EMBA or ZPI. The Marri-Jabin, Balangarra and Uunguu IPAs intersect the EMBA. The sea component of these IPAs may be contacted from surface and in-water (dissolved and entrained) hydrocarbon exposure (Section 8.5.2.6). Hydrocarbon exposure (surface and in-water) may have the potential to impact the aesthetic, cultural value, and significance of Sea Country by the presence of physical hydrocarbons or the presence of oil spill responders.

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Predicted Impact:	
Surface	In-water
Visible surface hydrocarbons have the potential to reduce the visual amenity of known culturally significant values identified within the marine environment, subsequently potentially impacting the value of the site to First Nations people. Refer also to: • Seabirds and shorebirds; • Marine reptiles; and • Marine Mammals.	First Nations people's intangible and tangible cultural values could potentially be impacted by exposure to hydrocarbons. See Section 4.6.8 for further details of the values. In-water exposure at relevant thresholds may impact culturally important species to First Nations peoples, such as cetaceans, marine reptiles, fish which may impact the cultural value of the species and cultural obligation to care for Country. Hydrocarbon exposure (dissolved and entrained) may have the potential to impact the aesthetic, cultural value, and significance of Sea Country by the presence of physical hydrocarbons or the presence of oil spill responders. The Marri-Jabin, Balanggarra and Uunguu IPAs are shown to intersect with the EMBA (Section 4.6.8.1). Therefore, impacts to First Nations people's sensitivities or values of IPAs may occur. However, significant impacts are not anticipated given the hydrocarbon characteristics of the MDO indicating that high rates of weathering will occur within the first few days (Section 8.5.2.3), limiting the exposure to these sensitivities and values. The 10ppb low entrained exposure threshold (used to define the extent of the EMBA) represents the very lowest concentration and corresponds generally with the lowest trigger levels for chronic exposure for entrained hydrocarbons in water quality guidelines, no ecological impacts are anticipated at this threshold. It is considered highly unlikely that there will be long-term impacts to First Nations activities from contact at the low entrained threshold. Furthermore, the spill scenario is expected to be localised and short-term, with the MDO evaporating within the first few days. As evaluated above, impacts and risks to First Nations values are not expected to result in widespread long-term impacts to Sea Country, ecosystem functions and integrity, or culturally significant species populations.

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	Refer also to: • Benthic Habitats and Communities; • Marine Invertebrates; • Seabirds and Shorebirds; • Fish and Sharks; • Marine Reptiles; and • Marine Mammals.
Predicted Impact Summary:	
First Nations people's connection to Sea Country could potentially be impacted by exposure to hydrocarbons. However, due to the characteristics of the spill scenario, and the open water conditions of the Operational Area, the MDO is anticipated to rapidly disperse through the mixing of surface waters and near surface waters, driven by tidal current and wave action. Consequently, the potential impacts and risks to underwater cultural heritage receptors from an accidental spill of MDO following a vessel collision event are expected to result in localised short-term impacts to socio-economic activities.	

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8.5.3.6 Residual Risk Summary

The worst-case residual severity to benthic habitats and communities, marine fauna, protected and significant areas, and socioeconomic and cultural receptors assessed on the worst-case credible scenario (WCCS) of an accidental release of MDO is evaluated as Local (3), given the hydrocarbon characteristics, water depths, transient nature of the marine fauna, and the offshore open water environment of the petroleum activity.

The likelihood of impacts to these receptors occurring as a result of the activities is considered Very Rare (A).

Therefore, the residual risk of an accidental release of hydrocarbons due to the petroleum activities is considered Low.

8.5.4 Environmental Performance Outcomes and Control Measures

EPOs relating to this event include:

- No loss of containment of hydrocarbons to the marine environment (EPO-14).

CMs relating to this risk include:

- Navigation equipment and procedures (CM-05);
- Consultation with relevant persons (including notification requirements) (CM-06);
- Vessel fuel quality (CM-10);
- Management of Maritime Operations and Service (OPI-OPE-083-ENI-SPA-R01) (CM-13);
- NOPSEMA-accepted OPEP and OSMP (CM-29); and
- Vessel SOPEP/emergency management plan (CM-30).

EPSs and MC relating to the above are presented in Section 9.1.

8.5.5 As Low as Reasonably Practicable Demonstration

Demonstration of ALARP			
Type	Control management	Evaluation	Adoption?
Eliminate	Eliminate the use of vessels in the Operational Area	Vessel use is required to carry out the activities and cannot be eliminated.	×

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Demonstration of ALARP			
Type	Control management	Evaluation	Adoption?
Substitute	Vessel fuel quality (in oil) and compliance with Marine Order 97)	MDO is lighter than other types of fuels (e.g., heavy fuel oil) and will evaporate faster and persist less in the marine environment. MDO is already used on the vessels in accordance with Marine Orders. Minimal cost as vessels required to comply with Marine Orders.	✓ (CM-10)
Engineering	Navigation equipment and procedures	Ensures the vessels are seen by other marine users. Reduces risk of environmental impact from vessel collisions due to ensuring safety requirements are fulfilled. Negligible costs of operating navigational equipment. Marine Orders requires vessels to have navigational equipment to avoid collisions.	✓ (CM-05)
	Contract double-hulled vessels only	Double-hulled vessels only would provide additional protection to the fuel tanks. Vessels are subject to availability and are required to meet Eni standards. Double-hull requirement would be of high cost and subject to vessel availability, which could cause project delay.	✗
Isolation	N/A	N/A	N/A
Administrative	Consultation with relevant persons (refer Section 5)	Relevant persons consultation ensures marine users are aware of the activities, reducing the likelihood of collisions or unplanned interactions. Provides marine users an opportunity to request practicable interface control measures. Enables identification of potential Sea Country protection and enhancement initiatives, and implementation where practicable. In order to ensure Eni activities do not conflict with Defence training in the future, Eni will notify Defence a minimum of five weeks before the actual commencement of activities. Notification will need to be provided to offshore.petroleum@defence.gov.au . Minor administrative costs in notifying Defence. Ensures Defence is aware of the activities, reducing the likelihood of interactions.	✓ (CM-06)
	NOPSEMA-accepted OPEP and OSMP	Implements response plans to manage an unplanned hydrocarbon release quickly and efficiently to reduce impacts to the marine environment. An accepted OPEP is a legislative requirement under the OPGGS Act.	✓ (CM-29)

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Demonstration of ALARP			
Type	Control management	Evaluation	Adoption?
	Vessel SOPEP / emergency management plan	Environmental benefit outweighs minor costs in implementing and testing the vessel spill response plan (SOPEP), which contains plans to prevent spills reaching the marine environment. A SOPEP is a requirement under MARPOL Annex 1 (all vessels larger than 400 gross tonnage have a SOPEP or SMPEP outlining options to control the source of a hydrocarbon spill).	✓ (CM-30)
	Management of Maritime Operations and Service (OPI-OPE-083-ENI-SPA-R01)	Ensures vessels meet Marine assurance standards to reduce the likelihood of an unplanned spill.	✓ (CM-13)

8.5.6 Acceptability Demonstration

Demonstration of acceptability	
Compliance with Legal Requirements, Laws and Standards	Physical presence of Petrel activities is managed to avoid spill risks in accordance with relevant legislative requirements, including compliance with international requirements, maritime conventions, Australian legislation including the OPGGS. For activities which pose a risk of a vessel collision, these include the following: • International Convention on Standards of Training, Certification and Watchkeeping for Seafarers 1978; • International Convention for the Safety of Life at Sea 1974; • International Regulations for Preventing Collisions at Sea 1972; and • <i>Navigation Act</i> 2012, including, as appropriate to vessel class: • Marine Order 21: Safety and emergency arrangements); • Marine Order 30: Prevention of collisions); and • Marine Order 71: Masters and deck officers. EPBC approval conditions, under the <i>EPBC Act</i> 1999 were considered for this risk. Condition number 3 relates to potential spills. The Petrel Survey OPEP (ENI-HSE-PL-0002_01) is considered to meet this condition.
Policy Compliance	The management of loss of hydrocarbons is aligned with Eni policies and standards. The EPOs, CMs and EPSs that will be implemented are consistent with Eni internal requirements.
Social Acceptability	Stakeholders have been consulted. The Australian Marine Conservation Society requested information on the potential impacts and risks in relation to Sea Country and other areas of marine or terrestrial Aboriginal cultural significance and/or heritage, which Eni provided during the consultation period (APPENDIX C). An ongoing consultation program will consider statements and claims made by stakeholders when assessing impacts and risks.

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Demonstration of acceptability	
ESD Principles	The risk of this unplanned event is consistent with the principles of ESD because: • The worst-case impact residual risk associated with this aspect is Low. • Precautionary Principle: There are no threats of serious or irreversible environmental damage. Conservative assumptions on scale of impact have been applied (see Section 8.5.5 for further details). • Intergenerational Principle: Impacts from this aspect will not forego the health, diversity and productivity of the environment for future generations. • Biodiversity Principle: Impacts from this aspect are not considered to have the potential to affect biological diversity or ecological integrity.
Area Sensitivity/ Biodiversity	Analysis of the WCCS (MDO spill) has identified the following. There are BIAs for 4 marine turtle species; and BIAs for 3 seabird species that overlap the EMBA. There are 3 marine parks (Ocean Shoals AMP, Joseph Bonaparte AMP and Kimberly AMP), and 3 KEFs that overlap the EMBA. There are no National Heritage Places or Ramsar wetlands within the EMBA. The EMBA does not contact the shoreline. Eni has considered information contained in relevant recovery plans and approved conservation advice for EPBC Act listed species that identify chemical discharges, pollution and habitat degradation or modification as a threat (as listed in Table 2-2: Summary of the purpose of management plans, recovery plans and conservation advice). This includes: Conservation Advice: • Approved Conservation Advice for <i>Sousa sahalensis</i> (Australian humpback dolphin) • Conservation Advice for <i>Orcaella heinsohni</i> (Australian snubfin dolphin) • Approved Conservation Advice for <i>Balaenoptera borealis</i> (Sei Whale) • Approved Conservation Advice for <i>Balaenoptera physalus</i> (Fin Whale) • Approved Conservation Advice for <i>Dermochelys coriacea</i> (Leatherback Turtle) • Approved Conservation Advice on <i>Aipysurus foliosquama</i> (Leaf-Scaled Sea Snake) • Approved Conservation Advice for <i>Aipysurus apraefrontalis</i> (Short-nosed Sea Snake) • Approved Conservation Advice for <i>Pristis clavate</i> (Dwarf Sawfish) • Approved Conservation Advice for Green Sawfish • Approved Conservation Advice for <i>Pristis pristis</i> (Large Tooth Sawfish) • Approved Conservation Advice for <i>Glyphis garricki</i> (Northern River Shark) • Approved Conservation Advice for <i>Glyphis glyphis</i> (Speartooth Shark) • Approved Conservation Advice for <i>Rhincodon typus</i> (Whale Shark). Recovery/Management Plans The petroleum activity is consistent with the objectives and actions of the plans identified below through adoption of EPO-14 and the control measures outlined in Section 2.1.2.2: • Conservation Management Plan for the Blue Whale 2015–2025 (DoE, 2015) identifies habitat modification, including acute and chronic chemical discharge, as a threat. There are no BIAs for the blue whale overlapping the EMBA. There are no explicit relevant management actions in this plan. The petroleum activity is consistent with the long-term recovery objective to 'minimise anthropogenic threats to allow the conservation status of the blue whale to improve so that it can be removed from the threatened species list under the EPBC Act' through the adoption of the EPO. • Recovery plan for Marine Turtles in Australia (CoA, 2017) identifies acute chemical and terrestrial discharge as a threat. Foraging BIAs for the green, flatback, loggerhead and Olive Ridley turtle overlap the EMBA. Action Area

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Demonstration of acceptability	
	A4 to minimise chemical and terrestrial discharge is met through the adoption of the EPO. • Sawfish and River Shark Multispecies Recovery Plan (CoA, 2015) lists habitat degradation or modification as a threat. No habitat critical or BIAs have been identified for sawfish or river sharks within the EMBA. The petroleum activity is consistent with Objective 5 of this plan to 'reduce and, where possible, eliminate adverse impacts of habitat degradation and modification on sawfish and river shark species', through adoption of the EPO. • Recovery Plan for the White Shark (<i>Carcharodon carcharias</i>) (2013) identifies habitat modification as a threat. No habitat critical or BIAs have been identified for white sharks within the EMBA. The petroleum activity is consistent with the objective of this plan to ensure anthropogenic activities do not hinder recovery in the near future, or impact on the conservation status of the species in the future through adoption of the EPO. • Recovery Plan for the Grey Nurse Shark (<i>Carcharias taurus</i>) (DoE, 2014a) identifies pollution as a threat. No habitat critical or BIAs for the grey nurse shark have been identified in the EMBA. The petroleum activity is consistent with the objective of this plan to ensure anthropogenic activities do not hinder recovery in the near future, or impact on the conservation status of the species in the future, through the adoption of the EPO. Australian Marine Park zoning principles and objectives were also considered: • North Marine Parks Network Management Plan (2018). Recovery Plans/Conservation Advice for other EPBC Act listed threatened and migratory species that may occur in the ZPI or EMBA do not identify chemical discharges, pollution and habitat degradation or modification as a key threat or have explicit relevant objectives or management actions related to these threats. The control measures outlined in Section 8.5.4 are consistent with the objectives and actions in these publications. The petroleum activities are not inconsistent with the objectives and actions in the relevant recovery plans/conservation advice.
ALARP	The residual risk has been demonstrated to be ALARP.

The worst-case residual severity to benthic habitats and communities, marine fauna, protected and significant areas, socioeconomic and cultural receptors assessed on the WCCS of an accidental release of MDO is evaluated as Local (3), given the hydrocarbon characteristics, water depths, transient nature of the marine fauna, and the offshore open water environment of the petroleum activity. Controls have been evaluated above and adopted in accordance with the ALARP criteria. The residual risk ranking is Low. This is acceptable in accordance with Eni's acceptability criteria (Table 6-4).

No additional controls were identified to further reduce risk. Given the low potential risk and the controls that will be implemented, Eni considers the risks are acceptable and managed to ALARP.

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8.6 Oil Spill Response Operations

8.6.1 Summary of Environmental Risk Assessment

Hazard	Oil Spill Response Operations		
	Frequency	Severity	Risk
Residual Risk	A	1	Low

8.6.2 Description of Hazard

In the event of a hydrocarbon spill, response strategies will be implemented where possible to reduce environmental impacts to ALARP. The selection of strategies will be undertaken through the Net Environmental Benefit Analysis (NEBA) process, outlined in the OPEP (ENI-HSE-PL-0002_01).

NEBA is the process of considering advantages and disadvantages of different spill response options (including no response) to arrive at a spill response decision resulting in the lowest overall environmental and social impacts. This process acknowledges that some response techniques can result in a negative impact to the environment.

A preliminary NEBA is undertaken at a strategic level to identify pre-determined recommended response strategies, and an operational NEBA is undertaken throughout the emergency response. The process requires the identification of sensitive environmental receptors and the prioritisation of those receptors for protection so that the strategic objectives of the response can be established.

The spill response, including the completion of the operational NEBA, will be under the direction of the relevant Control Agency, as defined within the OPEP (ENI-HSE-PL-0002_01).

Based on the outcomes from the preliminary strategic NEBA, described within the OPEP, the response techniques considered appropriate for this EP include:

- Source control;
- Monitor and Evaluate;
- Oiled Wildlife Response (OWR); and
- Scientific monitoring.

There is no shoreline contact predicted by the spill modelling (Section 8.5.2.6); therefore, shoreline protection and deflection and clean-up strategies are not required.

8.6.2.1 Source Control

Source control arrangements for an accidental release from a vessel requires the activation of the vessels SOPEP/SMPEP (or equivalent), which will be stored on each vessel as required by AMSA Marine Orders Part 21 and/or 91. Techniques may include:

- Containment;

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- Closing watertight doors;
- Checking bulkheads;
- Vessel separation will increase spillage;
- Isolating penetrated tanks; and
- Tank lightening.

8.6.2.2 Monitor and Evaluate

Monitor and evaluate will apply to all marine spills. Higher levels of surveillance such as vessel/aerial surveillance, and oil spill trajectory modelling will only be undertaken for Level 2/3 spills given the nature and scale of the spill risk.

It is the responsibility of the Control Agency to undertake operational monitoring during the spill event to inform the operational response. Operational monitoring may include the following:

- Aerial surveillance;
- Vessel surveillance;
- Oil Spill Trajectory Modelling (OSTM);
- Satellite Tracking Buoys; and
- Satellite surveillance.

For vessel-based spills, the responsibility for operational monitoring lies with AMSA (Commonwealth waters) and the relevant control agency (for State/Territory waters). For spills from hydrocarbon infrastructure this is the responsibility of the operator.

8.6.2.3 Oiled Wildlife Response

Due to the characteristics of the MDO being a light, non-persistent hydrocarbon, and the small volume release, large numbers of oiled wildlife are unlikely to occur. The potential impacts that may occur in the unlikely event that an Oiled Wildlife Response (OWR) is required has been assessed below as a cautionary measure. The impacts on wildlife are determined by the types of fauna present, the type of oil spilled and the extent of exposure.

OWR can consists of a number of approaches depending on the response required, including:

- Wildlife reconnaissance - assessment of the wildlife potentially at risk;
- Hazing (deterrence or displacement strategies by auditory, visual, physical deterrents);
- Pre-emptive capture (capture of wildlife at risk prior to oiling and relocation);
- Establishment of any staging centres (if required); and
- Rehabilitation of any oiled fauna (e.g. capture, field stabilisation, transport, veterinary examination, triage, stabilisation, cleaning, rehabilitation, release).

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8.6.2.4 Operational and Scientific Monitoring Program

Eni have developed an Operational and Scientific Monitoring Program (OSMP) to meet the requirements of the OPGGS(E) Regulations (ENI-HSE-PL-0003_01). The OSMP is the principal tool for determining the extent, severity, and persistence of environmental impacts from an oil spill and allows titleholders to determine whether their environmental protection goals are met.

OSMP techniques vary, depending on the type of spill, location and status of the response. The use of vessels and aircraft may be required to undertake the techniques identified within the OSMP (ENI-HSE-PL-0003_01).

8.6.3 Potential Environmental Impact

Potential risks that may arise through the implementation of response strategies are summarised in

Table 8-9: Potential hazards from oil spill response techniques

Potential Hazards	Oil Spill Response Techniques			
	Source control	Monitor and Evaluate	Oiled Wildlife Response	Operational and Scientific Monitoring
Vessel operations	✓	✓	✓	✓
Light emissions	✗	✓	✓	✓
Noise emissions	✗	✓	✓	✓
Atmospheric emissions	✗	✓	✓	✓
Operational discharges	✗	✓	✓	✓
Interaction with marine fauna	✓	✓	✓	✓

The potential impacts and risks associated with vessel and aircraft activities, such as those identified within Table 8-9, are similar to those already evaluated with in Section 7 and 8 of this EP. Due to the nature and scale of these activities, the evaluation is considered appropriate for any impacts and risks that may occur during source control, monitor and evaluate, and operational and scientific monitoring response activities. Therefore, these have not been considered further.

The environmental impacts that may arise as a result of OWR will be evaluated within this section as they have not been assessed previously in this EP. These include:

- Change in fauna behaviour; and
- Injury / mortality to fauna.

8.6.3.1 Marine Fauna

Change in fauna behaviour

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Hazing of wildlife from impacted areas will result in a change of fauna behaviour. The presence of deliberate noise, such as auditory deterrence devices, may result in disturbance to species feeding, breeding, nesting, or resting. The physical displacement and exclusion of species may have a negative impact to a species if they can no longer access suitable feeding or breeding areas nearby. Exclusion from breeding sites and disrupting the ability for the species to return to a certain site may cause increased stress to be species, particularly species with high site fidelity.

Given the absence of shoreline contact and offshore islands within the EMBA, any OWR required is not anticipated to impact breeding or nesting sites; however, it is possible that impacts to species transiting or using the area for mating or foraging may occur (see Section 4.4.4 for further details of BIAs present within the EMBA). Therefore, OWR is expected to result in localised, short-term impacts to individuals and not affect species population or general ecosystem functioning.

Injury / mortality of marine fauna

Incorrect handling of native marine fauna during capture, transportation, cleaning or rehabilitation steps has the potential to result in increased stress, injury, or mortality. To prevent these impacts, only authorised oiled wildlife responders, will approach and handle fauna. This will eliminate any handling impacts to fauna from untrained personnel and reduce the potential for distress, injury or death of a species. Furthermore, only trained response personnel from Eni, AMSA, Australian Marine Oil Spill Centre (AMOSOC), the relevant state Control Agencies, and subject matter experts will be used to implement the response strategies to ensure best practice is undertaken and the risks are reduced.

Interactions with marine fauna are only expected to be limited to the duration of the response. Given, the nature and scale of the worst-case spill scenario identified for the activities within this EP, any impact are not expected to affect species population or general ecosystem functioning.

8.6.3.2 Residual Risk Summary

The worst-case residual severity to marine fauna from spill response operations is evaluated as Negligible (1), given the relatively small scale of response that would be implemented.

The likelihood of an impact to marine fauna occurring as a result of oil spill response operations is considered Very Rare (A).

Therefore, the residual risk of oil spill operations due to the petroleum activities is considered Low.

8.6.4 Environmental Performance Outcomes and Control Measures

EPOs relating to this event include:

- Activities are managed in accordance with navigational and safety requirements (EPO-03);
- No significant decrease in air quality (EPO-04);
- No injury or mortality to EPBC Act listed fauna during operational activities (EPO-05);

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- No unplanned discharges to sea of untreated sewage, greywater, putrescible wastes, bilge, and deck drainage (EPO-09)
- No unplanned discharge of oily water or chemicals (EPO-10);
- No unplanned objects, emissions or discharges to sea or air (EPO-13);
- Reduce impacts from oil spill response operations through incident planning (EPO-15); and
- No unplanned interactions with other users (EPO-16).

CMs relating to this risk include:

- Navigation equipment and procedures (CM-05);
- International air pollution prevention certificate (CM-11);
- Vessel fuel quality (CM-10);
- Regulations and measures for interacting with marine fauna (CM-15);
- Vessels comply with Marine Order 96 (Marine pollution prevention – sewage) (CM-18);
- Vessels comply with Marine Order 95 (Marine pollution prevention – garbage) (CM-19);
- Vessels comply with Marine Order 91 (Marine pollution prevention – oil) (CM-20);
- NOPSEMA-accepted OPEP and OSMP (CM-29);
- Vessel SOPEP/emergency management plan (CM-30); and
- Trained Oiled Wildlife Responders (CM-32).

EPSs and MC relating to the above are presented in Section 9.

For EPOs, EPSs and MCs relating to spill response in the event of a spill during this activity, refer to the Petrel Survey OPEP (ENI-HSE-PL-0002_01) and OSMP (ENI-HSE-PL-0003_01).

8.6.5 As Low as Reasonably Practicable Demonstration

Demonstration of ALARP			
Type	Control management	Evaluation	Adoption?
Eliminate	N/A	N/A	N/A
Substitute	Vessel fuel quality (in compliance with Marine Order 97)	Reduces emissions through use of low sulphur fuel in accordance with Marine Order 97. Minimal cost as vessels are required to comply with Marine Orders.	✓ (CM-10)
Engineering	Navigation equipment and procedures	Ensures the vessels are seen by other marine users, thereby reducing the risk of collisions. A requirement under Marine Orders, requires vessels to have navigational equipment to avoid collisions.	✓ (CM-05)

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Demonstration of ALARP			
Type	Control management	Evaluation	Adoption?
	Vessels are equipped with oily water prevention system and IMO-approved oil filtering equipment	Reduces potential impacts of planned discharge of oily water to the environment with minor administrative and maintenance cost. In compliance with Marine Order 91.	✓ (CM-20)
Isolation	Capture of contaminated waters/bilge water on vessels	Fixed equipment, such as engines and generators, are contained and captured in the bilge water tank for treatment via the OIW separator (on vessels). In compliance with Marine Order 91.	✓ (CM-20)
Administrative	International air pollution prevention certificate (in compliance with Marine Order 97)	Reduces probability of potential impacts to air quality. Minimal cost as vessels are required to comply with Marine Orders.	✓ (CM-11)
	Regulations and measures for interacting with marine fauna (e.g., EPBC Regulations 8 (Part 8))	Minor cost in complying. Reduces risk of physical and behavioural impacts to marine fauna. While not directly relating to survey noise, EPBC Regulations include restrictions such as vessel speed and direction when in proximity to marine fauna and are based on legislated requirements.	✓ (CM-15)
	Implementation of measures in Marine Order 95 (Marine pollution prevention – garbage)	Marine Order 95 reduces potential impacts of inappropriate discharge of sewage. Stipulates putrescible (food) waste disposal conditions and limitations. Environmental benefit outweighs the minor administrative costs in implementing the Marine Order.	✓ (CM-19)
	Implementation of measures in Marine Order 96 (Marine pollution prevention – sewage)	Marine Order 96 reduces the probability of garbage being discharged to sea. Environmental benefit outweighs the minor administrative costs in implementing the Marine Order.	✓ (CM-18)
	Vessels comply with Marine Order 91 (Marine pollution prevention – oil)	Marine Order 91 stipulates the oily water prevention system and treatment requirements for OIW discharge from vessels. Environmental benefit outweighs the minor administrative costs in implementing the Marine Order.	✓ (CM-20)

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Demonstration of ALARP			
Type	Control management	Evaluation	Adoption?
	Competent Incident Management Team (IMT) and oil spill responder personnel	Considered a standard spill response control. IMT establishment identified within the OPEP. An accepted OPEP is a legislative requirement under the OPGGS Act.	✓ (CM-29)
	Vessel SOPEP/emergency management plan	Environmental benefit outweighs minor costs in implementing and testing the vessel spill response plan (SOPEP), which contains plans to prevent spills reaching the marine environment. A SOPEP is a requirement under MARPOL Annex 1 (all vessels larger than 400 gross tonnage have a SOPEP or SMPEP outlining options to control the source of a hydrocarbon spill).	✓ (CM-30)
	NOPSEMA-accepted OPEP and OSMP	Implement spill response preparedness, training, competency and control measures as per NOPSEMA-accepted OPEP and OSMP. Regulatory requirement.	✓ (CM-29)
	Trained Oiled Wildlife Responders.	Only trained responders to undertake oiled wildlife response activities as required under the direction of the Control Agency.	✓ (CM-32)

8.6.6 Acceptability Demonstration

Demonstration of acceptability	
Compliance with Legal Requirements, Laws and Standards	Response vessels will comply with the EPBC Regulations 2000 Part 8 and the Australian National Guidelines for Whale and Dolphin Watching (DEE, 2017b). Response vessels will comply with relevant MARPOL/Marine Order requirements as detailed throughout Sections 7 and 8.
Policy Compliance	The management of response operations is aligned with Eni policies and standards. The residual risk is Low, which is acceptable. The EPO and the controls that will be implemented are consistent with Eni internal requirements
Social Acceptability	To date, no relevant person concerns have been raised regarding spill response operations (refer Section 5). An ongoing consultation program will consider statements and claims made by stakeholders when assessing impacts and risks.
Area Sensitivity/ Biodiversity	There are BIAs for 4 marine turtle species; and BIAs for 3 seabird species that overlap the EMBA. There are 3 marine parks and 3 KEFs that overlap the EMBA. There is one National Heritage Places within the EMBA. No Ramsar Wetlands overlap the EMBA. The EMBA does not contact the shoreline. Eni has considered information contained in relevant recovery plans and approved conservation advice for EPBC Act listed species that identify chemical discharges,

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Demonstration of acceptability

pollution and habitat degradation or modification as a threat (as listed in Table 2-3), which may result from spill response operations. This includes:

Conservation Advice:

- Approved Conservation Advice for *Sousa sahalensis* (Australian humpback dolphin)
- Conservation Advice for *Orcaella heinsohni* (Australian snubfin dolphin)
- Approved Conservation Advice for *Balaenoptera borealis* (Sei Whale)
- Approved Conservation Advice for *Balaenoptera physalus* (Fin Whale)
- Approved Conservation Advice for *Dermochelys coriacea* (Leatherback Turtle)
- Approved Conservation Advice on *Aipysurus foliosquama* (Leaf-Scaled Sea Snake)
- Approved Conservation Advice for *Aipysurus apraefrontalis* (Short-nosed Sea Snake)
- Approved Conservation Advice for *Pristis clavate* (Dwarf Sawfish)
- Approved Conservation Advice for Green Sawfish
- Approved Conservation Advice for *Pristis pristis* (Large Tooth Sawfish)
- Approved Conservation Advice for *Glyphis garricki* (Northern River Shark)
- Approved Conservation Advice for *Glyphis glyphis* (Speartooth Shark)
- Approved Conservation Advice for *Rhincodon typus* (Whale Shark).

Recovery/Management Plans

The petroleum activity is consistent with the objectives and actions of the plans identified below through adoption of EPO-03, EPO-04, EPO-05, EPO-09, EPO-10, EPO-13, EPO-15 and EPO-16 and the control measures outlined in Section 2.1.2.2:

- Conservation Management Plan for the Blue Whale 2015–2025 (DoE, 2015) identifies habitat modification, including acute and chronic chemical discharge, as a threat. There are no BIAs for the blue whale overlapping the EMBA. There are no explicit relevant management actions in this plan. The petroleum activity is consistent with the long-term recovery objective to 'minimise anthropogenic threats to allow the conservation status of the blue whale to improve so that it can be removed from the threatened species list under the EPBC Act' through the adoption of the EPO.
- Recovery plan for Marine Turtles in Australia (CoA, 2017) identifies acute chemical and terrestrial discharge as a threat. Foraging BIAs for the green, flatback, loggerhead and Olive Ridley turtle overlap the EMBA. Action Area A4 to minimise chemical and terrestrial discharge is met through the adoption of the EPO.
- Sawfish and River Shark Multispecies Recovery Plan (CoA, 2015) lists habitat degradation or modification as a threat. No habitat critical or BIAs have been identified for sawfish or river sharks within the EMBA. The petroleum activity is consistent with Objective 5 of this plan to 'reduce and, where possible, eliminate adverse impacts of habitat degradation and modification on sawfish and river shark species', through adoption of the EPO.
- Recovery Plan for the White Shark (*Carcharodon carcharias*) (2013) identifies habitat modification as a threat. No habitat critical or BIAs have been identified for white sharks within the EMBA. The petroleum activity is consistent with the objective of this plan to ensure anthropogenic activities do not hinder recovery in the near future, or impact on the conservation status of the species in the future through adoption of the EPO.
- Recovery Plan for the Grey Nurse Shark (*Carcharias taurus*) (DoE, 2014a) identifies pollution as a threat. No habitat critical or BIAs for the grey nurse shark have been identified in the EMBA. The petroleum activity is

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Demonstration of acceptability	
	consistent with the objective of this plan to ensure anthropogenic activities do not hinder recovery in the near future, or impact on the conservation status of the species in the future, through the adoption of the EPO. Australian Marine Park zoning principles and objectives were also considered: • North Marine Parks Network Management Plan (2018). Recovery Plans/Conservation Advice for other EPBC Act listed threatened and migratory species that may occur in the ZPI or EMBA do not identify chemical discharges, pollution and habitat degradation or modification as a key threat or have explicit relevant objectives or management actions related to these threats. The control measures outlined in Section 8.6.4 are consistent with the objectives and actions in these publications. The petroleum activities are not inconsistent with the objectives and actions in the relevant recovery plans/ conservation advice.
ESD Principles	Petrel response operations are consistent with the principles of ESD because: The worst-case residual risk associated with this aspect is Low. • Precautionary Principle: There are no threats of serious or irreversible environmental damage. Conservative assumptions on scale of impact have been applied. • Intergenerational Principle: Impacts from this aspect will not forego the health, diversity and productivity of the environment for future generations. • Biodiversity Principle: Impacts from this aspect are not considered to have the potential to affect biological diversity or ecological integrity.
ALARP	The residual risk has been demonstrated to be ALARP.

Given the controls that will be implemented, the residual risk is considered Low, which is acceptable in accordance with Eni's acceptability criteria (Table 6-4). Potential impacts are acceptable and ALARP.

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9 ENVIRONMENT OUTCOMES, STANDARDS AND MEASUREMENT CRITERIA

Section 21(7) of the OPGGS Regulations requires an EP to include EPOs, EPSs and MC that:

- Address legislative and other controls that manage environmental features of the activity;
- Define objectives and set standards for measuring Eni's performance in protecting the environment during its operations; and
- Include measurement criteria for assessing whether performance outcomes and standards have been met.

The terms used for measuring the environmental performance are defined below:

- EPO – is a statement of the goal that Eni aims to achieve with regard to the management of a given hazard;
- EPS – is a statement of performance required of a system, an item of equipment, a person or a procedure that is used as a basis for managing environmental risk. Generally, a number of standards may relate to a single objective; and
- MC – defines how the application of the performance standard will be verified. Several measurement criteria may relate to a single performance standard. Measurement criteria are defined in a manner that enables efficient inspection and audit against the performance outcomes and allows for an audit trail.

To ensure environmental risks and impacts will be of an acceptable level, EPOs have been defined and are listed in Table 9-1: Environmental Performance Outcomes. These outcomes will be achieved by implementing the identified control measures to the defined EPSs.

Table 9-1: Environmental Performance Outcomes

Reference	Environmental Performance Outcomes
EPO-01	Seabed disturbance is limited to planned activities.
EPO-02	Information is provided to relevant persons to manage impacts on their functions, interests, and activities.
EPO-03	Activities are managed in accordance with navigational and safety requirements.
EPO-04	No significant decrease in air quality.
EPO-05	No injury or mortality to EPBC Act listed fauna during operational activities.
EPO-06	Underwater noise emissions will not displace marine turtles from identified habitat critical to the survival of the species ¹²

¹² Where habitat critical to the survival of marine turtle species is defined in Table 6 of the Recovery Plan for Marine Turtles in Australia (CoA, 2017c).

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Reference	Environmental Performance Outcomes
EPO-07	Underwater noise emissions will allow marine turtles to continue to undertake biologically important behaviours ¹³ .
EPO-08	Light emissions will not displace marine turtles from identified habitat critical to the survival of the species ¹⁴ .
EPO-09	No unplanned discharges to sea of untreated sewage, greywater, putrescible wastes, bilge, and deck drainage.
EPO-10	No unplanned discharge of oily water or chemicals.
EPO-11	Reduce impacts on other marine users through the provision of information to relevant stakeholders such that they are able to plan for their activities and avoid unexpected interference.
EPO-12	No introduction of invasive marine species.
EPO-13	No unplanned objects, emissions or discharges to sea or air.
EPO-14	No loss of containment of hydrocarbons to the marine environment.
EPO-15	Reduce impacts from oil spill response operations through incident planning.
EPO-16	No unplanned interactions with other users.

9.1 Control Measures and Performance Standards

The CMs that will be used to manage identified environmental impacts and risks, and the associated statements of performance required of the control measure (as in, EPSs) are listed in Table 9-2.

A separate set of performance standards based on the oil spill response operational control measures are included in the Petrel Survey OPEP (ENI-HSE-PL-0002_01).

¹³ Where biologically important behaviours are defined as behaviour associated with critical life functions (e.g. reproduction, foraging, migration, and resting) in the Recovery Plan for Marine Turtles in Australia (CoA, 2017c).

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Table 9-2: Control measures and environmental performance standards

Control measure	Environmental performance standard	Measurement criteria	EPO Reference (Table 9-1)
CM-01 Recovery of all deployed equipment	EPS-1.1 All equipment deployed during any activity will be recovered.	MC-1.1 Survey records show all deployed equipment was recovered.	EPO-01
CM-02 No anchoring of vessels in Operational Area	EPS-2.1 No planned anchoring of vessel(s) within the OA.	MC-2.1 Daily Vessels reports	EPO-01
CM-03 Exclusion zone around SEDCO Helen shipwreck (800m).	EPS-3.1 No planned activities will be undertaken within the 800 m exclusion zone around the SEDCO Helen shipwreck.	MC-3.1 Survey records demonstrate that no planned activities were undertaken within the 800 m exclusion zone around the SEDCO Helen shipwreck.	EPO-01
CM-04 Lifting Management System Procedure (ENI-LOG-PR-017)	EPS-4.1 Lifting operations have been performed in accordance with Lifting Operations Standard (ENI HSE ST 007), including: competency of persons undertaking lift planning and preparation process for undertaking lifts.	MC-4.1 Records show lifting operations were performed in compliance with Lifting Operations Standard (ENI HSE-ST-007).	EPO-01 EPO-05 EPO-13
CM-05 Navigation equipment and procedures	EPS-5.1 Navigation equipment and procedures on vessels compliant (where applicable) with standard maritime safety/navigation procedures including AMSA Marine Order Part 30 (Prevention of Collisions) 2009, including (where applicable): - adhering 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) - adhering to navigation light display requirements, including visibility, light position/shape appropriate to activity	MC-5.1 Vessels have a current (<12 months) International Marine Contractors Association or Offshore Vessel Inspection Database certificate prior to mobilisation and show compliance with the applicable Marine Order requirements.	EPO-02 EPO-03 EPO-04 EPO-05 EPO-09 EPO-10 EPO-13 EPO-15 EPO-16

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Control measure	Environmental performance standard	Measurement criteria	EPO Reference (Table 9-1)
	- adhering to navigation noise signals as required. EPS-5.2 Navigation equipment and procedures on vessels compliant (where applicable) with standard maritime safety/navigation procedures, including AMSA Marine Order Part 21 (Safety of Navigation and Emergency Procedure) 2012, including: - adherence to minimum safe manning levels - maintenance of navigation equipment in efficient working order (compass/radar) - navigational systems and equipment required are those specified in Safety of Life at Sea (SOLAS) Chapter V (Regulation 19) - installation of Automatic Identification System as required by vessel class in accordance with SOLAS Chapter V (Regulation 19).		
CM-06 Consultation with relevant persons (including notification requirements)	EPS-6.1 Eni has provided consultation update to relevant persons, and all correspondence has been recorded in the consultation database.	MC-6.1 Consultation records of transmittal and stakeholder database show all correspondence between Eni and relevant persons.	EPO-02 EPO-03 EPO-14 EPO-13
	EPS-6.2 The Australian Hydrographic Office (AHO) is notified four weeks prior to commencing activities so they can then issue a Notice to Mariners.	MC-6.2 Records show a notice to AHO completed 4 weeks prior to commencement.	EPO-02 EPO-03 EPO-10 EPO-13
	EPS-6.3 The AMSA ARC (as part of marine safety division) will be notified of the activities four weeks prior to mobilisation to ensure	MC-6.3 Records show a notice to AMSA ARC completed 4 weeks prior to commencement.	EPO-02 EPO-03 EPO-10 EPO-13

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Control measure	Environmental performance standard	Measurement criteria	EPO Reference (Table 9-1)
	navigation AUSCOAST warnings can be issued and kept up to date.		
CM-07 Eni petroleum activities SIMOPS management	EPS-7.1 A SIMOPS plan will be developed to outline the relevant procedures for managing more than one Eni contracted vessel undertaking a petroleum activity within the Operational Area at the same time.	MC-7.1 Records confirm that the SIMOPS plan is in place and adhered to in situations where more than one Eni contracted vessel is undertaking a petroleum activity within the Operational Area at the same time.	EPO-02 EPO-03
CM-08 Avoid SIMOPs with Santos Eos 3D MSS	EPS-8.1 SIMOPS with any Santos Eos 3D MSS activity overlapping the Operational Area will be avoided as far as reasonably practicable. In the event SIMOPS cannot be avoided, a SIMOPS plan will be developed to outline the relevant procedures for managing simultaneous survey activities.	MC-8.1 Records confirm that a SIMOPS plan is in place and adhered to in situations where SIMOPS with the Santos Eos 3D MSS activity overlapping the Operational Area cannot be avoided.	EPO-02 EPO-03 EPO-05 EPO-06 EPO-07
CM-09 Waste Incineration	EPS-9.1 Vessels' incinerators are managed in accordance with Marine Order 97. Ensure vessels incinerator are managed in a way that is responsible and as per international standards.	MC-9.1 Completed waste record book / recording system or completed inspection checklist.	EPO-04
CM-10 Vessel fuel quality (in compliance Marine Order 97)	EPS-10.1 Low sulphur fuel is used on vessels, in accordance with Marine Order 97.	MC-10.1 Records of fuel type for vessels show use of low sulphur fuel (in accordance with Marine Order 97).	EPO-02 EPO-03 EPO-04 EPO-05 EPO-09 EPO-10 EPO-13 EPO-14

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Control measure	Environmental performance standard	Measurement criteria	EPO Reference (Table 9-1)
			EPO-15 EPO-16
CM-11 International air pollution prevention certification	EPS-11.1 Vessels comply with MARPOL 73/78 Annex VI, as applied in Australia under the Commonwealth Protection of the Sea (Prevention of Pollution from Ships) Act 1983 (Part IIID Prevention of air pollution), and Marine Order 97 (marine pollution prevention – air pollution) 2007, as required by vessel class: - vessels will have valid international air pollution prevention certificate where required.	MC-11.1 Vessels records show valid international air pollution prevention certificate where required.	EPO-02 EPO-03 EPO-04 EPO-05 EPO-09 EPO-10 EPO-13 EPO-15 EPO-16
CM-12 Ozone-depleting substance handling procedures (ENI-HSE-PR-029_02)	EPS-12.1 Ozone-depleting substances (ODS) managed in accordance with MARPOL Annexe VI to reduce the risk of an accidental release of ODS to air	MC-12.1 Completed ODS record book or recording system show ODS are managed in accordance with MARPOL Annexe VI.	EPO-04
CM-13 Management of Maritime Operations and Service (OPI-OPE-083-ENI-SPA-R01)	EPS-13.1 Vessels selected and on-boarded are operated, maintained and manned in accordance with Eni Management of Maritime Operations and Services Manual (OPI-OPE-083-ENI-SPA-R01) which includes industry standards (Marine Orders) and regulatory requirements.	MC-13.1 Vessel records show they are operated, maintained and manned in accordance with Marine Orders and regulatory requirements.	EPO-04 EPO-05 EPO-06 EPO-07 EPO-09 EPO-10 EPO-13 EPO-14

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Control measure	Environmental performance standard	Measurement criteria	EPO Reference (Table 9-1)
CM-14 Planned Maintenance System (PMS)	EPS-14.1 Documented maintenance program is in place for equipment on vessels that provides a status on the maintenance of equipment.	MC-14.1 Vessels daily/weekly records show maintenance program and status of maintenance equipment.	EPO-04 EPO-05 EPO-13
		MC-14.2 Computerized Maintenance Management System (CMMS) records show maintenance program and status of maintenance equipment.	EPO-04 EPO-05 EPO-06 EPO-07 EPO-13
		MC-14.3 Vessel contractor written verification demonstrates compliance with PMS.	EPO-04 EPO-05 EPO-06 EPO-07 EPO-13
		MC-14.4 IMCA Common Marine Inspection Document (CMID) show maintenance program and status of maintenance equipment.	EPO-04 EPO-05 EPO-06 EPO-07 EPO-13
	EPS-14.2 Engines and associated equipment that require cooling by water will be maintained in accordance with the vessel PMS so that they are operating within accepted parameters.	MC-14.6 PMS records verify that the equipment is maintained to schedule.	EPO-09 EPO-10
	EPS-14.3 Processing equipment must be capable of commuting food waste to a size of <25mm. The macerator will be maintained in accordance with manufacturer specifications.	MC-14.7 Records show routine completion of maintenance in accordance with manufacturer specifications or preventative maintenance system for the macerators.	EPO-09 EPO-10

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Control measure	Environmental performance standard	Measurement criteria	EPO Reference (Table 9-1)
	EPS-14.4 The Sewage Treatment Plan (STP) will be maintained in accordance with manufacturer specifications.	MC-14.8 Records show routine completion of maintenance in accordance with manufacturer specifications or preventative maintenance system for the STP.	EPO-09 EPO-10
CM-15 Regulations and measures for interacting with fauna	EPS-15.1 EPBC Regulations 2000 – Part 8 for interacting with marine fauna are enforced during the activities, including Part 8 Division 8.1 (Regulation 8.05), which requires that: - a vessel and towed equipment will not travel greater than 6 knots within 300m of a whale or turtle (caution zone) and not approach closer than 100m from a whale - a vessel will not approach closer than 50m of a dolphin or turtle or 100m of a whale (with the exception of animals bow riding). - then the vessel must be immediately stopped and must: - o turns off the vessel's engines, or - o disengages the gears, or - o withdraws the vessel from the caution zone at a constant speed of less than 6 knots.	MC-15.1 Conformance to EPBC Regulations 2000 – Part 8 is checked on receipt of marine fauna sighting datasheets.	EPO-02 EPO-03 EPO-04 EPO-05 EPO-06 EPO-07 EPO-09 EPO-10 EPO-13 EPO-15 EPO-16

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Control measure	Environmental performance standard	Measurement criteria	EPO Reference (Table 9-1)
CM-16 Implementation of EPBC Act Statement 2.1 for marine turtles and mammals	EPS-16.1 An environmental awareness induction for managing marine fauna requirements in accordance with this EP will be provided to crew members onboard vessels.	MC-16.1 Conformance to EPBC Act Statement 2.1 is checked on receipt of marine fauna sighting datasheets. Records indicate that crew members have received an environmental aware induction in accordance with the requirements for managing marine fauna outlined in this EP.	EPO-05 EPO-06 EPO-07
	EPS-16.2 EPBC Act Statement 2.1 procedures are enforced during the activities for marine turtles and mammals including: • Pre start-up visual observation • Soft start • Start-up delay • Operations • Power- down and Stop work • Night-time and Low Visibility The following precaution zones—adapted from EPBC Act Policy Statement 2.1—will be implemented: • Observation Zone: ≥3.5km horizontal radius from the acoustic source (to monitor for turtle presence beyond the range of TTS). • Low Power Zone: 3.5km horizontal radius from the acoustic source (to reflect range of TTS). • Shut-down Zone: 1.5km horizontal radius from the acoustic source (to reflect range of auditory injury).		

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Control measure	Environmental performance standard	Measurement criteria	EPO Reference (Table 9-1)
CM-17 Lighting will be used as required for safe work conditions and navigational purposes.	EPS-17.1 Vessels' navigation lighting and equipment is compliant with COLREGS/Marine Orders 30: Prevention of Collisions, and with Marine Orders 21: Safety of Navigation and Emergency Procedures.	MC-17.1 Vessels' certification confirms compliance with applicable regulations (Marine Orders 21 and 30).	EPO-05 EPO-08
CM-18 Vessels comply with Marine Order 96 (Marine pollution prevention – sewage)	EPS-18.1 Vessels comply with Marine Order 96: Marine pollution prevention – sewage (as appropriate to vessel class), which requires: • a valid International Sewage Pollution Prevention Certificate, as required by vessel class • an ASMA-approved sewage treatment plant • a sewage comminuting and disinfecting system. • a sewage holding tank sized appropriately to contain all generated waste (black and grey water) • discharge of sewage which is not comminuted or disinfected will only occur at a distance of more than 12 nm from the nearest land • discharge of sewage which is comminuted or disinfected using a certified approved sewage treatment plant and will only occur at a distance of more than 3 nm from the nearest land. • discharge of sewage will occur at a moderate rate while support vessel is proceeding (> 4 knots), to avoid discharges in environmentally sensitive areas.	MC-18.1 Records demonstrate vessels are compliant with Marine Order 96: Marine pollution prevention – sewage (as appropriate to vessel).	EPO-03 EPO-04 EPO-05 EPO-06 EPO-07 EPO-09 EPO-10 EPO-13 EPO-15 EPO-16
CM-19	EPS-19.1	MC-19.1	EPO-03 EPO-04

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Control measure	Environmental performance standard	Measurement criteria	EPO Reference (Table 9-1)
Vessels comply with Marine Order 95 (Marine pollution prevention – garbage)	Vessels comply with Marine Order 95 (Marine pollution prevention – garbage), which requires: - putrescible waste will only be discharged to sea if comminuted to 25 mm or less and discharged en route when greater than 3 nm from the 'territorial sea baseline' - if putrescible waste is not comminuted to 25 mm or less, it will be discharged greater than 12 nm from the territorial sea baseline while en route.	Records demonstrate vessels are compliant with Marine Order 95: Marine pollution prevention – garbage (as appropriate to vessel class).	EPO-05 EPO-06 EPO-07 EPO-09 EPO-10 EPO-13 EPO-15 EPO-16
CM-20 Vessels comply with Marine Order 91 (Marine pollution prevention – oil)	EPS-20.1 Vessels comply with Marine Order 91 (Marine pollution prevention – oil) (as relevant to vessel class) requirements, which include mandatory measures for the processing of oily water prior to discharge including: - Machinery space bilge/oily water shall have IMO approved oil filtering equipment (oil/water separator) with an on-line monitoring device to measure OIW content to be less than 15ppm prior to discharge. - IMO-approved oil filtering equipment shall also have an alarm and an automatic stopping device or be capable of recirculating in the event that OIW concentration exceeds 15ppm. - A deck drainage system shall be capable of controlling the content of discharges for areas of high risk of fuel, oil and grease or hazardous chemical contamination. - There shall be a waste oil storage tank available, to restrict oil discharges. - In the event that machinery space bilge and deck drainage discharges cannot meet the oil content standard of <15ppm without dilution or be treated by an IMO approved oil/water	MC-20.1 Records demonstrate vessels are compliant with Marine Order 91: Marine pollution prevention – oil (as appropriate to vessel).	EPO-03 EPO-04 EPO-05 EPO-06 EPO-07 EPO-09 EPO-10 EPO-13 EPO-15 EPO-16

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Control measure	Environmental performance standard	Measurement criteria	EPO Reference (Table 9-1)
	separator, they will be contained on-board and disposed of onshore.		
CM-21 Hazardous and non-hazardous waste management processes	EPS-21.1 Vessels comply with measures outlined in Marine Order 95 (Marine pollution prevention – garbage) as required by vessel class: vessel(s) will have a Garbage Management Plan in place which outlines procedures for handling storing, processing and disposing of garbage.	MC-21.1 Compliant Garbage Management Plan in place for vessels.	EPO-09 EPO-10 EPO-05 EPO-13
	EPS-21.2 A garbage record book shall be maintained with details of non-hazardous and hazardous waste volumes generated and transferred for onshore recycling or disposal.	MC-21.2 Garbage record book is maintained and available for the vessels.	EPO-09 EPO-10
	EPS-21.3 All hazardous and non-hazardous wastes generated at sea are retained on vessel and disposed of onshore by a licenced waste management contractor (excluding putrescible waste and sewage).	MC-21.3 Hazardous and non-hazardous wastes records maintained and available for the vessels.	EPO-09 EPO-10
	EPS-21.4 All personnel will be notified of the correct waste management procedures through the induction process.	MC-21.4 Waste management procedures included in induction material.	EPO-09 EPO-10
CM-22 Chemical risk assessment process	EPS-22.1 Cement, clean-up fluids and WBM chemicals intended or likely to be discharged into the marine environment are approved before use in accordance with the chemical risk assessment process detailed in Section 10.14.	MC-22.1 ALARP assessment documentation shows chemicals requiring further assessment are ALARP and selected in accordance with the chemical assessment process detailed in Section 10.14.	EPO-09 EPO-10
CM-23	EPS-23.1	MC-23.1 Completed vessel check risk assessment report demonstrating vessels are 'low risk' of IMS.	EPO-12

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Control measure	Environmental performance standard	Measurement criteria	EPO Reference (Table 9-1)
Implementation of an IMS risk assessment tool	Vessels to be risk assessed (e.g., the DPIRD vessel check tool or similar), demonstrating support vessels they are at 'low risk' of introducing invasive marine species. IMS management measures will be applied to reduce IMS risk to 'low risk'.		
	EPS-23.2 Vessel check assessment has been reviewed or completed by a member of the Eni HSE Team.	MC-23.2 Records show vessel check assessment has been reviewed completed by member of the Eni HSE Team	EPO-12
CM-24 Ballast water management	EPS-24.1 Compliance with Australian Ballast Water Management Requirements (as defined under the <i>Biosecurity Act 2015</i> , aligned with the International Convention for the Control and Management of Ships' Ballast Water and Sediments). This includes operators of all vessels answering biofouling questions on a pre-arrival report prior to entering Australia.	MC-24.1 Administrator-approved ballast water management plan on vessels. Completed ballast water record book or log.	EPO-12
CM-25 Biofouling management plan	EPS-25.1 Vessels have a Biofouling Management Plan and record book consistent with the International Maritime Organization 2011 Guidelines for the control and management of ships' biofouling to minimize the transfer of invasive aquatic species (IMO Biofouling Guidelines).	MC-25.1. Review of the biofouling management plans confirm they are in place and maintained.	EPO-12
CM-26 Dropped objects to be retrieved where possible	EPS-26.1 Objects dropped overboard are recovered to mitigate the environmental consequences from objects remaining in the marine environment, unless the environmental consequences are negligible, or safety risks are disproportionate to the environmental consequences.	MC-26.1 Fate of dropped objects detailed in incident documents.	EPO-05 EPO-13
CM-27	EPS-27.1	MC-27.1	EPO-05 EPO-13

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Control measure	Environmental performance standard	Measurement criteria	EPO Reference (Table 9-1)
Hazardous Materials Management Standard (ENI-HSE-ST-009_05)	For hazardous chemicals including hydrocarbons, the following standards apply to reduce the risk of an accidental release to sea: - Storage containers closed when the product is not being used. - Storage containers managed in a manner that provides for secondary containment in the event of a spill or leak. - Storage containers labelled with the technical product name as per the safety data sheet (SDS). - Spills and leaks to deck, excluding storage bunds and drip trays, immediately cleaned up. - Storage bunds and drip trays do not contain free flowing volumes of liquid. - Spill response equipment readily available.	Completed inspection checklist show hazardous chemical management procedures were followed.	
CM-28 Maritime Dangerous Goods Code	EPS-28.1 Dangerous goods managed in accordance with IMDG Code to reduce the risk of an environmental incident, such as an accidental release to sea or unintended chemical reaction.	MC-28.1 Completed Multimodal Dangerous Goods Form for OSV transfers. Completed inspection checklist show dangerous goods were managed in accordance with IMDG Code.	EPO-13
CM-29 NOPSEMA-accepted OPEP and OSMP	EPS-29.1 In the event of an oil spill to sea, the OPEP requirements are implemented to mitigate environmental impacts.	MC-29.1 Completed incident documentation shows OPEP implemented as applicable.	EPO-03 EPO-04 EPO-05 EPO-06 EPO-07 EPO-09 EPO-10 EPO-13 EPO-15 EPO-16

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Control measure	Environmental performance standard	Measurement criteria	EPO Reference (Table 9-1)
	EPS-29.2 In the event of an oil spill to sea, the OSMP requirements are implemented to mitigate environmental impacts, as per initiation criteria.	MC-29.2 Completed incident documentation shows OSMP implemented as per initiation criteria.	EPO-03 EPO-04 EPO-05 EPO-06 EPO-07 EPO-09 EPO-10 EPO-13 EPO-15 EPO-16
CM-30 Vessel SOPEP/emergency management plan	EPS-30.1 Vessel has and implements a vessel emergency management plan or SOPEP pursuant to MARPOL Annex I.	MC-30.1 Approved vessel emergency management plan or SOPEP.	EPO-03 EPO-04 EPO-05 EPO-06 EPO-07 EPO-09 EPO-10 EPO-13 EPO-15 EPO-16
	EPS-30.2 Vessel emergency management plan or SOPEP spill response exercises conducted at least every three months to ensure personnel are prepared.	MC-30.2 Spill exercise records or evidence of a spill exercise being completed every 3 months.	EPO-03 EPO-04 EPO-05 EPO-06 EPO-07 EPO-09

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Control measure	Environmental performance standard	Measurement criteria	EPO Reference (Table 9-1)
			EPO-10 EPO-13 EPO-15 EPO-16
CM-31 Remotely operated vehicle (ROV) inspection and maintenance procedures as per maintenance regime	EPS-31.1 Preventative maintenance on ROV completed as scheduled to reduce the risk of hydraulic fluid releases to sea.	MC-31.1 ROV maintenance records or evidence of maintenance in operational reports.	EPO-13
	EPS-31.2 ROV pre-deployment inspection completed to reduce the risk of hydraulic fluid releases to sea.	MC-31.2 Completed ROV pre-deployment inspection checklist.	EPO-13
CM-32 Trained Oiled Wildlife Responders.	EPS-32.1 Oil wildlife responders to be trained and competent to prevent injury to wildlife during response activities.	MC-32.1 Records of training and/or qualification of oiled wildlife responders to be provided to appropriate Control Agency.	EPO-03 EPO-04 EPO-05 EPO-09 EPO-10 EPO-13 EPO-15 EPO-16

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10 IMPLEMENTATION STRATEGY

The purpose of the implementation strategy section is to manage the activities and their associated environmental risks to ALARP and ensure environmental performance is monitored. Section 22(1) of the OPGGS Regulations requires that the EP contain an implementation strategy. To meet this requirement, this section:

- Describes the environmental management system for the activity, including specific measures to be used to ensure that, for the duration of the activity:
 - the environmental impacts and risks of the activity continue to be identified a reduced to a level that is as ALARP
 - control measures detailed in the environment plan are effective in reducing the environmental impacts and risks of the activity to as low as reasonably practicable and an acceptable level
 - environmental performance outcomes and standards set out in the environment plan are being met. [Section 22(2)]
- Establishes a clear chain of command and sets out the roles and responsibilities of personnel responsible for implementing, managing and reviewing the EP [Section 22(3)];
- Presents measures to ensure all personnel directly undertaking works or associated works related to the activity have the appropriate competencies and training and are aware of their responsibilities under this EP [Section 22(4)];
- Provides sufficient monitoring, recording, audit, management of non-conformance and review of the titleholder's environmental performance and the implementation strategy to ensure the environmental performance outcomes and standards in the environment plan are being met [Section 22(5)];
- Provides for sufficient monitoring of, and maintaining a quantitative record of, emissions and discharges (whether occurring during normal operations or otherwise), such that the record can be used to assess whether the environmental performance outcomes and standards in the environment plan are being met [Section 22(6)]; and
- Includes a process for maintaining an OPEP [Section 22(8)].

This section presents the implementation strategy for the Petrel Survey activities (the survey activities).

10.1 Systems, Practices and Procedures

10.1.1 HSE Management System Overview

Eni's management of HSE matters is arranged hierarchically in three distinct levels, being:

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1. Corporate-level Management System (Section 10.1.2);
2. Subsidiary (Eni Australia) level HSE Integrated Management System (HSE IMS) (Section 10.1.3); and
3. Facilities Management Systems.

Within Eni Australia, HSE management is delivered at the regional and asset level through the Eni HSE IMS, which is the means by which all HSE hazards and risks are controlled. The HSE IMS refers to the totality of Eni Australia's management systems in terms of:

- The concepts, policies, strategies, HSE goals, processes, procedures and work instructions that comprise the formal content of the HSE IMS;
- The organisational structures, communication systems, safety-related data, roles and responsibilities, competencies and training needed by the personnel; and
- The physical elements that are critical to safety (equipment, structures and engineered systems), including the codes and standards used to design and construct them.

10.1.2 Eni Corporate Management System

Eni Global Natural Resources' HSE integrated Management System consists of manuals, procedures, operating instructions and technical guidelines. These regulatory instruments are fundamental tools for Eni Australia, in dealing with environmental, health and safety subjects and sensitivities in a homogenous way and acting in line with the Eni and international best practices requirements.

Five main Management System elements are shown in Figure 10-1 and incorporated into the Eni Australia HSE IMS.

Elements are largely based on the structure of the ISO 14001 and ISO 45001 series of standards and therefore provide a consistent and recognisable platform for managing HSE, while also ensuring the intent of the principle of continuous improvement is followed.

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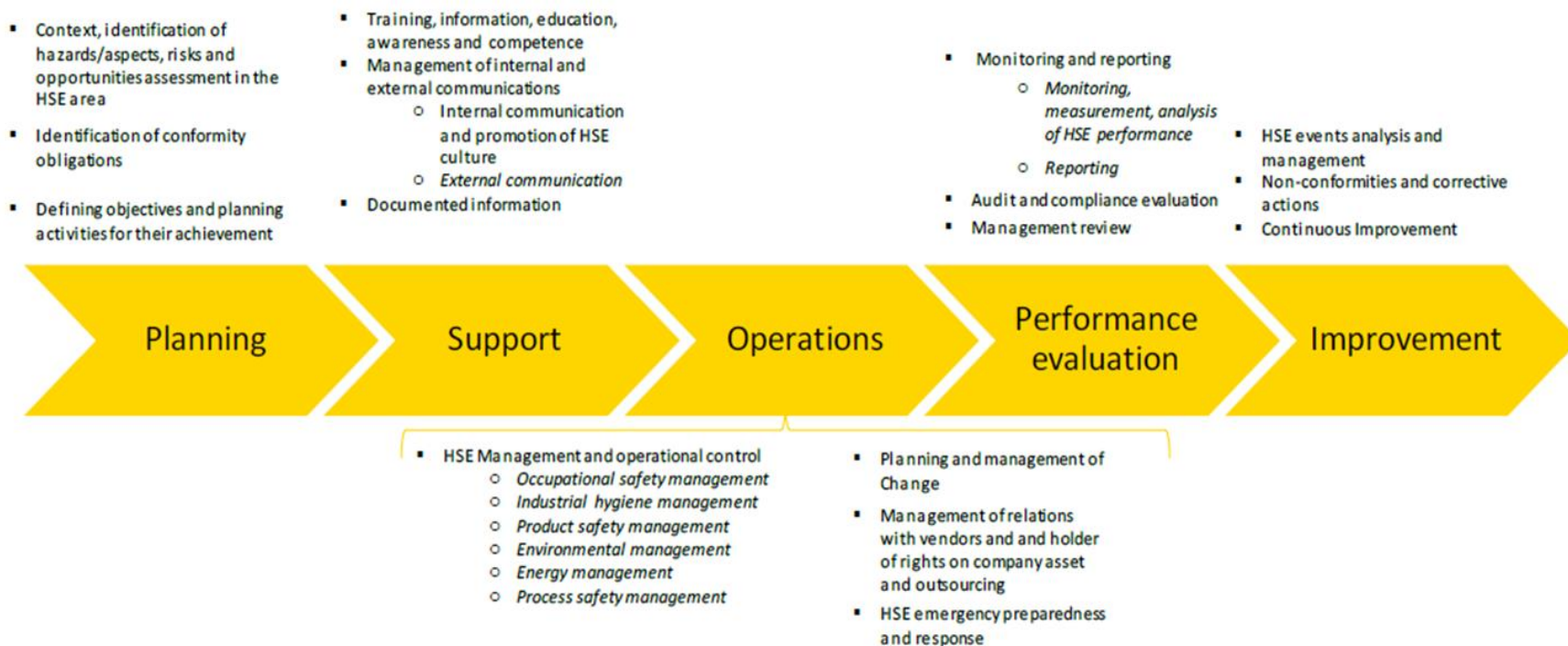


Figure 10-1: The HSE IMS Elements to achieve continual improvement

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10.1.3 Regional Eni Australia HSE Integrated Management System

Eni Australia's HSE IMS conforms to Eni Global Natural Resources Policy & HSE Management System Guidelines.

The Eni Australia HSE IMS has been certified against the standards of:

- ISO 14001: Environmental Management System; and
- ISO 45001: Occupational Health and Safety Management.

Audits are performed to verify conformance with these standards and the Eni Global Natural Resources Corporate Directive.

The HSE Integrated Management System Framework Document (ENI-HSE-IN-002) serves as the key reference for Eni Australia's HSE IMS and is an information source for Eni employees and contractors.

The HSE Integrated Management System Framework Document (ENI-HSE-IN-002) provides an overview of the strategies that are used to manage HSE aspects of Eni Australia's operations, including emergency response, risk and security, and ensure their continual improvement in line with established objectives and targets. This document also describes the core elements of the HSE IMS and their interaction with related documentation.

The HSE Integrated Management System Framework Document (ENI-HSE-IN-002) sets out functional requirements for HSE management. Eni Australia has developed a set of supporting documents that provide standards, processes, guidelines and criteria and information by which the functional requirements can be met. The documents are generally classified as information, standards, procedures or specification documents.

The HSE standards cover a broad range of high-risk activities and outline Eni Australia's minimum requirements and expectations across its operations. The HSE standards complement the Eni Australia HSE Golden Rules and are based on worldwide IOGP and company best practices.

The HSE standards apply to all personnel working on Eni sites, whether they are an employee, contractor or visitor. The standards apply to activities where Eni has direct operational control but also apply to activities where Eni has a prevailing influence over the performance of its contractors and suppliers.

At the apex of the HSE IMS is Eni's HSE Statement (APPENDIX A) which is approved by the Managing Director and provides a public statement of Eni's commitment to the environment and improving environmental performance.

10.2 Roles and Responsibilities

Table 10-1 summarises key roles and responsibilities of Eni personnel and contractors for implementing the petroleum activities.

Table 10-1: Key roles and responsibilities for health, safety, and environment management for Petrel Survey activities

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Role	Responsibilities
Onshore personnel	
Managing Director	Having overall responsibility for HSE and ensuring resources are available to effectively implement this EP.
Eni Operations Manager	- Allocating personnel with the relevant competencies to specific roles in accordance with the Eni organisation chart and position descriptions. - Assisting the IMT/Crisis Management Team (CMT) in the event of an emergency. - Supervising the Eni Plant Operations Superintendent.
Eni Petrel Field Manager (Perth)	- Being responsible for all activity on the Petrel field, including production and maintenance activities. - Being responsible for all HSE matters impacting the Petrel site. - Reviewing all HSE matters reported to them and making appropriate decisions to manage such issues; typically rectifying the problems directly, or for larger issues, communicating with Senior Management. - Implementing the HSE IMS within the Operational Area, by applying the EP. - Reviewing this EP and confirming all significant environmental risks have been identified and mitigation strategies are effective. - Ensuring Notice to Mariners is issued and maintained. - Notifying NOPSEMA of the details of reportable incidents and providing updates on the status of the incident (refer to Section 10.8). - Approving this EP and confirming all significant environmental risks have been identified and mitigation strategies will be implemented.
HSEQ Manager (office-based)	- Reviewing this EP and confirming all environmental risks have been identified, mitigation strategies are effective and will be undertaken during activities, including emergencies or potential emergencies. - Providing and maintaining effective emergency response arrangements for project activities where there is potential environmental risk. - Performing incident investigations. - Submitting an annual environmental compliance report to NOPSEMA
Eni Petrel Field Manager / Deputy (Perth)	- Reviewing this EP and confirming all environmental risks have been identified and mitigation strategies are effective and will be undertaken during activities, including emergencies or potential emergencies. - Being responsible for the safe and efficient operation of all field production facilities. - Ensuring all operations are performed in a manner consistent with the performance outcomes detailed in this EP. - Reporting incidents to the Eni Operations Manager and HSE Manager. - Immediately notifying NOPSEMA of any spill of hydrocarbons of greater than 80 L. - Ensuring all required plans, audits and reviews are undertaken in accordance with the regulatory requirements and as required by this EP. - Implementing and closing out actions in the Action Register. - Ensuring all personnel working on Petrel facilities (WHP or SPM) receive the Eni environmental induction before commencing activities.
Environmental Advisor	- Reviewing the Eni HSE Management Plans for acceptability and ensuring compliance with this EP. - Reporting all incidents to NOPSEMA in accordance with Section 10.8. - Coordinating and reviewing environmental audits to ensure compliance with the agreed EPOs. - Advising in the event of an oil spill or other environmental incident.

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Role	Responsibilities
Eni IMT Leader	- Directing the Eni response in the event of an incident. - Notifying NOPSEMA of the details of reportable incidents and providing updates on the status of the incident - Notifying AMSA in the case of vessel incidents. - Communicating with the IMT/CMT, government, stakeholders and media in the event of an incident.
Eni IMT Duty Officer	- Acting as the first point of contact in an incident. - Notifying the Eni IMT Leader of the incident.
Offshore personnel	
Vessel Master (Contractor)	- Ensuring the safe operation of their vessel. - Ensuring the operations on the vessel(s) comply with Contractor's and Eni's HSE systems, regulations and this EP. - Ensuring compliance with the Vessel Safety Case. - Ensuring all incidents are reported to Eni. - Supporting Eni's IMT as required. - Ensuring all personnel are adequately trained, competent and can perform duties as required in this EP. - Notifying the Eni PIC of any incidents arising from operations that do not comply with the EPOs and EPSs identified in this EP. - Reporting hydrocarbon or chemical spills to the Eni PIC. - Establishing communications with other vessels in the area.
Vessel crew/offshore support personnel	- Undertaking Eni HSE and EP induction before performing any offshore activities. - Ensuring all operations aboard the WHP and vessel(s) are performed in a manner consistent with this EP. - Undertaking operations in accordance with Eni and Contractor HSE systems, including reporting all hazards and incidents to the Vessel Master and Eni Offshore Representative. - Reporting any HSE hazards or incidents to the Vessel Master and the Eni Offshore Representative. - Following housekeeping procedures and work practices. - Ensuring all operations aboard the WHP and vessel(s) are performed in a manner consistent with this EP (e.g., reporting cetacean sightings).
Eni Offshore Person in Charge (PIC)	- Notifying the Eni Petrel Field Manager, Operations Manager, HSE and Community Social Responsibility Manager should additional environmental risks arise during the activities that have not been identified in this EP. - Ensuring all offshore personnel comply with the health, safety and environmental requirements. - Providing a daily log of activities and reporting reportable and recordable incidents to the Petrel Field Manager and Operations and HSE Managers. - Taking charge in the event of an emergency and communicate between the support vessel(s) and the Eni IMT in Perth. - Implementing and complying with all operational plans, including this EP. - Ensuring adherence to management and mitigation measures outlined to minimise interaction with cetaceans and other marine fauna. - Ensuring all whale interaction reports are submitted to Eni's Environment Advisor. - Investigating hydrocarbon spills, should they occur.

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10.3 Training

10.3.1 General Arrangements

All staff and contractors working on the petroleum activities must undertake an induction. The induction programs include:

- Company Induction:
 - Eni Golden Rules;
 - Eni HSE IMS; and
 - Substance Abuse.
- Petrel Survey activities inductions:
 - Site Induction.
 - Eni Environment Plan Awareness/Legislation:
 - environmental regulatory requirements.
 - marine mammal interaction – requirement to record and report sightings of whales and dolphins.
 - requirements for waste, segregation, labelling, handling, and storage.
 - housekeeping and spill prevention.
 - spill preparedness and response.
 - environmental incident reporting.
 - Requirements for recording waste movements and transfers.
 - HSE Standards.
 - Hazard Identification and Risk Assessment (HIRA).
 - Petrel Survey Emergency Response arrangements.
- Cultural Awareness Induction.

Training is provided to Eni employees and contractors as appropriate in order to ensure that individuals have the skills, knowledge and competencies to fulfil their roles.

The Eni approach to training and development is managed under the Training and Development Procedure (ENI-HRO-PR-020), which describes the mechanisms by which training, and competency are managed and outlines the process by which operations staff are trained.

Eni uses a number of training matrices which define the competency requirements for the roles relevant for the petroleum activities, specifically:

- Emergency Response Training Matrix;
- Induction & HSE Training Matrix; and
- Technical Training Matrix.

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For each position, the training matrices indicate the minimum training requirements. An employee's training needs are based upon the matrix and any other training identified by the Line Manager and are recorded within the individual's Personal Development Plan (which outlines training needs on an annual basis).

The training process has been established to ensure training activities are interactive, effective, competency-based and auditable, in terms of frequency of sessions and attendance of individuals.

HSE training, based on roles and responsibilities, includes:

- Dangerous goods awareness;
- Management of change;
- Safety Case awareness and legislation;
- Hazard identification and risk management;
- Manual handling;
- HSE Management System and auditing;
- Root cause analysis incident investigation; and
- HSE for supervisors.

OPEP training requirements are outlined in the Petrel Survey OPEP (ENI-HSE-PL-0002_01).

10.4 Competency

10.4.1 Contractor Selection and Management

All Eni contractors must have satisfied the general HSE prerequisites in the contractor selection process in accordance with the Contractor HSE Management Procedure (ENI HSE-PR-008) and Contractor HSE Specification and Requirements (ENI HSE SP 002).

In addition to this, Eni Australia ensures contractor personnel receive appropriate training on their HSE responsibilities in connection with petroleum activities. This may be achieved in a number of ways; in particular all workforce, including contractors, attend HSE Forums which contain a range of HSE awareness presentations and training.

Eni will agree and approve the competencies of the contractor's technicians before they start work in relation to the petroleum activities. All subcontractors and specialist services providers engaged under the maintenance services contract will similarly be approved by Eni.

The Eni contracting process for the contractor vessel selection and management, and the appropriate operators for selected operations associated with the petroleum activities, requires the development of a project-specific vessel scope of work, that is consistent with Logistic Technical Requirements for Supporting Project Activities and corresponding appendix on Vessel Technical Specifications Requirements. These are developed in accordance with Eni Performance Standard

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P43 Marine Vessels and Eni Marine Transportation Manual, out of which come the requirements informing the vessel on-hire inspection process.

Each vessel must be audited to comply with local and international standards and regulations and Eni Marine Transportation Manual. A complete set of vessel documents will be requested from the operator and once received, Eni's Marine Advisor will review to ensure all documents comply. This may include specific requirements for the vessel scope of work:

- Vessels must have a current (within 12 months of issue) Offshore Vessel Inspection Database (Oil Companies International Marine Forum), Common Marine Inspection Document (International Marine Contractors Association), or Eni marine inspection. If the vessel holds neither of the previous documents, an inspection request will be generated.
- All information and advice will then be on forwarded to Eni Headquarters (LOGIS) for final technical approval. Vessels require technical approval from headquarters if the vessel is going to carry passengers who are Eni employees or direct contractors.

Existing vessels, which Eni has listed as recently engaged, are required to hold a current audit from within the last 12 months and periodically renewed on an annual basis.

10.4.2 Verification of Competence

Personnel qualification and training records will be sampled before and during an activity. Such checks will be performed during the procurement process, inductions, crew change, and operational inspections and audits (refer to Section 10.6).

10.5 Monitoring

For the survey activities, information is collected for monitoring compliance to the EPOs, CMs, EPSs and MC in this EP (refer Section 9). At a minimum, evidence identified in the MC in Table 9-2 will be collected and used to demonstrate the EPOs and EPSs are met.

Discharges to the marine environment associated with vessel activities will be recorded and controlled in accordance with requirements under relevant Marine Orders and MARPOL requirements. Contractors will maintain records so emissions and discharges can be determined or estimated. Such records will be maintained for a period of five years. Contractors are required to make these records available upon request.

To monitor environmental performance during vessel based activities, Eni and its contractors may use:

- Reports from monitoring as detailed in Table 10-2;
- Contractor inspections and audits;
- Review of waste management and recycling records; and
- Audits against the management system, EP requirements or other requirements (Section 10.6).

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Table 10-2: Environmental monitoring parameters

Monitoring criteria	Threshold limit	Monitoring method
Marine fauna sightings	N/A	Opportunistic visual observations.
Volume of solid waste	No prescriptive limit but principle of ALARP to be applied.	Calculated based on capacity of storage containers transferred for onshore disposal.
Volume of sewage, greywater, and mass of food scraps discharged overboard	Discharged in accordance with Marine Order requirements.	Estimated based on persons on board, storage capacity and dimensions of discharge point.
OIW concentration of treated wastewater	Discharged in accordance with Marine Order requirements ($\leq 15\text{mg/L}$).	In compliance with vessel Marine Order requirements.
Ballast water	N/A	Ballast water record book or log.

10.5.1 Waste Monitoring

Waste management records will include:

- Waste manifests for all wastes transferred to shore;
- Waste type and volumes disposed of to landfill;
- Waste type and volumes recycled; and
- Estimate of macerated food and sewage waste discharged offshore.

All waste transported from offshore will be properly manifested. Waste manifests will include information about:

- Manifest identification number;
- Quantity (m^3/kg);
- Waste description;
- Waste container(s) number and description;
- Date of shipment;
- Final destination description (such as incineration, landfill);
- Generator data;
- Transporter(s) data and waste acceptance declaration;
- Receiver data and waste acceptance declaration;
- Dangerous goods class and United Nations number (for environmentally hazardous waste);
- Special handling instructions; and
- Any other information required by the waste contractor.

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10.6 Auditing and Inspection

Compliance verification and auditing processes for the management of HSE is performed on a number of levels.

At the Eni Australia HSE IMS level, there is a management system element dedicated to the audit and review process and an HSE Auditing Procedure (PRO-HSE-005-EAL). This requires that the management system is formally reviewed to ensure ongoing effectiveness and continual HSE improvement. It also ensures critical HSE processes are in place – for example, the HSE auditing of contractors and subcontractors – and annual audit of the permit to work system.

At a contractor management level, the HSE performance of the contractors is assessed as part of the contractual performance review process. Eni also reserves the right to undertake HSE audits on contractors and their subcontractors.

At an activity level, HSE is monitored as part of the execution of discrete work scopes; for example, pipeline inspection, maintenance and repair. For these activities, a project specific plan is prepared that will identify HSE audits, such as pre-mobilisation and during activity execution.

Environmental audits and inspections aim to:

- Identify potential new, or changes to existing, 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; and
- Confirm compliance with the EPOs, CMs and EPSs detailed in this EP.

Further details regarding specific audits are outlined in Sections 10.6.1.

10.6.1 Vessel Audits

Before chartering or subcontracting new vessels, technical evaluation will be undertaken to verify compliance with applicable international rules, regulations and conventions, State and Commonwealth requirements and Eni standards and best practice. New vessels (not previously used by Eni Australia) will be subject to an audit of the complete set of vessel documents and an Offshore Vehicle Inspection Database or International Marine Contractors Association inspection will be requested. Vessels used regularly are required to have a vessel audit completed every 12 months.

Internal auditing is also undertaken for vessels to collect evidence for and assure compliance with EP commitments. Compliance documentation and evidence is collected on an ongoing basis.

10.6.2 Environmental Inspections

An environment inspection will be conducted during or before the activities, to ensure the requirements of this EP are being met. Table 9-2 will be used as a basis for the inspection checklist.

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The environmental inspection will be conducted by the Offshore HSE Representative or Environmental Advisor and may include verification of:

- Environment containment, including chemical storage, spill response equipment and housekeeping; and
- Other relevant EPSs applicable during the activity.

10.7 Non-conformance, Corrective and Preventative Actions

Non-conformances may be identified from the audits (refer Section 10.6). Close-outs of non-conformances are recorded and tracked in an action tracking database in accordance with the Eni Australia Corrective Action Tracking and Non-conformance Reporting Procedure (ENI-HSE-PR-015). Root cause analysis of incidents is performed to determine the cause and to aid identification of corrective actions, in accordance with the Eni Australia Incident Investigation Procedure (ENI-HSE-PR-025).

Corrective and preventative actions are raised for all identified hazards and incidents according to Eni Australia Procedure Hazard and Incident Reporting (PRO-HSE-003-EAL) and are registered and maintained within the IRIDE (Integrated Reporting Incident Data Eni) system.

The Eni HSEQ Manager ensures all corrective and preventative actions are tracked and appropriate reminders are communicated to relevant Department Managers.

Breaches of this EP by Eni's vendors can be managed through issuing a formal Non-Conformance Report, in accordance with Procedure Vendor Management (ENI PRC PR-001), which links with legal management of the contract. The procedure provides for vendor qualification, evaluation, due diligence, feedback and serious non-performance management. This would apply to any serious or repeated breaches of Eni procedures that could cause environmental harm.

10.8 External Reporting

10.8.1 Routine Reporting and Notifications

Routine regulatory reporting requirements for the Petrel Survey activities are summarised in Table 10-3. The requirements include that Eni develops and submits an end-of-activity EP Performance Report to NOPSEMA. The process and details for activation of spill response providers and control agencies in the event of an oil spill is in Section 3 of the OPEP (ENI-HSE-PL-0002_01).

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Table 10-3: Routine external reporting requirements

Requirements	Recipient	Timing	Content
Before the Activity			
AHO notification	AHO	Email AHO four weeks before the confirmed activity start date.	Written. Notify AHO (datacentre@hydro.gov.au) of the activity commencement date and duration to enable a Notice to Mariners to be issued.
AMSA Rescue Centre (ARC) notification	AMSA	24 to 48 hours before activities commence.	Written. Through rccaus@amsa.gov.au (Phone: 1800 641 792 or +61 2 6230 6811) for promulgation of radio-navigation warnings.
NOPSEMA: advise about the start date of the activity	NOPSEMA	Email NOPSEMA at least ten days before the activity starting.	Complete NOPSEMA's Regulation 54 Start or end of an activity Form before petroleum activity.
Defence notification	Defence	Minimum of five weeks before the confirmed activity start date.	Notification will be provided to offshore.petroleum@defence.gov.au.
NT Dept. Agriculture and Fisheries notification	NT Dept. Agriculture and Fisheries	Dept. Agriculture and Fisheries NT requested call sign, vessel name and coordinates upon activity commencement.	Notification will be provided to petroleum.operations@nt.gov.au.
Notification to relevant persons as requested	Amateur Fishermen's Association of the Northern Territory (AFANT), Raptis and Sons, and Inligo Networks.	Prior to activities commencing.	Details on file.
During the Activity			

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Requirements	Recipient	Timing	Content
NOPSEMA: advise about the end date of the activity	NOPSEMA	Email NOPSEMA within ten days of the end of the activity.	Written. In accordance with Section 54 of the OPGGS(E) Regulations (submissions@nopsema.gov.au).
DEMIRS notification	WA DEMIRS	Notify DEMIRS of the end date/cessation of the activities.	Notify DEMIRS of the end-date/cessation of activities (petroleum.environment@dmirs.wa.gov.au).
In the event of an unplanned incident			
AMSA: advise about any oil pollution incidents in Commonwealth waters	AMSA	Within two hours of any oil pollution incidents in Commonwealth waters.	In accordance with the <i>Navigation Act</i> 2012, any oil pollution incidents in Commonwealth waters will be reported by the Vessel Master to AMSA within two hours via the national emergency notification contacts and a written report within 24 hours of the request by AMSA. The national 24-hour emergency notification contact details are: Freecall: 1800 641 792 Fax: (02) 6230 6868 Email: mdo@amsa.gov.au.
Director of National Parks reporting Notification of the event of oil pollution within a marine park or where an oil spill response action must be taken within a marine park; or if there are any changes to intended	DNP	So far as reasonably practicable before writing response action.	Oral and written. DNP should be made aware of oil and gas pollution incidences which occur within a marine park, or are likely to impact on a marine park, as soon as possible. Notification should be provided to the 24 hour Marine Compliance Duty Officer on 0419 293 465. The notification should include: • titleholder details • time and location of the incident (including name of marine park likely to be affected) • proposed response arrangements as per the OPEP (such as dispersant, containment) • confirmation of providing access to relevant monitoring and evaluation reports when available • contact details for the response coordinator. Note DNP may request daily or weekly Situation Reports, depending on the scale and severity of the pollution incident.

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Requirements	Recipient	Timing	Content
operations (requested through consultation)			
DPIRD reporting If marine pests or disease are suspected, this must be reported to DPIRD	DPIRD	Within 24 hours.	Notification (written) of any suspected marine pests or diseases, including any organism listed in the Western Australian Prevention List for Introduced Marine Pests and any other non-endemic organism that demonstrates invasive characteristics.
DCCEEW reporting Any harm or mortality to EPBC Act listed threatened marine fauna	DCCEEW	Within 7 days to EPBC.permits@environment.gov.au.	Notification (written) of any harm or mortality to an EPBC-listed species of marine fauna, whether attributable to the activity or not.
DCCEW reporting Underwater Cultural Heritage	DCCEEW	Within 21 days of the discovery to UnderwaterHeritage@dcceew.gov.au	Notification in case of the discovery of suspected underwater cultural heritage (UCH) must be notified within 21 days of the discovery in accordance with Section 40 of the Underwater Cultural Heritage Act 2018 (UCH Act).
Department of Defence (DoD)	DoD	Within 7 days if an UXO is identified during survey activities to uxo@defence.gov.au	Notification if a metal anomaly is identified as a potential UXO.
Department of Transport (WA DoT) reporting <i>All actual or impending</i>	Oil Spill Response Coordination	Within two hours.	Oral. Notification of actual or impending spillage, release or escape of oil or an oily mixture that is capable of causing loss of life, injury to a person or damage to the health of a person, property or the environment.

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Requirements	Recipient	Timing	Content
marine oil pollution incidents that are in, or may impact, State waters resulting from an offshore petroleum activity			All oil pollution incidents in WA State waters will be reported by the Vessel Master to the Oil Spill Response Coordination Unit within DoT as soon as practicable (within two hours of spill occurring) via the 24 hour reporting number (08) 9480 9924. The Duty Officer will then advise whether the following forms are required to be submitted: - Marine Pollution Form (POLREP); http://www.transport.wa.gov.au/mediaFiles/marine/MAC-F-PollutionReport.pdf - Marine Pollution Situation Report: http://www.transport.wa.gov.au/mediaFiles/marine/MAC-F-SituationReport.pdf.
DBCA reporting Any harm or mortality to fauna listed as threatened under the WA Biodiversity Conservation Act 2016	DBCA	Fauna report submitted within seven days to fauna@dbca.wa.gov.au.	Notification of any harm or mortality to fauna listed as a threatened species under the <i>WA Biodiversity Conservation Act 2016</i> as a result of activities.
Australian Marine Mammal Centre reporting Any ship strike incident with cetaceans will also be reported to the National Ship Strike Database	DCCEEW	As soon as practicable.	Ship strike report provided to the Australian Marine Mammal Centre: https://data.marinemammals.gov.au/report/shipstrike .

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Requirements	Recipient	Timing	Content
Notification to relevant persons as requested <i>Any spill, incident or hazard that could impact them as requested</i>	BAC DEMIRS (WA) Northern Land Council, WAFIC	Within 24 hours.	Details on file.
NOPSEMA reportable incident	Refer Section 10.8.2.2		
NOPSEMA recordable incident	Refer Section 10.8.2.2		
After the Activity			
NOPSEMA: end-of-activity notification	NOPSEMA	Within ten days after finishing the activities covered by this EP.	Written. NOPSEMA must be notified that the activity is completed. Complete NOPSEMA’s Regulation 54 Start or end of an activity Form.
NOPSEMA: end-of-activity EP Performance Report	NOPSEMA	Within 12 months of the final Regulation 54 (2) notification.	This reports compliance against each of the performance outcomes and standards as outlined in Section 9 of this EP and: - Reportable and reportable incidents, investigation details, corrective actions determined and actioned - Monitoring records - Inspection and audit outcomes - Summary of the activity operations conducted. The total amount of waste disposed will be included in the environmental performance report (details about waste records are included in Section 10.5.1). EP ends when titleholder notifies completion, and the regulator accepts the notification.

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Requirements	Recipient	Timing	Content
DCCEEW: marine fauna observation data	DCCEEW	Submit to DCCEEW within three months of activity completion.	Provide marine fauna observation data to DCCEEW through its online Cetacean Sightings Application.
National Pollutant Inventory Report	National Pollution Inventory	Annual, by 30 September each year.	Summary of the emissions to land, air and water, including those from the facility. Reporting period 1 July to 30 June each year.
National Greenhouse and Energy Reporting	Clean Energy Regulator	Annual, by 31 October each year.	Summary of energy use and GHG emissions, including those from the facility. Reporting period is 1 July to 30 June each year. NGER (Safeguard Mechanism) Rule 2015 is used to measure, report and manage the relevant production operations emissions in compliance with the requirements set by the Clean Energy Regulator

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10.8.2 Incident Reporting (Reportable and Recordable)

10.8.2.1 Reportable Incidents

Under Sections 24(c), 48 and 49 of the OPGGS(E) Regulations, NOPSEMA must be notified of any reportable incidents. A reportable incident is defined as an incident relating to the activity that has caused, or has the potential to cause, moderate to significant environmental damage. For the purposes of this activity, in accordance with OPGGS(E) Regulations:

- A recordable incident for an activity means a breach of an EPO or EPS, in the EP that applies to the activity, that is not a reportable incident; and
- A reportable incident for an activity means an incident relating to the activity that has caused, or has the potential to cause, moderate to significant environmental damage.

For the Petrel Survey activities, a reportable incident includes:

- An incident that has caused or has the potential to cause environmental damage with a consequence level of moderate or higher in accordance with the Eni risk assessment process (refer Section 6.1). This includes:
 - Introduction of IMS (Section 8.2).

Table 10-4 details the reportable incident requirements.

Table 10-4: Reportable Incident reporting requirements

Requirement/required information	Timing	Type	Recipient
The oral notification must contain: • All material facts and circumstances concerning the reportable incident known or that by reasonable search or enquiry could be found out • Any action taken to avoid or mitigate any adverse environmental impacts of the reportable incident • The corrective action that has been taken, or is proposed to be taken, to stop, control or remedy the reportable incident.	As soon as practicable, and in any case not later than two hours after the first occurrence of a reportable incident or, if the incident was not detected at the time of the first occurrence, at the time of becoming aware of the reportable incident.	Oral	NOPSEMA
A written report must contain: • All material facts and circumstances concerning the reportable incident known or that by reasonable search or enquiry could be found out • Any action taken to avoid or mitigate any adverse environmental impacts of the reportable incident	Must be submitted as soon as practicable, and in any case not later than three days after the first occurrence of the reportable incident, unless NOPSEMA specifies otherwise.	Written	NOPSEMA NOPTA

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Requirement/required information	Timing	Type	Recipient
- The corrective action that has been taken, or is proposed to be taken, to stop, control or remedy the reportable incident - The action that has been taken, or is proposed to be taken, to prevent a similar incident occurring in the future. - Consider reporting using NOPSEMA's Report of an Accident, Dangerous Occurrence or Environmental Incident Form.			
A written record of the oral notification must be submitted. The written record is not required to include anything that was not included in the oral notification.	As soon as practicable after the oral notification.	Written	NOPSEMA NOPTA

10.8.2.2 Recordable Incidents

Under the OPGGS Act, a 'recordable incident' for an operator of an activity is 'a breach of an EPO or EPS that applies to the activity and is not a reportable incident'.

Recordable incidents will be reported to the Regulatory Authority as per the OPGGS(E) Regulations (as in, monthly report of recordable incidents sent by the 15th of the following month), including the submission of 'nil' reports if no environmental incidents have occurred.

10.9 Internal Reporting

All environmental incidents, deviations from this EP, or events that do not meet the EPOs of the EP will be recorded and reported to Eni, using the Eni Procedure Hazard and Incident Reporting and Investigation (PRO-HSE-003-EAL). This includes entering the incident into the incident tracking database.

Some examples of environmental incidents that need to be reported by Eni include:

- The uncontrollable escape or ignition of petroleum or any other flammable or combustible material causing a potentially hazardous situation;
- Spills of hydrocarbons, hydraulic fluids or any other chemicals, of any volume;
- Unplanned releases of gas;
- Overboard disposal of solid waste (accidental or intentional);
- Loss of equipment to the ocean (dropped objects); and
- Incorrect disposal of wastes onshore by waste contractors.

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10.10 Knowledge-Sharing and HSE Communication

HSE communications include both internal communication to employees and external communication to stakeholders and is managed in accordance with Procedure HSE Communications, Consultation and Participation (ENI-HSE-PR-016). Emergency communications are described in the Petrel Emergency Response Plan.

HSE commitments and obligations are established, recorded, maintained, communicated and managed within Eni in accordance with Procedure Maintaining Knowledge of HSE Commitments and Obligations (ENI-HSE-PR-006).

10.10.1 Internal Communication with Eni Global Natural Resources Division

Regular communications from the Eni Global Natural Resources Division regarding HSE matters include:

- Guidelines for establishing annual HSE objectives;
- Requests of monthly, quarterly, and annual reports;
- Documentation relevant to establishing budgetary provisions for HSE activities;
- Highlighting of actions to improve certain objectives;
- Reports about HSE audits that may have occurred;
- Incident reporting and investigation and lessons learned;
- Publication of HSE articles in the Company's publications;
- Distribution of the policy, procedures, and other documents of the HSE Management System;
- Publication of Eni's annual Sustainability Report; and
- Any other communication specific to a particular HSE event.

Eni Australia regularly communicates HSE performance information to Eni GNR through:

- Monthly, quarterly and annual reports;
- Accident and incident reports and investigation;
- Audit and corrective action close out status; and
- HSE Qualitative Report (Four Year Plan) (ENI-HSE-RP-011) and HSE Annual Plan (ENI-HSE-PL-031).

10.10.2 Internal Eni Australia Communications

Typical examples of key internal Eni communications relevant to the Petrel Survey activities are:

- Weekly management meetings;
- Morning call;

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- Back-to-back roster handovers;
- HSE meetings;
- Pre-start meetings;
- Safety initiatives and communications; and
- Management safety visits.

10.10.3 Non-verbal Communications

In addition to the meetings described above, there are non-verbal means of communicating HSE issues within Eni, including:

- Eni Intranet websites;
- Emails; and
- HSE noticeboards.

The Eni Intranet site has a HSE page that contains links to:

- HSE IMS;
- Reporting forms;
- Incident and crisis management documentation;
- Safety Case documentation;
- Environmental Management Plan;
- Emergency Response documentation; and
- Health Risk Assessment.

Emails are regularly used to communicate HSE issues within Eni. Typically, these would be:

- HSE Alerts – HSE Alerts are specific alert notices that arise from Hazard and Incident Reports and are typically only considered for high potential incidents. The HSE Manager will decide whether to issue a HSE Alert to inform the wider workforce; and
- HSE Bulletins – Notices on HSE topics that need to be raised in the workforce can be done so using HSE Bulletins. They can focus on a HSE theme or just raise a specific item of interest. The HSEQ Manager coordinates the development of new HSE Bulletins.

HSE noticeboards are present in all Eni offices and plants. They function to inform the workforce about HSE issues. The content of the noticeboard is managed by the POS. Regular items which are placed on the HSE noticeboards include:

- HSE Commitment Statement;
- Incident statistics;
- Incident descriptions;
- Audit reports; and
- Hazard cards (for reporting hazards).

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10.10.4 External Communication

External communication about HSE matters is typically made to a range of recipients, including governments (including government agencies and regulators), community groups, non-government organisations, customers, industry bodies and the media (Table 10-5).

Table 10-5: External communication summary

External communication	Details on communication level
Government	Eni Australia's HSE communications with government authorities is undertaken according to legislative requirements and guidelines or, where none exist, best practice. Generally, HSE communications between Eni Australia and relevant government departments are performed through the Eni Operations and HSE Departments. Records of key communications are maintained by the relevant Eni department. The Managing Director may address communications with government bodies in certain circumstances (such as major accident investigation), in which case Eni Natural Resources may also become involved.
Non-Government Organisations and Community Groups	HSE communication and consultation with non-government organisations and community groups will generally be coordinated by the HSE Department. Technical HSE communications to non-government organisations and community groups may be handled via an HSE specialist assigned to the particular project. Technical HSE communications may be undertaken by an HSE specialist.
Customers	Eni Australia actively engages with its customers, to ensure there is a common understanding of HSE issues as they relate to the supply of products. HSE communication with customers will generally be coordinated by the relevant department(s) with advice from the HSE Department.
Media	Media liaison occurs in relation to crisis and emergency situations and is managed in accordance with the relevant Eni Crisis Management Plan.
Business and Industry Organisations	Eni is a member of the Australian Energy Producers (AEP) and the WA and NT Chambers of Commerce. Interaction with the business community also occurs in Eni's day to day business. Industry forums, such as the AEP conferences and Southeast Asian & Australian Offshore Conference, allow Eni to further communicate HSE aspects. HSE communication with unions is coordinated by the Human Resources Department with advice from the HSE Department.
Public HSE Reporting	Eni Australia, through its corporate head company Eni Natural Resources, communicates externally to the public about Eni's significant HSE aspects through a public Sustainability Report. This report contains information about the HSE performance of Eni Divisions and Business Units, including Eni Australia. The Sustainability Report enables Eni to share its vision and commitment to sustainable development with its staff, all relevant stakeholders and the public. It is available on the Eni internet site.

10.11 Management Review and Improvement

The HSE IMS is reviewed on a minimum five-yearly cycle in association with risk assessment outcomes and incident reviews for required changes. This review

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includes the review of any triggers requiring update to the HSE IMS (as detailed below), as well as general business planning outcomes and assessments of the effectiveness of performance standards. The review also documents actions and requirements for items, including the review and update of procedures and systems as identified in the HSE IMS review.

The HSE IMS review also incorporates feedback from the public and regulators with respect to performance and expectations.

The changes that may initiate review of the HSE IMS include:

- Legislative changes, including changes to regulatory regime (modification to Pipeline Licence conditions);
- Advancement in technology;
- Significant changes arising from hazard and event investigations to prevent recurrence;
- Significant changes due to complaints and changing community expectations;
- Significant changes and improvements identified from various risk assessments, including ongoing HAZOPs, HAZIDs, JHAs and other hazard identification processes;
- Significant changes in activities (methodology in work processes);
- Significant changes in organisation structure, and business policies and objectives;
- Significant changes resulting from monitoring of HSE key performance indicators; and
- Remedial actions from audits.

10.11.1 Health, Safety and Environment Management Review

A formal management review is conducted yearly to assess overall implementation of the HSE IMS as per the Procedure HSE Management Review (PRO-HSE-014-EAL). Areas in need of reinforcement are identified and as a result the elements of the system that need to be reinforced are highlighted. Action plans and responsibilities are agreed to improve risk management and the overall HSE performance of Eni Australia.

This typically includes reviews of the:

- Changes in:
 - External and internal issues that are relevant to the environmental management system;
 - The needs and expectations of interested parties, including compliance obligations;
 - Significant environmental aspects; and
 - Risks and opportunities.
- Information about environmental performance, including trends in:

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- Non-conformances and corrective actions;
- Monitoring and measurement results;
- Fulfilment of compliance obligations; and
- Audit results.
- Adequacy of resources;
- Relevant communication(s) from interested parties, including complaints;
- Opportunities for continual improvement;
- Changes in legislation or guidance, such as current requirements for AMPs; and
- Advances in relevant environmental technology and new scientific information.

Oil spill arrangements and testing are reviewed in accordance with the Petrel Survey activities OPEP.

10.12 Management of Change and Reviews of this Environment Plan

Change is managed in accordance with the Eni Australia Procedure Management of Change (PRO-HSE-002-EAL). For this EP, the MoC process considers Section 19 of the OPGGS(E) Regulations and determines if a proposed change can proceed and the manner in which it can proceed.

The MoC procedure applies to changes in operational assets, systems, processes, operations, products, organisation, and staffing that have the potential to alter hazard or risk levels, affect environmental outcomes, including compliance with applicable laws or standards, or to significantly affect a stakeholder involved with the above items. Standard modification or changes that occur within existing work processes (such as Permit to Work system) or are of a routine nature are not included in this procedure.

Potential changes in risk originating from internal and external factors may lead to EP reviews. Changes which may lead to an EP review may include:

- Those concerning the scope of the activity descriptions (Section 3);
- Advances in technology;
- New scientific information;
- Changes in understanding of the environment, such as advice about species protected under the EPBC Act and current requirements for AMPs; and
- Potential new advice from external stakeholders (Section 5), which will be reviewed in regard to Section 19 of the OPGGS(E) Regulations.

Factors which may lead to an EP review are identified through a number of means, including:

- Internal knowledge sharing and HSE communication (Section 10.10);
- Internal communications (Section 10.10.1);

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- HSE management review (Section 10.11.1);
- Non-verbal communications (Section 10.10.3); and
- External communications (Section 10.10.4).

If a review of the activity and the environmental risks and impacts does not trigger a requirement for a revision, the change is considered minor. Minor change will be considered a 'minor revision'. Minor administrative changes to this EP, where an assessment of the environmental risks and impacts is not required (such as document references, phone numbers), will also be considered a 'minor revision'. Minor revisions will be tracked by Eni through its document change register on SharePoint and incorporated during internal reviews.

Management review (Section 10.11) or further understanding of environment risks through knowledge sharing (Section 10.10) may trigger a review of the EP. Internal reviews will address matters such as the overall design and effectiveness of the EP, progress in environmental performance, changes in environmental risks, changes in business conditions, and any relevant emerging environmental issues or change in understanding of the environment (such as protected matters requirements). Reviews may also trigger adoption or reconsideration of once rejected controls within the EP.

This EP will be revised:

- If and when an environmental inspection and audit (see Section 10.6) of the activity finds significant breaches of the EP requirements; and
- If any significant new environmental risk or effect, or significant increase in an existing environmental risk or effect, occurs that is not provided for in the existing EP as required by Sections 38 and 39 of the OPGGS(E) Regulations.

10.13 Incident Management

10.13.1 Overview

The basic principle of incident and crisis management (ICM) within Eni is to utilise the entire organisation in the most optimal way, to ensure the incident is brought under control, and the organisation is then returned to a normal state. All responses to an emergency or a crisis are based on the priorities of:

- P** protection of **people**
- E** protection of the **environment**
- A** protection and minimisation of damage to financial and material **assets**
- R** protection of Eni's **reputation**.

The response should be proactive and sufficiently robust to manage all foreseeable events, be prepared for any reasonable variation, be able to flexibly meet an escalation of events and make the best use of the entire organisation.

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10.13.2 Incident and Crisis Management Organisational Structure

The Eni ICM organisational structure consists of three core levels:

1. Crisis Management
2. Incident Management
3. Field Response



Figure 10-2: Incident and crisis management core levels

Principal duties of each level and the timescale in which they shall endeavour to operate are illustrated in Figure 10-3.

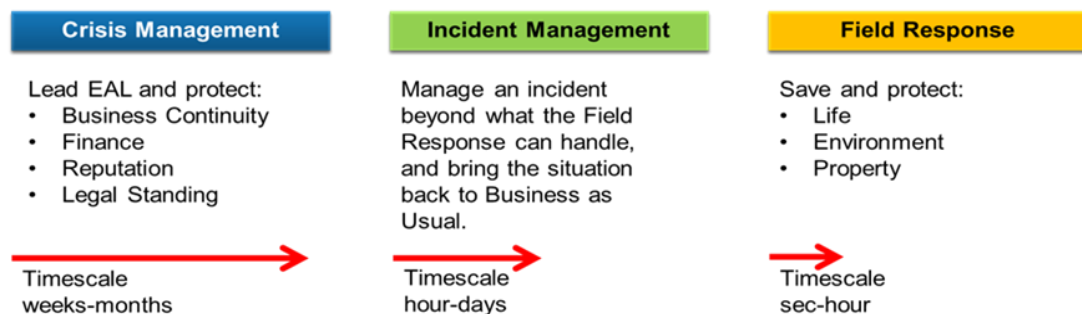


Figure 10-3: Incident and crisis management organisation's principal duties and timescales

10.13.3 Chain of Command

Eni Australia's ICM Chain of Command is a three-level structure. This is represented below.

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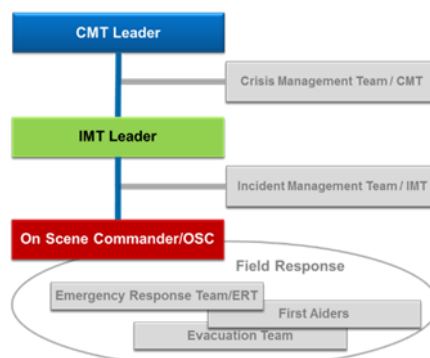


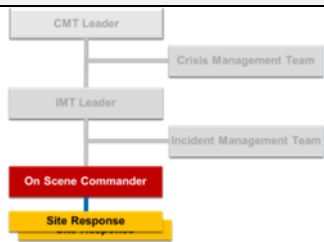
Figure 10-4: Incident and crisis management organisation chain of command

The role holders in the ICM organisation can vary over time. As the responsibility for the response to the incident moves from one organisation to another, a role holder is replaced with a more suitable or more competent individual from the same organisation, or the incident is of such duration that shift changeover is required due to fatigue risk

10.13.4 Activation

Activation of the ICM organisation is to be executed in the steps shown in Figure 10-4.

Table 10-6: Activation of levels in the incident and crisis management organisation

Severity level	Activation	Illustration (activated parts of the organisation in colour)
Pre-alarm		
Any event, strictly defined as a process safety event or event generated on the equipment/ plant by natural risks, which does not lead to an emergency but is visible, audible or in any case noticeable by the population, Institutions, Administrations and Bodies responsible for health, safety and the environment and which may have a significant media impact at local or national level.	Operational response only IMT informed	
Level 1		
An event that can be managed at site level with the personnel and means available there, under the responsibility of the Employer; divided into noticeable from the outside or not.	Planned tactical response only IMT informed	
Level 2		

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Severity level	Activation	Illustration (activated parts of the organisation in colour)
An event that can be managed locally under the responsibility of the Employer, with assistance from the Business Unit and Administration at a peripheral level.	Planned tactical response IMT mobilised Eni Australia Managing Director informed CMT mobilised (Managing Director discretion)	
Level 3		
An event that determines a seriously dangerous situation for the site /or the surrounding territory, managed under the responsibility of the Employer, with assistance from the Business Unit and the pertinent HSE unit and with the support of the EMRIL unit. For sites at risk of a major/serious incident, covered by the appropriate national/ international regulations, it may be necessary to implement the external/national emergency plan in coordination with the local or national public Authorities. In the event of third level emergencies with significant impacts, prolonged over time and capable of having serious repercussions on corporate integrity at an international level, Eni supports the management of the emergency through the Crisis Unit in close contact with the Top Management Committee.	Planned tactical response IMT mobilised CMT mobilised Eni Headquarters mobilised	

10.13.5 Petrel Field Response

The field response conducts the mitigation work at a facility. A field response can involve, but is not limited to, emergency response teams, first aiders, evacuation team and oil spill response teams.

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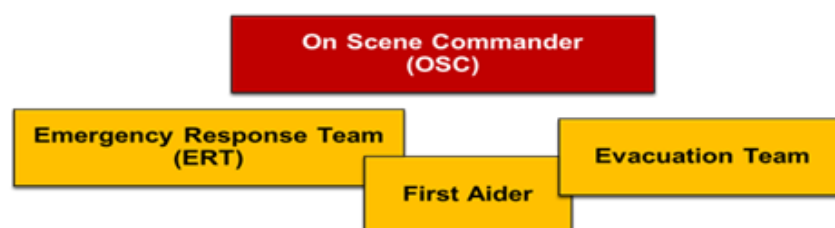


Figure 10-5: On-scene command

For each field response, irrespective of its extent or complexity, there shall always be an On-Scene Commander in direct command of the operation (Figure 10-5).

A Petrel Emergency Response Plan will establish an understanding of the roles and responsibilities for managing, controlling and responding to an emergency associated with the Project. The Plan outlines the:

- Emergency management structure within Eni Australia Limited;
- Emergency management structure for the Petrel Project;
- Procedures for response, control and coordination;
- Critical internal and external support links and relationships with external response agencies;
- Facilities and response equipment and inventories for facilities; and
- Training and exercises.

The Petrel Survey Emergency Response Plan (ENI-HSE-PL-0002_01) outlines responses for scenarios at the Petrel Field. In addition, the Plan is supported by or supports the:

- Eni Crisis and Incident Management Plans; and
- Contractors' Emergency Response Plans.

The Petrel Emergency Response Plan addresses a wide range of emergencies involving threats to the health and safety of personnel at or near the Petrel Field. The emergencies associated with the Petrel Field addressed in the plan include but are not limited to:

- Ship collision;
- Helicopter emergency;
- Person overboard; and
- Medevac.

The Petrel Emergency Response Plan details the course of action to be followed for each event to ensure personnel safety is maintained as far as possible during emergency events.

Emergency response documentation is reviewed annually; a review is also undertaken after any incidents. Eni evaluates the effectiveness of the emergency management system via audits and monitoring of exercises.

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10.13.6 Coordination with other Organisations

Authorities and Agencies from the IMT and CMT. In some cases, Eni's ICM organisation will operate in parallel or integrated with other organisations; for example, a contractor company, joint venture partner or a company operating in the vicinity of an Eni facility. In these cases, it is important liaison is established on 'equivalent levels' and in accordance with common principles for incident management.

10.13.7 Emergency Response Training

The emergency response training required for each functional role for the petroleum activities are detailed in the Petrel Emergency Response Training Matrix. Eni engages external consultants to provide nationally recognised training for emergency roles.

Members of the ICM organisation have the necessary competence and formal authorisation to efficiently and effectively perform their tasks. Comprehensive training is provided to all personnel in the ICM organisation comprising theoretical training, exercises and drills. A competency assessment system is integral in the ICM system in order to verify the competency of post holders. It is a requirement for all personnel working offshore to undergo the formal Offshore Petroleum Industry Training Organization accredited Tropical Basic Offshore Safety Induction and Emergency Training course. This requirement applies to contractors and visitors.

10.13.8 Dangerous Weather Response

Tropical cyclones and other storm conditions have the potential to cause damage to personnel, the environment and equipment. Standard Adverse Weather (ENI HSE ST 031) includes detailed procedures for preparing for and responding to cyclone events. The response goal during a cyclone event is to protect personnel, the environment, equipment and the subsea equipment integrity.

Eni uses experienced weather service providers, such as the Bureau of Meteorology and Weatherzone, to provide current, location specific forecasts. Eni uses specifically tailored services for its real-time forecasting and severe weather forecasting capabilities. They advise key Eni personnel of any actual or potential severe weather to support Eni's operations and strategic planning. The POS must ensure he or she receives email notification of cyclones from the provider. This includes:

- Tropical Cyclone seven day outlook; and
- Tropical Cyclone forecast.

The vessels or any vessels used during the petroleum activities will receive daily forecasts from the Bureau of Meteorology. In the event the cyclone (or severe weather) is forecast and it has the potential to affect the petroleum activities, the cyclone management plan will be actioned. If required, vessels can transit from the proposed track of the cyclone (or severe weather).

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10.14 Chemical Assessment Process

All operational chemicals used in the petroleum activities are considered within the scope of this chemical assessment and selection process. These include cleaning chemicals. Chemicals required for maintenance activities (such as paints, lubricants, and greases), portable water treatment chemicals, emergency response chemicals and those chemicals used for domestic purposes are considered out of scope. The scope follows the same principles as applied in the United Kingdom under the Offshore Chemical Regulations 2002 (as Amended 2011).

10.14.1 Centre for Environment, Fisheries and Aquaculture Science Offshore Chemical Notification Scheme Registered Chemicals

All chemicals registered on the Centre for Environment, Fisheries and Aquaculture Science (CEFAS) Offshore Chemical Notification Scheme (OCNS) list with assigned Hazard Quotient (HQ) Bands of Gold or Silver, or OCNS Groups E or D, and have no substitution warnings or product warnings, are determined to not require further assessment as they do not present a significant impact on the environment in standard discharge scenarios. These chemicals are considered approved for use or discharge for the petroleum activities.

CEFAS OCNS registered chemicals which have a substitution warning, product warning or have HQ Bands of White, Blue, Orange, Purple or OCNS Groups of A, B or C require assessment by an appropriate Eni person to understand the environment risk of their use and discharge into the marine environment. Eni may either reject or approve once an ALARP assessment is documented and signed off, showing the environmental risk from the use and discharge is acceptable.

10.14.2 Chemicals Not Registered by the Centre for Environment, Fisheries and Aquaculture Science Offshore Chemical Notification Scheme

All chemicals proposed for use that are not on the CEFAS OCNS register require assessment by an appropriate Eni person to understand the environment impacts of their use and discharge to the marine environment.

10.14.3 As Low as Reasonably Practicable Chemical Assessment and Justification for Use or Discharge

CEFAS OCNS registered chemicals which have a substitution warning, a product warning or have HQ Bands of white, blue, orange, purple or OCNS Groups of A, B or C and any chemical which is not registered under the CEFAS OCNS require further assessment by an appropriate Eni person in accordance with the principles of ALARP. This assessment includes:

- Assessment of the chemical's application and discharge;
- Assessment of the ecotoxicity, biodegradation and bioaccumulation potential of the chemical in the marine environment and any other applicable environmental information available (see below);
- Investigation of potential alternatives for the chemical, with preference for options that are on the OCNS Ranked List of Notified Chemicals with OCNS HQ of Gold, Silver, or are Group E or D, with no substitution or product

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warning and chemicals that have low ecotoxicity risk (Section 10.14.3.1), are readily biodegradable (Section 10.14.3.2) and do not bioaccumulate (Section 10.14.3.3);

- If no more environmentally suitable alternatives are available, further risk reduction measures (such as controls related to use and discharge) considered for the specific context and implemented where relevant to ensure the risk is ALARP and acceptable;
- Justification of the selected chemical in respect to others available;
- Further risk reduction measures; as in, specific controls on its use or future recommendations; and
- Concurrence and sign off by the relevant Environment Team Lead that the environmental risk associated with the chemical use and discharge is ALARP and acceptable.

The above is included and documented in the Eni HSE Standard: Hazardous Materials Management (ENI-HSE-ST-009).

10.14.3.1 Ecotoxicity Assessment

Table 10-7 and Table 10-8 can act as guidance in assessing a chemical's toxicity. Table 10-7 is used by CEFAS to group chemicals based on ecotoxicity results, 'A' representing highest toxicity and risk to the environment and 'E' lowest. Table 10-8 shows classifications and categories of toxicity against ecotoxicity results.

If a product has no specific ecotoxicity data available, the following options should be considered:

- Ecotoxicity data for analogous products can be referred to where the chemical ingredients and composition are largely identical (for example, Portland cement is produced by different manufacturers, with some having minor variations in content; ecotoxicity from a variation product may be used with careful consideration); and
- Ecotoxicity data may be referenced for each separate chemical ingredient (if known) within the product.

Table 10-7: Initial Centre for Environment, Fisheries and Aquaculture Science Offshore Chemical Notification Scheme grouping

Initial grouping	A	B	C	D	E
Result for aquatic-toxicity data (ppm)	<1	>1 to 10	>10 to 100	>100 to 1000	>1000
Result for sediment-toxicity data (ppm)	<10	>10 to 100	>100 to 1000	>1000 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. Source: DMP 2013, Environmental Risk Assessment of Chemicals Used in WA Petroleum Activities Guideline.

Table 10-8: Aquatic species toxicity grouping

Category	Species	LC50 and EC50 criteria
Very toxic	Fish	LC50 (96 hrs) of <1mg/l
	Crustacea	EC50 (48 hrs) of <1mg/l
	Algae and other aquatic species	ErC50 (72 or 96 hrs) of 1mg/l
Toxic	Fish	LC50 (96 hrs) of >1mg/l to >10mg/l
	Crustacea	EC50 (48 hrs) of >1mg/l to <10mg/l
	Algae and other aquatic species	ErC50 (72 or 96 hrs) of 1mg/l to <10mg/l
Harmful	Fish	LC50 (96 hrs) of <10mg/l to <100mg/l
	Crustacea	EC50 (48 hrs) of <10mg/l to <100mg/l
	Algae and other aquatic species	ErC50 (72 or 96 hrs) of <10mg/l to <100mg/l

Source: DMP 2013, *Environmental Risk Assessment of Chemicals Used in WA Petroleum Activities Guideline*

10.14.3.2 Biodegradation Assessment

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

CEFAS categories biodegradation into the groups of:

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

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

10.14.3.3 Bioaccumulation Assessment

The bioaccumulation of chemicals is assessed using the CEFAS bioaccumulation criteria, which aligns with the categorisation outlined in the DMP Chemical Assessment Guide: Environmental Risk Assessment of Chemicals used in WA Petroleum Activities Guideline (DMP, 2013). The following guidance is used by CEFAS:

- Non-bio accumulative: LogPow <3, or BCF ≤100 and molecular weight is ≥700; and

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- Bio accumulative: LogPow ≥ 3 or BC > 100 and molecular weight is < 700.

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	eni australia	Company document identification ENI-HSE-PL-0001_01	Owner document identification	Rev. index.		Sheet of sheets 473 / 484
				Validity Status	Rev No.	
				PR-OP	1	

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	eni australia	Company document identification ENI-HSE-PL-0001_01	Owner document identification	Rev. index.		Sheet of sheets 474 / 484
				Validity Status	Rev No.	
				PR-OP	1	

APPENDIX A HSE STATEMENT

health safety & environment statement

Eni Australia Ltd, in its global natural resources and energy evolution activities is committed to providing a safe work place, safe systems of work, a competent workforce and a culture conducive to exercising prudent Health, Safety, Environment (HSE) and Energy Management practices and behaviours.

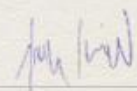
This commitment statement applies to all operational activities undertaken by Eni Australia Ltd, including activities carried out by our contractors and sub contractors.

Eni Australia Ltd will:

- Provide a safe and healthy workplace for the prevention of worker related injury and ill health.
- Set objectives and targets to ensure continual improvement in the HSE Management System and overall HSE performance.
- Comply with relevant legislation and other obligations and always ensure adherence to company standards.
- Commit to eliminating HSE risks across the business life cycle, and where elimination is not possible, reduce them to as low as reasonably practicable.
- Adopt high management and technical standards to prevent and mitigate major accidents associated with process safety events.
- Include HSE performance in appraisal of staff and contractors.
- Respect the environment and prevent pollution by actively monitoring and managing emissions, effluents, discharges and other impacts on the environment.
- Endeavour to reduce greenhouse gas emission intensity, fugitive emissions and process flaring as part of our climate strategy.
- Adopt energy efficient systems in our planning activities.
- Provide systems, resources and skills to maintain emergency response capabilities.
- Consult with stakeholders, local communities, public interest groups, workers and their representatives.
- Remain committed to sustainable development and the welfare of our host communities, and
- Promote HSE best practice in all our activities.

All staff, contractors and sub contractors at Eni Australia Ltd have a personal responsibility to support this HSE Statement and are encouraged to openly report any HSE issue or concern. In addition, everyone is obliged to intervene in unsafe acts or conditions to prevent injury, environmental impact or damage to assets.

Managing Director


Emanuele Calviello

Date 17 March 2025



	eni australia	Company document identification ENI-HSE-PL-0001_01	Owner document identification	Rev. index.		Sheet of sheets 475 / 484
				Validity Status	Rev No.	
				PR-OP	1	

APPENDIX B ENVIRONMENTAL VALUES AND SENSITIVITIES



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: 03-Jul-2026

[Summary](#)

[Details](#)

[Matters of NES](#)

[Other Matters Protected by the EPBC Act](#)

[Extra Information](#)

[Caveat](#)

[Acknowledgements](#)

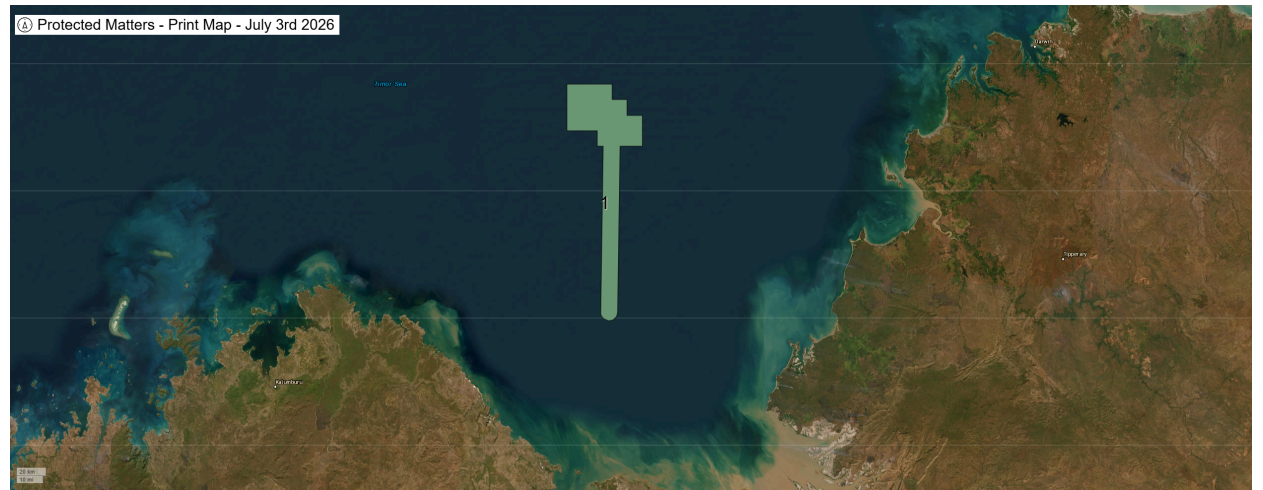


Figure 1: Petrel Survey Environmental Plan - Operational Area

Summary

Matters of National Environment Significance

This part of the report summarises the matters of national environmental significance that may occur in, or may relate to, the area you nominated. Further information is available in the detail part of the report, which can be accessed by scrolling or following the links below. If you are proposing to undertake an activity that may have a significant impact on one or more matters of national environmental significance then you should consider the [Administrative Guidelines on Significance](#).

World Heritage Properties:	None
National Heritage Places:	None
Wetlands of International Importance (Ramsar	None
Great Barrier Reef Marine Park:	None
Commonwealth Marine Area:	1
Listed Threatened Ecological Communities:	None
Listed Threatened Species:	20
Listed Migratory Species:	41

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:	68
Whales and Other Cetaceans:	14
Critical Habitats:	None
Commonwealth Reserves Terrestrial:	None
Australian Marine Parks:	1
Habitat Critical to the Survival of Marine Turtles:	None

Extra Information

This part of the report provides information that may also be relevant to the area you have

State and Territory Reserves:	None
Regional Forest Agreements:	None
Nationally Important Wetlands:	None
EPBC Act Referrals:	21
Key Ecological Features (Marine):	2
Biologically Important Areas:	5
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)

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
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat may occur within area
Phaethon rubricauda westralis Red-tailed Tropicbird (Indian Ocean), Indian Ocean Red-tailed Tropicbird [91824]	Endangered	Species or species habitat likely to occur within area
MAMMAL		
Balaenoptera borealis Sei Whale [34]	Vulnerable	Species or species habitat may occur within area

Scientific Name	Threatened Category	Presence Text
Balaenoptera musculus Blue Whale [36]	Endangered	Species or species habitat likely to occur within area
Balaenoptera physalus Fin Whale [37]	Vulnerable	Species or species habitat may occur within area
REPTILE		
Caretta caretta Loggerhead Turtle [1763]	Endangered	Species or species habitat likely to occur within area
Chelonia mydas Green Turtle [1765]	Vulnerable	Breeding likely to occur within area
Dermochelys coriacea Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Species or species habitat likely to occur within area
Eretmochelys imbricata Hawksbill Turtle [1766]	Vulnerable	Species or species habitat likely to occur within area
Lepidochelys olivacea Olive Ridley Turtle, Pacific Ridley Turtle [1767]	Endangered	Breeding likely to occur within area
Natator depressus Flatback Turtle [59257]	Vulnerable	Breeding likely to occur within area
SHARK		
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 likely 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

Scientific Name	Threatened Category	Presence Text
Pristis zijsron Green Sawfish, Dindagubba, Narrowsnout Sawfish [68442]	Vulnerable	Species or species habitat likely to occur within area
Rhincodon typus Whale Shark [66680]	Vulnerable	Species or species habitat may occur within area
Sphyrna lewini Scalloped Hammerhead [85267]	Conservation Dependent	Species or species habitat likely 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 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
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		

Scientific Name	Threatened Category	Presence Text
Anoxypristis cuspidata Narrow Sawfish, Knifetooth Sawfish [68448]		Species or species habitat likely to occur within area
Balaenoptera borealis Sei Whale [34]	Vulnerable	Species or species habitat may occur within area
Balaenoptera edeni Bryde's Whale [35]		Species or species habitat may occur within area
Balaenoptera musculus Blue Whale [36]	Endangered	Species or species habitat likely to occur within area
Balaenoptera physalus Fin Whale [37]	Vulnerable	Species or species habitat may occur within area
Carcharhinus longimanus Oceanic Whitetip Shark [84108]		Species or species habitat may occur within area
Carcharias taurus Grey Nurse Shark [64469]		Species or species habitat may occur within area
Carcharodon carcharias White Shark, Great White Shark [64470]	Vulnerable	Species or species habitat may occur within area
Caretta caretta Loggerhead Turtle [1763]	Endangered	Species or species habitat likely to occur within area
Chelonia mydas Green Turtle [1765]	Vulnerable	Breeding likely to occur within area
Crocodylus porosus Salt-water Crocodile, Estuarine Crocodile [1774]		Species or species habitat likely to occur within area

Scientific Name	Threatened Category	Presence Text
Dermochelys coriacea Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Species or species habitat likely to occur within area
Dugong dugon Dugong [28]		Species or species habitat may occur within area
Eretmochelys imbricata Hawksbill Turtle [1766]	Vulnerable	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
Lepidochelys olivacea Olive Ridley Turtle, Pacific Ridley Turtle [1767]	Endangered	Breeding likely to occur within area
Megaptera novaeangliae Humpback Whale [38]		Species or species habitat likely to occur within area
Mobula alfredi as Manta alfredi Reef Manta Ray, Coastal Manta Ray [90033]		Species or species habitat likely to occur within area
Mobula birostris as Manta birostris Giant Manta Ray [90034]		Species or species habitat likely to occur within area
Natator depressus Flatback Turtle [59257]	Vulnerable	Breeding likely to occur within area
Orcinus orca Killer Whale, Orca [46]		Species or species habitat may occur within area
Pristis clavata Dwarf Sawfish, Queensland Sawfish [68447]	Vulnerable	Species or species habitat likely to occur within area

Scientific Name	Threatened Category	Presence Text
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 likely to occur within area
Rhincodon typus Whale Shark [66680]	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		
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

Scientific Name	Threatened Category	Presence Text
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
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
Fish		
Bhanotia fasciolata Corrugated Pipefish, Barbed Pipefish [66188]		Species or species habitat may occur within area
Campichthys tricarinatus Three-keel Pipefish [66192]		Species or species habitat may occur within area
Choeroichthys brachysoma Pacific Short-bodied Pipefish, Short-bodied Pipefish [66194]		Species or species habitat may occur within area
Choeroichthys suillus Pig-snouted Pipefish [66198]		Species or species habitat may occur within area
Corythoichthys amplexus Fijian Banded Pipefish, Brown-banded Pipefish [66199]		Species or species habitat may occur within area
Corythoichthys flavofasciatus Yellow-banded Pipefish [66200]		Species or species habitat may occur within area
Corythoichthys intestinalis Australian Messmate Pipefish, Banded Pipefish [66202]		Species or species habitat may occur within area

Scientific Name	Threatened Category	Presence Text
Corythoichthys schultzi Schultz's Pipefish [66205]		Species or species habitat may occur within area
Cosmocampus banneri Roughridge Pipefish [66206]		Species or species habitat may occur within area
Doryrhamphus dactyliophorus Banded Pipefish, Ringed Pipefish [66210]		Species or species habitat may occur within area
Doryrhamphus excisus Bluestripe Pipefish, Indian Blue-stripe Pipefish, Pacific Blue-stripe Pipefish [66211]		Species or species habitat may occur within area
Doryrhamphus janssi Cleaner Pipefish, Janss' Pipefish [66212]		Species or species habitat may occur within area
Filicampus tigris Tiger Pipefish [66217]		Species or species habitat may occur within area
Halicampus brocki Brock's Pipefish [66219]		Species or species habitat may occur within area
Halicampus dunckeri Red-hair Pipefish, Duncker's Pipefish [66220]		Species or species habitat may occur within area
Halicampus grayi Mud Pipefish, Gray's Pipefish [66221]		Species or species habitat may occur within area
Halicampus spinirostris Spiny-snout Pipefish [66225]		Species or species habitat may occur within area
Haliichthys taeniophora as Haliichthys taeniophorus Ribbioned Pipehorse, Ribbioned Pipefish, Ribbioned Seadragon [94706]		Species or species habitat may occur within area

Scientific Name	Threatened Category	Presence Text
Hippichthys penicillus Beady Pipefish, Steep-nosed Pipefish [66231]		Species or species habitat may occur within area
Hippocampus 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
Micrognathus micronotopterus Tidepool Pipefish [66255]		Species or species habitat may occur within area
Solegnathus hardwickii Pallid Pipehorse, Hardwick's Pipehorse [66272]		Species or species habitat may occur within area
Solegnathus lettiensis Gunther's Pipehorse, Indonesian Pipefish [66273]		Species or species habitat may occur within area
Solenostomus cyanopterus Robust Ghostpipefish, Blue-finned Ghost Pipefish, [66183]		Species or species habitat may occur within area
Syngnathoides biaculeatus Double-end Pipehorse, Double-ended Pipehorse, Alligator Pipefish [66279]		Species or species habitat may occur within area
Trachyrhamphus bicoarctatus Bentstick Pipefish, Bend Stick Pipefish, Short-tailed Pipefish [66280]		Species or species habitat may occur within area

Scientific Name	Threatened Category	Presence Text
Trachyrhamphus longirostris Straightstick Pipefish, Long-nosed Pipefish, Straight Stick Pipefish [66281]		Species or species habitat may occur within area
Mammal		
Dugong dugon Dugong [28]		Species or species habitat may occur within area
Reptile		
Aipysurus duboisii Dubois' Sea Snake, Dubois' Seasnake, Reef Shallows Sea Snake [1116]		Species or species habitat may occur within area
Aipysurus laevis Olive Sea Snake, Olive-brown Sea Snake [1120]		Species or species habitat may occur within area
Aipysurus mosaicus as Aipysurus eydouxii Mosaic Sea Snake [87261]		Species or species habitat may occur within area
Caretta caretta Loggerhead Turtle [1763]	Endangered	Species or species habitat likely to occur within area
Chelonia mydas Green Turtle [1765]	Vulnerable	Breeding likely to occur within area
Crocodylus porosus Salt-water Crocodile, Estuarine Crocodile [1774]		Species or species habitat likely to occur within area
Dermochelys coriacea Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Species or species habitat likely to occur within area
Eretmochelys imbricata Hawksbill Turtle [1766]	Vulnerable	Species or species habitat likely to occur within area
Hydrelaps darwiniensis Port Darwin Sea Snake, Black-ringed Mangrove Sea Snake [1100]		Species or species habitat may occur within area

Scientific Name	Threatened Category	Presence Text
Hydrophis atriceps Black-headed Sea Snake, Banded Sea Snake [1101]		Species or species habitat may occur within area
Hydrophis coggeri Cogger's Sea Snake, Black-headed Sea Snake [25925]		Species or species habitat may occur within area
Hydrophis elegans Elegant Sea Snake, Bar-bellied Sea Snake [1104]		Species or species habitat may occur within area
Hydrophis hardwickii as Lapemis hardwickii Spine-bellied Sea Snake [93516]		Species or species habitat may occur within area
Hydrophis inornatus Plain Sea Snake [1107]		Species or species habitat may occur within area
Hydrophis kingii as Disteira kingii Spectacled Sea Snake [93511]		Species or species habitat may occur within area
Hydrophis macdowelli as Hydrophis mcdowelli MacDowell's Sea Snake, Small-headed Sea Snake, [75601]		Species or species habitat may occur within area
Hydrophis major as Disteira major Olive-headed Sea Snake [93512]		Species or species habitat may occur within area
Hydrophis ornatus Spotted Sea Snake, Ornate Reef Sea Snake [1111]		Species or species habitat may occur within area
Hydrophis peronii as Acalyptophis peronii Horned Sea Snake [93509]		Species or species habitat may occur within area
Hydrophis platura as Pelamis platurus Yellow-bellied Sea Snake [93746]		Species or species habitat may occur within area

Scientific Name	Threatened Category	Presence Text
Hydrophis stokesii as Astrotia stokesii Stokes' Sea Snake [93510]		Species or species habitat may occur within area
Hydrophis zweifeli as Enhydrina schistosa Australian Beaked Sea Snake [93514]		Species or species habitat may occur within area
Lepidochelys olivacea Olive Ridley Turtle, Pacific Ridley Turtle [1767]	Endangered	Breeding likely to occur within area
Natator depressus Flatback Turtle [59257]	Vulnerable	Breeding likely to occur within area

Whales and Other Cetaceans [Resource Information]		
Current Scientific Name	Status	Type of Presence
Mammal		
Balaenoptera borealis Sei Whale [34]	Vulnerable	Species or species habitat may occur within area
Balaenoptera edeni Bryde's Whale [35]		Species or species habitat may occur within area
Balaenoptera musculus Blue Whale [36]	Endangered	Species or species habitat likely to occur within area
Balaenoptera omurai Omura's Whale [87136]		Species or species habitat likely to occur within area
Balaenoptera physalus Fin Whale [37]	Vulnerable	Species or species habitat may occur within area
Delphinus delphis Common Dolphin, Short-beaked Common Dolphin [60]		Species or species habitat may occur within area
Grampus griseus Risso's Dolphin, Grampus [64]		Species or species habitat may occur within area

Current Scientific Name	Status	Type of Presence
Megaptera novaeangliae Humpback Whale [38]		Species or species habitat likely to occur within area
Orcinus orca Killer Whale, Orca [46]		Species or species habitat may occur within area
Pseudorca crassidens False Killer Whale [48]		Species or species habitat likely to occur within area
Stenella attenuata Spotted Dolphin, Pantropical Spotted Dolphin [51]		Species or species habitat may occur within area
Tursiops aduncus Indian Ocean Bottlenose Dolphin, Spotted Bottlenose Dolphin [68418]		Species or species habitat may occur within area
Tursiops aduncus (Arafura/Timor Sea populations) Spotted Bottlenose Dolphin (Arafura/Timor Sea populations) [78900]		Species or species habitat likely to occur within area
Tursiops truncatus s. str. Bottlenose Dolphin [68417]		Species or species habitat may occur within area

Australian Marine Parks		[Resource Information]
Park Name	Zone & IUCN Categories	
Oceanic Shoals	Multiple Use Zone (IUCN VI)	

Extra Information

EPBC Act Referrals			[Resource Information]
Title of referral	Reference	Referral Outcome	Assessment Status
Boskalis Cambridge Gulf Marine Sand Sourcing Project	2025/10106		Referral Decision
Controlled action			
Bonaparte Liquified Natural Gas Project	2011/6141	Controlled Action	Post-Approval

Title of referral	Reference	Referral Outcome	Assessment Status
Controlled action			
Development of Blacktip Gas Field	2003/1180	Controlled Action	Post-Approval
Ichthys Gas Field, Offshore and onshore processing facilities and subsea pipeline	2008/4208	Controlled Action	Post-Approval
Not controlled action			
2D Seismic Survey in Permit Areas WA-318-P & WA-319-P, near Cape Londonderry	2004/1687	Not Controlled Action	Completed
Nexus Drilling Program NT-P66	2007/3745	Not Controlled Action	Completed
Not controlled action (particular manner)			
2D and 3D Seismic Survey	2011/6197	Not Controlled Action (Particular Manner)	Post-Approval
2D Marine Seismic Survey	2009/4728	Not Controlled Action (Particular Manner)	Post-Approval
2D marine seismic survey within permit area WA-318-P	2007/3879	Not Controlled Action (Particular Manner)	Post-Approval
2D Seismic survey	2009/5076	Not Controlled Action (Particular Manner)	Post-Approval
Bonaparte 2D & 3D marine seismic survey	2011/5962	Not Controlled Action (Particular Manner)	Post-Approval
Bonaparte Seismic and Bathymetric Survey	2012/6295	Not Controlled Action (Particular Manner)	Post-Approval
Floyd 3D and Chisel 3D Seismic Surveys	2011/6220	Not Controlled Action (Particular Manner)	Post-Approval
Kingtree & Ironstone-1 Exploration Wells	2011/5935	Not Controlled Action (Particular Manner)	Post-Approval
Marine Environmental Survey 2012	2012/6310	Not Controlled Action	Post-Approval

Title of referral	Reference	Referral Outcome	Assessment Status
Not controlled action (particular manner)			
		(Particular Manner)	
NT/P80 2010 2D Marine Seismic Survey	2010/5487	Not Controlled Action (Particular Manner)	Post-Approval
Petrel MC2D Marine Seismic Survey	2010/5368	Not Controlled Action (Particular Manner)	Post-Approval
Santos Petrel-7 Offshore Appraisal Drilling Programme (Bonaparte Basin)	2011/5934	Not Controlled Action (Particular Manner)	Post-Approval
Sonar and Acoustic Trials	2001/345	Not Controlled Action (Particular Manner)	Post-Approval
Westralia SPAN Marine Seismic Survey, WA & NT	2012/6463	Not Controlled Action (Particular Manner)	Post-Approval

Referral decision			
2D Marine Seismic Survey	2008/4623	Referral Decision	Completed

Key Ecological Features

[[Resource Information](#)]

Key Ecological Features are the parts of the marine ecosystem that are considered to be important for the biodiversity or ecosystem functioning and integrity of the Commonwealth Marine Area.

Name	Region
Carbonate bank and terrace system of the Sahul Shelf	North-west
Pinnacles of the Bonaparte Basin	North-west

Biologically Important Areas		[<u>Resource Information</u>]
Scientific Name	Behaviour	Presence
Marine Turtles		
Caretta caretta		
Loggerhead Turtle [1763]	Foraging	Known to occur
Chelonia mydas		
Green Turtle [1765]	Foraging	Known to occur

Scientific Name	Behaviour	Presence
Lepidochelys olivacea Olive Ridley Turtle [1767]	Foraging	Known to occur
Natator depressus Flatback Turtle [59257]	Foraging	Known to occur
Natator depressus Flatback Turtle [59257]	Reproduction	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.



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: 03-Jul-2026

[Summary](#)

[Details](#)

[Matters of NES](#)

[Other Matters Protected by the EPBC Act](#)

[Extra Information](#)

[Caveat](#)

[Acknowledgements](#)



Figure 1: Petrel Survey Environmental Plan - ZPI

Summary

Matters of National Environment Significance

This part of the report summarises the matters of national environmental significance that may occur in, or may relate to, the area you nominated. Further information is available in the detail part of the report, which can be accessed by scrolling or following the links below. If you are proposing to undertake an activity that may have a significant impact on one or more matters of national environmental significance then you should consider the [Administrative Guidelines on Significance](#).

World Heritage Properties:	None
National Heritage Places:	None
Wetlands of International Importance (Ramsar	None
Great Barrier Reef Marine Park:	None
Commonwealth Marine Area:	2
Listed Threatened Ecological Communities:	None
Listed Threatened Species:	25
Listed Migratory Species:	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:	77
Whales and Other Cetaceans:	16
Critical Habitats:	None
Commonwealth Reserves Terrestrial:	None
Australian Marine Parks:	3
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:	30
Key Ecological Features (Marine):	2
Biologically Important Areas:	6
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
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat may occur within area
Phaethon rubricauda westralis Red-tailed Tropicbird (Indian Ocean), Indian Ocean Red-tailed Tropicbird [91824]	Endangered	Species or species habitat likely to occur within area
MAMMAL		
Balaenoptera borealis Sei Whale [34]	Vulnerable	Species or species habitat may occur within area

Scientific Name	Threatened Category	Presence Text
Balaenoptera musculus Blue Whale [36]	Endangered	Species or species habitat likely to occur within area
Balaenoptera physalus Fin Whale [37]	Vulnerable	Species or species habitat may occur within area
Orcaella heinsohni Australian Snubfin Dolphin [81322]	Vulnerable	Species or species habitat may occur within area
Sousa sahalensis Australian Humpback Dolphin [87942]	Vulnerable	Species or species habitat likely to occur within area
REPTILE		
Aipysurus foliosquama Leaf-scaled Sea Snake, Leaf-scaled Seasnake [1118]	Critically Endangered	Species or species habitat may occur within area
Caretta caretta Loggerhead Turtle [1763]	Endangered	Species or species habitat likely to occur within area
Chelonia mydas Green Turtle [1765]	Vulnerable	Breeding likely to occur within area
Dermochelys coriacea Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Species or species habitat likely to occur within area
Eretmochelys imbricata Hawksbill Turtle [1766]	Vulnerable	Species or species habitat likely to occur within area
Lepidochelys olivacea Olive Ridley Turtle, Pacific Ridley Turtle [1767]	Endangered	Breeding likely to occur within area
Natator depressus Flatback Turtle [59257]	Vulnerable	Breeding likely to occur within area
SHARK		

Scientific Name	Threatened Category	Presence Text
Carcharodon carcharias White Shark, Great White Shark [64470]	Vulnerable	Species or species habitat may occur within area
Glyphis garricki Northern River Shark, New Guinea River Shark [82454]	Endangered	Species or species habitat may occur within area
Glyphis glyphis Speartooth Shark [82453]	Critically Endangered	Species or species habitat may occur within area
Pristis clavata Dwarf Sawfish, Queensland Sawfish [68447]	Vulnerable	Species or species habitat likely 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 likely to occur within area
Rhincodon typus Whale Shark [66680]	Vulnerable	Species or species habitat may occur within area
Sphyrna lewini Scalloped Hammerhead [85267]	Conservation Dependent	Species or species habitat likely 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 may occur within area

Scientific Name	Threatened Category	Presence Text
Calonectris leucomelas Streaked Shearwater [1077]		Species or species habitat likely to occur within area
Fregata ariel Lesser Frigatebird, Least Frigatebird [1012]		Species or species habitat likely to occur within area
Fregata minor Great Frigatebird, Greater Frigatebird [1013]		Species or species habitat likely to 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 likely to occur within area
Balaenoptera borealis Sei Whale [34]	Vulnerable	Species or species habitat may occur within area
Balaenoptera edeni Bryde's Whale [35]		Species or species habitat may occur within area
Balaenoptera musculus Blue Whale [36]	Endangered	Species or species habitat likely to occur within area
Balaenoptera physalus Fin Whale [37]	Vulnerable	Species or species habitat may occur within area
Carcharhinus longimanus Oceanic Whitetip Shark [84108]		Species or species habitat may occur within area

Scientific Name	Threatened Category	Presence Text
Carcharias taurus Grey Nurse Shark [64469]		Species or species habitat may occur within area
Carcharodon carcharias White Shark, Great White Shark [64470]	Vulnerable	Species or species habitat may occur within area
Caretta caretta Loggerhead Turtle [1763]	Endangered	Species or species habitat likely to occur within area
Chelonia mydas Green Turtle [1765]	Vulnerable	Breeding likely to occur within area
Crocodylus porosus Salt-water Crocodile, Estuarine Crocodile [1774]		Species or species habitat likely to occur within area
Dermochelys coriacea Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Species or species habitat likely to occur within area
Dugong dugon Dugong [28]		Species or species habitat may occur within area
Eretmochelys imbricata Hawksbill Turtle [1766]	Vulnerable	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
Lepidochelys olivacea Olive Ridley Turtle, Pacific Ridley Turtle [1767]	Endangered	Breeding likely to occur within area
Megaptera novaeangliae Humpback Whale [38]		Species or species habitat likely to occur within area

Scientific Name	Threatened Category	Presence Text
Mobula alfredi as Manta alfredi Reef Manta Ray, Coastal Manta Ray [90033]		Species or species habitat likely to occur within area
Mobula birostris as Manta birostris Giant Manta Ray [90034]		Species or species habitat likely to occur within area
Natator depressus Flatback Turtle [59257]	Vulnerable	Breeding likely 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
Pristis clavata Dwarf Sawfish, Queensland Sawfish [68447]	Vulnerable	Species or species habitat likely 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 likely to occur within area
Rhincodon typus Whale Shark [66680]	Vulnerable	Species or species habitat may occur within area
Sousa sahalensis as Sousa chinensis Australian Humpback Dolphin [87942]	Vulnerable	Species or species habitat likely to occur within area
Tursiops aduncus (Arafura/Timor Sea populations) Spotted Bottlenose Dolphin (Arafura/Timor Sea populations) [78900]		Species or species habitat likely to occur within area
Migratory Wetlands Species		

Scientific Name	Threatened Category	Presence Text
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		
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

Scientific Name	Threatened Category	Presence Text
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 likely to 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
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

Scientific Name	Threatened Category	Presence Text
Thalasseus bengalensis as Sterna bengalensis		
Lesser Crested Tern [66546]		Breeding likely to occur within area
Fish		
Bhanotia fasciolata		
Corrugated Pipefish, Barbed Pipefish [66188]		Species or species habitat may occur within area
Campichthys tricarinatus		
Three-keel Pipefish [66192]		Species or species habitat may occur within area
Choeroichthys brachysoma		
Pacific Short-bodied Pipefish, Short-bodied Pipefish [66194]		Species or species habitat may occur within area
Choeroichthys suillus		
Pig-snouted Pipefish [66198]		Species or species habitat may occur within area
Corythoichthys amplexus		
Fijian Banded Pipefish, Brown-banded Pipefish [66199]		Species or species habitat may occur within area
Corythoichthys flavofasciatus		
Yellow-banded Pipefish [66200]		Species or species habitat may occur within area
Corythoichthys haematopterus		
Reef-top Pipefish [66201]		Species or species habitat may occur within area
Corythoichthys intestinalis		
Australian Messmate Pipefish, Banded Pipefish [66202]		Species or species habitat may occur within area
Corythoichthys schultzi		
Schultz's Pipefish [66205]		Species or species habitat may occur within area
Cosmocampus banneri		
Roughridge Pipefish [66206]		Species or species habitat may occur within area

Scientific Name	Threatened Category	Presence Text
Doryrhamphus dactyliophorus Banded Pipefish, Ringed Pipefish [66210]		Species or species habitat may occur within area
Doryrhamphus excisus Bluestripe Pipefish, Indian Blue-stripe Pipefish, Pacific Blue-stripe Pipefish [66211]		Species or species habitat may occur within area
Doryrhamphus janssi Cleaner Pipefish, Janss' Pipefish [66212]		Species or species habitat may occur within area
Festucalex cinctus Girdled Pipefish [66214]		Species or species habitat may occur within area
Filicampus tigris Tiger Pipefish [66217]		Species or species habitat may occur within area
Halicampus brocki Brock's Pipefish [66219]		Species or species habitat may occur within area
Halicampus dunckeri Red-hair Pipefish, Duncker's Pipefish [66220]		Species or species habitat may occur within area
Halicampus grayi Mud Pipefish, Gray's Pipefish [66221]		Species or species habitat may occur within area
Halicampus spirostris Spiny-snout Pipefish [66225]		Species or species habitat may occur within area
Haliichthys taeniophora as Haliichthys taeniophorus Ribboned Pipehorse, Ribboned Pipefish, Ribboned Seadragon [94706]		Species or species habitat may occur within area
Hippichthys cyanospilos Blue-speckled Pipefish, Blue-spotted Pipefish [66228]		Species or species habitat may occur within area

Scientific Name	Threatened Category	Presence Text
Hippichthys parvicarinatus Short-keel Pipefish, Short-keeled Pipefish [66230]		Species or species habitat may occur within area
Hippichthys penicillus Beady Pipefish, Steep-nosed Pipefish [66231]		Species or species habitat may occur within area
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
Micrognathus micronotopterus Tidepool Pipefish [66255]		Species or species habitat may occur within area
Solegnathus hardwickii Pallid Pipehorse, Hardwick's Pipehorse [66272]		Species or species habitat may occur within area
Solegnathus lettiensis Gunther's Pipehorse, Indonesian Pipefish [66273]		Species or species habitat may occur within area
Solenostomus cyanopterus Robust Ghostpipefish, Blue-finned Ghost Pipefish, [66183]		Species or species habitat may occur within area
Syngnathoides biaculeatus Double-end Pipehorse, Double-ended Pipehorse, Alligator Pipefish [66279]		Species or species habitat may occur within area

Scientific Name	Threatened Category	Presence Text
Trachyrhamphus bicoarctatus Bentstick Pipefish, Bend Stick Pipefish, Short-tailed Pipefish [66280]		Species or species habitat may occur within area
Trachyrhamphus longirostris Straightstick Pipefish, Long-nosed Pipefish, Straight Stick Pipefish [66281]		Species or species habitat may occur within area
Mammal		
Dugong dugon Dugong [28]		Species or species habitat may occur within area
Reptile		
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 may occur within area
Aipysurus laevis Olive Sea Snake, Olive-brown Sea Snake [1120]		Species or species habitat may occur within area
Aipysurus mosaicus as Aipysurus eydouxii Mosaic Sea Snake [87261]		Species or species habitat may occur within area
Caretta caretta Loggerhead Turtle [1763]	Endangered	Species or species habitat likely to occur within area
Chelonia mydas Green Turtle [1765]	Vulnerable	Breeding likely to occur within area
Crocodylus porosus Salt-water Crocodile, Estuarine Crocodile [1774]		Species or species habitat likely to occur within area
Dermochelys coriacea Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Species or species habitat likely to occur within area

Scientific Name	Threatened Category	Presence Text
Emydocephalus annulatus Eastern Turtle-headed Sea Snake [1125]		Species or species habitat may occur within area
Eretmochelys imbricata Hawksbill Turtle [1766]	Vulnerable	Species or species habitat likely to occur within area
Hydrelaps darwiniensis Port Darwin Sea Snake, Black-ringed Mangrove Sea Snake [1100]		Species or species habitat may occur within area
Hydrophis atriceps Black-headed Sea Snake, Banded Sea Snake [1101]		Species or species habitat may occur within area
Hydrophis coggeri Cogger's Sea Snake, Black-headed Sea Snake [25925]		Species or species habitat may occur within area
Hydrophis elegans Elegant Sea Snake, Bar-bellied Sea Snake [1104]		Species or species habitat may occur within area
Hydrophis hardwickii as Lapemis hardwickii Spine-bellied Sea Snake [93516]		Species or species habitat may occur within area
Hydrophis inornatus Plain Sea Snake [1107]		Species or species habitat may occur within area
Hydrophis kingii as Disteira kingii Spectacled Sea Snake [93511]		Species or species habitat may occur within area
Hydrophis macdowelli as Hydrophis mcdowelli MacDowell's Sea Snake, Small-headed Sea Snake, [75601]		Species or species habitat may occur within area
Hydrophis major as Disteira major Olive-headed Sea Snake [93512]		Species or species habitat may occur within area

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 pacificus Pacific Sea Snake, Large-headed Sea Snake [1112]		Species or species habitat may occur within area
Hydrophis peronii as Acalyptophis peronii Horned Sea Snake [93509]		Species or species habitat may occur within area
Hydrophis platura as Pelamis platurus Yellow-bellied Sea Snake [93746]		Species or species habitat may occur within area
Hydrophis stokesii as Astrotia stokesii Stokes' Sea Snake [93510]		Species or species habitat may occur within area
Hydrophis zweifeli as Enhydrina schistosa Australian Beaked Sea Snake [93514]		Species or species habitat may occur within area
Lepidochelys olivacea Olive Ridley Turtle, Pacific Ridley Turtle [1767]	Endangered	Breeding likely to occur within area
Natator depressus Flatback Turtle [59257]	Vulnerable	Breeding likely to occur within area
Parahydrophis mertoni Arafura Smooth Sea Snake, Northern Mangrove Sea Snake [1090]		Species or species habitat may occur within area

Whales and Other Cetaceans [Resource Information]		
Current Scientific Name	Status	Type of Presence
Mammal		
Balaenoptera borealis Sei Whale [34]	Vulnerable	Species or species habitat may occur within area
Balaenoptera edeni Bryde's Whale [35]		Species or species habitat may occur within area

Current Scientific Name	Status	Type of Presence
Balaenoptera musculus Blue Whale [36]	Endangered	Species or species habitat likely 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	Species or species habitat may occur within area
Delphinus delphis Common Dolphin, Short-beaked Common Dolphin [60]		Species or species habitat may occur within area
Grampus griseus Risso's Dolphin, Grampus [64]		Species or species habitat may occur within area
Megaptera novaeangliae Humpback Whale [38]		Species or species habitat likely to occur within area
Orcaella heinsohni Australian Snubfin Dolphin [81322]	Vulnerable	Species or species habitat may occur within area
Orcinus orca Killer Whale, Orca [46]		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 likely 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
Tursiops aduncus Indian Ocean Bottlenose Dolphin, Spotted Bottlenose Dolphin [68418]		Species or species habitat may occur within area
Tursiops aduncus (Arafura/Timor Sea populations) Spotted Bottlenose Dolphin (Arafura/Timor Sea populations) [78900]		Species or species habitat likely to occur within area
Tursiops truncatus s. str. Bottlenose Dolphin [68417]		Species or species habitat may occur within area

Australian Marine Parks		[Resource Information]
Park Name	Zone & IUCN Categories	
Joseph Bonaparte Gulf	Multiple Use Zone (IUCN VI)	
Oceanic Shoals	Multiple Use Zone (IUCN VI)	
Joseph Bonaparte Gulf	Special Purpose 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
Boskalis Cambridge Gulf Marine Sand Sourcing Project	2025/10106		Referral Decision
Controlled action			
Bonaparte Liquified Natural Gas Project	2011/6141	Controlled Action	Post-Approval
Development of Blacktip Gas Field	2003/1180	Controlled Action	Post-Approval
Ichthys Gas Field, Offshore and onshore processing facilities and subsea pipeline	2008/4208	Controlled Action	Post-Approval

Title of referral	Reference	Referral Outcome	Assessment Status
Not controlled action			
2D seismic survey, exploration permit NT/P67	2004/1587	Not Controlled Action	Completed
2D Seismic Survey in Permit Areas WA-318-P & WA-319-P, near Cape Londonderry	2004/1687	Not Controlled Action	Completed
Nexus Drilling Program NT-P66	2007/3745	Not Controlled Action	Completed
Not controlled action (particular manner)			
2D and 3D Seismic Survey	2011/6197	Not Controlled Action (Particular Manner)	Post-Approval
2D and 3D Seismic Survey WA-405-P	2008/4133	Not Controlled Action (Particular Manner)	Post-Approval
2D and 3D Seismic Survey WA-405-P	2009/5104	Not Controlled Action (Particular Manner)	Post-Approval
2D Marine Seismic Survey	2009/4728	Not Controlled Action (Particular Manner)	Post-Approval
2D marine seismic survey within permit area WA-318-P	2007/3879	Not Controlled Action (Particular Manner)	Post-Approval
2D Seismic survey	2009/5076	Not Controlled Action (Particular Manner)	Post-Approval
2D Seismic Survey in WA Permit Area TP/22 and Commonwealth Permit Area WA-280-P	2005/2100	Not Controlled Action (Particular Manner)	Post-Approval
3D Marine Seismic Survey	2009/4681	Not Controlled Action (Particular Manner)	Post-Approval
Bonaparte 2D & 3D marine seismic survey	2011/5962	Not Controlled Action (Particular Manner)	Post-Approval
Bonaparte Seismic and Bathymetric Survey	2012/6295	Not Controlled Action	Post-Approval

Title of referral	Reference	Referral Outcome	Assessment Status
Not controlled action (particular manner)			
		(Particular Manner)	
Fishburn2D Marine Seismic Survey	2012/6659	Not Controlled Action (Particular Manner)	Post-Approval
Floyd 3D and Chisel 3D Seismic Surveys	2011/6220	Not Controlled Action (Particular Manner)	Post-Approval
Kingtree & Ironstone-1 Exploration Wells	2011/5935	Not Controlled Action (Particular Manner)	Post-Approval
Marine Environmental Survey 2012	2012/6310	Not Controlled Action (Particular Manner)	Post-Approval
Nova 3D Seismic Survey	2013/6825	Not Controlled Action (Particular Manner)	Post-Approval
NT/P77 3D Marine Seismic Survey	2009/4683	Not Controlled Action (Particular Manner)	Post-Approval
NT/P80 2010 2D Marine Seismic Survey	2010/5487	Not Controlled Action (Particular Manner)	Post-Approval
Petrel MC2D Marine Seismic Survey	2010/5368	Not Controlled Action (Particular Manner)	Post-Approval
Santos Petrel-7 Offshore Appraisal Drilling Programme (Bonaparte Basin)	2011/5934	Not Controlled Action (Particular Manner)	Post-Approval
Sonar and Acoustic Trials	2001/345	Not Controlled Action (Particular Manner)	Post-Approval
Westralia SPAN Marine Seismic Survey, WA & NT	2012/6463	Not Controlled Action (Particular Manner)	Post-Approval

Title of referral	Reference	Referral Outcome	Assessment Status
Referral decision			
2D Marine Seismic Survey	2008/4623	Referral Decision	Completed
Nova 3D Seismic Survey, WA 442-NT/P81, Joseph Bonaparte Gulf	2013/6820	Referral Decision	Completed

Key Ecological Features

[[Resource Information](#)]

Key Ecological Features are the parts of the marine ecosystem that are considered to be important for the biodiversity or ecosystem functioning and integrity of the Commonwealth Marine Area.

Name	Region
Carbonate bank and terrace system of the Sahul Shelf	North-west
Pinnacles of the Bonaparte Basin	North-west

Biologically Important Areas

[[Resource Information](#)]

Scientific Name	Behaviour	Presence
Marine Turtles		
Caretta caretta		
Loggerhead Turtle [1763]	Foraging	Known to occur
Chelonia mydas		
Green Turtle [1765]	Foraging	Known to occur
Lepidochelys olivacea		
Olive Ridley Turtle [1767]	Foraging	Known to occur
Natator depressus		
Flatback Turtle [59257]	Foraging	Known to occur
Natator depressus		
Flatback Turtle [59257]	Reproduction	Known to occur

Seabirds

Thalasseus bengalensis		
Lesser Crested Tern [66546]	Reproduction	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.



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: 03-Jul-2026

[Summary](#)

[Details](#)

[Matters of NES](#)

[Other Matters Protected by the EPBC Act](#)

[Extra Information](#)

[Caveat](#)

[Acknowledgements](#)

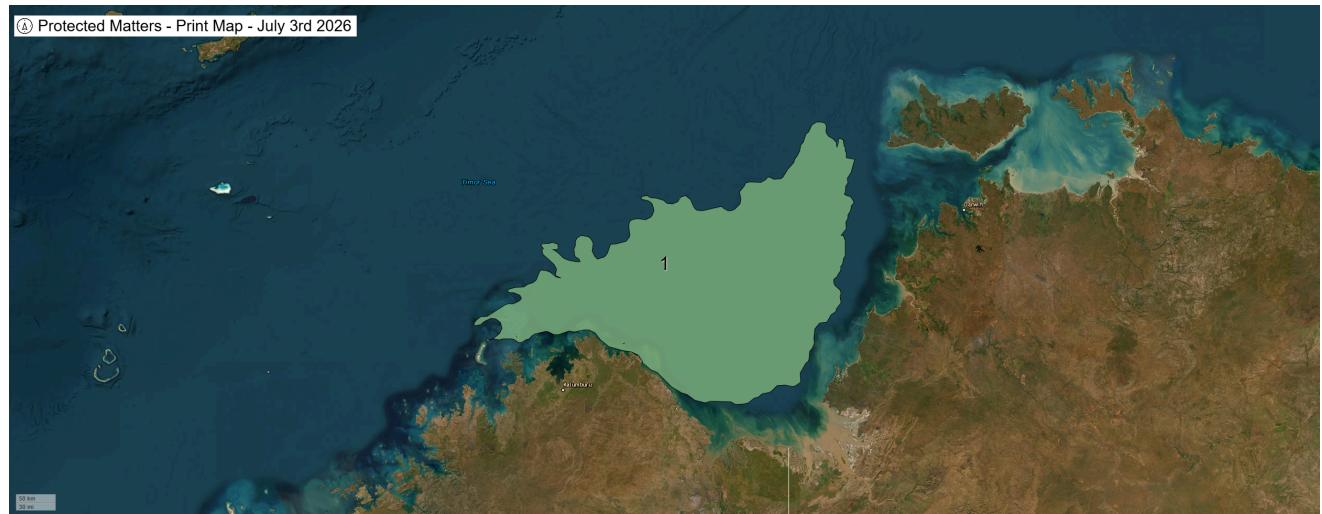


Figure 1: Petrel Survey Environmental Plan - EMBA

Summary

Matters of National Environment Significance

This part of the report summarises the matters of national environmental significance that may occur in, or may relate to, the area you nominated. Further information is available in the detail part of the report, which can be accessed by scrolling or following the links below. If you are proposing to undertake an activity that may have a significant impact on one or more matters of national environmental significance then you should consider the [Administrative Guidelines on Significance](#).

World Heritage Properties:	None
National Heritage Places:	1
Wetlands of International Importance (Ramsar	None
Great Barrier Reef Marine Park:	None
Commonwealth Marine Area:	2
Listed Threatened Ecological Communities:	None
Listed Threatened Species:	46
Listed Migratory Species:	59

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:	101
Whales and Other Cetaceans:	16
Critical Habitats:	None
Commonwealth Reserves Terrestrial:	None
Australian Marine Parks:	6
Habitat Critical to the Survival of Marine Turtles:	2

Extra Information

This part of the report provides information that may also be relevant to the area you have

State and Territory Reserves:	3
Regional Forest Agreements:	None
Nationally Important Wetlands:	None
EPBC Act Referrals:	38
Key Ecological Features (Marine):	4
Biologically Important Areas:	14
Bioregional Assessments:	None
Geological and Bioregional Assessments:	None

Details

Matters of National Environmental Significance

National Heritage Places			[Resource Information]
Name	State	Legal Status	
Natural			
The West Kimberley	WA	Listed place	

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]
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Status of Conservation Dependent and Extinct are not MNES under the EPBC Act.
Number is the current name ID.

Scientific Name	Threatened Category	Presence Text
BIRD		
Calidris acuminata Sharp-tailed Sandpiper [874]	Vulnerable	Species or species habitat likely to 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
Charadrius leschenaultii Greater Sand Plover, Large Sand Plover [877]	Vulnerable	Species or species habitat likely to occur within area
Chloebia gouldiae listed as Erythrura gouldiae Gouldian Finch [90091]	Endangered	Species or species habitat likely to occur within area

Scientific Name	Threatened Category	Presence Text
Erythrotriorchis radiatus Red Goshawk [942]	Endangered	Species or species habitat likely to occur within area
Falco hypoleucos Grey Falcon [929]	Vulnerable	Species or species habitat may occur within area
Falcunculus frontatus whitei Crested Shrike-tit (northern), Northern Shrike-tit [26013]	Vulnerable	Species or species habitat likely to occur within area
Limnodromus semipalmatus Asian Dowitcher [843]	Vulnerable	Species or species habitat may occur within area
Limosa lapponica menzbieri Northern Siberian Bar-tailed Godwit, Russkoye Bar-tailed Godwit [86432]	Endangered	Species or species habitat likely to occur within area
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat likely to occur within area
Phaethon rubricauda westralis Red-tailed Tropicbird (Indian Ocean), Indian Ocean Red-tailed Tropicbird [91824]	Endangered	Species or species habitat likely to occur within area
Rostratula australis Australian Painted Snipe [77037]	Endangered	Species or species habitat likely to occur within area
Sternula albifrons Little Tern [82849]	Vulnerable	Species or species habitat may occur within area
Tyto novaehollandiae kimberli Masked Owl (northern) [26048]	Vulnerable	Species or species habitat likely to occur within area
MAMMAL		
Balaenoptera borealis Sei Whale [34]	Vulnerable	Species or species habitat may occur within area

Scientific Name	Threatened Category	Presence Text
Balaenoptera musculus Blue Whale [36]	Endangered	Species or species habitat likely to occur within area
Balaenoptera physalus Fin Whale [37]	Vulnerable	Species or species habitat may occur within area
Conilurus penicillatus Brush-tailed Rabbit-rat, Brush-tailed Tree-rat, Pakooma [132]	Vulnerable	Species or species habitat may occur within area
Dasyurus hallucatus Northern Quoll, Digul [Gogo-Yimidir], Wijingadda [Dambimangari], Wiminji [Martu] [331]	Endangered	Species or species habitat likely to occur within area
Macroderma gigas Ghost Bat [174]	Vulnerable	Species or species habitat likely to occur within area
Mesembriomys gouldii gouldii Black-footed Tree-rat (Kimberley and mainland Northern Territory), Djintamoonga, Manbul [87618]	Endangered	Species or species habitat may occur within area
Orcaella heinsohni Australian Snubfin Dolphin [81322]	Vulnerable	Breeding likely to occur within area
Petrogale concinna monastria Nabarlek (Kimberley) [87607]	Endangered	Species or species habitat likely to occur within area
Saccolaimus saccolaimus nudicluniatus Bare-rumped Sheath-tailed Bat, Bare-rumped Sheathtail Bat [66889]	Vulnerable	Species or species habitat likely to occur within area
Sousa sahalensis Australian Humpback Dolphin [87942]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area
Trichosurus vulpecula arnhemensis Northern Brushtail Possum [83091]	Vulnerable	Species or species habitat may 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 likely to occur within area
Aipysurus foliosquama Leaf-scaled Sea Snake, Leaf-scaled Seasnake [1118]	Critically Endangered	Species or species habitat may occur within area
Caretta caretta Loggerhead Turtle [1763]	Endangered	Breeding likely to occur within area
Chelonia mydas Green Turtle [1765]	Vulnerable	Breeding likely to occur within area
Dermochelys coriacea Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Foraging, feeding or related behaviour likely to occur within area
Eretmochelys imbricata Hawksbill Turtle [1766]	Vulnerable	Breeding likely to occur within area
Lepidochelys olivacea Olive Ridley Turtle, Pacific Ridley Turtle [1767]	Endangered	Breeding likely to occur within area
Natator depressus Flatback Turtle [59257]	Vulnerable	Breeding likely to occur within area
Tiliqua scincoides intermedia Northern Blue-tongued Skink [89838]	Critically Endangered	Species or species habitat likely to occur within area
Varanus mertensi Mertens' Water Monitor [1568]	Endangered	Species or species habitat likely to occur within area
Varanus mitchelli Mitchell's Water Monitor [1569]	Critically Endangered	Species or species habitat likely to occur within area
SHARK		
Carcharodon carcharias White Shark, Great White Shark [64470]	Vulnerable	Species or species habitat may occur within area

Scientific Name	Threatened Category	Presence Text
Glyphis garricki Northern River Shark, New Guinea River Shark [82454]	Endangered	Species or species habitat may occur within area
Glyphis glyphis Speartooth Shark [82453]	Critically Endangered	Species or species habitat may occur within area
Pristis clavata Dwarf Sawfish, Queensland Sawfish [68447]	Vulnerable	Species or species habitat likely 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	Breeding likely to occur within area
Rhincodon typus Whale Shark [66680]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area
Sphyrna lewini Scalloped Hammerhead [85267]	Conservation Dependent	Species or species habitat likely 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 may occur within area
Apus pacificus Fork-tailed Swift [678]		Species or species habitat likely to occur within area

Scientific Name	Threatened Category	Presence Text
Calonectris leucomelas Streaked Shearwater [1077]		Species or species habitat 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 likely to occur within area
Onychoprion anaethetus Bridled Tern [82845]		Breeding likely to occur within area
Phaethon lepturus White-tailed Tropicbird [1014]		Species or species habitat likely to occur within area
Phaethon rubricauda Red-tailed Tropicbird [994]		Species or species habitat likely to occur within area
Sterna dougallii Roseate Tern [817]		Foraging, feeding or related behaviour likely to occur within area
Sternula albifrons Little Tern [82849]	Vulnerable	Species or species habitat may occur within area
Migratory Marine Species		
Anoxypristis cuspidata Narrow Sawfish, Knifetooth Sawfish [68448]		Species or species habitat likely to occur within area
Balaenoptera borealis Sei Whale [34]	Vulnerable	Species or species habitat may occur within area
Balaenoptera edeni Bryde's Whale [35]		Species or species habitat may occur within area

Scientific Name	Threatened Category	Presence Text
Balaenoptera musculus Blue Whale [36]	Endangered	Species or species habitat likely to occur within area
Balaenoptera physalus Fin Whale [37]	Vulnerable	Species or species habitat may occur within area
Carcharhinus longimanus Oceanic Whitetip Shark [84108]		Species or species habitat may occur within area
Carcharias taurus Grey Nurse Shark [64469]		Species or species habitat may occur within area
Carcharodon carcharias White Shark, Great White Shark [64470]	Vulnerable	Species or species habitat may occur within area
Caretta caretta Loggerhead Turtle [1763]	Endangered	Breeding likely to occur within area
Chelonia mydas Green Turtle [1765]	Vulnerable	Breeding likely to occur within area
Crocodylus porosus Salt-water Crocodile, Estuarine Crocodile [1774]		Species or species habitat likely to occur within area
Dermochelys coriacea Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Foraging, feeding or related behaviour likely to occur within area
Dugong dugon Dugong [28]		Species or species habitat may occur within area
Eretmochelys imbricata Hawksbill Turtle [1766]	Vulnerable	Breeding likely to occur within area
Isurus oxyrinchus Shortfin Mako, Mako Shark [79073]		Species or species habitat likely to occur within area

Scientific Name	Threatened Category	Presence Text
Isurus paucus Longfin Mako [82947]		Species or species habitat likely to occur within area
Lepidochelys olivacea Olive Ridley Turtle, Pacific Ridley Turtle [1767]	Endangered	Breeding likely to occur within area
Megaptera novaeangliae Humpback Whale [38]		Species or species habitat likely to occur within area
Mobula alfredi as Manta alfredi Reef Manta Ray, Coastal Manta Ray [90033]		Species or species habitat likely to occur within area
Mobula birostris as Manta birostris Giant Manta Ray [90034]		Species or species habitat likely to occur within area
Natator depressus Flatback Turtle [59257]	Vulnerable	Breeding likely to occur within area
Orcaella heinsohni Australian Snubfin Dolphin [81322]	Vulnerable	Breeding likely to occur within area
Orcinus orca Killer Whale, Orca [46]		Species or species habitat may occur within area
Pristis clavata Dwarf Sawfish, Queensland Sawfish [68447]	Vulnerable	Species or species habitat likely 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	Breeding likely to occur within area
Rhincodon typus Whale Shark [66680]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area

Scientific Name	Threatened Category	Presence Text
Sousa sahalensis as Sousa chinensis Australian Humpback Dolphin [87942]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area
Tursiops aduncus (Arafura/Timor Sea populations) Spotted Bottlenose Dolphin (Arafura/Timor Sea populations) [78900]		Species or species habitat likely to occur within area
Migratory Terrestrial Species		
Cecropis daurica Red-rumped Swallow [80610]		Species or species habitat may occur within area
Cuculus optatus Oriental Cuckoo, Horsfield's Cuckoo [86651]		Species or species habitat may occur within area
Hirundo rustica Barn Swallow [662]		Species or species habitat may occur within area
Motacilla cinerea Grey Wagtail [642]		Species or species habitat may occur within area
Motacilla flava Yellow Wagtail [644]		Species or species habitat likely to occur within area
Migratory Wetlands Species		
Acrocephalus orientalis Oriental Reed-Warbler [59570]		Species or species habitat may occur within area
Actitis hypoleucos Common Sandpiper [59309]		Species or species habitat likely to occur within area
Calidris acuminata Sharp-tailed Sandpiper [874]	Vulnerable	Species or species habitat likely to occur within area
Calidris canutus Red Knot, Knot [855]	Vulnerable	Species or species habitat may occur within area

Scientific Name	Threatened Category	Presence Text
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area
Calidris melanotos Pectoral Sandpiper [858]		Species or species habitat may occur within area
Charadrius leschenaultii Greater Sand Plover, Large Sand Plover [877]	Vulnerable	Species or species habitat likely to occur within area
Charadrius veredus Oriental Plover, Oriental Dotterel [882]		Species or species habitat may occur within area
Glareola maldivarum Oriental Pratincole [840]		Species or species habitat may occur within area
Limnodromus semipalmatus Asian Dowitcher [843]	Vulnerable	Species or species habitat may occur within area
Limosa lapponica Bar-tailed Godwit [844]		Species or species habitat likely to occur within area
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat likely to occur within area
Pandion haliaetus Osprey [952]		Species or species habitat likely to occur within area
Thalasseus bergii Greater Crested Tern [83000]		Breeding likely to occur within area

Other Matters Protected by the EPBC Act

Listed Marine Species		[Resource Information]
Scientific Name	Threatened Category	Presence Text
Bird		
Acrocephalus orientalis Oriental Reed-Warbler [59570]		Species or species habitat may occur within area overfly marine area
Actitis hypoleucos Common Sandpiper [59309]		Species or species habitat likely to occur within area
Anous stolidus Common Noddy [825]		Species or species habitat may occur within area
Anseranas semipalmata Magpie Goose [978]		Species or species habitat may occur within area overfly marine area
Apus pacificus Fork-tailed Swift [678]		Species or species habitat likely to occur within area overfly marine area
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 likely to 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

Scientific Name	Threatened Category	Presence Text
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
Cecropis daurica as Hirundo daurica Red-rumped Swallow [80610]		Species or species habitat may occur within area overfly marine area
Chalcites osculans as Chrysococcyx osculans Black-eared Cuckoo [83425]		Species or species habitat may occur within area overfly marine area
Charadrius leschenaultii Greater Sand Plover, Large Sand Plover [877]	Vulnerable	Species or species habitat likely 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 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 likely to occur within area
Glareola maldivarum Oriental Pratincole [840]		Species or species habitat may occur within area overfly marine area

Scientific Name	Threatened Category	Presence Text
Haliaeetus leucogaster White-bellied Sea-Eagle [943]		Species or species habitat likely to occur within area
Hirundo rustica Barn Swallow [662]		Species or species habitat may occur within area overfly marine area
Limnodromus semipalmatus Asian Dowitcher [843]	Vulnerable	Species or species habitat may occur within area overfly marine area
Limosa lapponica Bar-tailed Godwit [844]		Species or species habitat likely to occur within area
Merops ornatus Rainbow Bee-eater [670]		Species or species habitat may occur within area overfly marine area
Motacilla cinerea Grey Wagtail [642]		Species or species habitat may occur within area overfly marine area
Motacilla flava Yellow Wagtail [644]		Species or species habitat likely to occur within area overfly marine area
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat likely to occur within area
Onychoprion anaethetus as Sterna anaethetus Bridled Tern [82845]		Breeding likely to occur within area
Pandion haliaetus Osprey [952]		Species or species habitat likely to occur within area

Scientific Name	Threatened Category	Presence Text
Phaethon lepturus White-tailed Tropicbird [1014]		Species or species habitat likely to occur within area
Phaethon rubricauda Red-tailed Tropicbird [994]		Species or species habitat likely to occur within area
Rostratula australis as Rostratula benghalensis (sensu lato) Australian Painted Snipe [77037]	Endangered	Species or species habitat likely to occur within area overfly marine area
Sterna dougallii Roseate Tern [817]		Foraging, feeding or related behaviour likely to occur within area
Sternula albifrons as Sterna albifrons Little Tern [82849]	Vulnerable	Species or species habitat may occur within area
Thalasseus bengalensis as Sterna bengalensis Lesser Crested Tern [66546]		Breeding likely to occur within area
Thalasseus bergii as Sterna bergii Greater Crested Tern [83000]		Breeding likely to occur within area
Fish		
Bhanotia fasciolata Corrugated Pipefish, Barbed Pipefish [66188]		Species or species habitat may occur within area
Campichthys tricarinatus Three-keel Pipefish [66192]		Species or species habitat may occur within area
Choeroichthys brachysoma Pacific Short-bodied Pipefish, Short-bodied Pipefish [66194]		Species or species habitat may occur within area
Choeroichthys suillus Pig-snouted Pipefish [66198]		Species or species habitat may occur within area

Scientific Name	Threatened Category	Presence Text
Corythoichthys amplexus Fijian Banded Pipefish, Brown-banded Pipefish [66199]		Species or species habitat may occur within area
Corythoichthys flavofasciatus Yellow-banded Pipefish [66200]		Species or species habitat may occur within area
Corythoichthys haematopterus Reef-top Pipefish [66201]		Species or species habitat may occur within area
Corythoichthys intestinalis Australian Messmate Pipefish, Banded Pipefish [66202]		Species or species habitat may occur within area
Corythoichthys schultzi Schultz's Pipefish [66205]		Species or species habitat may occur within area
Cosmocampus banneri Roughridge Pipefish [66206]		Species or species habitat may occur within area
Doryrhamphus dactyliophorus Banded Pipefish, Ringed Pipefish [66210]		Species or species habitat may occur within area
Doryrhamphus excisus Bluestripe Pipefish, Indian Blue-stripe Pipefish, Pacific Blue-stripe Pipefish [66211]		Species or species habitat may occur within area
Doryrhamphus janssi Cleaner Pipefish, Janss' Pipefish [66212]		Species or species habitat may occur within area
Festucalex cinctus Girdled Pipefish [66214]		Species or species habitat may occur within area
Filicampus tigris Tiger Pipefish [66217]		Species or species habitat may occur within area

Scientific Name	Threatened Category	Presence Text
Halicampus brocki Brock's Pipefish [66219]		Species or species habitat may occur within area
Halicampus dunckeri Red-hair Pipefish, Duncker's Pipefish [66220]		Species or species habitat may occur within area
Halicampus grayi Mud Pipefish, Gray's Pipefish [66221]		Species or species habitat may occur within area
Halicampus spinirostris Spiny-snout Pipefish [66225]		Species or species habitat may occur within area
Haliichthys taeniophora as Haliichthys taeniophorus Ribboned Pipehorse, Ribboned Pipefish, Ribboned Seadragon [94706]		Species or species habitat may occur within area
Hippichthys cyanospilos Blue-speckled Pipefish, Blue-spotted Pipefish [66228]		Species or species habitat may occur within area
Hippichthys parvicarinatus Short-keel Pipefish, Short-keeled Pipefish [66230]		Species or species habitat may occur within area
Hippichthys penicillus Beady Pipefish, Steep-nosed Pipefish [66231]		Species or species habitat may occur within area
Hippocampus histrix Spiny Seahorse, Thorny Seahorse [66236]		Species or species habitat may occur within area
Hippocampus kuda Spotted Seahorse, Yellow Seahorse [66237]		Species or species habitat may occur within area
Hippocampus planifrons Flat-face Seahorse [66238]		Species or species habitat may occur within area

Scientific Name	Threatened Category	Presence Text
Hippocampus spinosissimus Hedgehog Seahorse [66239]		Species or species habitat may occur within area
Micrognathus micronotopterus Tidepool Pipefish [66255]		Species or species habitat may occur within area
Solegnathus hardwickii Pallid Pipehorse, Hardwick's Pipehorse [66272]		Species or species habitat may occur within area
Solegnathus lettiensis Gunther's Pipehorse, Indonesian Pipefish [66273]		Species or species habitat may occur within area
Solenostomus cyanopterus Robust Ghostpipefish, Blue-finned Ghost Pipefish, [66183]		Species or species habitat may occur within area
Syngnathoides biaculeatus Double-end Pipehorse, Double-ended Pipehorse, Alligator Pipefish [66279]		Species or species habitat may occur within area
Trachyrhamphus bicoarctatus Bentstick Pipefish, Bend Stick Pipefish, Short-tailed Pipefish [66280]		Species or species habitat may occur within area
Trachyrhamphus longirostris Straightstick Pipefish, Long-nosed Pipefish, Straight Stick Pipefish [66281]		Species or species habitat may occur within area
Mammal		
Dugong dugon Dugong [28]		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 likely to occur within area
Aipysurus duboisii Dubois' Sea Snake, Dubois' Seasnake, Reef Shallows Sea Snake [1116]		Species or species habitat may occur within area

Scientific Name	Threatened Category	Presence Text
Aipysurus foliosquama Leaf-scaled Sea Snake, Leaf-scaled Seasnake [1118]	Critically Endangered	Species or species habitat may occur within area
Aipysurus laevis Olive Sea Snake, Olive-brown Sea Snake [1120]		Species or species habitat may occur within area
Aipysurus mosaicus as Aipysurus eydouxii Mosaic Sea Snake [87261]		Species or species habitat may occur within area
Caretta caretta Loggerhead Turtle [1763]	Endangered	Breeding likely to occur within area
Chelonia mydas Green Turtle [1765]	Vulnerable	Breeding likely to occur within area
Crocodylus johnstoni Freshwater Crocodile, Johnston's Crocodile, Johnstone's Crocodile [1773]		Species or species habitat may occur within area
Crocodylus porosus Salt-water Crocodile, Estuarine Crocodile [1774]		Species or species habitat likely to occur within area
Dermochelys coriacea Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Foraging, feeding or related behaviour likely to occur within area
Emydocephalus annulatus Eastern Turtle-headed Sea Snake [1125]		Species or species habitat may occur within area
Eretmochelys imbricata Hawksbill Turtle [1766]	Vulnerable	Breeding likely to occur within area
Hydrelaps darwiniensis Port Darwin Sea Snake, Black-ringed Mangrove Sea Snake [1100]		Species or species habitat may occur within area
Hydrophis atriceps Black-headed Sea Snake, Banded Sea Snake [1101]		Species or species habitat may occur within area

Scientific Name	Threatened Category	Presence Text
Hydrophis coggeri Cogger's Sea Snake, Black-headed Sea Snake [25925]		Species or species habitat may occur within area
Hydrophis elegans Elegant Sea Snake, Bar-bellied Sea Snake [1104]		Species or species habitat may occur within area
Hydrophis hardwickii as Lapemis hardwickii Spine-bellied Sea Snake [93516]		Species or species habitat may occur within area
Hydrophis inornatus Plain Sea Snake [1107]		Species or species habitat may occur within area
Hydrophis kingii as Disteira kingii Spectacled Sea Snake [93511]		Species or species habitat may occur within area
Hydrophis macdowelli as Hydrophis mcdowelli MacDowell's Sea Snake, Small-headed Sea Snake, [75601]		Species or species habitat may occur within area
Hydrophis major as Disteira major Olive-headed Sea Snake [93512]		Species or species habitat may occur within area
Hydrophis ornatus Spotted Sea Snake, Ornate Reef Sea Snake [1111]		Species or species habitat may occur within area
Hydrophis pacificus Pacific Sea Snake, Large-headed Sea Snake [1112]		Species or species habitat may occur within area
Hydrophis peronii as Acalyptophis peronii Horned Sea Snake [93509]		Species or species habitat may occur within area
Hydrophis platura as Pelamis platurus Yellow-bellied Sea Snake [93746]		Species or species habitat may occur within area

Scientific Name	Threatened Category	Presence Text
Hydrophis stokesii as Astrotia stokesii Stokes' Sea Snake [93510]		Species or species habitat may occur within area
Hydrophis zweifeli as Enhydrina schistosa Australian Beaked Sea Snake [93514]		Species or species habitat may occur within area
Lepidochelys olivacea Olive Ridley Turtle, Pacific Ridley Turtle [1767]	Endangered	Breeding likely to occur within area
Natator depressus Flatback Turtle [59257]	Vulnerable	Breeding likely to occur within area
Parahydrophis mertoni Arafura Smooth Sea Snake, Northern Mangrove Sea Snake [1090]		Species or species habitat may occur within area

Whales and Other Cetaceans		[Resource Information]
Current Scientific Name	Status	Type of Presence
Mammal		
Balaenoptera borealis Sei Whale [34]	Vulnerable	Species or species habitat may occur within area
Balaenoptera edeni Bryde's Whale [35]		Species or species habitat may occur within area
Balaenoptera musculus Blue Whale [36]	Endangered	Species or species habitat likely to occur within area
Balaenoptera omurai Omura's Whale [87136]		Species or species habitat likely to occur within area
Balaenoptera physalus Fin Whale [37]	Vulnerable	Species or species habitat may occur within area
Delphinus delphis Common Dolphin, Short-beaked Common Dolphin [60]		Species or species habitat may occur within area

Current Scientific Name	Status	Type of Presence
Grampus griseus Risso's Dolphin, Grampus [64]		Species or species habitat may occur within area
Megaptera novaeangliae Humpback Whale [38]		Species or species habitat likely to occur within area
Orcaella heinsohni Australian Snubfin Dolphin [81322]	Vulnerable	Breeding likely to occur within area
Orcinus orca Killer Whale, Orca [46]		Species or species habitat may occur within area
Pseudorca crassidens False Killer Whale [48]		Species or species habitat likely to occur within area
Sousa sahalensis Australian Humpback Dolphin [87942]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area
Stenella attenuata Spotted Dolphin, Pantropical Spotted Dolphin [51]		Species or species habitat may occur within area
Tursiops aduncus Indian Ocean Bottlenose Dolphin, Spotted Bottlenose Dolphin [68418]		Species or species habitat likely to occur within area
Tursiops aduncus (Arafura/Timor Sea populations) Spotted Bottlenose Dolphin (Arafura/Timor Sea populations) [78900]		Species or species habitat likely to occur within area
Tursiops truncatus s. str. Bottlenose Dolphin [68417]		Species or species habitat may occur within area

Australian Marine Parks	[Resource Information]
Park Name	Zone & IUCN Categories
Oceanic Shoals	Habitat Protection Zone (IUCN IV)

Park Name	Zone & IUCN Categories
Joseph Bonaparte Gulf	Multiple Use Zone (IUCN VI)
Kimberley	Multiple Use Zone (IUCN VI)
Oceanic Shoals	Multiple Use Zone (IUCN VI)
Joseph Bonaparte Gulf	Special Purpose Zone (IUCN VI)
Oceanic Shoals	Special Purpose Zone (Trawl) (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
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	
Lesueur Island	Nature Reserve	WA	
North Kimberley	Marine Park	WA	
Unnamed WA44677	5(1)(h) Reserve	WA	

EPBC Act Referrals			[Resource Information]
Title of referral	Reference	Referral Outcome	Assessment Status
Boskalis Cambridge Gulf Marine Sand Sourcing Project	2025/10106		Referral Decision
Marine Route Survey for Subsea Fibre Optic Data Cable System - Australia West	2024/09826		Completed

Controlled action			
Bonaparte Liquified Natural Gas Project	2011/6141	Controlled Action	Post-Approval
Development of Blacktip Gas Field	2003/1180	Controlled Action	Post-Approval

Title of referral	Reference	Referral Outcome	Assessment Status
Controlled action			
Ichthys Gas Field, Offshore and onshore processing facilities and subsea pipeline	2008/4208	Controlled Action	Post-Approval
Not controlled action			
2D seismic survey, exploration permit NT/P67	2004/1587	Not Controlled Action	Completed
2D Seismic Survey in Permit Areas WA-318-P & WA-319-P, near Cape Londonderry	2004/1687	Not Controlled Action	Completed
Drilling of Marina-1 Exploration Well	2007/3586	Not Controlled Action	Completed
Marine Survey for the Australia-ASEAN Power Link AAPL	2020/8714	Not Controlled Action	Completed
Nexus Drilling Program NT-P66	2007/3745	Not Controlled Action	Completed
Not controlled action (particular manner)			
2D and 3D Seismic Survey	2011/6197	Not Controlled Action (Particular Manner)	Post-Approval
2D and 3D Seismic Survey WA-405-P	2009/5104	Not Controlled Action (Particular Manner)	Post-Approval
2D and 3D Seismic Survey WA-405-P	2008/4133	Not Controlled Action (Particular Manner)	Post-Approval
2D Marine Seismic Survey	2009/4728	Not Controlled Action (Particular Manner)	Post-Approval
2D marine seismic survey of Braveheart,Kurrajong,Sunshine and Crocodile	2006/2917	Not Controlled Action (Particular Manner)	Post-Approval
2D marine seismic survey within permit area WA-318-P	2007/3879	Not Controlled Action (Particular Manner)	Post-Approval
2D Seismic survey	2009/5076	Not Controlled Action (Particular Manner)	Post-Approval

Title of referral	Reference	Referral Outcome	Assessment Status
Not controlled action (particular manner)			
2D Seismic Survey in WA Permit Area TP/22 and Commonwealth Permit Area WA-280-P	2005/2100	Not Controlled Action (Particular Manner)	Post-Approval
3D Marine Seismic Survey	2009/4681	Not Controlled Action (Particular Manner)	Post-Approval
Bonaparte 2D & 3D marine seismic survey	2011/5962	Not Controlled Action (Particular Manner)	Post-Approval
Bonaparte Seismic and Bathymetric Survey	2012/6295	Not Controlled Action (Particular Manner)	Post-Approval
Fishburn2D Marine Seismic Survey	2012/6659	Not Controlled Action (Particular Manner)	Post-Approval
Floyd 3D and Chisel 3D Seismic Surveys	2011/6220	Not Controlled Action (Particular Manner)	Post-Approval
Gold 2D Marine Seismic Survey Permit Areas WA375P and WA376P	2009/4698	Not Controlled Action (Particular Manner)	Post-Approval
Joseph Bonaparte Gulf Seabed mapping survey	2010/5517	Not Controlled Action (Particular Manner)	Post-Approval
Kingtree & Ironstone-1 Exploration Wells	2011/5935	Not Controlled Action (Particular Manner)	Post-Approval
Marine Environmental Survey 2012	2012/6310	Not Controlled Action (Particular Manner)	Post-Approval
Nova 3D Seismic Survey	2013/6825	Not Controlled Action (Particular Manner)	Post-Approval
NT/P77 3D Marine Seismic Survey	2009/4683	Not Controlled Action (Particular	Post-Approval

Title of referral	Reference	Referral Outcome	Assessment Status
Not controlled action (particular manner)			
		Manner)	
NT/P80 2010 2D Marine Seismic Survey	2010/5487	Not Controlled Action (Particular Manner)	Post-Approval
Offshore Fibre Optic Cable Network Construction & Operation, Port Hedland WA to Darwin NT	2014/7223	Not Controlled Action (Particular Manner)	Post-Approval
Petrel MC2D Marine Seismic Survey	2010/5368	Not Controlled Action (Particular Manner)	Post-Approval
Removal of Potential Unexploded Ordnance within NAXA	2012/6503	Not Controlled Action (Particular Manner)	Post-Approval
Santos Petrel-7 Offshore Appraisal Drilling Programme (Bonaparte Basin)	2011/5934	Not Controlled Action (Particular Manner)	Post-Approval
Sonar and Acoustic Trials	2001/345	Not Controlled Action (Particular Manner)	Post-Approval
Westralia SPAN Marine Seismic Survey, WA & NT	2012/6463	Not Controlled Action (Particular Manner)	Post-Approval

Referral decision			
2D Marine Seismic Survey	2008/4623	Referral Decision	Completed
Nova 3D Seismic Survey, WA 442-NT/P81, Joseph Bonaparte Gulf	2013/6820	Referral Decision	Completed

Key Ecological Features

[[Resource Information](#)]

Key Ecological Features are the parts of the marine ecosystem that are considered to be important for the biodiversity or ecosystem functioning and integrity of the Commonwealth Marine Area.

Name	Region
Carbonate bank and terrace system of the Sahul Shelf	North-west
Carbonate bank and terrace system of the Van Diemen Rise	North

Name		Region	
Pinnacles of the Bonaparte Basin		North	
Pinnacles of the Bonaparte Basin		North-west	
Biologically Important Areas		[Resource Information]	
Scientific Name		Behaviour	Presence
Dolphins			
Orcaella heinsohni			
Australian Snubfin Dolphin [81322]		Foraging	Known to occur
Orcaella heinsohni			
Australian Snubfin Dolphin [81322]		Reproduction	Known to occur
Orcaella heinsohni			
Australian Snubfin Dolphin [81322]		Resting	Known to occur
Sousa sahalensis			
Australian Humpback Dolphin [87942]		Foraging	Likely to occur
Marine Turtles			
Caretta caretta			
Loggerhead Turtle [1763]		Foraging	Known to occur
Chelonia mydas			
Green Turtle [1765]		Foraging	Known to occur
Chelonia mydas			
Green Turtle [1765]		Reproduction	Likely to occur
Lepidochelys olivacea			
Olive Ridley Turtle [1767]		Foraging	Known to occur
Natator depressus			
Flatback Turtle [59257]		Foraging	Known to occur
Natator depressus			
Flatback Turtle [59257]		Reproduction	Known to occur
Seabirds			
Fregata ariel			
Lesser Frigatebird [1012]		Reproduction	Known to occur
Sterna dougallii			
Roseate Tern [817]		Reproduction	Known to occur

Scientific Name	Behaviour	Presence
Thalasseus bengalensis		
Lesser Crested Tern [66546]	Reproduction	Known to occur

Sharks		
Rhincodon typus		
Whale Shark [66680]	Foraging	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.

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APPENDIX C RELEVANT PERSONS CONSULTATION

Appendix C1: Bridging Document

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APPENDIX C1:

RELEVANT PERSONS CONSULTATION METHODOLOGY FOR ENVIRONMENT PLANS – BRIDGING DOCUMENT

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1. DEFINITIONS

The definitions in **Table 1-1** are used as the basis for the approach to identifying and consulting with relevant persons and are referred to throughout this Document.

Table 1-1: List of Definitions

DEFINITION	DESCRIPTION
ACCOS	Aboriginal Community Controlled Organisations
Activities	In relation to sub-regulation 25(1) of OPGGS(E) Regulations, something a relevant person (or group) is already doing where ' <i>A person or organisation whose functions, interests or activities may be affected</i> ' by the project. The definition can also refer to the titleholder's proposed offshore petroleum or greenhouse gas activities that are linked to the relevant environmental plan (in such instances, this will be explicitly specified).
ALRA	The Aboriginal Land Rights (Northern Territory) Act (Commonwealth)
Consultation period	Defines the general consultation period during development of the EP. The consultation period is set from the first email to relevant persons and is at least a six-week period (30 business days) from that point. Where dialogue with relevant persons continues after this period, Eni will continue to consult until Eni believes it has provided sufficient evidence and/or justification to close the consultation.
EMBA	The <i>environment that may be affected</i> , as defined in the Environment Plan and shown in an associated figure/image. Broadly, it is the area within which the environment that may be affected from unplanned activities, encompassing the outermost boundary of the worst-case spatial extent of credible hydrocarbon release scenarios.
Environment Plan (EP)	Under assessment by NOPSEMA, the EP is a formal, comprehensive document prepared by a titleholder that: - describes a proposed offshore petroleum or greenhouse gas activity, including its location and operational details - identifies and assesses potential environmental impacts/risks of the activity - sets out environmental management measures/controls to be implemented to ensure impacts/risks are reduced to as low as reasonably practicable (ALARP) - includes an implementation strategy detailing how environmental performance outcomes and standards will be achieved, monitored, recorded and reviewed - Must be submitted to and accepted by NOPSEMA before the activity can commence,
EP Implementation Engagement	Following the consultation period, arrangements for ongoing consultation with relevant authorities, persons, and organisations is included in the implementation strategy. This further demonstrates that there is effective two-way dialogue in place between the titleholder and those relevant persons (as per OPGGS(E) Regulations Subsection 22[15]).
EP overall spatial extent	The footprint of the petroleum activities, being the Operational Area; the zone of potential impact (ZPI); and the environment that may be affected (EMBA).
Functions	In relation to sub-regulation 25(1) of OPGGS(E) Regulations, Functions refers to a power or duty of a relevant person (or group) to do something where their ' <i>functions, interests or activities may be affected</i> ' by the project.
Interests	In relation to sub-regulation 25(1) of the OPGGS(E) Regulations. Interests represent a connection by a relevant person (or group) to the values described in the EP where their ' <i>functions, interests or activities may be affected</i> ' by the project. It is any interest possessed by an individual, whether or not the interest amounts to a legal right or is a proprietary or financial interest or relates to reputation. However, an interest does not extend to general, public interest in an activity.
Interested person	A person who may have a general interest in the activities but is not a <i>relevant person</i> .
Joseph Bonaparte Gulf general zone	The broader, socio-economic footprint that extends beyond the Operational Area, ZPI and EMBA and in range of Darwin, Tiwi Islands, Wadeye, Kununurra, Wyndham and Kalumburu.

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DEFINITION	DESCRIPTION
NOPSEMA	The National Offshore Petroleum Safety and Environmental Management Authority - responsible for regulating environmental legal requirements for offshore petroleum and greenhouse gas activities in Commonwealth waters – including the assurance that appropriate consultation has taken place during titleholders preparing their EPs.
NT	Northern Territory
Objection or claim	May include: - An expression of opposition, protest, concern or complaint about proposed activities. - An assertion that there will be an adverse impact. - A request or demand that certain action be taken by the titleholder to address adverse impacts. - An allegation that may cast doubt on the manner in which activities will be managed.
Operational Area	The geographical area that defines the outer bounds within which the proposed activity will be conducted, as defined in the EP and shown in an associated figure/image. It includes the area where vessels and equipment will operate, where survey lines or drilling will occur, and other routine operational movements associated with the activity – but it does not include transit routes to and from the activity area.
OPGGS(E) Regulations	The Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations.
Reasonable period	A reasonable time for relevant persons to consider the effect of a proposed activity on their functions, interests or activities and have opportunity to make a response detailing any objections or claims. Defined by the consultation period.
Reasonable attempt	The fair and manageable effort to make contact with all identified relevant persons for the EP (where a reasonable and workable avenue exists). Recognising that specific consultation methods of engagement and ways to pass on information may vary for different groups of relevant persons.
Relevant matter	A matter raised by a relevant person that has been assessed as being relevant to the activity. May also include a request for further relevant information, or provision of information that is relevant to the activities.
Relevant person	Can be a person, organisation, department or agency that falls within one of the categories as defined by sub-regulation 25(1) of the OPGGS(E) Regulations; however, it does not include those whose functions, interests or activities will only be affected by an activity in an immaterial or negligible way.
Sensitive information	Captures all personal information about an individual/group that is contained in information given in the consultation period or any other person during public comment on an EP - as defined in S.5 of the OPGGS(E) Regulations.
Stakeholder	Any individual, group and/or organisation who can affect, or be affected by, or perceive itself/themselves to be affected by a project/program and therefore potentially, may have a stake in its outcome (both relevant persons and interested persons are considered stakeholders).
Subject matter experts (SME)	Specialists from either within Eni or contracting to Eni, such as engineers, environment team members, stakeholder relations specialists, Aboriginal affairs consultants and other technical experts relative to the activities.
Values	Values described in the EP, broadly: - natural values - cultural and heritage values - socioeconomic values.
WA	Western Australia
Zone of Potential Impact (ZPI)	The ZPI (or moderate exposure zone) as defined in the EP and shown in an associated figure/image. The ZPI is smaller than the EMBA and may be representative of an area of greater biological impact from hydrocarbons – in comparison to the EMBA.

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2. INTRODUCTION

This Appendix serves as a *Bridging Document* between Eni's corporate management system requirements and the Australian regulatory requirements for consulting with relevant persons in Northern Australia and specifically, the Joseph Bonaparte Gulf, when developing and/or revising an Environment Plan (EP) under the Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations.

The document outlines the approach that Eni utilises for the identification of, and consultation with, relevant persons as required; and encompasses both an internal (Eni Corporate) perspective as well as a (OPGGs) regulatory perspective. All relevant person consultation for EPs is performed in accordance with the intentions set within this *Bridging Document*.

This document articulates:

- the process for identifying all relevant persons that are applicable to an EP.
- the consultation process, including the preparation of appropriate consultation materials and the various forms of consultation for each relevant person identified, as well as the assessment of information and feedback received.
- all other information to demonstrate that appropriate consultation is undertaken in accordance with the OPGGS(E) Regulations, including the method of how additional information is incorporated into the EP as a result of consultation.

2.1 Eni's Corporate Management System Documentation

Eni's MSG, *Responsible and Sustainable Enterprise* [MSG-SSC-ENI SPA-ENG-R03] is the management system guideline (MSG) that defines the rules of conduct and principles to be observed in carrying out activities and serves as the overarching corporate guide for stakeholder engagement. The MSG's associated *Annex E, Sustainability Stakeholder Engagement* provides a methodology for:

- *identifying, analysing and ensuring adequate engagement of stakeholders*
- *assessing and monitoring engagement*
- *identifying and responding to Stakeholder interests and requests.*

Sustainability Stakeholder Engagement is a wide and inclusive process between Eni and its stakeholders that contributes to the development of trust-based and transparent stakeholder relationships.

A responsible and sustainable approach represents the logic for creating value in the medium and long-term for both Eni and for all stakeholders, combining financial stability with social and environmental sustainability. In fact, a key goal for Eni is ensuring that its activities are implemented to respect and consider the perspective of all concerned stakeholders in the protection of the environment in countries where we operate.

Eni's *Responsible and Sustainable Enterprise Model* hereunder (**Figure 2-1**) highlights the importance of an '*Understanding of the context*' where the company mandates identifying and getting to know stakeholders to create long-lasting relationships and contribute together, towards sustainable development.

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Figure 2-1: Eni's Responsible and Sustainable Enterprise Model

In addition to identification and understanding of stakeholders within Eni's *Responsible and Sustainable Enterprise Model*, understanding the global and local contexts are also essential. This includes obtaining in-depth knowledge about local social-economic conditions, and the consideration of specific in-country regulatory requirements.

2.2 The OPGGS Environment (E) Regulatory Requirements

The *Offshore Petroleum and Greenhouse Gas Storage Act 2006* (OPGGS Act) and associated *OPGGS (Environment) Regulations 2023* provides the legal framework for offshore petroleum and greenhouse gas activities in Commonwealth waters (those areas more than 3 nautical miles from the territorial sea baseline).

This primary legislation that regulates these offshore petroleum and greenhouse gas activities requires all activities be undertaken in an ecologically sustainable manner, and in accordance with an accepted EP.

In terms of consultation, the OPGGS(E) Regulations (Part 4, Division 3) require that when developing or revising an EP, titleholders must consult with relevant authorities, persons and organisations – all collectively defined as 'relevant persons'.

The National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA) is responsible for regulating environmental legal requirements for offshore petroleum and greenhouse gas activities in Commonwealth waters – including the assurance that appropriate consultation has taken place in the course of titleholders preparing their EPs.

OPGGS(E) Regulation 25 requires a titleholder to undertake consultation with relevant persons while preparing a new EP or a revision to an EP. Specifically OPGGS(E) Regulation 25 requires:

1. In preparing an EP, a titleholder must consult each of the following 'relevant persons':
 - a) each Commonwealth, State or Northern Territory agency or authority to which the activities to be carried out under the EP may be relevant,
 - b) if the plan relates to activities in the offshore area of a State - the Department of the responsible State Minister,

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- c) if the plan relates to activities in the Principal Northern Territory offshore area
- the Department of the responsible Northern Territory Minister,
 - d) a person or organisation whose functions, interests or activities may be affected by the activities to be carried out under the EP,
 - e) any other person or organisation that the titleholder considers relevant.
2. For the purpose of the consultation, the titleholder must give each relevant person sufficient information to allow the relevant person to make an informed assessment of the possible consequences of the activity on the functions, interests or activities of the relevant person.
 3. The titleholder must allow a relevant person a reasonable period for the consultation.
 4. The titleholder must tell each relevant person that the titleholder consults that:
 - a) the relevant person may request that particular information the relevant person provides in the consultation not be published, and
 - b) information subject to such a request is not to be published under this Part.

2.3 Eni Australia's Process for Relevant Person Consultation

As indicated in its corporate MSG and associated *Annex E, Sustainability Stakeholder Engagement*, Eni's strategy has been, and is, to develop and maintain long-term relationships with stakeholders (including relevant persons) in and around its operations, both onshore and offshore. This approach often results in consultation and engagement at levels above and beyond that required for the purposes of compliance with the OPGGS(E) Regulations.

Since commencing its Northern Territory 'Blacktip' operations (2009), and through the implementation of the associated Blacktip Stakeholder Management Plan (SMP) [0000_DV_PR.DPM.0110.000], Eni continues to maintain stakeholder relationships across Northern Australia and specifically, the Joseph Bonaparte Gulf region. As a component of that SMP, Eni maintains a database of interested persons, being those individuals, groups and/or organisations who may have an interest in current onshore and offshore activities. These interested persons and other stakeholders are also considered for identification as relevant persons for other EP activities.

Figure 2-2 outlines the process Eni follows across all assets, in the consideration of authentic engagement of stakeholders that have an interest in any associated activities.



Figure 2-2: Eni's Process for Engaging with Relevant Persons

This model has also been implemented under this *Bridging Document* to show the clear process Eni undertakes to identify and engage with relevant persons associated with the activities within EPs.

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3. REGULATIONS AND GUIDELINES

Table 3-1 overviews the industry and regulatory guidelines considered when developing this *Bridging Document* in the context of the associated consultation approach for Eni EPs.

Table 3-1: Guidance or Guidelines Relevant to the Consultation Approach

GUIDANCE OR GUIDANCE DOCUMENT	CONTENT
Australian Fisheries Management Authority (2025): Offshore energy industry consultation with the commercial fishing industry. https://www.afma.gov.au/afmas-research/offshore-energy-industry-consultation-commercial-fishing-industry	Provides information for the offshore energy industry, including petroleum and wind power, on consulting with the Commonwealth commercial fishing industry.
Australian Institute of Aboriginal and Torres Strait Islander Studies: Native Title Information Handbook Northern Territory 2016	A handbook produced by AIATSIS that explains how Native Title, Indigenous Land Use Agreements, Cultural Heritage, and Indigenous Protected Areas are administered in the NT.
Commercial Fishing Consultation Framework for the Offshore Oil and Gas Sector (WAFIC, October 2024)	WAFIC's guidelines to support EP consultation requirements and deliver conducive outcomes for the commercial fishing industry.
WAFIC (2025): Consultation approach for Unplanned Events https://www.wafic.org.au/what-we-do/access-sustainability/oil-gas/consultation-approach-for-unplanned-events/	WAFIC's preferred approach in undertaking consultation with commercial fishing licence holders that will only be affected by a significant unplanned event (emergency scenario).
DCCEEW, (2025): Engagement with First Nations People under the EPBC Act https://www.dcceew.gov.au/environment/epbc/advice/engagement-first-nations-people-referrals-under-epbc-act	Outlines statutory obligations that apply to, and DCCEEW's expectations of, proponents engaging with First Nations people/communities under Environment Protection and Biodiversity Conservation Act (1999).
Kimberley Land Council: Native Title Story – An Introduction to Native Title and Prescribed Bodies Corporate (2019)	An information resource for Kimberley T.O.s providing an overview of the native title process and the role of PBCs.
Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2023 Replacement Explanatory Statement (pdf)	An explanatory statement issued by the authority of the Minister for Resources to explain the OPGGS Act 2006 associated OPGGS (Environment) Regs.
NOPSEMA and Director of National Parks Australia Guidance Note: Petroleum activities and Australian Marine Parks (Doc#: N-04750-GN1785 A620236 2025)	Provides guidance to assist titleholders to understand their obligations to manage risks/impacts to Australian Marine Parks and to support consultation with the Director of National Parks.
NOPSEMA Form: Titleholder report on consultation in the preparation of an Environment Plan (Doc#: N-04750-FM2281 A1185531 2025)	NOPSEMA template developed to assist titleholders in presenting well-structured and articulated report on consultation effectively within their EPs.
NOPSEMA Guidance Note: Responding to public comment on Environment Plans (Doc#: N-04750-GN1847 A662607 2024)	Specifically provides guidance to assist titleholders in understanding the public comment process for seismic and exploratory drilling EPs (for reference only)
NOPSEMA Guideline: Consultation in the course of preparing an Environment Plan (Doc#: N-04750-GL2086 A900179 2024)	Provides guidance to support clarity on legal requirements and what NOPSEMA considers in assessing whether consultation requirements of the OPGGS(E) Regs have been met (incl. Santos v Tipakalippa [2022] - appeal decision case law), in titleholders' preparing EPs prior to submission.
NOPSEMA Guideline: Consultation with commonwealth agencies with responsibilities in the marine area (Doc#: N-04750-GL1887 A705589 2024)	Provides guidance on consultation for EPs, with relevant Australian Government agencies with responsibilities in the Commonwealth marine area.
NOPSEMA Guideline: Environment Plan decision making (Doc#: N-04750-GL1721, 2024)	Sets out NOPSEMA's considerations in making decisions in accordance with the legislated criteria relevant to EPs. Some clear definitions are extracted from this guideline.
NOPSEMA Info Brochure: Consultation on Offshore Petroleum EPs - Information for the Community' (May 2023)	An brochure created for members of the community who may be relevant persons under the OPGGS (E) Regulations.

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4. RELEVANT PERSON IDENTIFICATION AND ANALYSIS

4.1 Relevant Person Identification

The potential to create long-term value depends on Eni's ability to interact with all stakeholders and reinforce mutual trust. To ensure the involvement of local stakeholders, the method for engagement results from stakeholder identification, knowledge and prioritisation, and on a broader holistic level, results in the development of Eni's overarching Stakeholder Management Plan (SMP).

With most of Eni's activities occurring in and around northern Australia (specifically the Kimberley and Northern Territory) a recent initiative in 2025, has been for Eni to build an all-encompassing *Northern Australia Stakeholder Register*. This dynamic and regularly updated document acts as Eni's database of interested and relevant persons across the region - being those individuals, groups and/or organisations who may have an interest in Eni's onshore and offshore activities.

In the identification of relevant persons for specific EPs, whilst not all stakeholders from the *Northern Australia Stakeholder Register* may have functions, interests and/or activities that may be affected by particular petroleum activities, the Register provides a base database and is considered alongside other geographically related information for such identification.

Eni's MSG, *Responsible and Sustainable Enterprise* outlines that identifying and understanding stakeholders, with particular attention to those impacted directly and indirectly, is the primary tool for understanding the potential or perceived impacts that Eni can have on them. Furthermore, identification and analysis allow for consideration of the most effective methods for involving them.

To identify relevant persons, the required inputs include:

- a description of the petroleum activities detailed within the EP and an assessment of the impacts and risks from both planned and unplanned events.
- the overall spatial extent of the petroleum activities, being the Operational Area (OA); the zone of potential impact (ZPI); and the environment that may be affected (EMBA)
- a review of marine user groups and interest groups active in the overall spatial extent, such as licence holders of commercial fisheries, charter operators and Traditional Owner groups.
- the Joseph Bonaparte Gulf general zone – the broader, socio-economic footprint that extends beyond an EP's overall spatial extent and is in range of Darwin, Tiwi Islands, Wadeye, Kununurra, Wyndham and Kalumburu.
- A consideration of the adoption of any relevant persons identified in other EPs that are in proximity to Eni's activities in the Joseph Bonaparte Gulf general zone.
- discussions with identified relevant persons, industry organisations and other general engagement stakeholders to identify other potentially relevant persons

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Identification of relevant persons is also supported by the categories as defined by sub-regulation 25(1) (a)-(e) of the OPGGS(E) Regulations. **Table 4-1** below, presents the categories and some examples of those relevant persons against the identifiers required under sub-regulation 25(1) (a)-(e) of the OPGGS(E) Regulations. Also presented in **Table 4-1** is the detail and data sources used for relevant persons identification for Northern Australia and specifically, the Joseph Bonaparte Gulf.

The *EP Relevant Persons Register* is further built out as Eni further identifies relevant persons during the implementation of the EP consultation process. During implementation, new information may become available to inform the extent of effect of an activity on a newly identified relevant person's functions, interests or activities. This may result in a new relevant person being added to the Register, or a wrongly identified relevant person (who communicate they are not 'relevant') being removed.

Figure 4-1 summarises the process of identifying relevant persons for this EP.

4.1.1 Self-Identified Relevant Persons

Eni notes that there may be additional, self-identified relevant persons, and efforts are made to facilitate their identification through extended enquiry (with links to published consultation materials) to notify broadly of the activities during the EP preparation phase.

In embarking on extended enquiry and combined with conducting specific planned consultations with already-identified relevant persons, Eni appreciates that this may result in the self-identification of further, additional relevant persons. A strategy is in place for such persons to contact Eni, via a specific email address and/or phone contact. As outlined above, newly identified relevant persons are added to the *Relevant Persons Register* and are consulted in the manner described within this Bridging Document.

All the above considerations result in the development and finalisation of a list of the identified relevant persons which then forms the specific *EP Relevant Persons Register* (Appendix C2).

Eni then undertakes a qualitative process of confirming the initial relevant person identification process above, through the strategic implementation of an internal Stakeholder Mapping Workshop - which is detailed in **Section 4.3**.

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Table 4-1: Relevant Person Categories and Data Sources and Factors Considered to Identify Relevant Persons

Category	Definition	Data Sources Used to Determine Relevance	Factors Considered in RP Determination	Examples of relevant persons
25(1) a	Each Commonwealth, State or Northern Territory agency or authority to which the activities to be carried out under the EP may be relevant;	- relevant data previously obtained from other activities' EP consultation operating in the same general location. - relevant and/or new information from previous general engagement stakeholder meetings. www.directory.gov.au/ www.wa.gov.au/agency www.nt.gov.au/about-government/government-agencies www.nt.gov.au/about-government/the-cabinet www.parliament.wa.gov.au/parliament/memblast.nsf/WAMembers www.wa.gov.au/government/premier-and-cabinet-ministers www.aph.gov.au/about_parliament/parliamentary_departments/parliamentary_library/parliamentary_handbook/current_ministry_list www.nopta.gov.au/legislation-and-compliance/legislative-overview/relevant-decision-makers.html - NT Councils Local Government Association of the NT. - Western Australian (WALGA) online Local Government Directory.	Government departments and agencies defined under sub-regulation 25(1) are deemed relevant where their functions or activities overlap the Operational Area, ZPI and/or EMBA. Coastal Local Governments with boundaries and where shoreline contact is predicted are deemed relevant. Consideration is also given to whether a Local Government is located in or near the general area of Eni's long-term area of operational presence.	- Aust. Hydrographic Office (AHO) - Aust. Maritime Safety Auth (AMSA) - Dept. Climate Change, Energy, Environment & Water (DCCEEW) - Department of Defence (DoD) - Dept. Agric, Fish, & Forestry (DAFF) - Aust. Fisheries Management Authority (AFMA) - National Indigenous Australians Agency (NIAA) - Dept Chief Minister & Cabinet (NT) - Dept. Environment, Parks & Water Security (DEPWS) - Dept. Agriculture & Fisheries NT - Dept. Primary Industries and Regional Development WA (DPIRD) - Dept. Biodiversity, Conservation & Attractions WA (DBCA) - Dept. of Transport WA (DoT) - West Daly Regional Council
25(1) b	If the plan relates to activities in the offshore area of a State—the Dept of the responsible State Minister;	- relevant data previously obtained from other activities' consultation operating in the same general location. www.wa.gov.au/agency	Relevant persons defined under sub-regulation 25(1) b is limited to the department of the responsible State minister for Mining and Energy.	Dept of Mines, Petroleum and Exploration WA (DMPE)
25(1) c	If the plan relates to activities in the Principal NT offshore area—the Dept of the responsible NT Minister	- relevant data previously obtained from other activities' consultation operating in the same general location. - Support from NT government agencies for names of key contacts www.nt.gov.au/about-government/government-agencies	Relevant persons defined under sub-regulation 25(1) c is limited to the department of the responsible Northern Territory minister for Mining and Energy.	Department of Mining and Energy - NT (DME-NT)

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Category	Definition	Data Sources Used to Determine Relevance	Factors Considered in RP Determination	Examples of relevant persons
25(1) d	A person or organisation whose functions, interests or activities may be affected by the activities to be carried out under the EP	- relevant data previously obtained from other activities' EP consultation operating in the same general location. - relevant and/or new information from previous general engagement stakeholder meetings. - input from internal and local subject matter experts. - National Native Title Tribunal Register of Native Title Claims and Determinations. - Marine Park Management Plans and associated Ranger groups and sea country mapping. - NIAA (National Indigenous Australians Authority) local knowledge of Traditional Owner groups in the Kimberley and Northern Territory. - Commonwealth, State and Territory fishery management areas and associated industry representative bodies. - licence holder databases, historic fishing effort reports/publications developed by relevant Commonwealth/State/Territory departments - NOPTA online title search interactive map (NEAPS) of titleholders adjacent to or near the project EMBA - Desktop research / web searches for offshore tourism operators - subject matter and local expertise (e.g from local CCIs)	All organisations representing First Nations people who are associated by location with the ZPI and/or EMBA are conservatively considered relevant persons under category 25 1(d). Commercial, recreational and tourism fishers with fishery areas that overlap the Operational Area, ZPI and/or EMBA are considered relevant persons. Consideration given as to whether an Oil and gas or greenhouse gas neighboring titleholder is within approximately a 100 km radius of the project activities. Also, those regional/local businesses reliant on marine or coastal environments overlapping the ZPI and/or EMBA are considered relevant.	- Northern Land Council - Kimberley Land Council - Thamarrurr Development Corp. - Balanggarra Aboriginal Corp. - MG Corp - Larrakia Development Corporation - Thamarrurr, Balanggarra and Kwinj Rangers - other Aboriginal Corporations & ACCOs - Northern Prawn Fishery (NPF) - Individual Commercial Fishers - Aboriginal Coastal Fishers (Wadeye) - Regional fishing and tourism businesses - Regional NT and WA businesses - Titleholders – Inpex; Santos; Melbana., EOG
25(1) e	Any other person or organisation that the titleholder considers relevant	- relevant data previously obtained from other activities' EP consultation operating in the same general location. - relevant and/or new information from previous general engagement stakeholder meetings. - Australian Fisheries Management Authority (afma.gov.au) list of industry association contacts - online web search of environmental organisations with an active interest in areas of WA and the NT.	State, Territory and local NGOs and environmental advocacy groups with invested interests within the OA, ZPI and/or EMBA. Research organisations Industry representative bodies, Chambers of Commerce and Industry, and other organisations that self-identify.	- NT Seafood Council (NTSC) - WA Fishing Industry Council (WAFIC) - East Kimberley CCI - Kimberley Marine Tourism Association - Environs Kimberley - Wilderness Society - Environment Centre NT - Australian Marine Sciences Association

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4.2 Relevant Person Analysis - Stakeholder Mapping Workshop

4.2.1 Workshop Purpose, Elements and Attendees

The purpose of the EP Stakeholder Mapping Workshop is to:

- ensure a collective understanding of the scope of work and its potential impact on relevant persons;
- confirm the identification of relevant persons that have been entered into the *specific EP Relevant Persons Register* (Appendix C2);
- analyse relevant persons' levels of disposition and relevance in terms of priority for consultation; and
- ensure full internal alignment on the process of how relevant person consultation will be carried out.

Elements of the EP Stakeholder Mapping Workshop includes:

1. Project activities overview - ensuring an aligned understanding of all EP Activities.
2. A professional learning overview including:
 - the importance of both best practice engagement and regulatory consultation across the offshore petroleum lifecycle
 - engagement vs. consultation definitions
 - stakeholder vs. relevant person definitions.
3. Confirmation of the initial relevant person identification process
4. Relevant person analysis and classification/mapping into priority target groups
5. Strategy alignment on the process for consultation, including confirmation of consultation communications tools (Appendix C3); and roles and responsibilities in attending to the *Relevant Persons Register* (Appendix C2); the *Relevant Persons Consultation Efforts Log* (Appendix C4a); the *Relevant Persons Consultations Feedback Assessment* (Appendix C4b); and the Sensitive Matters Report.

Third party consultation SMEs coordinate the Workshop and work alongside the third-party environmental planning development experts with Eni personnel.

Attendees then, include:

- Executive leadership/management
- The relevant Project leadership team
- Health, Safety, Environment and Quality team
- Stakeholder Engagement and Sustainability team
- Third-party environmental and consultation SMEs

4.2.2 Stakeholder Mapping

Through the Stakeholder Mapping Workshop, a key task is for Eni to qualitatively confirm the relevant person identification process. This process considers coastline, nearshore and sea country scopes, to ensure all potential relevant persons have been initially identified in order to afford them the opportunity to comment on the petroleum activities in the EP.

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Another key task of the Stakeholder Mapping Workshop is for Eni personnel and third-party SMEs to collectively analyse relevant persons' levels of disposition and relevance, to be able to map them into target groups in terms of priority for consultation.

For *Stakeholder Disposition*, participants consider each relevant person's view of Eni's activities based on how Eni, undertaking the activities outlined in the EP, affects them.

Stakeholder Relevance considers a combination of three factors, being *Stakeholder Influence*; *Stakeholder Dependence*; and *Stakeholder Networking*.

- *Stakeholder Influence* considers each relevant person's ability to influence Eni's decisions and/or activities.
- *Stakeholder Dependence* refers to each relevant person's dependence on Eni's activities, in terms of potential opportunities (employment, social & economic development) and or socio-environmental impact (i.e the EMBA).
- *Stakeholder Networking* considers each relevant person's ability to modify the opinions of other Stakeholders as a result of the scope and strength of their networks.

Figure 4.2 provides an illustrative overview of this and also shows the level of priority assigned to relevant persons based on their analysis.

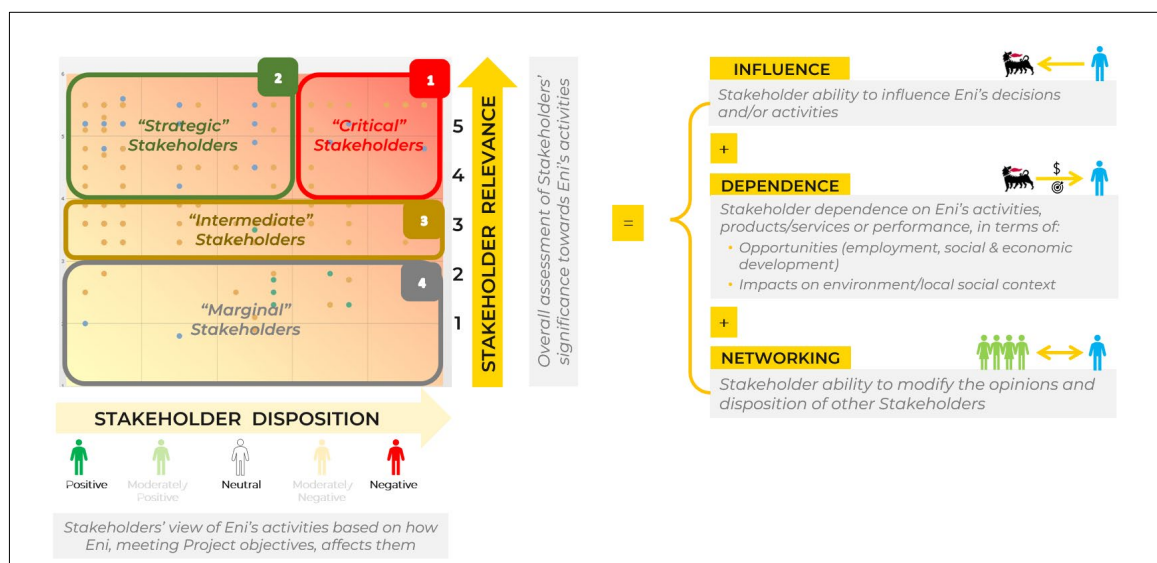


Figure 4-2: Relevant Person Analysis and Target Grouping

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5. RELEVANT PERSON CONSULTATION PLANNING

5.1 Provision of Information to Relevant Persons

Sub-regulation 25 (2) of the OPGGS(E) Regulations requires that:

For the purpose of the consultation, the titleholder must give each relevant person sufficient information to allow the relevant person to make an informed assessment of the possible consequences of the activity on the functions, interests of activities or the relevant person.

Eni's *Annex E: Sustainability Stakeholder Engagement* (Section 4.3.1.2: *Information for Stakeholders*), asserts that information provision needs to be applicable to different types of stakeholders in accordance with the most appropriate methods and channels. Consultation is carried out taking into account technical limitations of the local audience whilst ensuring the appropriate amount of relevant detail.

In accordance with the above, when developing consultation materials, the information provided to relevant persons in high-level materials (e.g., EP fact sheets, presentations) is developed as follows:

- information around, 'What is an Environment Plan?'.
- statement of reasons as to why potential relevant persons have been identified and are being consulted.
- summary of activity description, including location, timing and duration, distances from the Australian coastline and a map with coordinates listed.
- high-level descriptions of the Operational Area, Zone of Potential Impact (ZPI) and environment that may be affected (EMBA).
- summary of potential impacts associated with the activity, including a high-level description of emissions, discharges and wastes and summary of management controls to be implemented.
- Inclusion of QR code and website links with specific project-related email and phone contacts.
- Provision of, and referral to, the NOPSEMA Information Brochure, 'Consultation on Offshore Petroleum Environment Plans - Information for the Community'.
- Information regarding the management of feedback and sensitive information.

The information provided also provides advice from the relevant person as to next steps for consultation and Eni's expectations on a response (i.e., what information is being sought, within what timeframe and how the information will be used).

5.2 Planning and Preparing for Consultation

In accordance with Eni's *Annex E: Sustainability Stakeholder Engagement* (Section 4.3.1.2: *Information for Stakeholders*) where possible, the provision of information is to be considered a preliminary step towards a more proactive and interactive involvement of Stakeholders.

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The MSG *Annex* outlines that a well-planned stakeholder engagement strategy involves engagement (and/or consultation) linked to mapping the prioritisation of stakeholders based on the assessment of their needs and/or requirements and the analysis of issues of interest to them. This is achieved through the process outlined in **Figure 4.2**.

For each relevant person, then grouped into Groups 1 through to 4, a defined strategy for prioritisation is followed to identify the level and method of engagement and/or consultation.

In addition, and for further consideration, Eni's MSG *Annex E, Sustainability Stakeholder Engagement* identifies various targets and criteria to be considered. These include:

- the characteristics of the cultural and regulatory context
- the needs, capacities and expectations of the stakeholder
- the nature of the potential relationship to be developed with a given stakeholder (e.g. the more necessary the engagement, the higher the level of effort required)
- the prevention, minimisation and/or management of any issues related to Eni's presence.

Primarily, all the above determine Eni's consideration of face-to-face contact to ensure authentic and responsive two-way dialogue with relevant persons.

As per **Table 5-1** below, the MSG *Annex* also proposes an illustrative and non-exhaustive list of engagement methods, based on having different levels of engagement according to stakeholder prioritisation

Table 5-1: Engagement Methods Vs. Stakeholder Prioritisation

Engagement levels		Engagement methods	Recommended application in the quadrants of the Relevance & Disposition Matrix			
	Type of action					
	Monitoring Analysis carried out by the Company without direct involvement of the Stakeholder	• Collection of media information • Monitoring internet and print media				
	Information <u>One-way communication</u> , from the Company to the Stakeholder	• Newsletters and letters • Brochures • Disclosure on media • Public speeches, conferences and presentations				
	Consultation <u>Two-way involvement</u> , the Company consults the Stakeholder with regard to specific aspects	• Community meetings (via Community Liaison Officers) • Survey and Focus group • Meeting with specific Stakeholders • Public meetings • Workshops				
	Participation <u>Broad two-way or multi-directional involvement</u> , the purpose of the involvement between the company and the Stakeholder is finding out the needs, however without mutual obligations to undertake actions	• Multi-stakeholder forum • Advisory panels • Participatory decision-making processes • Focus group				
	Collaboration <u>Broad two-way or multi-directional involvement</u> , the purpose of the involvement between the company and the Stakeholder is finding out the needs, accepting mutual obligations to undertake actions	• Cooperation/partnership agreements • Multilateral initiatives				
	Empowerment Company decisions are made with broad involvement of the stakeholder, who can help orient them	Integration of the stakeholders in company governance, strategy and operations				

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For the EP, in order to prepare for effective consultation to take place, a number of strategies are applied to ensure all relevant person groups: appropriately receive all information; are provided a reasonable opportunity for input; and are given opportunity to participate in genuine two-way dialogue.

Planning and preparation for consultation includes:

- Development of high-level information pack resources of detailed information (e.g., EP Fact Sheets; Web Landing Page; FAQs).
- Preparation of content, lay-out and QR code for newspaper advertisements and preparation of script for radio advertisements.
- Tailored content preparation for consistency of message in correspondence, emails and phone calls and follow-up phone calls.
- Preparation of other targeted materials (e.g., slide-sets and handouts), for distribution at meetings and roadshows (in person and online).

Note that materials for consultation with communities including First Nations relevant persons may be adapted to optimise audience understanding. Copies of adapted materials will be included in Appendix C3: 'Consultation Materials'.

5.2.1 Planning for the Tracking of Effective Consultation

Over the default consultation period of 30 business days, as consultation progresses, to track and assess whether two-way dialogue is appropriately being achieved for each relevant person, a monitoring system utilising relevant person target groupings has been established as per **Table 5-2**. This is based on the analysis of relevant persons' as outlined in **Figure 4-2**, and enables Eni to consider the level of persistence required for each relevant person to ensure appropriate consultation has occurred.

Note that relevant person target groupings as per **Table 5-2** have been represented in both Appendix C2 (*Relevant Persons Register*) and again in Appendix C4a (*Relevant Persons Consultation Efforts Log*).

Table 5-2: Ensuring Appropriate Consultation with Relevant Person Groups

Group	Description	Elaboration Regarding Consultation
Group 1	Relevant persons have a potentially negative disposition + high relevance	Relevant persons <u>must</u> be informed/consulted/involved (where the relevant person <i>wishes</i> to be consulted) during EP preparation to ensure targeted and tailored information is provided by Eni's focal point/s regarding the planned activity. These relevant persons also experience extended enquiry notifications, broader, direct focused higher-level consultation, targeted and tailored information sharing. (i.e., issue of tailored information packages; immediate direct engagement; newspaper ads with QR code that e-links to information package; radio ads; multiple email/phone/text follow ups to seek feedback; coordinated roadshow visits with intentional meetings and/or presentations; and responsiveness to clarifications on request.) May include further meetings or presentations upon request.

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Group	Description	Elaboration Regarding Consultation
Group 2	Relevant persons have a potentially neutral or positive disposition + high relevance	Relevant persons are to be approached/ informed/ consulted via focused higher-level consultation during E.P. preparation to ensure targeted and tailored information is provided by Eni's focal point/s regarding the planned activity. These relevant persons also experience extended enquiry notifications and broader, focused higher-level consultation. (i.e., issue of tailored information packages; timely direct engagement; newspaper ads with QR code that e-links to information package; radio ads; multiple email/phone/text follow ups to seek feedback; coordinated roadshow visits with meetings and/or presentations on need; and responsiveness to clarifications on request).
Group 3	Relevant persons have a neutral or positive or negative disposition + intermediate relevance	Relevant person to be approached, informed and consulted via broader, higher-level consultation during E.P. preparation with targeted and tailored information provided regarding planned activity. (i.e., email of Information package; Certified mail to identified RPs that may not be contactable via email; newspaper ads with QR code that e-links to information package; radio ads; email and phone follow-ups; potential workshops upon request)
Group 4	Relevant persons have a neutral or positive or negative disposition + marginal relevance	Relevant person to be consulted via extended enquiry to notify of the activities during EP preparation. (i.e., email of Information package; newspaper ads with QR code that e-links to information package; radio ads; follow up emails and calls where available).

All developed materials used for consultation including (but not limited to) newspaper advertising; QR codes; radio advertising; promotional posters; public notices; roadshow presentations; tailored PowerPoint slide-sets; tailored information packages; newsletter promotions; and information flyers are compiled into one evidentiary document - *Consultation Materials* (Appendix C3).

It should be noted that the above 'relevant person target groupings' approach is only to monitor the sufficiency of allowing for a reasonable opportunity for input, and for determining whether consultation for development of the EP can be considered completed. The groupings system is not linked to any application and/or interpretation of information received from relevant persons in the groups. For information received from any relevant persons, this is addressed via the process outlined in **Section 7.3**, 'Assessment of Merit - Objections or Claims and Relevant Matters'.

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5.2.2 Specific Consultation Approaches and Information Requirements

Some relevant persons have developed guidance documents or have information on their websites, which outline specific information they require from a titleholder during EP consultation. Any additional specific guidance (identified in Section 3 of this document – “*Regulations and Guidelines*”) are considered when preparing consultation materials and engagement approaches.

The below provides details of specific consultation approaches that are carried out for certain relevant persons.

Other Petroleum or Greenhouse Gas Titleholders

Given other titleholders understand the industry and the potential consequences of associated activities, Eni provides, via email, a factsheet to titleholders who have known, ongoing operational interests within proximity (~100km radius) of Eni’s petroleum activities’ Operational Area. It is recognised that some titleholders within the EMBA (and outside of the 100km radius) may not be captured by this method; however, given these titleholders are not impacted by planned activities, Eni considers this a reasonable approach.

Commercial Fishers Targeted Consultation

The designated licenced areas of many of the fisheries are extensive over the Australian coast, including within the EMBA. The EP provides an assessment of the potential interaction of these fisheries with the petroleum activities, based on the nature of the fishery and historic effort and catch data. As a general principle, the peak bodies representing the commercial fisheries are considered by Eni, to be the established representatives of the fishing licence holders. These peak bodies are provided with all consultation information materials.

In addition, and to ensure the widest reach for consultation for commercial fishers as possible, Eni also targets Commonwealth, State and Territory government bodies responsible for commercial fishers.

Finally, despite there has been minimal success in gaining feedback with this approach in past consultations, and mindful of ‘consultation fatigue’, Eni still directly utilises Certified Mail to issue hard copies of the consultation materials to all individual license holders whose fishing management or licence area may overlap the EMBA.

First Nations’ Relevant Persons In-Person Consultation

Eni respects First Nations people as the ‘cultural rights holders’ for lands and sea country, and makes concerted efforts to target land councils, Prescribed Bodies Corporate (PBCs), and other Native Title organisations representing First Nations people that have potential to overlap the EP’s overall spatial extent (- being within either the Operational Area, the ZPI and/or the EMBA).

This occurs through a combination of the already-developed positive relationships that Eni already has with numerous First Nations language groups, as well as a continued focus to meet with those groups Eni is yet to connect with. To identify any new groups, Eni continues to utilise land councils, registered PBCs recognised under the relevant

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legislation, and Aboriginal Community Controlled Organisations (ACCOs) to facilitate identification and initial consultation with other First Nations relevant persons.

Subject matter experts continue to provide guidance on culturally appropriate consultation approaches for First Nations people to account for culturally appropriate engagement, and to ensure local traditions, customs and protocols are considered prior to scheduling engagements.

Northern Territory and Thamarrurr Region (NT) In-Person Consultation

Outside of the Thamarrurr region, and although some distance from EP activities, many NT individuals, groups, departments or organisations may have an interest in the activities of Eni. This is particularly the case, if their activities or jurisdictions overlap the Environment Plan's EMBA. Relevant regional NT stakeholders are identified as relevant persons as per **Table 4-1**. This includes locally based government departments, and all people, enterprises or groups whose functions, interests or activities may be affected by activities to be carried out under a specific EP. Areas considered include Darwin, Tiwi Islands and the Cox Peninsula.

Examples of relevant persons in the Darwin region include commercial and recreational fishing licensees, who may traverse the Operational Area, ZPI or EMBA, and their associated representative peak bodies. The Northern Land Council (NLC) as an independent statutory authority of the Commonwealth since 1976 and recognised in 1994 as the native title representative body for the northern area of the NT¹, is a key relevant person for Eni to consult in Darwin. The Tiwi Land Council (TLC), also established under ALRA to represent the interests of Traditional Owners in access and use for the Tiwi Islands, is recognised as an important relevant person to consult in Darwin, and when invited, on the Tiwi Islands.

With the community of Wadeye in proximity and already linked to Eni's current Blacktip operations and associated Yelcherr Gas Plant (10km from Wadeye), Eni already partners, both contractually and from an engagement perspective, with the Thamarrurr Development Corporation (TDC) and its associated Thamarrurr Rangers. Eni has also reached out to Kardu Development Corporation as the key landowners for the area that Wadeye is located on.

Eni continues to maintain strong relationships with Thamarrurr people and utilises regular on-site engagement opportunities to enable in-person consultation with local peoples regarding EPs and other activities. Eni will seek to publish an advertisement in TDC's regular newsletter with the aim for relevant persons to self-identify and attend any associated on-Country consultation meetings planned for Wadeye. Additionally, Eni continues to engage with the local Territory and local government representatives in Wadeye to provide information about EP activities.

Acknowledging the social challenges Wadeye has endured in the past, and the potential for these to surface again from time to time, Eni is resolute in facilitating an ongoing engagement process in the Thamarrurr Region through regular attendance to meetings; investigation of increased Ranger opportunities; continued engagement with the TDC Board; and continued progression towards regular, across-community interaction.

¹ Note that since the enactment of the Aboriginal Land Rights (Northern Territory) Act (Cth) (ALRA) in 1976 that approximately 50 percent of the land in the NT has become Aboriginal land in addition to 85 percent of the coastline.

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Kimberley Region (WA) In-Person Consultation

With the East Kimberley being a part of the Joseph Bonaparte Gulf general zone, which extends beyond the Operational Area, ZPI and the EMBA, and includes the communities and lands from Kununurra to Wyndham to Kalumburu, Eni has a keen interest to maintain strong engagements in this region.

Utilising resources such as National Native Title Register (<https://www.nntt.gov.au/>); the Prescribed Body Corporate (PBC) website (<https://nativetitle.org.au/learn/native-title-and-pbcs/native-title-rights-and-interests>); and Kimberley Land Council's native title information resource, 'Native Title Story', Eni identifies and looks to consult with all associated Kimberley First Nations people linked to both non-exclusive and exclusive native title possession that may overlap the EMBA (Refer **Table 4-1**). Eni also considers other Kimberley Traditional Custodian groups and organisations associated with traditional lands as well as those groups associated with relevant native title determinations and claims.

Outside of the East Kimberley region specifically, and despite some distance from actual EP activities, West Kimberley based individuals, groups, departments or organisations may have an interest in the activities of Eni where their activities or jurisdictions overlap or interact with the Environment Plan's EMBA. For example, Kimberley Land Council works with East Kimberley Traditional Owners to support land and sea management, ranger programs, conservation, as well as cultural enterprise development through Broome-based KRED Enterprises (<https://www.kred.org.au/>). All relevant Kimberley people, enterprises or groups whose functions, interests or activities may be affected by activities to be carried out under a specific EP are identified as relevant persons as per **Table 4-1**. West Kimberley areas considered include Broome, Derby and the Dampier Peninsula.

Through its long-term approach with membership to the East Kimberley Chamber of Commerce (EKCCI), Eni also advertises in their monthly newsletter, and where appropriate, presents at a 'Business After Hours' event to reach a broad audience of East Kimberley business owners to share information about activities.

5.3 The Consultation Period

As per OPGGS(E) Regulation 25 (3), for consultation to be effective, relevant persons need to be afforded a 'reasonable period' to identify the effect of the proposed activity. It is appreciated that an adequate period of time needs to be provided for the various relevant persons to receive information provided, make an evaluation of that information, and then where they may choose to do so, to prepare and provide a response to Eni.

As standard protocol for all EP consultation and based on the nature and scale of impact or risk to relevant persons, Eni has set an initial default consultation period of 30 business days. The consultation period for relevant persons is outlined within the consultation information package materials.

Note that where there is justification for an extended consultation period, this will be implemented.

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6. CONSULTATION METHODOLOGY WITH RELEVANT PERSONS

Eni's Annex E: Sustainability Stakeholder Engagement, provides clear direction that consultation and engagement should occur under distinct engagement principles:

- *"Consultation / informed participation should be prior, objective, transparent and ongoing, via a proactive, two-way approach aimed at mutual information exchange.*
- *Local communities should be informed about Eni, project activities and their evolution over time.*
- *Certain groups need consideration regarding information dissemination and reception, and appropriate methods of meeting.*
- *Considered impacts (positive and/or negative) and measures taken should be disclosed in advance.*
- *Eni must consider expectations and/or concerns by those consulted in relation to planning, design and implementation of activities.*
- *Information must be provided about the channels set up by Eni in order to contact and communicate within a timely manner."*

Following assessment of regulations and guidelines; relevant person identification and analysis; and relevant person engagement planning, this section (linked to **Figure 2-2: Eni's Process for Engaging with Relevant Persons**) describes the actual consultation with relevant persons (stakeholder engagement) to take place.

6.1 Consultation Approach

Once consultation planning is completed (i.e. information pack / web page development; targeted advertising preparation; messaging; targeted meeting materials development; consultation tracking tools development), Eni then implements the following approach:

1. The establishment of a dedicated EP consultation website with deeper information about the activities; a dedicated email address; and a dedicated phone number for any relevant persons (or potential self-identified relevant persons) to get in contact.
2. Issuance of posters to organisations for posting at offices and in newsletters.
3. Issuance of emails with high-level information packages providing a summary of activities and seeking response from identified relevant persons should they wish to consult (initial response period of 30 business days).
4. Sourcing of direct addresses, and mail-out of hard copy correspondence to selected identified relevant persons who historically, have not responded or been contactable (e.g. Commercial Fishers).
5. Announcement, ahead of time, of targeted regional roadshow visits to relevant persons (already provided information package) as per section 5.2.2, with Eni stakeholder engagement personnel and subject matter experts presenting slide-sets with question-and-answer sessions to individuals, groups and associations.
6. Follow up of initial emails and correspondence with emails, phone calls and texts (where appropriate), with a second round of correspondence to those relevant persons who were posted a hard copy of the information pack.

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7. 'Extended Enquiry' as per **Section 6.2** below, to reach out widely to relevant persons and to seek out those stakeholders who may wish to self-identify as relevant persons and potentially log an objection of claim.
8. Ongoing review and tracking of the *Relevant Persons Consultation Efforts Log* (Appendix C4a) to ensure all efforts for appropriate consultation with relevant person target groups has taken place.
9. On need, offering to present slide-sets with question-and-answer sessions (both in person and online) to any relevant person that requests further information and agrees with such an approach.
10. Issuance of materials (e.g., slide-sets) in a follow-up email to in-person presentations to each relevant person that partook in a face-to-face session.

6.2 Extended Enquiry (Broader Consultation)

There may be instances where other individuals, organisations, agencies or groups may consider themselves to be 'relevant' and wish to be included in the consultation process. Eni may not be aware that this particular relevant person exists or potentially has functions, interests or activities that overlap with the EMBA and/or the ZPI.

As an additional proactive step to provide opportunity to identify new relevant persons, Eni undertakes the following:

- Local/regional newspaper advertisement campaigns.
- Local/regional radio station advertisement campaigns.
- Publication of 'posters' in Peak bodies' regular newsletters and for posting at their offices and public spaces (TDC; NTSC; EKCCI; Shire of Wyndham East Kimberley).
- If required, hosting a regional roadshow event to a broad audience of East Kimberley business owners with the support of EKCCI.

If anyone considers themselves a relevant person, they are invited to email Eni's dedicated EP email address, or to call Eni's dedicated EP 1300 phone number.

Note that the above extended enquiry approach also provides another means of broadcasting information to existing relevant persons (such as commercial fishers).

6.3 Monitoring and Ensuring Consultation Effort

Notwithstanding the extended enquiry approach outlined in **Section 6.2**, given that initial documentation is provided by email or mail, Eni considers it necessary to follow up with all relevant persons on information provided for several reasons:

- to confirm that the information has been received.
- to enquire as to any questions and/or feedback on the information provided and whether more/different information is required to enable the relevant person to make a sound consideration.

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- to support Eni's position that a consultation period, with multiple attempts to gather feedback, is adequate for the relevant person to be able to respond to the information provided.
- as a common courtesy and an opportunity to build relationships with the relevant person, particularly in the interests of further EP implementation engagement.

The consultation approach outlined in **Section 6.1** clearly requires resources to enable success. Section 4.4 of Eni's MSG *Annex E: Sustainability Stakeholder Engagement (i.e. Implementation)*, endorses that whilst acknowledging a shared need for a common understanding of the objectives and activities of the consultation process, that during this process, third parties may be involved (e.g., consultants supporting project teams, etc.). Eni utilises third party engagement to ensure that all elements of its consultation approach outlined in **Section 6.1** occur in an efficient and timely manner.

Above all, it is essential to monitor and ensure that consultation efforts involve all relevant persons in line with the target grouping approach outlined in **Section 5.2.1**.

The *Relevant Person Consultation Efforts Log* (Appendix C4a) is specifically designed to track and assess the efforts made to initiate effective two-way dialogue with relevant persons, to the fullest extent that they permit. This Log is derived from the *Relevant Persons Register* (Appendix C2) where all identified relevant persons have been transferred to the Log. This Log captures the number, and methods of consultation for each relevant person including, but not limited to emails, direct phone call canvassing, direct texting, direct mail, follow ups, and face-to-face and virtual meetings. This Log demonstrates that relevant persons will have been contacted numerous times by email, and where email responses were not received, phone calls and/or text messages will have been directed to those relevant persons whose contact details are known.

In instances where contact details are not known for certain relevant persons that do not reply via email, then deeper research is undertaken to identify any additional available email, telephone and office contact details.

Notwithstanding the above, the efforts approach must also consider 'consultation fatigue' and/or potential information burden on relevant persons. Eni addresses this through a standard process: relevant persons who no longer wish to be contacted or receive further information may opt out by replying "STOP" to Eni emails or by informing consultation personnel when contacted.

6.4 Follow-Up With No Response

Eni notes the following statement within the OPGGS (E) Regs 2023 Explanatory Statement:

"Section 25 places obligations on titleholders but does not place any obligations on relevant persons. If a relevant person does not respond to consultation, the titleholder is not required to wait indefinitely for a response. As long as the titleholder can demonstrate that it has provided sufficient information and a reasonable period for consultation in accordance with subsections 25(2) and (3), the titleholder will have met the consultation requirements."

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It is appreciated that relevant persons are not obligated to respond to Eni's request to participate in consultation. If a relevant person does not respond after multiple logged follow-ups; and has been given a reasonable period of time and sufficient information throughout the consultation period, Eni will need to regard the consultation efforts for that individual as 'concluded' for the purposes of preparing the EP.

As per **Figure 6-1**, if no acknowledgement or response is received from attempts to contact a relevant person (recorded in the *Relevant Persons Consultation Efforts Log* - Appendix C4a), then Eni attempts alternative methods of contact (alternative phone/mobile calls/texts, alternative emails, alternative contacts) where this information is available.

Eni recognises that email information may not be appropriate for some relevant persons (e.g., some Traditional Owner groups; some individual commercial fishing license holders), and other engagement methods such as certified mail, direct phone and face-to-face contact with individuals and groups are subsequently used.

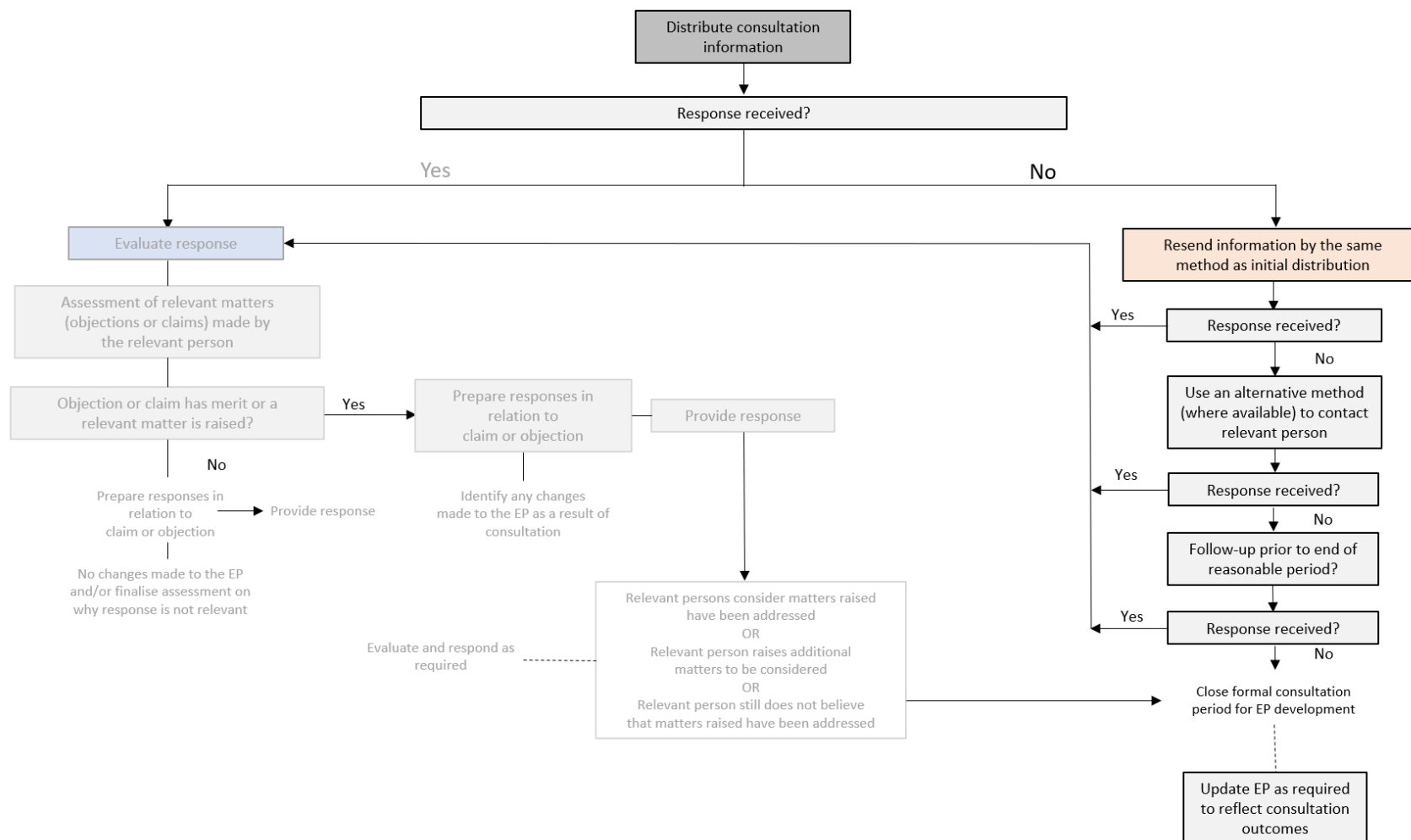


Figure 6-1: No Response Follow-up Flow Chart

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7. ADDRESSING RELEVANT PERSON CONSULTATION

7.1 Monitoring Consultation and Closing Consultation Period

As per Eni's MSG, *Responsible and Sustainable Enterprise* . . .

"Monitoring is a continuous activity conducted with the purpose of providing stakeholders with information concerning the progress of the activities and the degree of achievement of the expected results."

Both monitoring and the assessment of merit for objections, claims and/or other matters help to improve both current and future management of outcomes and impacts of the consultation process with specific relevant persons.

The effectiveness of Eni's consultation process is measured against:

- verification that the level of consultation effort recorded in the *Relevant Person Consultation Efforts Log* (Appendix C4a) and outlined in **Section 6.3**, is proportional to the relevance and criticality of each relevant person (as per the *Target Group* approach outlined in **Table 5-2**) and where the relevant person endorses being consulted.
- verification of the capturing of mapping of relevant persons who have submitted claims or objections as per the *Relevant Persons Consultations Feedback Assessment* (Appendix C4b).
- consistency of consultation actions, conducted in accordance with assessment of relevant person claims or objections.

In terms of considering whether consultation has appropriately been achieved for each relevant person, planning for engagement with target groups of relevant persons as per **Section 5.2.1: Planning for the Tracking of Effective Consultation** is considered along with the assessment approach of whether Eni deems that we have put every possible effort in attempting to consult.

In many cases, it is anticipated that there will be clear evidence reflected in the *Relevant Person Consultation Efforts Log* that Eni has successfully consulted the relevant person in two-way dialogue, and the relevant person has provided feedback and so consultation efforts will be concluded.

Where relevant persons have not engaged in two-way dialogue, despite Eni's best endeavours and efforts, then as per **Section 6.4: 'Follow-Up With No Response'**, and given Eni demonstrates through its *Efforts Log* that it has provided sufficient information and a reasonable period for consultation, then it is noted that Eni will have met consultation requirements in accordance with subsections 25(2) and (3) of the OPGGS (E) Regulations 2023.

7.2 Assessment of Responses Received

Given one of the purposes of consulting relevant persons is to gather information to enable confirmation of assumptions made during the impact and risk assessment process for the petroleum activities, the assessment step of consultative responses is imperative to be able to successfully undertake and complete the petroleum activities.

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When responses are received, an assessment of relevant matters, claims or objections is undertaken so that a response can be provided (where appropriate) to the relevant person, and appropriate steps can be implemented to address the matter.

As per OPGGS (E) regulation 24(b), titleholders are required to provide a report on all relevant person consultations, 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;

Where relevant persons provide specific responses to Eni in relation to the EP, these are extracted from the *Relevant Person Consultation Efforts Log* and are recorded into the *Relevant Persons Consultations Feedback Assessment* (Appendix C4b). As shown in **Table 3.1**, in July 2025, NOPSEMA released a new Form, 'Titleholder report on consultation in the preparation of an Environment Plan' which encourages recommends that titleholders utilise. To facilitate EP consultation regulatory assessment processes, the following key elements and general structure of this template will be used for Eni's Appendix 4b:

- Summary of consultation effort and relevant person responses
- Relevant person objections, claims or other feedback
- Titleholder assessment of the merits
- Titleholder statement of response
- Details of the measures adopted
- Consultation demonstration statement

Regarding OPGGS (E) regulation 24(b) (iv) – the requirement to provide, 'a copy of the full text of any response by a relevant person', whilst a summary of relevant persons' responses is provided in the *Relevant Persons Consultations Feedback Assessment* (Appendix C4b), it is likely that the full text of response by relevant persons will be provided via the *Sensitive Matters Report* (**Refer Section 8.1.2**).

7.3 Assessment of Merit - Objections or Claims and Relevant Matters

Section 4.33 of *Annex E: Sustainability Stakeholder Engagement* supports that response actions, appropriately recorded in Appendix C4b, are aimed at responding to claims and objections made by relevant persons and, from a preventive perspective, at identifying, minimising and, where possible, avoiding any negative impact attributable to the activities of the EP.

Eni's assessment of relevance and assessment of merit with regards to claims and objections made by relevant persons for the EP, considers the following:

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- **Objection or claim has merit** – the objection or claim raised is relevant to both the petroleum activities and the relevant person's or organisation's functions, activities or interests. The objection or claim has merit if there is a reasonable/scientific basis for related effects or impacts to occur or if there is a reasonable basis for the objection or claim to be addressed in the EP.
- **Objection or claim does not have merit** – the objection or claim raised may be relevant to the petroleum activities or the relevant person's or organisation's functions, activities or interests; however, the objection or claim raised has no credible or scientific basis.
- **Relevant matter** – the matter raised does not fit the criteria descriptions for objections or claims with or without merit. However, the matter raised is relevant to the petroleum activities, comprises a request to Eni for further relevant information, or provides information to Eni that is relevant to the EP development and petroleum activities.
- **Not a relevant matter** – correspondence does not relate to the planned activity or the relevant person's, or organisation's functions, interests or activities being affected by the petroleum activities, such as a response with specific issues raised (or an acknowledgement of receipt).

Figure 7-1 hereafter summarises the process outlined in **Section 7.2** and **Section 7.3** above. Application and/or interpretation of all information received from relevant persons occurs in alignment with OPGGS(E) Regulation 24, which requires Eni to provide an overview of all elements as outlined in **Section 8.1.1: Consultation Report**.

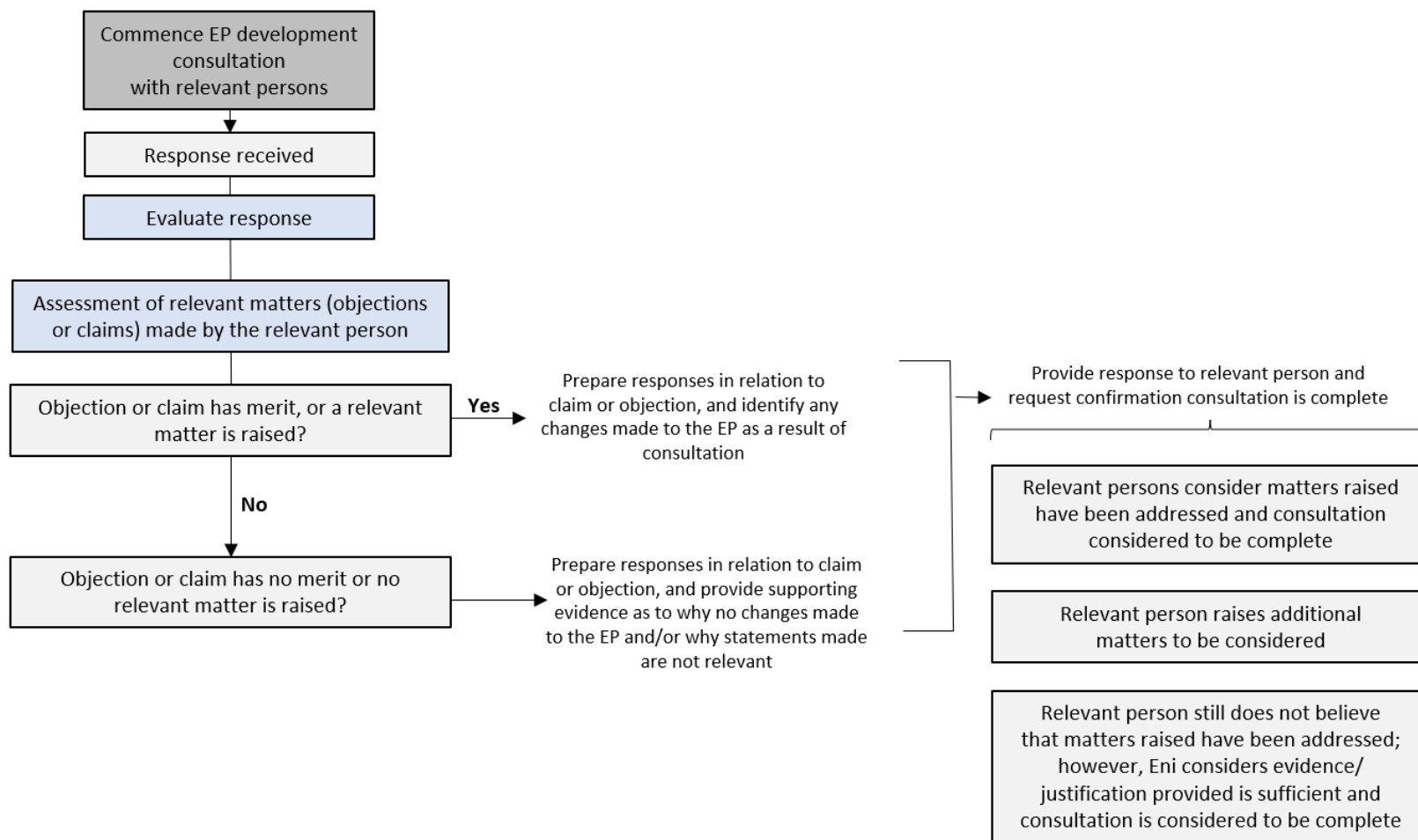


Figure 7-1: Assessment of Relevant Matters, Objections and/or Claims

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8. REPORTING OF RELEVANT PERSON CONSULTATION

As per **Figure 2-1: Eni's Responsible and Sustainable Enterprise Model (Figure 2-1)**, reporting is an essential component of engagement/consultation. It is pertinent to report the consultation process for the consideration of the quantitative and qualitative information provided, and the feedback that is received.

8.1 Updates to the EP to Incorporate Consultation Feedback

8.1.1 Consultation Reports

A collective report on all consultations of relevant persons under OPGGS(E) Regulation 25, can be found in Appendix C4a and C4b. Appendix C4a (*Relevant Persons Consultation Efforts Log*) presents and tracks all efforts and endeavours made to ensure appropriate consultation with relevant person target groups has taken place. The *Relevant Persons Consultations Feedback Assessment* (Appendix C4b) presents all interactions between the titleholder and a relevant person [regulation 24(b)] with regards to claims, objections and/or relevant matters made by relevant persons and assessed and acted upon (or not).

Together, the Appendix C4a and Appendix C4b consultation reports contain:

- a summary of each response made by a relevant person.
- an assessment of the merits of any objection or claim by relevant persons.
- statements of Eni's assessment of and/or response/s, if any, to each objection or claim; and
- a copy of the associated response to Eni's correspondence, if received, by the relevant person.

8.1.2 Sensitive Matters Report

Notwithstanding **Section 8.1.1** above, it is noted, as per Regulation 26(8) of the OPGGS(E) Regulations, that the EP must not contain any sensitive information other than in the sensitive information part of the EP. The definition as per Section 5 of the OPGGS(E) Regulations, of the sensitive information part of an EP, means a discrete part of the plan that contains only one or both of the following:

- a) sensitive information - information given by a relevant person, that the person requests not be published;
- b) a copy of the full text of any response by a relevant person in consultation under section 25 in the course of preparing the plan.

Eni advises each relevant person that they may request that particular information they provide not be published, and that such information will not be published under the Environment Regulations.

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Sensitive information is submitted in a separate report (referred to as the *Sensitive Matters Report*) and does not form part of the publicly available EP. This Report contains a record of all consultation activities undertaken with relevant persons for the EP. It includes all outgoing/incoming emails, phone/text logs and any sensitive information contained in presentation meeting slides, handout materials and meeting minutes.

8.2 Specific Chapter Within the EP: Relevant Person Consultation

In terms of consultation reporting, **Section 5.2.2** of Eni's *Annex E: Sustainability Stakeholder Engagement*, outlines that examples of some of the methods that could be reported on include (but are not limited to):

- *publications*
- *Events with stakeholders*
- *one-to-one meetings and conversations*
- *follow-up briefings by phone*
- *access to information on the company's website - dedicated to a specific project*
- *reports on social media."*

Chapter 5 within the Environment Plan is where all key reporting of the success or otherwise of the EP consultation process outlined in this *Relevant Persons Consultation Methodology Bridging Document* will be detailed.

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9. EP IMPLEMENTATION ENGAGEMENT

Eni's *Annex E: Sustainability Stakeholder Engagement* is clear in requiring that we offer free, prior, informed consultation and participation as the process of involvement for the entire duration of a project, to ensure that individuals, groups and organisations that are impacted are consulted freely, actively, and regularly throughout the project's development.

Throughout the execution of the planned activities, as per section 22(15) of the OPGGS(E) Regulations, relevant or interested persons and organisations engagement for the associated activities is ongoing. Eni key focal points continue to work with relevant persons and organisations to address any future concerns if they arise throughout the duration of the EP, and in the context of the associated activities. Should any new relevant or interested persons and organisations be identified, they will be added to the stakeholder database and included in all future engagement as required, including specific activity notifications.

In addition to any EP consultation process, as a matter of best practice and outside of regulatory compliance, Eni conducts stakeholder engagement visits with people located in, or near the areas where it operates. In the Northern Australian and Joseph Bonaparte Gulf region, this specifically includes the Kimberley and Northern Territory regions. Eni operates under the assumption that it is good corporate social responsibility to engage with stakeholders within or near its footprint. It looks to build partnerships and potential long-term value proposition opportunities; and by continuing to talk to stakeholders within or near its social footprint, Eni can gain better knowledge of the context, needs and interests of these stakeholders.

Often outside of the 'preparation of EP' and 'execution of planned activities' consultation processes, this stakeholder engagement assists with the building and maintaining of relationships and indeed, facilitates the ability for such consultations to occur.

As such, and as is the case for Eni's other activities occurring in Northern Australia and the Joseph Bonaparte Gulf region, an ongoing stakeholder engagement process continues to occur through regular liaison with stakeholders and relevant persons in Darwin, Tiwi Islands, the Thamarrurr region, and across the Kimberley.

Eni continues to accept feedback from all relevant persons and organisations throughout the duration of the accepted EP. Where any new information is received, that is assessed as a new relevant matter or objection/claim with merit, the EP is updated in accordance with the Management of Change process described in the EP, ensuring risks remain managed to acceptable and as low as reasonably practicable (ALARP) levels.

Additional consultation with relevant persons will occur in the event there is any significant change to the proposed activities.

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Appendix C2: Relevant Persons Register

APPENDIX 2 – RELEVANT PERSON REGISTER

Petrel Geotechnical and Geophysical Surveys EP Relevant Person Register						
#	RELEVANT PERSON	RP Category OPGGS(E)Regs S25(1)	Relevant Fishery for Individual Licenses	Priority Group	Functions, Interests and Activities	Basis of selection for relevant persons engagement during development of this EP
	Government					
	Commonwealth Government					
1	Australian Communications & Media Authority (ACMA) within the Department of Infrastructure, Transport, Regional Development, Communications and the Arts (DITRDC) (Cth)	25(1)(a)	N/A	3	Administrator of submarine cable protection zones. Relevant when active activity may impact on subsea cables.	Provide advice on whether the activities may have impact on subsea cables.
2	Australian Fishing Management Authority (AFMA) (Cth)	25(1)(a)	N/A	2	AFMA is the Australian Government agency responsible for the efficient management and sustainable use of Commonwealth fish resources on behalf of the Australian community. AFMA manages and monitors commercial Commonwealth fishing to ensure Australian fish stocks and the Australian fishing industry is viable now and in the future.	Commonwealth Fishery boundaries extend from 3nm to the EEZ within which Eni Australia activities occur.
3	Australian Hydrographic Office (AHO) (Cth) (part of Dept. of Defence)	25(1)(a)	N/A	2	AHO is part of the Department of Defence, responsible for providing Australia's national charting service under the terms of SOLAS and the <i>Navigation Act 2012 (Cth)</i> . Role includes provision of nautical charting (including charts in electronic form) and associated services in support of maritime safety. Responsible for the publication and distribution of nautical charts and other information required for the safe shipping and navigation in Australian waters.	Need to be kept informed of location of activities so the notice to mariners can be published.
4	Australian Maritime Safety Authority (AMSA) (Cth)	25(1)(a)	N/A	2	AMSA is the statutory authority established under the Australian Maritime Safety Act 1990. Principal functions are promoting maritime safety and protection of the maritime environment, preventing and combating ship-sourced pollution in the marine environment, providing infrastructure to support safety of navigation in Australian waters, and providing national search and rescue service to maritime/aviation sectors.	Publish radio and navigation warnings for activities in the Commonwealth marine area. AMSA provide specific information to be included in the EP (notifications).
5	Clean Energy Regulator (CER) (Cth)	25(1)(a)	N/A	3	The Clean Energy Regulator administers schemes legislated by the Australian Government for measuring, managing, reducing or offsetting Australia's carbon emissions, determined by climate change law.	Has administrative responsibilities for the National Greenhouse and Energy Reporting Scheme, the Emissions Reduction Fund, the Renewable Energy Target and the Australian National Registry of Emissions Units.
6	Department of Agriculture, Fisheries and Forestry (DAFF)	25(1)(a)	N/A	3	Responsible for ensuring management processes are implemented, such as limits on catch or effort levels, and regulations of fishing methods to manage Australia's fisheries in a sustainable way. Also responsible for managing biosecurity threats to Australia.	DAFF have advised they wish to be engaged where there is possible disruption to Commonwealth fisheries.
7	Dept. Climate Change, Energy, the Environment and Water (DCCEEW) (Cth) <i>General Department</i>	25(1)(a)	N/A	3	The Department of Climate Change, Energy, the Environment and Water protects Australia's natural environment and heritage sites, helps Australia respond to climate change and carefully manages water and energy resources	Responsible for the management of Australian Marine Parks, provision of advice on management of activities located in AMPs or in proximity.
8	Dept. Climate Change, Energy, the Environment and Water (DCCEEW) (Cth) <i>Underwater Heritage</i>	25(1)(a)	N/A	3	The Department of Climate Change, Energy, the Environment and Water protects Australia's natural environment and heritage sites, helps Australia respond to climate change and carefully manages water and energy resources	Responsible for the management of Australian Marine Parks, provision of advice on management of activities located in AMPs or in proximity.
9	Department of Defence (DoD) (Cth)	25(1)(a)	N/A	2	Responsible for Australian defence activities. Relevant when the activity encroaches on known training areas and /or restricted airspace.	The Operational Area overlaps the training area R202G and the North Australia Exercise Area (NAXA).
10	Department of Industry, Science and Resources (DISR) (Cth)	25(1)(a)	N/A	3	DISR is responsible for development and reform of policy relating to the resources sector, including oil and gas.	Relevant due to influence on Commonwealth Government sector policy.
11	Director of National Parks, Parks Australia, part of the Department of Climate Change, Energy, the Environment and Water (DCCEEW) (Cth)	25(1)(a)	N/A	2	Parks Australia supports the Director of National Parks who has responsibility under federal environment law for six Commonwealth national parks, the Australian National Botanic Gardens and 60 Australian Marine Parks. DCCEEW requires notification of any harm or mortality to an EPBC-listed species of marine fauna.	Responsible for the management of Australian Marine Parks, provision of advice on management of activities located in AMPs or in proximity.
12	Maritime Border Command (MBC), part of Australian Border Force (ABF), part of the Department of Home Affairs (DHA)	25(1)(a)	N/A	3	MBC is enabled by ABF and the Australian Defence Force (ADF), supporting the whole of government effort to protect Australia's national interests by responding with assigned maritime and air assets for civil maritime security operations.	Can advise whether activity may impact on border protection activities (e.g. vessel patrols).
13	National Indigenous Australians Agency	25(1)(a)	N/A	3	Commonwealth government agency responsible to the Minister for Indigenous Australians. NIAA lead and influence change across government to ensure Aboriginal and Torres Strait Islander peoples have a say in the decisions that affect them.	Represent and can advocate for Traditional Owners interests.
14	National Indigenous Australians Agency - NIAA (Cth) Darwin Branch	25(1)(a)	N/A	3	Local NIAA agency which is part of Commonwealth Agency - Darwin and Top End specifically	Represent and can advocate for Darwin and Top End Traditional Owners interests. Also can provide key assistance with local information to support consultation.
15	National Indigenous Australians Agency - NIAA (Cth) Wadeye	25(1)(a)	N/A	3	Local NIAA agency which is part of Commonwealth Agency - Thamarrurr region specifically	Represent and can advocate for Thamarrurr region and Wadeye Traditional Owners interests. Also can provide key assistance with local information to support consultation.
16	National Indigenous Australians Agency - NIAA (Cth) Kununurra Office (for East Kimberley)	25(1)(a)	N/A	3	Local NIAA agency which is part of Commonwealth Agency - East Kimberley specifically	Represent and can advocate for East Kimberley Traditional Owners interests. Also can provide key assistance with local information to support consultation.
17	National Offshore Petroleum Titles Administrator (NOPTA) (Cth)	25(1)(a)	N/A	2	NOPTA is responsible for the day-to-day administration of petroleum & greenhouse gas titles in Commonwealth waters in Australia.	The associated activities are operating under a petroleum title, administered by NOPTA.

Petrel Geotechnical and Geophysical Surveys EP Relevant Person Register						
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	Northern Territory Government					
18	Aboriginal Areas Protection Authority (AAPA) (NT)	25(1)(a)	N/A	4	AAPA is an independent statutory authority established under the Northern Territory Aboriginal Sacred Sites Act, responsible for overseeing the protection of Aboriginal sacred sites on land and sea across the whole of Australia's Northern Territory.	NT government agency with a function to protect Aboriginal sacred sites on both land and sea. Can provide information on registered sacred sites that may lie within the EMBA.
19	Dept. Environment, Parks & Water Security (DEPWS) (NT)	25(1)(a)	N/A	4	Protect the environment and natural resources in the Northern Territory, including marine fauna management.	Relevant when activities may impact on marine or coastal values (such as an oil spill).
20	Dept. Agriculture and Fisheries NT [prev. Dept. Industry, Tourism & Trade (DITT) - Fisheries NT] [prior to that, NT Dept. Primary Industry & Resources]	25(1)(a)	N/A	2	The Department of Agriculture and Fisheries is the Northern Territory coordinating agency for the agriculture, fisheries and forestry industries through new and maintenance of existing agricultural export opportunities. The Department is responsible for managing biosecurity risks to Australia and protecting the agricultural industries. Relevant when the activity has the potential to impact on fisheries resources in Northern Territory managed fisheries.	State responsibility for fishing activity where operations will traverse to and from Operational Area. Some NT fisheries (whose boundaries may extend beyond NT waters) are located in the ZPI. Impacts to commercial fishing in the NT from activities described in the EP.
21	Department of Chief Minister and Cabinet (NT)	25(1)(a)	N/A	2	Dept CMC acts as a central facilitator for the NT Govt. coordinating services; supporting Indigenous governance; funding projects; and ensuring local voices are heard in policy.	Dept of CMC plays a central role in coordinating government policy, programs, and resources in Indigenous communities like Wadeye, ensuring government initiatives are aligned with needs; supporting local governance, community development and regional economic growth; and for emergency management.
22	Department of Logistics and Infrastructure (DLI),(NT) [formerly Dept of Infrastructure, Planning & Logistics (DIPL)] Note NT Regional Harbourmaster (NT) is part of DLI	25(1)(a)	N/A	3	Responsible for marine safety in NT coastal waters	NT Regional Harbourmaster is responsible for moorings in the Port of Darwin. Relevant when the activity could impact on Port operations.
23	Department of Mining and Energy - NT (DMENT)	25(1)(c)	N/A	4	DMENT primarily oversees mining, energy production, and resources management across the NT.	DMENT is the department of the responsible Territory Minister and is required to be consulted under subregulation 25(1)(c) of the OPGGS(E)R.
24	Department of Territory Families, Housing and Communities - Heritage Branch	25(1)(a)	N/A	4	has a role in protecting the maritime heritage of the Northern Territory	Has a role in protecting the maritime heritage of the Northern Territory
25	Northern Territory Environment Protection Authority (NTEPA)	25(1)(a)	N/A	2	NTEPA is an independent authority established under the Northern Territory Environment Protection Act. NTEPA provides advice on the environmental impacts of development proposals and advice and regulatory services to encourage effective waste management, pollution control and sustainable practices.	NT government agency with a function to regulate pollution events in the NT.
26	NT Regional Harbourmaster (NT) (part of Dept. Infrastructure, Planning and Logistics -DIPL)	25(1)(a)	N/A	4	Responsible for moorings in the Port of Darwin. Relevant when the activity could impact on Port operations.	Relevant when the activity could impact on Port operations (such as an oil spill).
	West Australian Government					
27	Department of Biodiversity, Conservation and Attractions (DBCA) (WA)	25(1)(a)	N/A	2	Manage State marine parks and reserves and protected marine fauna and flora.	Relevant when activities undertaken outside of a marine park may impact on the values within a marine park (such as an oil spill).
28	Department of Biodiversity, Conservation and Attractions (DBCA) (Parks & Wildlife Kununurra)	25(1)(a)	N/A	2	DBCA manages the North Kimberley Marine Park - the largest marine park in Western Australia encompassing a vast, ecologically rich coastline.	DBCA's Kununurra-based rangers play a crucial role in the stewardship of the North Kimberley Marine Park
29	Department of Mines, Petroleum and Exploration (DMPE) (WA) (prev. Dept Energy, Mines, Industry, Regs & Safety (DEMIRS))	25(1)(c)	N/A	3	DEMIRS plays a critical role in building W.As economy while ensuring the State's resources are developed in a sustainable and responsible manner. The department of the relevant State Minister and is required to be consulted under subregulation 25(1)(b) of the OPGGS(E)R.	Department of responsible WA Minister who sits on the Offshore Petroleum Joint Authority. Planned activities occur in the Commonwealth marine environment offshore areas on the border of the NT and WA. Notifications may be required.
30	Dept Energy & Economic Diversification (DEED) (formerly Dept. Jobs, Tourism, Science & Innovation (JTSI) (WA))	25(1)(a)	N/A	4	JTSI is a Western Australian Government statutory authority responsible for promoting Western Australia as a holiday destination.	Potential influencer if required, relationship build against future activities.
31	Dept. Planning, Lands, Heritage (DPLH) (WA)	25(1)(a)	N/A	4	Protect aboriginal heritage, assist with compliance with the Aboriginal Heritage Act 1972 and provide access to heritage information.	Can advise on Registered Aboriginal sites and known onshore places of heritage that may lie within the EMBA. Relevant if the activity results in impacts to Aboriginal heritage (such as an oil spill).
32	Dept. Primary Industries and Regional Development (DPIRD) (WA) Perth Head Office	25(1)(a)	N/A	3	A primary responsibility of the DPIRD is to conserve, sustainably develop and share the use of Western Australia's aquatic resources and their ecosystems for the benefit of present and future generations, through managing fisheries and aquatic ecosystems, assessment and monitoring of fish stocks, enforcement and education, biosecurity management and licensing commercial and recreational fishing activity, including commercial aquaculture.	Can provide information on marine protected areas/protected species and fisheries and management controls implemented to manage marine pest risks associated with the activities.
33	Dept. Primary Industries & Regional Development (DPIRD) (WA) Fisheries and Marine Kununurra	25(1)(a)	N/A	3	Plays a critical role in managing and protecting Western Australia's aquatic resources, particularly in the Kimberley region	(DPIRD), through its Fisheries and Marine Division in Kununurra, has responsibilities in the Joseph Bonaparte Gulf region
34	Department of Transport (DoT) (WA) <i>Pollution</i>	25(1)(a)	N/A	2	In accordance with the Western Australian Emergency Management Act 2005 (the Act) and Emergency Management Regulations 2006 (the Regulations), the WA DoT is the Hazard Management Agency (HMA) for the Marine Oil Pollution (MOP) hazard in State waters. The MOP hazard is prescribed in the Regulations as an; 'actual or impending spillage, release or escape of oil or an oily mixture that is capable of causing loss of life, injury to a person or damage to the health of a person, property or the environment'.	Informs the development of any associated OPEP - preparedness and response as they relate to State Control Agency functions.
35	Kimberley Development Commission	25(1)(a)	N/A	3	A Western Australian Government statutory authority dedicated to the economic and social development of the Kimberley region.	Broader interestin maximising regional benefits arising from offshore projects in the Joseph Bonaparte Gulf
36	Kimberley Ports Authority (KPA)	25(1)(a)	N/A	4	head office is located in Broome and is responsible for the Ports of Derby, Yampi Sound and Wyndham and directly manages the Port of Broome which is the principal deepwater port servicing the Kimberley region.	KPA may be interested in offshore projects in the Joseph Bonaparte Gulf as such projects may increase maritime traffic, may require port services, and may necessitate safety and environmental oversight.
37	Western Australian Museum (WAM)	25(1)(a)	N/A	4	The Western Australian Museum (WAM) is linked to offshore activities primarily through research, heritage management, and environmental monitoring:	WAM ensures that archaeologically and culturally significant sites are identified and protected and maintains a database of shipwrecks off the Western Australian coast.

Petrel Geotechnical and Geophysical Surveys EP Relevant Person Register						
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Northern Territory Local Government						
38	Belyuen Community Government Council	25(1)d	N/A	4	BCGC is a local government authority (and primary governance and service provider) in the Top End of the Northern Territory, serving the Belyuen community, a small Aboriginal community located west of Darwin, near the Cox Peninsula	Also an identifies RP in the previous associated 2024 T-2 P&A EP
39	Tiwi Islands Regional Council	25(1)d	N/A	4	TIRC is the local government authority responsible for the Tiwi Islands, which consist primarily of Melville Island and Bathurst Island, located about 80 km north of Darwin in the Northern Territory.	Also an identifies RP in the previous associated 2024 T-2 P&A EP
40	West Daly Regional Council - Wadeye	25(1)d	N/A	4	WDRC is a local government authority in the Top End of the Northern Territory, established to provide governance and essential services to remote Aboriginal communities in the west Daly region	Local government authority for engaging with communities and groups in the Wadeye region
Western Australian Local Government						
41	Shire of Wyndham-East Kimberley	25(1)d	N/A	3	The Shire of Wyndham-East Kimberley is a local government area in the Kimberley region of Western Australia.	Local government authority for engaged communities.
Fisheries						
National Fisheries						
42	Commonwealth Fisheries Association (CFA)	25(1)d	N/A	4	Peak body representing the collective rights, responsibilities and interests of a diverse commercial fishing industry in Commonwealth regulated fisheries. CFA represents the interests of commercial fishers with licences in Commonwealth waters.	Represent commercial fishers with fishing management areas that may overlap with the Operational Area, ZPI and EMBA.
43	Northern Prawn Fishery (NPF) Industry Pty Ltd	25(1)d	Northern Prawn	1	The NPF Industry Pty Ltd is a collective of trawler operators, processors and marketers acting together as a single voice for the industry in the Northern Prawn Fishery, which occurs between Cape York to the Kimberley's.	Fishery management area overlaps the Operational Area, ZPI and EMBA. The Operational Area falls within a low effort fishing intensity area.
44	Pearl Producers Australia (PPA)	25(1)d	Pearl Pearl Oyster	4	Peak representative organisation of the Australian South Sea Pearling Industry.	Represent WA and NT pearling companies operating within the EMBA.
45	Seafood Industry Australia (SIA)	25(1)d	N/A	4	Seafood Industry Australia is committed to ensuring appropriate consultation between the Australian seafood industry and oil and gas companies on matters including impact, access, regulation and the long-term impacts to fish-stocks from petroleum-related activities.	Represents the Australian seafood industry as a whole for members (state/territory associations, commercial fishing operators, aquaculture producers, processors and related seafood businesses) operating across the OA, the ZPI and/or EMBA.
46	Tuna Australia (Industry association)	25(1)d	Tuna and billfish longline	1	TA represents the interests of the Western Tuna and Billfish Fishery.	Potential activities within the OA, ZPI and EMBA that may be affected in the unlikely event of a hydrocarbon spill.
Northern Territory Fisheries						
47	The Amateur Fishermen's Association of the Northern Territory (AFANT)	25(1)d	N/A	4	AFANT represents recreational fishers in the Northern Territory through membership and input on a range of fisheries and natural resource management committees.	AFANT represents recreational fishers in the Northern Territory through membership and input on a range of fisheries and natural resource management committees.
48	Northern Territory Guided Fishing Industry Association (NTGFIA)	25(1)e	N/A	3	NTGFIA is the industry body for guided fishing and recreational fishers. The Guided Fishing activity includes the use of mother ships moored offshore from which multi-day recreational fishing expeditions are based.	Potential to be affected in the case of an hydrocarbon spill.
49	Northern Territory Seafood Council (NTSC) Members include: - Aquarium Fishery - Bait Net Fishery - Offshore Net & Line Fishery - Spanish Mackerel Fishery - Coastal Line Fishery - Coastal Net Fishery - Demersal Fishery - Barramundi Fishery - Jigging Fishery - Mudcrab Fishery - Pearl Oyster Fishery - Special Permit - Timor Reef Fishery - Trepang Fishery - 67 individual license holders	25(1)d	Aquarium Bait Net Offshore Net & Line Spanish Mackerel Coastal Line Coastal Net Demersal Barramundi Jigging Mudcrab Pearl Oyster Special Permit Timor Reef Trepang	1	Represents the seafood industry in the NT. Represent NT fisheries operating in the EMBA. NTSC is the peak representative body for the wild catch, aquaculture and trader/processor seafood sectors in the Northern Territory. <i>An opportunity to participate in the consultation process has been provided to the Northern Territory Seafood Council, which represents fishers who may be affected in the unlikely event of a spill.</i>	Fishing management areas that members operate in overlaps with the Operational Area, ZPI and EMBA.
Western Australian Fisheries						
50	Recfishwest	25(1)d	N/A	3	Peak body representing recreational fishers in WA. Recfishwest represents the interests of Western Australia's recreational fishing sector.	Represents recreational fishers who may operate in the EMBA
51	Western Australia Fishing Industry Council (WAFIC) Kimberley Prawn Managed Fishery Kimberley Crab Fishery Kimberley Gillnet & Barramundi Fishery Mackeral Managed Fishery Northern Demersal Scalefish Managed Fishery Marine Aquarium Fishery Pearl Oyster Managed Fishery	25(1)d	Kimberley Prawn KimberleyCrab KimberleyGillnet & Barramundi Mackeral Northern Demersal Scalefish Marine Aquarium	1	Peak industry body representing professional fishing, pearling and aquaculture enterprises, processors and exporters in Western Australia	Represent commercial fishers with license areas that may overlap the EMBA.

Petrel Geotechnical and Geophysical Surveys EP Relevant Person Register						
#	RELEVANT PERSON	RP Category OPGGS(E)Regs S25(1)	Relevant Fishery for Individual Licenses	Priority Group	Functions, Interests and Activities	Basis of selection for relevant persons engagement during development of this EP
	Commercial and Individual Fishing Licensees by Fishery					
52	Fisher 1	25(1)d	Western Deepwater Trawl Northern Prawn Demersal	3	Fisher 1 owns and operates 15 commercial fishing vessels in there northern prawn and NT demersal fishery zones.	Privately owned integrated fishing company that may be operating the Operational Area (OA), Zone of Potential Impact (ZPI) and environment that may be affected (EMBA).
53	Fisher 2	25(1)d	Coastal Line - out to 15nm Mud crab Barramundi	4	Indigenous-owned business entity formed by the Northern Land Council, Tiwi Land Council and Anindilyakwa Land Council, aimed at increasing Aboriginal participation and ownership in commercial fishing, seafood and marine industries.	Individual fishing licensees that may be operate in the Operational Area (OA), Zone of Potential Impact (ZPI) and environment that may be affected (EMBA).
54	Fisher 3	25(1)d	Aboriginal Coastal	4	This Licence is a fishing permit that recognises Aboriginal traditional fishing rights, and is designed to support community-based enterprise and sustainable use of sea country by TOs. Potential for engagement and feedback via Thamurrurr Development Corporation.	Individual fishing licensee that may operate in environment that may be affected (EMBA).
55	Fisher 4	25(1)d	Offshore Net & Line	4	Previously contacted by email, phone and registered post. Has not responded in past consultations.	Individual fishing licensees that may be operate in the Operational Area (OA), Zone of Potential Impact (ZPI) and environment that may be affected (EMBA).
56	Fisher 5	25(1)d	Coastal Line - out to 15nm	4	Previously contacted by email, phone and registered post. Has not responded in past consultations.	Individual fishing licensees that may be operate in the Operational Area (OA), Zone of Potential Impact (ZPI) and environment that may be affected (EMBA).
57	Fisher 6	25(1)d	Coastal Line - out to 15nm	4	Previously contacted by email, phone and registered post. Has not responded in past consultations.	Individual fishing licensees that may be operate in the Operational Area (OA), Zone of Potential Impact (ZPI) and environment that may be affected (EMBA).
58	Fisher 7	25(1)d	Coastal Line - out to 15nm Demersal	3	Previously contacted by email, phone and registered post. Has not responded in past consultations.	Individual fishing licensees that may be operate in the Operational Area (OA), Zone of Potential Impact (ZPI) and environment that may be affected (EMBA).
59	Fisher 8	25(1)d	Timor Reef Fishers	1	One of Australia's largest integrated commercial fishing companies. They operate 11 of the 52 licensed vessels in the Northern Prawn Fishery.	Integrated commercial fishing company that may be operating in the Operational Area (OA), Zone of Potential Impact (ZPI) and environment that may be affected (EMBA).
60	Fisher 9	25(1)d	Demersal	3	Previously contacted by email, phone and registered post. Has not responded in past consultations.	Individual fishing licensees that may be operate in the Operational Area (OA), Zone of Potential Impact (ZPI) and environment that may be affected (EMBA).
61	Fisher 10	25(1)d	Coastal Line - out to 15nm	4	Previously contacted by email, phone and registered post. Has not responded in past consultations.	Individual fishing licensees that may be operate in the Operational Area (OA), Zone of Potential Impact (ZPI) and environment that may be affected (EMBA).
62	Fisher 11	25(1)d	Coastal Line - out to 15nm	4	Previously contacted by email, phone and registered post. Has not responded in past consultations.	Individual fishing licensees that may be operate in the Operational Area (OA), Zone of Potential Impact (ZPI) and environment that may be affected (EMBA).
63	Fisher 12	25(1)d	Coastal Line - out to 15nm	4	Previously contacted by email, phone and registered post. Has not responded in past consultations.	Individual fishing licensees that may be operate in the Operational Area (OA), Zone of Potential Impact (ZPI) and environment that may be affected (EMBA).
64	Fisher 13	25(1)d	Coastal Line - out to 15nm	4	Previously contacted by email, phone and registered post. Has not responded in past consultations.	Individual fishing licensees that may be operate in the Operational Area (OA), Zone of Potential Impact (ZPI) and environment that may be affected (EMBA).
65	Fisher 14	25(1)d	Demersal	3	Previously contacted by email, phone and registered post. Has not responded in past consultations.	Individual fishing licensees that may be operate in the Operational Area (OA), Zone of Potential Impact (ZPI) and environment that may be affected (EMBA).
66	Fisher 15	25(1)d	Demersal Timor Reef	3	Previously contacted by email, phone and registered post. Has not responded in past consultations.	Individual fishing licensees that may be operate in the Operational Area (OA), Zone of Potential Impact (ZPI) and environment that may be affected (EMBA).
67	Fisher 16	25(1)d	Demersal	3	Previously contacted by email, phone and registered post. Has not responded in past consultations.	Individual fishing licensees that may be operate in the Operational Area (OA), Zone of Potential Impact (ZPI) and environment that may be affected (EMBA).
68	Fisher 17	25(1)d	Offshore Net & Line	4	Previously contacted by email, phone and registered post. Has not responded in past consultations.	Individual fishing licensees that may be operate in the Operational Area (OA), Zone of Potential Impact (ZPI) and environment that may be affected (EMBA).
69	Fisher 18	25(1)d	Demersal Kimberley Prawn	3	Previously contacted by email, phone and registered post. Has not responded in past consultations.	Individual fishing licensees that may be operate in the Operational Area (OA), Zone of Potential Impact (ZPI) and environment that may be affected (EMBA).
70	Fisher 19	25(1)d	Aboriginal Coastal	4	This Licence is a fishing permit that recognises Aboriginal traditional fishing rights, and is designed to support community-based enterprise and sustainable use of sea country by TOs. Potential for engagement and feedback via Thamurrurr Development Corporation.	Individual fishing licensee that may operate in environment that may be affected (EMBA).
71	Fisher 20	25(1)d	Offshore Net & Line	4	Previously contacted by email, phone and registered post. Has not responded in past consultations.	Individual fishing licensees that may be operate in the Operational Area (OA), Zone of Potential Impact (ZPI) and environment that may be affected (EMBA).

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72	Fisher 21	25(1)d	Coastal Line - out to 15nm	4	Previously contacted by email, phone and registered post. Has not responded in past consultations.	Individual fishing licensees that may be operate in the Operational Area (OA), Zone of Potential Impact (ZPI) and environment that may be affected (EMBA).
73	Fisher 22	25(1)d	Coastal Line - out to 15nm	4	Previously contacted by email, phone and registered post. Has not responded in past consultations.	Individual fishing licensees that may be operate in the Operational Area (OA), Zone of Potential Impact (ZPI) and environment that may be affected (EMBA).
74	Fisher 23	25(1)d	Coastal Line - out to 15nm	4	Previously contacted by email, phone and registered post. Has not responded in past consultations.	Individual fishing licensees that may be operate in the Operational Area (OA), Zone of Potential Impact (ZPI) and environment that may be affected (EMBA).
75	Fisher 24	25(1)d	Mollusc Coastal Line - out to 15nm	4	Previously contacted by email, phone and registered post. Has not responded in past consultations.	Individual fishing licensees that may be operate in the Operational Area (OA), Zone of Potential Impact (ZPI) and environment that may be affected (EMBA).
76	Fisher 25	25(1)d	Aboriginal Coastal	4	This Licence is a fishing permit that recognises Aboriginal traditional fishing rights, and is designed to support community-based enterprise and sustainable use of sea country by TOs. Potential for engagement and feedback via Thamurrurr Development Corporation.	Individual fishing licensee that may operate in environment that may be affected (EMBA).
77	Fisher 26	25(1)d	Coastal Line - out to 15nm	4	Previously contacted by email, phone and registered post. Has not responded in past consultations.	Individual fishing licensees that may be operate in the Operational Area (OA), Zone of Potential Impact (ZPI) and environment that may be affected (EMBA).
78	Fisher 27	25(1)d	Demersal	3	Previously contacted by email, phone and registered post. Has not responded in past consultations.	Individual fishing licensees that may be operate in the Operational Area (OA), Zone of Potential Impact (ZPI) and environment that may be affected (EMBA).
79	Fisher 28	25(1)d	Aboriginal Coastal	4	This Licence is a fishing permit that recognises Aboriginal traditional fishing rights, and is designed to support community-based enterprise and sustainable use of sea country by TOs. Potential for engagement and feedback via Thamurrurr Development Corporation.	Individual fishing licensee that may operate in environment that may be affected (EMBA).
80	Fisher 29	25(1)d	Coastal Line - out to 15nm	4	Previously contacted by email, phone and registered post. Has not responded in past consultations.	Individual fishing licensees that may be operate in the Operational Area (OA), Zone of Potential Impact (ZPI) and environment that may be affected (EMBA).
81	Fisher 30	25(1)d	Coastal Line - out to 15nm	4	Previously contacted by email, phone and registered post. Has not responded in past consultations.	Individual fishing licensees that may be operate in the Operational Area (OA), Zone of Potential Impact (ZPI) and environment that may be affected (EMBA).
82	Fisher 31	25(1)d	Coastal Line - out to 15nm	4	Previously contacted by email, phone and registered post. Has not responded in past consultations.	Individual fishing licensees that may be operate in the Operational Area (OA), Zone of Potential Impact (ZPI) and environment that may be affected (EMBA).
83	Fisher 32	25(1)d	Demersal	3	Previously contacted by email, phone and registered post. Has not responded in past consultations.	Individual fishing licensees that may be operate in the Operational Area (OA), Zone of Potential Impact (ZPI) and environment that may be affected (EMBA).
84	Fisher 33	25(1)d	Coastal Line - out to 15nm	4	Previously contacted by email, phone and registered post. Has not responded in past consultations.	Individual fishing licensees that may be operate in the Operational Area (OA), Zone of Potential Impact (ZPI) and environment that may be affected (EMBA).
85	Fisher 34	25(1)d	Coastal Line - out to 15nm	4	Previously contacted by email, phone and registered post. Has not responded in past consultations.	Individual fishing licensees that may be operate in the Operational Area (OA), Zone of Potential Impact (ZPI) and environment that may be affected (EMBA).
86	Fisher 35	25(1)d	Coastal Line - out to 15nm	4	Previously contacted by email, phone and registered post. Has not responded in past consultations.	Individual fishing licensees that may be operate in the Operational Area (OA), Zone of Potential Impact (ZPI) and environment that may be affected (EMBA).
87	Fisher 36	25(1)d	Offshore Net & Line	4	Previously contacted by email, phone and registered post. Has not responded in past consultations.	Individual fishing licensees that may be operate in the Operational Area (OA), Zone of Potential Impact (ZPI) and environment that may be affected (EMBA).
88	Fisher 37	25(1)d	Demersal Timor Reef	3	A commercial wild-catch fishing company based in Darwin, operating in several government-managed offshore fisheries in northern Australian waters. Also provides charter services to the oil and gas sector, government and research institutions. Prev. contacted by email/phone/registered post.	May operate in Operational Area (OA), Zone of Potential Impact (ZPI) and/or environment that may be affected (EMBA).
89	Fisher 38	25(1)d	Demersal	3	Commercial Barramundi fishing activity in the Wyndham /East Kimberley region.	Individual fishing licensees that may be operate in the Operational Area (OA), Zone of Potential Impact (ZPI) and environment that may be affected (EMBA).
90	Fisher 39	25(1)d	Coastal Line - out to 15nm	4	Previously contacted by email, phone and registered post. Has not responded in past consultations.	Individual fishing licensees that may be operate in the Operational Area (OA), Zone of Potential Impact (ZPI) and environment that may be affected (EMBA).
91	Fisher 40	25(1)d	Coastal Line - out to 15nm	4	Previously contacted by email, phone and registered post. Has not responded in past consultations.	Individual fishing licensees that may be operate in the Operational Area (OA), Zone of Potential Impact (ZPI) and environment that may be affected (EMBA).
92	Fisher 41	25(1)d	Coastal Line - out to 15nm	4	Previously contacted by email, phone and registered post. Has not responded in past consultations.	Individual fishing licensees that may be operate in the Operational Area (OA), Zone of Potential Impact (ZPI) and environment that may be affected (EMBA).

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93	Fisher 42	25(1)d	Coastal Line - out to 15nm	4	Previously contacted by email, phone and registered post. Has not responded in past consultations.	Individual fishing licensees that may be operate in the Operational Area (OA), Zone of Potential Impact (ZPI) and environment that may be affected (EMBA).
94	Fisher 43	25(1)d	Coastal Line - out to 15nm	4	Previously contacted by email, phone and registered post. Has not responded in past consultations.	Individual fishing licensees that may be operate in the Operational Area (OA), Zone of Potential Impact (ZPI) and environment that may be affected (EMBA).
95	Fisher 44	25(1)d	Coastal Line - out to 15nm	4	Previously contacted by email, phone and registered post. Has not responded in past consultations.	Individual fishing licensees that may be operate in the Operational Area (OA), Zone of Potential Impact (ZPI) and environment that may be affected (EMBA).
96	Fisher 45	25(1)d	Coastal Line - out to 15nm Offshore Net & Line	3	Previously contacted by email, phone and registered post. Has not responded in past consultations.	Individual fishing licensees that may be operate in the Operational Area (OA), Zone of Potential Impact (ZPI) and environment that may be affected (EMBA).
97	Fisher 46	25(1)d	Coastal Line - out to 15nm	4	Previously contacted by email, phone and registered post. Has not responded in past consultations.	Individual fishing licensees that may be operate in the Operational Area (OA), Zone of Potential Impact (ZPI) and environment that may be affected (EMBA).
98	Fisher 47	25(1)d	Coastal Line - out to 15nm	4	Previously contacted by email, phone and registered post. Has not responded in past consultations.	Individual fishing licensees that may be operate in the Operational Area (OA), Zone of Potential Impact (ZPI) and environment that may be affected (EMBA).
99	Fisher 48	25(1)d	Coastal Line - out to 15nm	4	Previously contacted by email, phone and registered post. Has not responded in past consultations.	Individual fishing licensees that may be operate in the Operational Area (OA), Zone of Potential Impact (ZPI) and environment that may be affected (EMBA).
100	Fisher 49	25(1)d	Aboriginal Coastal	4	This Licence is a fishing permit that recognises Aboriginal traditional fishing rights, and is designed to support community-based enterprise and sustainable use of sea country by TOs. Potential for engagement and feedback via Thamurrurr Development Corporation.	Individual fishing licensee that may operate in environment that may be affected (EMBA).
101	Fisher 50	25(1)d	Coastal Line - out to 15nm	4	Previously contacted by email, phone and registered post. Has not responded in past consultations.	Individual fishing licensees that may be operate in the Operational Area (OA), Zone of Potential Impact (ZPI) and environment that may be affected (EMBA).
102	Fisher 51	25(1)d	Demersal	3	Previously contacted by email, phone and registered post. Has not responded in past consultations.	Individual fishing licensees that may be operate in the Operational Area (OA), Zone of Potential Impact (ZPI) and environment that may be affected (EMBA).
103	Fisher 52	25(1)d	Demersal	3	Previously contacted by email, phone and registered post. Has not responded in past consultations.	Individual fishing licensees that may be operate in the Operational Area (OA), Zone of Potential Impact (ZPI) and environment that may be affected (EMBA).
104	Fisher 53	25(1)d	Demersal	3	Previously contacted by email, phone and registered post. Has not responded in past consultations.	Individual fishing licensees that may be operate in the Operational Area (OA), Zone of Potential Impact (ZPI) and environment that may be affected (EMBA).
105	Fisher 54	25(1)d	Offshore Net & Line	4	Previously contacted by email, phone and registered post. Has not responded in past consultations.	Individual fishing licensees that may be operate in the Operational Area (OA), Zone of Potential Impact (ZPI) and environment that may be affected (EMBA).
106	Fisher 55	25(1)d	Coastal Line - out to 15nm	4	Previously contacted by email, phone and registered post. Has not responded in past consultations.	Individual fishing licensees that may be operate in the Operational Area (OA), Zone of Potential Impact (ZPI) and environment that may be affected (EMBA).

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	TOURISM FISHERS					
	Tourism Fishers - Northern Territory					
107	Anglers Choice Fishing Safaris	25(1)d	N/A	4	Anglers Choice Fishing Safaris operates from Dundee Beach on the Cox Peninsula and directly north-east of Joseph Bonaparte Gulf, providing offshore fishing experiences. May operate within the EMBA.	Potential to be affected in the case of an hydrocarbon spill. May have tourism activities that occur within the EMBA.
108	Arafura Bluewater Charters	25(1)d	N/A	4	Arafura Bluewater Charters operates from Darwin, specialising in bluewater reef and game fishing charters. May operate within the EMBA.	Operate out of Dundee Beach on the Cox Peninsula and directly north-east of Joseph Bonaparte Gulf. Potential to be affected in the case of an hydrocarbon spill.
109	Dundee Beach Fishing Charters	25(1)d	N/A	4	Dundee Beach Fishing Charters operates from Dundee Beach on the Cox Peninsula and directly north-east of Joseph Bonaparte Gulf. May operate within the EMBA.	Potential to be affected in the case of an hydrocarbon spill. May have tourism activities that occur within the EMBA.
110	Equinox Fishing Charters	25(1)d	N/A	4	Equinox Fishing Charters operates from Darwin, reaching as far as Peron Islands south of Dundee Beach, directly north-east of Joseph Bonaparte Gulf. May operate within the EMBA.	Potential to be affected in the case of an hydrocarbon spill. May have tourism activities that occur within the EMBA.
111	Yknot Fishing Charters	25(1)d	N/A	4	Yknot Fishing Charters operates from Darwin and Dundee Beach (Cox Peninsula) directly north-east of Joseph Bonaparte Gulf. They provide fishing charters as far as Tiwi Islands and Peron islands south of Dundee Beach. May operate within the EMBA.	Potential to be affected in the case of an hydrocarbon spill. May have tourism activities that occur within the EMBA.
	Tourism Fishers - Western Australia					
112	Cannon Charters	25(1)d	N/A	4	Cannon Charters operates from Darwin, offering multi-day fishing experiences along the Northern Territory and Kimberley coast. May operate within the EMBA.	Operate NY West Coast from Darwin to Port Keats, and also across the Kimberley. Potential to be affected in the case of an hydrocarbon spill.
113	Unreel Adventure Safaris (Derby)	25(1)e	N/A	4	Recreational activity offshore	Operator in the vicinity of marine traffic and within potential spill monitoring. May have tourism activities that occur within the EMBA.
	Aboriginal and Torres Strait Islander/ First Nations Community					
	National					
114	Indigenous Land and Sea Corporation (ILSC)	25(1)(a)	N/A	4	Commonwealth organisation. Traditional Owners enagement, cultural understanding and sea country knowledge established in 1995. Custodian of funds for indigeous people who might not get funds.	Identification of sea country that may fall within EMBA
115	Northern Australia Indigenous Land & Sea Management Alliance (NAILSMA)	25(1)d	N/A	4	NAILSMA is an Indigenous led not-for-profit company operating across northern Australia, working to assist Indigenous people manage their country sustainably for future generations, by providing Indigenous leadership in the delivery of large-scale and complex programs that meet the environmental, social, cultural, and economic needs of Indigenous people across northern Australia. Relevant when the activity could impact on the coastline, coastal waters and sea country.	Relevant persons whose function may indirectly be impacted in emergency conditions .
	Northern Territory					
116	Kardu Diminin Corporation	25(1)d	N/A	4	ACCO representing the traditional owners of Wadeye from the clan group Kardu Diminin. Dedicated to 'spiritual and community development' and creating enterprise and employment opportunities for Indigenous Australians living in Wadeye	Organisation with clan links directly to Wadeye.
117	Kenbi Land Trust TOs	25(1)d	N/A	4	The Kenbi Land Trust (created under the settlement of the long-running Kenbi Land Claim) represents one family of the Larrakia people having traditional ownership for land on the Cox Peninsula (west of Darwin, NT), as well as nearby islands and sea/country areas (coastline, intertidal zones, some reefs and islands). Some live in the small community of Belyuen, and are members of the Kenbi Rangers.	Whilst there is no traditional ownership or land claim link to the Jodeph Bonaparte Gulf, a Cultural or kinship link is possible - indirectly and geographically and through neighbouring cultural groups. There may also be collaboration between the Thamarrurr Rangers and the Kenbi Rangers
118	Larrakia Development Corporation	25(1)d	N/A	3	The LDC is regarded as one of Australia's leading commercial Aboriginal organisations. Working for all Larrakia., as Trustee of the Larrakia Development Trust.	Aboriginal Community-Controlled Organisation who may have sea country that overlaps the EMBA. Located in an area of long term Eni operational presence. Includes Kenbi Rangers.
119	Larrakia Nation Aboriginal Corporation	25(1)d	N/A	4	The Larrakia Nation Aboriginal Corporation was established in 1997 through the Northern Land Council, to provide a corporate identity for Larrakia people to uphold Native Title claims, to represent the Traditional Owners of the Darwin region and to speak on behalf of Larrakia people while delivering community and outreach services to the broader Darwin community, including land and sea Rangers. The Larrakia Rangers work across Larrakia land and sea country, which comprises the greater Darwin region west across the Cox Peninsula and east to the Adelaide River.	LNAC represents Traditional Owners who may have sea country that overlaps the EMBA. Located in an area of long term Eni operational presence.
120	Northern Land Council	25(1)d	N/A	2	The NLC is an independent statutory authority of the Commonwealth, responsible for assisting Aboriginal peoples in the Top End of the Northern Territory to acquire and manage their traditional lands and seas.	The NLC's Native Title Act statutory area of responsibility may overlap the EMBA.
121	Thamarrurr Development Corporation (TDC) Representing the following TO family groups: - Rak Wudipuli - Rak Thinti - Rak Perrederr - Rak Nganthawudi - Rak Nuthunthu - Rak Namarluk - Rak Naddirri - Rak Merrepen - Rak Kulingmirr - Rak Kuy - Rak Kubiyr - Rak Kungarlbarl - Rak Kimmu - Rak Angileni - Yek Diminin - Yek Maninh - Yek Nangu - Yek Ngudanimarn - Yek Wunh - Yek Yederr	25(1)d	N/A	2	TDC is a not-for-profit corporate entity owned by members of the Wangka, Lirrga and Tjanpa peoples. TDC has been established by the 20 clans of the Thamarrurr Region, to represent them in relation to business, socio-economic development, employment and training.	The TDC represents Thamarrurr people (in an area near the EMBA) which is made up of the following Traditional Owner family groups: There may be areas of sea country and nearshore Wadeye, that may overlap or be connected with the EMBA.
122	Yek Diminin		N/A	4	One of the 20+ land-owning clan groups in the Thamarrurr/Wadeye region. Have their own governance (Kardu Diminin Association), although KDC does not necessarily speak for all Yek Diminin people. Also sits on Thamarrurr Development Corporation (TDC) Board.	Yek Diminin are the Traditional Owners of the land on which the township of Wadeye (formerly Port Keats) is located. Any Petrel development that has the potential to impact Wadeye township in temrs of use of airport, barge landing and roads will in turn, affect the functions, interests and activities of Yek Maninh
123	Yek Maninh		N/A	4	One of the 20+ land-owning clan groups in the Thamarrurr/Wadeye region. Also sits on Thamarrurr Development Corporation (TDC) Board.	Yek Maninh lands are distinct from other clan estates with Yelcherr Gas Plant (YGP) located on their land. Any Petrel development that has the potential to impact YGP will in turn, affect the functions, interests and activities of Yek Maninh

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124	Thamarrurr Rangers	25(1)d	N/A	2	Organisationally part of TDC, the Thamarrurr Rangers are based in Wadeye. Their area of responsibility includes roughly 19,000km ² of Country plus about 200–240km of coastline.	In and along the coastline of the Joseph Bonaparte Gulf, their work includes coastal and sea-patrols; monitoring marine species (e.g. turtles, dugongs, other); water-quality monitoring; marine debris removal (ghost nets / rubbish); and enforcement/co-operation with fisheries and water police on compliance/illegal fishing.
125	Tiwi Land Council (TLC) Representing the following TO family groups: - Jikilaruwu - Malawu - Mantiyupwi - Marrikawuyanga - Munupi - Yimpinari - Wurankuwu - Wulirankuwu	25(1)e	N/A	2	The Tiwi Land Council represents all Tiwi people in the protection of our land, sea and environment, while at the same time supporting sustainable economic development to improve Tiwi lives through employment, income, education and health opportunities.	The TLC represents Tiwi Island people (in an area near the EMBA) which is made up of the following Traditional Owner family groups: There may be areas of sea country and nearshore Tiwi Islands, that may overlap or be connected with the EMBA.
126	Top End (Default PBC/CLA) Aboriginal Corporation RNTBC	25(1)d	N/A	4	The 'Top End Default PBC' is a centrally-held, NLC-controlled Registered Native Title Body Corporate used as the default RNTBC for many native-title determinations across the Top End of the NT. Local Aboriginal descent groups Aboriginal peoples in the Legune Area / Victoria River Region / Keep River–Sandy Creek area (below the Joseph Bonaparte Gulf) include Ngaliwurru, Nungali, and Wadaynbang–Gajirrabeng / Goorbijim groupings.	There may be areas of sea country and nearshore NT coastline of the Joseph Bonaparte Gulf, adjacent to the Keep River area, that may overlap or be connected with the EMBA.
	Western Australia					
127	Balanggarra Aboriginal Corporation	25(1)d	N/A	1	Kimberley Coastal PBC. Administers land on behalf of the Balanggarra People. Located in the Northern Kimberley.	Traditional Owner group with potential sea country that may overlap the EMBA.
128	Balanggarra Rangers (Area 3 & 4) ᐃᐃᐃ	25(1)d	N/A	3	The Balanggarra Rangers are an Indigenous ranger group that represent the environmental interests for Balanggarra Aboriginal Corporation	Their traditional country encompasses approximately 30,000 square kilometres of land and sea, including areas such as the Cambridge Gulf, Forrest River, and offshore islands like the Sir Graham Moore Islands and Adolphus Island
129	Balanggarra Kwini (Quini) Rangers (Areas 1 & 2)	25(1)d	N/A	3	The Kwini Rangers are a newly established Indigenous ranger group in the Kimberley region of Western Australia, formed in early 2025. They are part of the Balanggarra Aboriginal Corporation	Kwini people's traditional country spans from the Cambridge Gulf in the east to the Drysdale River in the west,
130	Dambimangari Aboriginal Corporation	25(1)d	N/A	2	Kimberley Coastal PBC. Represents the Traditional Owners of the Wunaamin Miliwundi Ranges East of Broome.The EMBA extends close to declared sea country.	Traditional Owner group with potential sea country that may overlap the EMBA.
131	Kalumburu Aboriginal Corporation	25(1)d	N/A	3	Manages the Native Title rights and interests of the Kulumburu people.	Aboriginal Community-Controlled Organisation group with potential sea country that may overlap the EMBA.
132	Kimberley Land Council	25(1)d	N/A	2	Peak Indigenous body in the Kimberley region.	The KLC's Native Title Act statutory area of responsibility may overlaps the EMBA.
133	Yawoorroong Miriuwung Gajerrong Yirrgeb Noong Dawang Aboriginal Corporation (MG Corp)	25(1)d	N/A	2	Indigenous organisation in the East Kimberley, MG Coporation is committed to building a strong economic and social base for MG people while protecting and enhancing MG culture and heritage. MG country spans the WA/NT border, so some legal determinations and land-use interfaces touch on NT space (and so may appear in NT registers or NT mapping)	Traditional Owner group with potential sea country that may overlap the EMBA.
134	Wunambamat Gaambera Aboriginal Corporation	25(1)d	N/A	1	Manages the Native Title rights and interests of the Wunambal Gaambera people.	Traditional Owner group with potential sea country that may overlap the EMBA.
135	Wunan Foundation	25(1)d	N/A	2	Indigenous not-for-profit organisation based in the East Kimberley, Wunan Foundation develops and manages many successful and mutually beneficial partnerships, education, health, leadership, housing, employment and commercial ventures that benefit the traditional owners of the region.	Aboriginal Community-Controlled Organisation whose functions, interests or activities may be affected by the activities to be carried out under this EP.
	Business					
	National Business					
136	Australian Marine Oil Spill Centre (AMOSC)	25(1)d	N/A	2	AMOSC is Australia's central hub for oil spill preparedness and response in the marine environment, ensuring rapid, coordinated action to minimize environmental and economic damage from oil spills.	Identified as an RP due to expertise in marine oil spill preparedness and response - to reflect industry best-practice risk management, regulatory compliance, and emergency response coordination.
137	Inligo Networks	25(1)d	N/A	4	Inligo Networks is focused on developing strategic, low latency and high-capacity subsea and terrestrial cable networks across South-East Asia, Australasia and the Pacific to address the large and growing capacity needs in these rapidly developing regions.	Relevant due to presence of North West Cable system in vicinity of Joseph Bonaparte Gulf.
138	Moonson Aquatics	25(1)d	N/A	4	Monsoon Aquatics are a world leading supplier of premium hand-picked Australian Coral and Marine life. With state of the art facilities in Darwin, Cairns and Bundaberg, collection capability in the North, East and West of Australia and a growing aquaculture program, Monsson Aquatics supplies an unmatched range of coral to retailers in Australia and wholesalers and public aquaria all around the world. May operate within the EMBA.	Could be affected in the result of an hydrocarbon spill. May operate within the EMBA
139	Vocus	25(1)e	N/A	4	Relevant due to presence of North West Cable system in vicinity of Joseph Bonaparte Gulf	Relevant due to presence of North West Cable system in vicinity of Joseph Bonaparte Gulf.
	Northern Territory Businesses					
140	Chamber of Commerce Northern Territory	25(1)e	N/A	4	Regional representative organisation representing the interests of local business	May have members that may be impacted by the EMBA
141	Darwin Port Operations Pty Ltd	25(1)d	N/A	4	Darwin Port is operated by Darwin Port Operations Pty Ltd which is part of the Landbridge Group. The Landbridge Group is a private company based in Rizhao city in Shandong Province in China, operating businesses in China and Australia. The Darwin Port operates commercial wharf facilities at East Arm Wharf and the cruise ship terminal at Fort Hill Wharf.	May provide a function (i.e., spill response activities) in the event of emergency conditions.
142	NT Port and Marine	25(1)d	N/A	4	Private consortium that owns and operates the commercial port at Port Melville on the Tiwi Islands.	Infrastructure used by contractors.

Petrel Geotechnical and Geophysical Surveys EP Relevant Person Register						
#	RELEVANT PERSON	RP Category OPGGS(E)Regs S25(1)	Relevant Fishery for Individual Licenses	Priority Group	Functions, Interests and Activities	Basis of selection for relevant persons engagement during development of this EP
	Western Australian Businesses					
143	Berkeley River Lodge	25(1)d	N/A	4	A luxury wilderness lodge/resort at the mouth of the Berkeley River in the remote Kimberley coast adjoining the Joseph Bonaparte Gulf offering guided wilderness experiences (river cruises, hikes, 4WD coastal drives, fishing, etc.).	Could be affected in the result of an hydrocarbon spill. May operate within the EMBA
144	Cambridge Gulf Limited (CGL) Wyndham Port	25(1)e	N/A	3	CGL is an East Kimberley based company that provides shipping, fuel and logistics services across Northern Australia.	Potential activities in the Operational Area, ZPI and EMBA.
145	East Kimberley Chamber of Commerce and Industry	25(1)e	N/A	3	Regional representative organisation representing the interests of local business.	Community business representative organisation.
146	Faraway Bay Outback Retreat	25(1)d	N/A	4	A remote wilderness / outback-coast retreat in the remote Kimberley coast adjoining the Joseph Bonaparte Gulf and 280 km north-west of Kununurra.	Could be affected in the result of an hydrocarbon spill. May operate within the EMBA
147	Honeymoon Bay	25(1)d	N/A	4	Honeymoon Bay is a rustic, Balanggarra family-owned and operated campground / coastal retreat adjoining the Joseph Bonaparte Gulf, just north of Kalumburu	Could be affected in the result of an hydrocarbon spill. May operate within the EMBA
148	Kimberley Marine Tourism Association	25(1)d	N/A	3	A not-for-profit, industry association for marine-tourism (charter boat, cruise, coastal tourism) operators working along the Kimberley coast of Western Australia	May have members that may be impacted by the EMBA
	Oil & Gas					
149	Australian Energy Producers (AEP)	25(1)e	N/A	3	AEP is the peak national body that represents Australia's upstream oil and gas exploration and production industry. Its membership includes the companies producing around 95 % of Australia's petroleum.	AEP may want to be considered a "relevant person" for OPGGS (E) regulations because it gives them a formal seat in the consultation and assessment process for offshore oil and gas EPs.
150	EOG Resources Australia	25(1)d	N/A	3	Titleholder and operator of permit WA-488-P	Neighbouring industry activity notification.
151	INPEX (Inpex Browse E&P)	25(1)e	N/A	2	Relevant due to activities in the region. Neighbouring industry activity notification (G-7-AP).	Neighbouring industry activity notification.
152	Melbana Energy (MEO International)	25(1)d	N/A	3	Titleholder of WA-544-P and NT/P87	Neighbouring industry activity notification.
153	SANTOS (Bonaparte Gas & Oil) (Santos Offshore)	25(1)e	N/A	2	Titleholder JVP for NT/P88; WA-548-P; NT/RL1 and WA-6-R titles (Also JVP Titleholder to Beach Energy (Operator) of WA-454-P) (Also Operator for G-11-AP with PRISM Darwin Pipeline; Chevron)	Neighbouring operator.
	NGO's					
154	Australian Marine Conservation Society NT	25(1)e	N/A	3	Territory branch for the national organisation working to protect the ocean environment and marine life. Independent environmental conservation organisation and charity that works to protect ocean wildlife along the Northern Territory coastline, waters and seas.	Has an interest in protecting marine biodiversity and ecosystems. Can provide advise on the marine parks and sanctuary zones within the EMBA for threatened and at risk species.
155	Environment Centre NT (ECNT)	25(1)e	N/A	3	According to its website, ECNT is a not-for-profit incorporated association whose objects include protection of all aspects of the natural environment, conducting campaigns to protect the natural environment, environmental research, and public education and information about the natural environment.	ECNT Advocates for a shift to renewable energy and sustainable development, and runs a dedicated campaign called "No New Gas", targeting expansion of oil and gas projects in the NT including offshore developments
156	Environs Kimberley	25(1)e	N/A	3	Environs Kimberley is the peak environmental NGO for the Kimberley region and is dedicated to looking after the health of the land and waters of the region.	Has an interest in protecting marine biodiversity and ecosystems.
157	Greenpeace Australia Pacific	25(1)e	N/A	4	GAP is a peak conservation body with an interest in activities that may affect the marine environment.	Has an interest in protecting marine biodiversity and ecosystems.
158	Sea Turtle Foundation	25(1)e	N/A	3	Non-profit, non-government group based in Australia working to protect sea turtles through research, education and action.	Has an interest in protecting marine biodiversity and ecosystems.
159	Wilderness Society	25(1)e	N/A	1	Community-based, not-for-profit non-governmental environmental advocacy organisation. TWS is a peak conservation body with an interest in activities that may affect the marine environment.	Has an interest in protecting marine biodiversity and ecosystems.
160	World Wildlife Fund (WWF)	25(1)e	N/A	4	WWF is a peak conservation body with an interest in activities that may affect the marine environment.	Has an interest in protecting marine biodiversity and ecosystems.
	Research					
161	Australian Marine Sciences Association (WA Branch)	25(1)e	N/A	4	Marine research organisation	Might want to research study marine in and around the OA, ZPI and/or EMBA
162	Commonwealth Scientific and Industrial Research Organisation (CSIRO)	25(1)e	N/A	4	Marine research organisation	Might want to research study marine in and around the OA, ZPI and/or EMBA
163	Charles Darwin University (CDU)	25(1)e	N/A	4	Marine research organisation	Might want to research study marine in and around the OA, ZPI and/or EMBA
164	University of Tasmania - Marine Biodiversity Hub (UTAS)	25(1)e	N/A	4	Marine research organisation	Might want to research study marine in and around the OA, ZPI and/or EMBA
165	University of Western Australia (UWA)	25(1)e	N/A	4	Marine research organisation	Might want to research study marine in and around the OA, ZPI and/or EMBA

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Appendix C3: Consultation Materials

APPENDIX 3 – CONSULATION MATERIALS

CONTENTS

1. Consultation Packs:

a) By Email:

- i) Cover Email (inc link to Consultation on offshore petroleum environment plans)
- ii) Activity Flyer including risks/mitigations table with link to landing page

b) By Registered Mail:

- i) Fisher letters (27 January and 11 February 2026)
- ii) Activity Flyer including risks/mitigations and QR link to Landing Page
- iii) NOPSEMA guidelines

2. Online Consultation Information:

- a) Landing Page
- b) FAQs
- c) Risks & Mitigations Table
- d) Contact Form

3. Print Advertising

4. Radio Advertising

5. Posters and Newsletters

6. Presentations – General with attached tailored cover pages.

1. CONSULTATION PACKS

2. By Email:

- a) Cover Email including link to Consultation on offshore petroleum environment plans
- b) Activity Flyer with QR link to landing page

3. By Registered Mail:

- a) Fisher letters (27 January and 11 February 2026)*
- b) Activity Flyer (Refer to Email Consultation Pack)
- c) NOPSEMA guidelines

**Proof of postage with tracking numbers for each individual Relevant Person can be found in the Sensitive Matters report submitted under separate cover.*

RELEVANT PERSON CONSULTATION

Petrel Survey Activities
January 2026

Petrel Survey Activities

Eni, through its subsidiary Eni Energy Bonaparte Pty Ltd, is the titleholder of the Petrel Gas Field (Petrel) in the Bonaparte Basin in North Western Australia. The Petrel field is located across two retention leases, NT/RL1 and WA-6-R, ~250km west of Darwin.

Eni is proposing to undertake surveys within the Petrel field in the Bonaparte Basin to support the Petrel development and exploration activities within the Petrel Field. The objective of the surveys is to acquire geophysical, geotechnical and environmental baseline data to better understand the existing environment and seabed characteristics of the Petrel Development area. This information will contribute to understanding the locations of development infrastructure and may support the planning of any future exploration activities within the Petrel field.

The proposed activities will take place in accordance with the **Offshore Petroleum and Greenhouse Gas Storage Environment Regulations 2023 (Cth) (Environment Regulations)** and Eni is preparing the Environment Plan to submit to the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA).

As required by NOPSEMA, Eni must consult with people whose functions, interests and activities may be affected by the proposed survey activities. Environment Regulations refers to such people as relevant persons.

This fact sheet provides you with information to determine if you are a relevant person for the Petrel field survey activities.

You may be a relevant person if you or your organisation has functions, interests, or activities that may be affected by the offshore petroleum activities proposed under the environment plan being prepared. Interests that may be affected can include things like cultural and spiritual connections to the sea or interests in the protection of specific marine species.

FEEDBACK

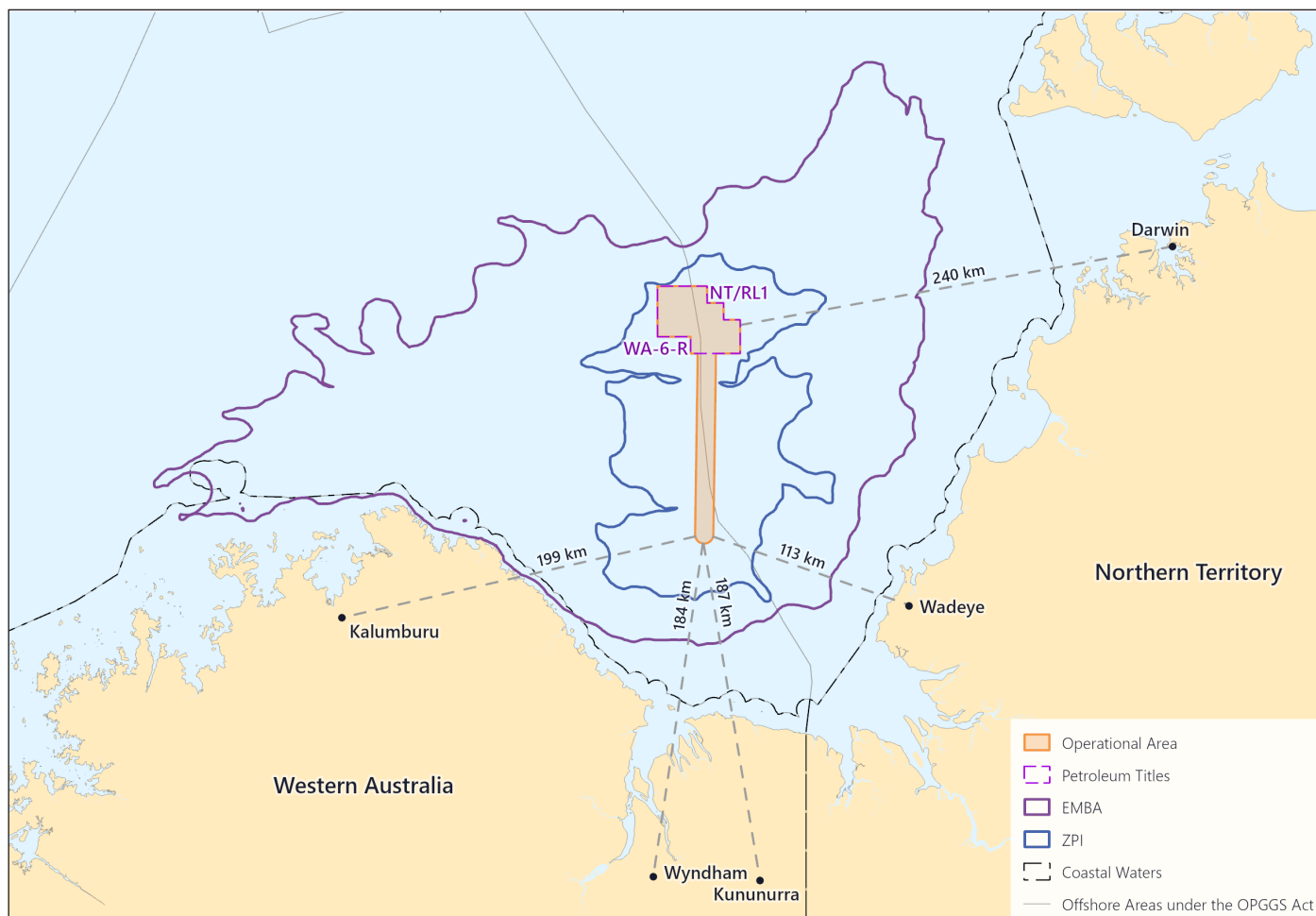
If you think you may be a relevant person, please review this information and provide any feedback to Eni. Additional information can be found online at petreleni.com.au. You are invited to submit your advice on control measures to mitigate potential impact (if any) that the proposed activities may have on you. We are seeking feedback by **17 March 2026**.

CONTACT ENI

Email: info@petreleni.com.au
 Phone: 1300 155 656
 Post: PO Box 6862
 East Perth WA 6892



Figure 1: Operational Area, ZPI and EMBA



ACTIVITIES AND DURATION

To better understand the existing environment and the seabed characteristics of the Petrel Development Area, Eni is proposing to undertake the following initial survey campaigns in Q3 and Q4 2026:

- Geotechnical survey, to help the design of the subsea structures.
- Geophysical survey, to get a baseline of what the seabed looks like, what's underneath, and any hazards. This helps Eni to plan activities such as drilling, installing subsea equipment, and building wells.
- Environmental surveys, to understand the environmental conditions of the Petrel field

The type of initial surveys, location, duration and expected timing can be found in the **Table 1** below.

Subsequent surveys could be undertaken between 2027 and 2030.

Table 1 – Planned Activities

Survey Type/ Campaign	Development			Exploration		
	Location	Duration	Expected Timing	Location	Duration	Expected Timing
Geophysical	Whole OA	40 days	Q3/Q4 2026	Retention leases only	20 days	Q3/Q4 2026
Environmental baseline	Whole OA	20 days	Q3/Q4 2026	Retention leases only	10 days	Q3/Q4 2026
Geotechnical	Whole OA	40 days	Q3/Q4 2026	Retention leases only	10 days	Q3/Q4 2026

LOCATION

The Petrel field is located across two retention leases, NT/RL1 and WA-6-R, ~250km west of Darwin. Eni proposes to link the Petrel field to the existing Blacktip Gas Export Pipeline (GEP) by the proposed Petrel GEP. The Petrel field and proposed GEP route are situated in a water depth of between 50m and approximately 100m. Location details are summarised in **Table 2**. A location map is provided in **Figure 1**.

The general transit of the vessels to and from the Operational Area (OA) is not considered a petroleum activity and is excluded from the scope of this EP. These activities will be undertaken in accordance with the **Navigation Act 2021 (Cth)**.

TIMING

The initial survey campaigns are proposed to occur in Q3 and Q4 2026. Additional surveys for additional hydrocarbon well locations could occur between 2027 and 2030. The actual timing of the activities will depend on a number of factors, including access approvals, vessel availability and weather conditions.

Table 2 – Location Details

Permits	NT/RL1 and WA-6-R	
Operational Area	The Operational Area (OA) is a defined area within which all petroleum activities associated within this EP occur, and which allows impact assessment of those activities. It includes the extent of all planned activities within the EP, and is defined to cover the spatial extent of: • Retention leases (WA-6-R and NT/RL1); • 5km radius around the proposed GEP route; from the boundary of the retention lease to the Blacktip GEP tie-in point; and • 5km radius around the Blacktip GEP tie-in point.	
Nearest proximity to Key Regional Features		
Permit Boundary (Eastern)	Darwin	240km
Gas Export Pipeline (Southern Point)	Wadeye	113km
	Kununurra	187km
	Wyndham	184km
	Kalumburu	199km
Worst case hydrocarbon spill	Maximum credible volume ~130m ³ marine diesel in the event of a ruptured fuel tank (full).	

ENVIRONMENT THAT MAY BE AFFECTED (EMBA)

The Environment That May Be Affected (EMBA) is the area where the activity could potentially affect the environment, including in the unlikely event of an unplanned incident. The outermost boundary of the EMBA for this activity is based on an accidental release of marine diesel oil (MDO) to the environment in the unlikely event of a vessel collision damaging a fuel tank.

The environmental impacts from planned activities will mostly be limited to within the Operational Area. The zone of potential impact (ZPI) or moderate exposure zone is smaller than the EMBA and represents the area where biological impacts may occur due to hydrocarbons released to the environment in the event of a vessel collision.

The loss of hydrocarbons to the environment is highly unlikely, and Eni implements a range of preventative measures to minimise the risk. The EMBA is shown in **Figure 1**.

Scientific modelling is used to assess the potential impacted zone should an unplanned hydrocarbon spill occur (eg: vessel collision). The EMBA is derived from this spill modelling, which incorporates hundreds of simulations across a range of wind and ocean current conditions. Refer to NOPSEMA's website for more information on oil spill modelling.

ENVIRONMENTAL MANAGEMENT

Eni will conduct an Environmental Impact Identification workshop to confirm and assess impacts, risks and management measures for the activity. A table of risks and assessments generated based on existing knowledge and experience, is provided in **Table 3**. A detailed list of the identified risks, assessment and mitigation can be found in the published Environment Plan (EP). This will become available upon approval by the regulator.

RELEVANT PERSON COMMENT AND FEEDBACK

Eni is seeking comment from relevant persons in relation to any potential impact that the proposed activities, covered by the Petrel Survey Environment Plan, may have on your functions, interests or activities as a relevant person.

If you wish to provide any comment or feedback on these activities, please do so by **17 March 2026** to the contact details provided. If you know anyone who may be a relevant person, we ask that you make them aware of our consultation.

Eni treats all information provided by you as confidential, with the exception of providing information to NOPSEMA. Eni is required to provide NOPSEMA with details of all correspondence with relevant persons, including copies of written correspondence. NOPSEMA routinely publish environment plans under assessment or accepted on their website.

Personal information (other than name and contact details) is sensitive information and will not be published in the EP. You can request that any material provided to Eni, including your name and contact details, be treated as sensitive information not to be published in the Petrel Survey Environment Plan.

All comments provided will be considered in the Petrel-Survey Environment Plan to be submitted to NOPSEMA, in accordance with the *Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2023*.

Please let us know if your feedback for this activity is sensitive and we will make this known to NOPSEMA in order for this information to remain confidential to NOPSEMA. If you wish to opt out of our consultation process after reviewing the information in this letter, please let us know via email. Please consider NOPSEMA's advice in Consultation on Offshore Petroleum Environment Plans – Information can also be found at the project landing page at petreleni.com.au.

Table 3 – Summary of Potential Key Environmental Impact/Risks and Management Measures

The potential key environmental impacts listed below are assumptions based on existing experience in the region and conducting similar activities. Final impacts, risks and management measures will be updated on the activity landing page at petreleni.com.au.

Aspect	Description	Potential Impact / Risk	Proposed Management
Planned Impacts			
Seabed disturbance	Seabed disturbance will be caused by: • seabed sampling during the geotechnical survey	Seabed disturbance will cause a localised and temporary reduction in water quality, and disturbance to benthic habitat. There is no sensitive benthic habitat, Marine Parks or Key Ecological Features (KEFs) in the Operational Area.	• All deployed equipment will be recovered. • Post-activity ROV survey will be conducted.
Physical interaction – Other marine users	The movement of vessels within the Operational Area can interfere with other marine users by causing displacement from the area during activities.	The Operational Area is retention leases WA-6-R and NT/RL1 and a 10km wide corridor along the proposed GEP route; from the boundary of the retention lease to the Blacktip GEP tie-in point. Activities in the Operational Area are of short duration, expected to last up to 100 days. Six active fisheries overlap the Operational Area; however, these commercial fisheries have recorded limited historical catch effort data within the area. There are no tourism or recreational fishing activities expected in the Operational Area due to distance from shore, and no Maritime Defence Exercise areas.	• Navigation equipment and procedures, in accordance with legislative requirements. • Maritime notices will be complied with. • All the activities will occur within the Operational Area. • Other relevant notifications may be made, as requested by relevant persons. • Lighting will be used as required for safe work conditions and navigational purposes.
Atmospheric emissions and greenhouse gas (GHG)	Atmospheric and GHG emissions are generated by the vessels as a result of combustion for power generation. Vessels may also use ozone-depleting substances (ODS) in refrigeration systems. Waste incineration on vessels will be in accordance with legislative requirements.	Hydrocarbon combustion may result in a temporary, localised reduction of air quality in the environment immediately surrounding the release point. Non-GHG emissions (such as NOx and SOx) and GHG emissions can lead to a reduction in local air quality. Given the short duration of the campaigns (up to 100 days) and relatively low fuel usage, the contribution of atmospheric and GHG emissions to the global carbon budget is expected to be insignificant and is not evaluated further.	• Use low sulphur fuel on the vessels, in accordance with legislative requirements (e.g., Marine Orders). • Ozone-depleting substances (ODS) managed in accordance with MARPOL. • Compliance with regulatory requirements for marine air pollution and GHG missions reporting. • Vessel Planned Maintenance System (PMS) in place to maintain DP, engines and machinery.
Noise emissions - Continuous	Continuous noise emissions will be generated by the operation of support vessels, helicopters	Underwater noise emissions can cause: • a change in marine fauna behaviour • mask communication • temporary or permanent hearing loss. The greatest source of noise emissions is if Dynamic Positioning (DP) is used (from thruster noise) on vessels. The Operational Area does not overlap with any biologically important areas (BIAs) for marine mammals or fish/sharks, though it does for four species of marine turtles – any individuals present would be transitory. Potential impacts are likely to be restricted to localised and temporary avoidance behaviour. Given the short duration of the survey campaigns (up to 100 days), the potential impacts are considered low.	• Compliance with administrative controls (such as EPBC Regulations Part 8) to reduce interactions with marine fauna. • Documented maintenance program in place for equipment on vessels that provides a status on the maintenance of equipment. • Marine assurance standard in place.

Aspect	Description	Potential Impact / Risk	Proposed Management
Noise emissions – Impulsive	Impulsive noise emissions generated by acoustic survey techniques during the geophysical survey – i.e. Multibeam echo sounder, side scan sonar, sub-bottom profiling, magnetometer, ultra-short baseline positioning system. Such equipment is designed to characterise the seabed topography, bathymetry, potential geohazards, and other seafloor features .	The Operational Area does not overlap with any biologically important areas (BIAs) for marine mammals or fish/sharks, though it does for 4 species of marine turtles – any individuals present would be transitory. The impulsive noise emissions generated by the various acoustic survey instruments may result in localised and temporary behavioural changes to marine fauna.	• Compliance with administrative controls (such as EPBC Regulations 8 (Part 8) to reduce interactions with marine fauna. • Use of soft starts to minimise the sound intensity and exposure time of surveys.
Light emissions	Lights on the vessels will be required on a 24-hour basis during the activities for safety and navigational purposes, in accordance with navigational requirements.	Light emissions have the potential to result in changes to marine fauna behaviour, by acting as an attractant to light-sensitive species, leading to possible increased predation and/or disorientation. There is no potential to impact nesting females or hatchlings. The Operational Area does not overlap any BIAs for seabirds, and is >88 km from shore, meaning there is no potential to impact fledging behaviour. There is potential a small number of adult seabirds and migratory shorebirds may be attracted to the vessels, however given the short duration of the campaigns (up to 100 days), this is considered minor.	• Lighting will be used as required for safe work conditions and navigational purposes.
Planned discharges – Routine	Operation of vessels will routinely discharge the following to the marine environment: • sewage • greywater • putrescible waste • treated bilge • cooling water and brine • deck drainage	A temporary and localised impact on water quality may result in a change in water quality and changes to predator-prey dynamics. Given the relatively low volume and intermittent nature of planned vessel discharges, the short duration of the campaigns (up to 100 days), the water depth and open ocean environment of the Operational Area, the potential impact is expected to be localised to the immediate proximity of the release, and of short duration.	• All routine marine discharges will be managed according to legislative requirements. • Vessel PMS in place to maintain DP, engines and machinery.

Aspect	Description	Potential Impact / Risk	Proposed Management
Unplanned Risks			
Marine fauna interaction	There is the potential for vessels to collide with marine fauna, including marine mammals, fish, marine reptiles and seabirds. The main collision risk is through vessel collision with large, slow-moving cetaceans, potentially resulting in severe injury or mortality.	Given the short duration of the campaigns (up to 100 days), and the slow speeds at which vessels operate, collisions with marine fauna are considered highly unlikely. Eni will apply control measures to ensure the likelihood of the event occurring is reduced to ALARP and acceptable levels.	• Compliance with administrative controls (such as EPBC Regulations Part 8) to reduce interactions with marine fauna. • Any vessel strikes with cetaceans will be reported in the National Ship Strike Database. • Observations of the surroundings will be undertaken from the vessel/s for marine fauna.
Introduction of marine pest species	There is the potential for introduction and establishment of invasive marine pests to the Operational Area via vessels ballast water or biofouling on vessel hulls.	The risk of introducing IMS is limited by the depth of the Operational Area (>50 m), which is not directly adjacent to any shallow shoals or banks. The substrate in the Operational Area does not have any hard substrate to which IMS can attach. Eni will apply control measures to ensure the likelihood of the event occurring is reduced to ALARP and acceptable levels.	• All vessels will be assessed and managed as appropriate to prevent the introduction of marine pests. • Vessels will comply with biosecurity requirements for ballast water and biofouling and comply with the Maritime Arrivals Reporting System (MARS).
Accidental release – waste and solid objects	There is the potential for the accidental disposal of hazardous wastes (e.g. hydrocarbon contaminated materials, batteries, paint cans) and non-hazardous solid wastes (e.g. paper and cardboard, wooden pallets, scrap steel, rope, glass and plastics).	The accidental release of wastes can cause a temporary and localised reduction in water quality, and the potential for marine fauna to ingest or become entangled with solid waste (garbage). If equipment is dropped, this may cause disturbance or smothering of benthic habitats. This is a small area; and benthic habitats are known to rapidly recover. There are no KEFs or sensitive benthic habitat in the Operational Area. Eni will apply control measures to ensure the likelihood of the event occurring is reduced to ALARP and acceptable levels.	• Procedures to reduce the potential for loss of non-hazardous and hazardous waste and dropped objects to be followed. • Dropped objects to be retrieved where possible. • Lifting procedures will be implemented. • For hazardous chemicals, including hydrocarbons, hazardous chemical management procedures will be in place to reduce the risk of an accidental release to sea. • Chemical assessment procedure will be implemented.
Accidental release – Minor loss of containment	Minor volumes of hydrocarbon or other chemicals (e.g. hydraulic fluids, deck spills) may be accidentally released to the marine environment due to: • Loss of primary/secondary containment • Incorrect handling and storage • ROV failure.	Minor accidental releases of hydrocarbons or chemicals can cause a change in water quality. Expected volumes are small (<1 m³), and there is no potential for injury or mortality to marine fauna. Eni will apply control measures to ensure the likelihood of the event occurring is reduced to ALARP and acceptable levels.	• Use of MDO rather than Heavy Fuel Oil (HFO) on vessels (MDO is lighter than HFO and will evaporate faster and persist less in the marine environment). • Response plans and equipment will be in place and maintained to manage spills to the environment (e.g. oil pollution emergency plans). • In the event of a minor loss of containment to sea, Oil Pollution Emergency Plan (OPEP) requirements will be implemented to mitigate environmental impacts. • Chemical assessment procedure will be implemented. • For hazardous chemicals, including hydrocarbons, hazardous chemical management procedures will be in place to reduce the risk of an accidental release to sea. • Remotely operated vehicle (ROV) inspection and maintenance procedures. • Procedures to reduce the potential for loss of non-hazardous and hazardous waste and dropped objects to be followed. • Vessel PMS in place to maintain DP, engines and machinery. • Where required, operational and scientific monitoring undertaken in accordance with Eni's Operational and Scientific Monitoring Plan.

Aspect	Description	Potential Impact / Risk	Proposed Management
Accidental release – MDO (vessel collision)	A release of up to 130m ³ marine diesel oil (MDO) could occur from a collision between the activity vessels and a third-party vessel due to factors such as human error, poor navigation, vessel equipment failure or poor weather.	An accidental release of MDO can cause a change in water quality, a change in fauna behaviour, injury or mortality to marine fauna and an impact to other marine users. Potential impacts include those to plankton, fish, marine turtles, marine mammals, seabirds and migratory shorebirds, commercial fisheries, and cultural heritage. MDO is a relatively volatile, non-persistent hydrocarbon with rapid evaporation on the sea-surface (typically ~36% within the first 24 hours). Whilst there may be very low levels of suspended oil droplets in intertidal zones, spill modelling does not predict any accumulation or buildup of hydrocarbons on any shorelines. Six active fisheries overlap the Operational Area; however, these commercial fisheries have recorded limited historical catch effort data within the area. There are no tourism or recreational fishing activities expected. The Operational Area is located within a military exercise zone (Northern Australia Exercise Area) which is administered by the Australian Defence Force and includes restricted airspace. Eni will apply control measures to ensure the likelihood of the event occurring is reduced to ALARP and acceptable levels.	• Pre-start notifications will be issued. • Regulatory requirements for the prevention of vessel collisions and safety and emergency arrangements. • Use of MDO rather than Heavy Fuel Oil (HFO) on vessels. • In the event of an oil spill to sea, OPEP requirements will be implemented to mitigate environmental impacts. • Response plans and equipment will be in place and maintained to manage spills to the environment (e.g., oil pollution emergency plans). • Vessels selected and on-boarded are operated, maintained and manned in accordance with industry standards (Marine Orders) and regulatory requirements. • Where required, operational and scientific monitoring undertaken in accordance with Eni's Operational and Scientific Monitoring Plan.



CONTACT ENI

Email: info@petreleni.com.au
Phone: 1300 155 656
Post: PO Box 6862
East Perth WA 6892



[Draft] Eni - Petrel Surveys Consultation

From info@petreleni.com.au

Dear Sir/Madam

On behalf of Eni Energy Bonaparte Pty Ltd (Eni), we wish to provide you with information pertaining to the proposed survey activities that we plan to carry out on the Petrel field. The Petrel field is located across two retention leases, NT/RL1 and WA-6-R, ~250km west of Darwin.

Activity

Eni is proposing to undertake geophysical and geotechnical surveys, alongside environmental baseline data, within the Petrel field in the Bonaparte Basin to understand the seabed floor for potential development and exploration activities within the Petrel field.

To better understand the existing environment and the seabed characteristics of the Petrel Development Area, Eni is proposing to undertake the initial survey campaigns in Q3 and Q4 2026.

This information will contribute to understanding the locations of development infrastructure and may support the planning of any future exploration activities within the Petrel field.

Further details on the proposed activities can be found in the attached Activity Flyer or by visiting the activity page on our landing page at petreleni.com.au.

Consultation

Within the responsibilities of operatorship and environmental management for the Petrel field, Eni has assessed the activity to determine relevant persons/groups/organisations. The determination of a relevant person/group/organisation is outlined in the attached NOPSEMA Guideline "[Consultation on offshore petroleum environment plans](#)".

Sensitive Information

Eni treats all information provided by you as confidential, with the exception of providing information to NOPSEMA. Eni is required to provide NOPSEMA with details of all correspondence with relevant persons, including copies of written correspondence. Personal information (other than name and contact details) is sensitive information and will not be published in the EP.

You can request that any material provided to Eni, including your name and contact details, be treated as sensitive information not to be published in the Petrel Surveys Environment Plan.

Please let us know if your feedback for this activity is sensitive and we will make this known to NOPSEMA in order for this information to remain confidential to NOPSEMA.

Feedback

The Wilderness Society has been identified as a relevant organisation for engagement by Eni. If you have any queries or concerns regarding the activity, please contact us by email at info@petreleni.com.au, by phone on 1300 155 616 or visit our website at petreleni.com.au.

Please provide your feedback by **17 March 2026**.

Opt Out

If you do not wish to be contacted or provided further information on this activity, please reply to this email with "STOP" in the subject line.

Sincerely

Eni Energy Bonaparte Pty Ltd

E: info@petreleni.com.au

W: petreleni.com.au

P: 1300 155 616



27 January 2026

«Name»
«Company»
«Address»
«Suburb» «State» «Pcode»

Dear «Name»

On behalf of Eni Energy Bonaparte Pty Ltd (Eni), we wish to provide you with information pertaining to the proposed survey activities that we plan to carry out on the Petrel field. The Petrel field is located across two retention leases, NT/RL1 and WA-6-R, ~250km west of Darwin.

Activity

Eni is proposing to undertake geophysical and geotechnical surveys, alongside environmental baseline data, within the Petrel field in the Bonaparte Basin to understand the seabed floor for potential development and exploration activities within the Petrel field.

To better understand the existing environment and the seabed characteristics of the Petrel Development Area, Eni is proposing to undertake the initial survey campaigns in Q3 and Q4 2026.

This information will contribute to understanding the locations of development infrastructure and may support the planning of any future exploration activities within the Petrel field.

Further details on the proposed activities can be found in the attached Activity Flyer or by visiting the activity page on our landing page at petreleni.com.au.

Consultation

Within the responsibilities of operatorship and environmental management for the Petrel field, Eni has assessed the activity to determine relevant persons/groups/organisations. The determination of a relevant person/group/organisation is outlined in the attached NOPSEMA Guideline "[Consultation on offshore petroleum environment plans](#)".

Sensitive Information

Eni treats all information provided by you as confidential, with the exception of providing information to NOPSEMA. Eni is required to provide NOPSEMA with details of all correspondence with relevant persons, including copies of written correspondence. Personal information (other than name and contact details) is sensitive information and will not be published in the EP.





You can request that any material provided to Eni, including your name and contact details, be treated as sensitive information not to be published in the Petrel Surveys Environment Plan.

Please let us know if your feedback for this activity is sensitive and we will make this known to NOPSEMA in order for this information to remain confidential to NOPSEMA.

Feedback

Eni distributed the attached documents through Western Australian Fishing Industry Council, the Northern Territory Seafood Council and peak body representatives.

[you/your organisation] has been identified as a relevant [person/organisation] for engagement by Eni. If you have any queries or concerns regarding the activity, please contact us by email at info@petreleni.com.au, by phone on 1300 155 616 or visit our website at petreleni.com.au.

Please provide your feedback by **17 March 2026**.

Opt Out

If you do not wish to be contacted or provided further information on this activity, please reply to this email with "STOP" in the subject line.

Sincerely

Samir Wasim

SAMIR WASIM
HSEQ Manager
Eni Australia
for
Eni Energy Bonaparte

Attached.



eni energy bonaparte

c/o Eni Australia Ltd
Level 5, 226 Adelaide Terrace Perth WA 6000
Tel: +61 8 9205 3902

11 February 2026

«Name»
«Company»
«Address»
«Suburb» «State» «Pcode»

Dear «Name»

On behalf of Eni Energy Bonaparte Pty Ltd (Eni), I would like to follow up on the information mailed to you in January pertaining to the proposed survey activities that we plan to carry out on the Petrel field. The Petrel field is located across two retention leases, NT/RL1 and WA-6-R, ~250km west of Darwin.

Activity

Eni is proposing to undertake geophysical and geotechnical surveys, alongside environmental baseline data, within the Petrel field in the Bonaparte Basin to understand the seabed floor for potential development and exploration activities within the Petrel field.

To better understand the existing environment and the seabed characteristics of the Petrel Development Area, Eni is proposing to undertake the initial survey campaigns in Q3 and Q4 2026.

This information will contribute to understanding the locations of development infrastructure and may support the planning of any future exploration activities within the Petrel field.

Further details on the proposed activities can be found in the attached Activity Flyer or by visiting the activity page on our landing page at petreleni.com.au.

Consultation

Within the responsibilities of operatorship and environmental management for the Petrel field, Eni has assessed the activity to determine relevant persons/groups/organisations. The determination of a relevant person/group/organisation is outlined in the attached NOPSEMA Guideline "[Consultation on offshore petroleum environment plans](#)".

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Eni Energy Bonaparte Pty Ltd.
ABN 13 138 853 728
c/o Eni Australia Ltd
PO Box 6862 East Perth Western Australia 6892
226 Adelaide Terrace Perth WA 6000
Tel: +61 8 9205 3902



You can request that any material provided to Eni, including your name and contact details, be treated as sensitive information not to be published in the Petrel Surveys Environment Plan.

Please let us know if your feedback for this activity is sensitive and we will make this known to NOPSEMA in order for this information to remain confidential to NOPSEMA.

Feedback

Eni distributed the attached documents through Western Australian Fishing Industry Council, the Northern Territory Seafood Council and peak body representatives.

[you/your organisation] has been identified as a relevant [person/organisation] for engagement by Eni. If you have any queries or concerns regarding the activity, please contact us by email at info@petreleni.com.au, by phone on 1300 155 616 or visit our website at petreleni.com.au.

Please provide your feedback by **17 March 2026**.

Opt Out

If you do not wish to be contacted or provided further information on this activity, please reply to this email with "STOP" in the subject line.

Sincerely

Samir Wasim

SAMIR WASIM
HSEQ Manager
Eni Australia
for
Eni Energy Bonaparte

Attached.

RELEVANT PERSON CONSULTATION

Petrel Survey Activities
January 2026

Petrel Survey Activities

Eni, through its subsidiary Eni Energy Bonaparte Pty Ltd, is the titleholder of the Petrel Gas Field (Petrel) in the Bonaparte Basin in North Western Australia. The Petrel field is located across two retention leases, NT/RL1 and WA-6-R, ~250km west of Darwin.

Eni is proposing to undertake surveys within the Petrel field in the Bonaparte Basin to support the Petrel development and exploration activities within the Petrel Field. The objective of the surveys is to acquire geophysical, geotechnical and environmental baseline data to better understand the existing environment and seabed characteristics of the Petrel Development area. This information will contribute to understanding the locations of development infrastructure and may support the planning of any future exploration activities within the Petrel field.

The proposed activities will take place in accordance with the **Offshore Petroleum and Greenhouse Gas Storage Environment Regulations 2023 (Cth) (Environment Regulations)** and Eni is preparing the Environment Plan to submit to the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA).

As required by NOPSEMA, Eni must consult with people whose functions, interests and activities may be affected by the proposed survey activities. Environment Regulations refers to such people as relevant persons.

This fact sheet provides you with information to determine if you are a relevant person for the Petrel field survey activities.

You may be a relevant person if you or your organisation has functions, interests, or activities that may be affected by the offshore petroleum activities proposed under the environment plan being prepared. Interests that may be affected can include things like cultural and spiritual connections to the sea or interests in the protection of specific marine species.

FEEDBACK

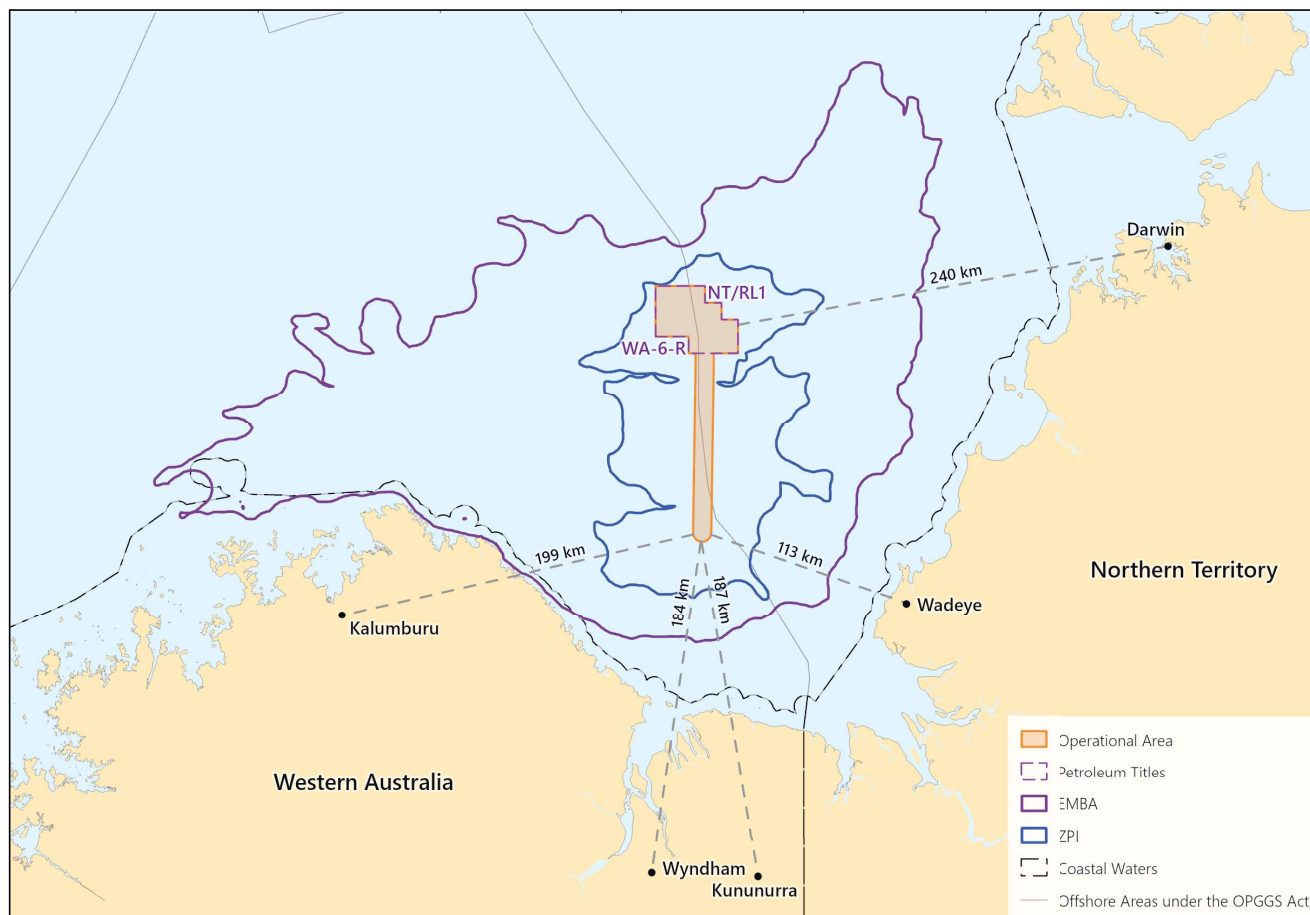
If you think you may be a relevant person, please review this information and provide any feedback to Eni. Additional information can be found online at petreleni.com.au. You are invited to submit your advice on control measures to mitigate potential impact (if any) that the proposed activities may have on you. We are seeking feedback by **17 March 2026**.

CONTACT ENI

Email: info@petreleni.com.au
 Phone: 1300 155 656
 Post: PO Box 6862
 East Perth WA 6892



Figure 1: Operational Area, ZPI and EMBA



ACTIVITIES AND DURATION

To better understand the existing environment and the seabed characteristics of the Petrel Development Area, Eni is proposing to undertake the following initial survey campaigns in Q3 and Q4 2026:

- Geotechnical survey, to help the design of the subsea structures.
- Geophysical survey, to get a baseline of what the seabed looks like, what's underneath, and any hazards. This helps Eni to plan activities such as drilling, installing subsea equipment, and building wells.
- Environmental surveys, to understand the environmental conditions of the Petrel field

The type of initial surveys, location, duration and expected timing can be found in the **Table 1** below.

Subsequent surveys could be undertaken between 2027 and 2030.

Table 1 – Planned Activities

Survey Type/ Campaign	Development			Exploration		
	Location	Duration	Expected Timing	Location	Duration	Expected Timing
Geophysical	Whole OA	40 days	Q3/Q4 2026	Retention leases only	20 days	Q3/Q4 2026
Environmental baseline	Whole OA	20 days	Q3/Q4 2026	Retention leases only	10 days	Q3/Q4 2026
Geotechnical	Whole OA	40 days	Q3/Q4 2026	Retention leases only	10 days	Q3/Q4 2026

LOCATION

The Petrel field is located across two retention leases, NT/RL1 and WA-6-R, ~250km west of Darwin. Eni proposes to link the Petrel field to the existing Blacktip Gas Export Pipeline (GEP) by the proposed Petrel GEP. The Petrel field and proposed GEP route are situated in a water depth of between 50m and approximately 100m. Location details are summarised in **Table 2**. A location map is provided in **Figure 1**.

The general transit of the vessels to and from the Operational Area (OA) is not considered a petroleum activity and is excluded from the scope of this EP. These activities will be undertaken in accordance with the **Navigation Act 2021 (Cth)**.

TIMING

The initial survey campaigns are proposed to occur in Q3 and Q4 2026. Additional surveys for additional hydrocarbon well locations could occur between 2027 and 2030. The actual timing of the activities will depend on a number of factors, including access approvals, vessel availability and weather conditions.

Table 2 – Location Details

Permits		NT/RL1 and WA-6-R	
Operational Area	The Operational Area (OA) is a defined area within which all petroleum activities associated within this EP occur, and which allows impact assessment of those activities. It includes the extent of all planned activities within the EP, and is defined to cover the spatial extent of: • Retention leases (WA-6-R and NT/RL1); • 5km radius around the proposed GEP route; from the boundary of the retention lease to the Blacktip GEP tie-in point; and • 5km radius around the Blacktip GEP tie-in point.		
Nearest proximity to Key Regional Features			
Permit Boundary (Eastern)	Darwin	240km	
Gas Export Pipeline (Southern Point)	Wadeye	113km	
	Kununurra	187km	
	Wyndham	184km	
	Kalumburu	199km	
Worst case hydrocarbon spill	Maximum credible volume ~130m³ marine diesel in the event of a ruptured fuel tank (full).		

ENVIRONMENT THAT MAY BE AFFECTED (EMBA)

The Environment That May Be Affected (EMBA) is the area where the activity could potentially affect the environment, including in the unlikely event of an unplanned incident. The outermost boundary of the EMBA for this activity is based on an accidental release of marine diesel oil (MDO) to the environment in the unlikely event of a vessel collision damaging a fuel tank.

The environmental impacts from planned activities will mostly be limited to within the Operational Area. The zone of potential impact (ZPI) or moderate exposure zone is smaller than the EMBA and represents the area where biological impacts may occur due to hydrocarbons released to the environment in the event of a vessel collision.

The loss of hydrocarbons to the environment is highly unlikely, and Eni implements a range of preventative measures to minimise the risk. The EMBA is shown in **Figure 1**.

Scientific modelling is used to assess the potential impacted zone should an unplanned hydrocarbon spill occur (eg: vessel collision). The EMBA is derived from this spill modelling, which incorporates hundreds of simulations across a range of wind and ocean current conditions. Refer to NOPSEMA's website for more information on oil spill modelling.

ENVIRONMENTAL MANAGEMENT

Eni will conduct an Environmental Impact Identification workshop to confirm and assess impacts, risks and management measures for the activity. A table of risks and assessments generated based on existing knowledge and experience, is provided in **Table 3**. A detailed list of the identified risks, assessment and mitigation can be found in the published Environment Plan (EP). This will become available upon approval by the regulator.

RELEVANT PERSON COMMENT AND FEEDBACK

Eni is seeking comment from relevant persons in relation to any potential impact that the proposed activities, covered by the Petrel Survey Environment Plan, may have on your functions, interests or activities as a relevant person.

If you wish to provide any comment or feedback on these activities, please do so by **17 March 2026** to the contact details provided. If you know anyone who may be a relevant person, we ask that you make them aware of our consultation.

Eni treats all information provided by you as confidential, with the exception of providing information to NOPSEMA. Eni is required to provide NOPSEMA with details of all correspondence with relevant persons, including copies of written correspondence. NOPSEMA routinely publish environment plans under assessment or accepted on their website.

Personal information (other than name and contact details) is sensitive information and will not be published in the EP. You can request that any material provided to Eni, including your name and contact details, be treated as sensitive information not to be published in the Petrel Survey Environment Plan.

All comments provided will be considered in the Petrel-Survey Environment Plan to be submitted to NOPSEMA, in accordance with the **Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2023**.

Please let us know if your feedback for this activity is sensitive and we will make this known to NOPSEMA in order for this information to remain confidential to NOPSEMA. If you wish to opt out of our consultation process after reviewing the information in this letter, please let us know via email. Please consider NOPSEMA's advice in Consultation on Offshore Petroleum Environment Plans – Information can also be found at the project landing page at petreleni.com.au.

Table 3 – Summary of Potential Key Environmental Impact/Risks and Management Measures

The potential key environmental impacts listed below are assumptions based on existing experience in the region and conducting similar activities. Final impacts, risks and management measures will be updated on the activity landing page at petreleni.com.au.

Aspect	Description	Potential Impact / Risk	Proposed Management
Planned Impacts			
Seabed disturbance	Seabed disturbance will be caused by: • seabed sampling during the geotechnical survey	Seabed disturbance will cause a localised and temporary reduction in water quality, and disturbance to benthic habitat. There is no sensitive benthic habitat, Marine Parks or Key Ecological Features (KEFs) in the Operational Area.	• All deployed equipment will be recovered. • Post-activity ROV survey will be conducted.
Physical interaction – Other marine users	The movement of vessels within the Operational Area can interfere with other marine users by causing displacement from the area during activities.	The Operational Area is retention leases WA-6-R and NT/RL1 and a 10km wide corridor along the proposed GEP route; from the boundary of the retention lease to the Blacktip GEP tie-in point. Activities in the Operational Area are of short duration, expected to last up to 100 days. Six active fisheries overlap the Operational Area; however, these commercial fisheries have recorded limited historical catch effort data within the area. There are no tourism or recreational fishing activities expected in the Operational Area due to distance from shore, and no Maritime Defence Exercise areas.	• Navigation equipment and procedures, in accordance with legislative requirements. • Maritime notices will be complied with. • All the activities will occur within the Operational Area. • Other relevant notifications may be made, as requested by relevant persons. • Lighting will be used as required for safe work conditions and navigational purposes.
Atmospheric emissions and greenhouse gas (GHG)	Atmospheric and GHG emissions are generated by the vessels as a result of combustion for power generation. Vessels may also use ozone-depleting substances (ODS) in refrigeration systems. Waste incineration on vessels will be in accordance with legislative requirements.	Hydrocarbon combustion may result in a temporary, localised reduction of air quality in the environment immediately surrounding the release point. Non-GHG emissions (such as NO_x and SO_x) and GHG emissions can lead to a reduction in local air quality. Given the short duration of the campaigns (up to 100 days) and relatively low fuel usage, the contribution of atmospheric and GHG emissions to the global carbon budget is expected to be insignificant and is not evaluated further.	• Use low sulphur fuel on the vessels, in accordance with legislative requirements (e.g., Marine Orders). • Ozone-depleting substances (ODS) managed in accordance with MARPOL. • Compliance with regulatory requirements for marine air pollution and GHG emissions reporting. • Vessel Planned Maintenance System (PMS) in place to maintain DP, engines and machinery.
Noise emissions - Continuous	Continuous noise emissions will be generated by the operation of support vessels, helicopters	Underwater noise emissions can cause: • a change in marine fauna behaviour • mask communication • temporary or permanent hearing loss. The greatest source of noise emissions is if Dynamic Positioning (DP) is used (from thruster noise) on vessels. The Operational Area does not overlap with any biologically important areas (BIAs) for marine mammals or fish/sharks, though it does for four species of marine turtles – any individuals present would be transitory. Potential impacts are likely to be restricted to localised and temporary avoidance behaviour. Given the short duration of the survey campaigns (up to 100 days), the potential impacts are considered low.	• Compliance with administrative controls (such as EPBC Regulations Part 8) to reduce interactions with marine fauna. • Documented maintenance program in place for equipment on vessels that provides a status on the maintenance of equipment. • Marine assurance standard in place.

Aspect	Description	Potential Impact / Risk	Proposed Management
Noise emissions – Impulsive	Impulsive noise emissions generated by acoustic survey techniques during the geophysical survey – i.e. Multibeam echo sounder, side scan sonar, sub-bottom profiling, magnetometer, ultra-short baseline positioning system. Such equipment is designed to characterise the seabed topography, bathymetry, potential geohazards, and other seafloor features .	The Operational Area does not overlap with any biologically important areas (BIAs) for marine mammals or fish/ sharks, though it does for 4 species of marine turtles – any individuals present would be transitory. The impulsive noise emissions generated by the various acoustic survey instruments may result in localised and temporary behavioural changes to marine fauna.	• Compliance with administrative controls (such as EPBC Regulations 8 (Part 8) to reduce interactions with marine fauna. • Use of soft starts to minimise the sound intensity and exposure time of surveys.
Light emissions	Lights on the vessels will be required on a 24-hour basis during the activities for safety and navigational purposes, in accordance with navigational requirements.	Light emissions have the potential to result in changes to marine fauna behaviour, by acting as an attractant to light-sensitive species, leading to possible increased predation and/or disorientation. There is no potential to impact nesting females or hatchlings. The Operational Area does not overlap any BIAs for seabirds, and is >88 km from shore, meaning there is no potential to impact fledging behaviour. There is potential a small number of adult seabirds and migratory shorebirds may be attracted to the vessels, however given the short duration of the campaigns (up to 100 days), this is considered minor.	• Lighting will be used as required for safe work conditions and navigational purposes.
Planned discharges – Routine	Operation of vessels will routinely discharge the following to the marine environment: • sewage • greywater • putrescible waste • treated bilge • cooling water and brine • deck drainage	A temporary and localised impact on water quality may result in a change in water quality and changes to predator-prey dynamics. Given the relatively low volume and intermittent nature of planned vessel discharges, the short duration of the campaigns (up to 100 days), the water depth and open ocean environment of the Operational Area, the potential impact is expected to be localised to the immediate proximity of the release, and of short duration.	• All routine marine discharges will be managed according to legislative requirements. • Vessel PMS in place to maintain DP, engines and machinery.

Aspect	Description	Potential Impact / Risk	Proposed Management
Unplanned Risks			
Marine fauna interaction	There is the potential for vessels to collide with marine fauna, including marine mammals, fish, marine reptiles and seabirds. The main collision risk is through vessel collision with large, slow-moving cetaceans, potentially resulting in severe injury or mortality.	Given the short duration of the campaigns (up to 100 days), and the slow speeds at which vessels operate, collisions with marine fauna are considered highly unlikely. Eni will apply control measures to ensure the likelihood of the event occurring is reduced to ALARP and acceptable levels.	- Compliance with administrative controls (such as EPBC Regulations Part 8) to reduce interactions with marine fauna. - Any vessel strikes with cetaceans will be reported in the National Ship Strike Database. - Observations of the surroundings will be undertaken from the vessel/s for marine fauna.
Introduction of marine pest species	There is the potential for introduction and establishment of invasive marine pests to the Operational Area via vessels ballast water or biofouling on vessel hulls.	The risk of introducing IMS is limited by the depth of the Operational Area (>50 m), which is not directly adjacent to any shallow shoals or banks. The substrate in the Operational Area does not have any hard substrate to which IMS can attach. Eni will apply control measures to ensure the likelihood of the event occurring is reduced to ALARP and acceptable levels.	- All vessels will be assessed and managed as appropriate to prevent the introduction of marine pests. - Vessels will comply with biosecurity requirements for ballast water and biofouling and comply with the Maritime Arrivals Reporting System (MARS).
Accidental release – waste and solid objects	There is the potential for the accidental disposal of hazardous wastes (e.g. hydrocarbon contaminated materials, batteries, paint cans) and non-hazardous solid wastes (e.g. paper and cardboard, wooden pallets, scrap steel, rope, glass and plastics).	The accidental release of wastes can cause a temporary and localised reduction in water quality, and the potential for marine fauna to ingest or become entangled with solid waste (garbage). If equipment is dropped, this may cause disturbance or smothering of benthic habitats. This is a small area; and benthic habitats are known to rapidly recover. There are no KEFs or sensitive benthic habitat in the Operational Area. Eni will apply control measures to ensure the likelihood of the event occurring is reduced to ALARP and acceptable levels.	- Procedures to reduce the potential for loss of non-hazardous and hazardous waste and dropped objects to be followed. - Dropped objects to be retrieved where possible. - Lifting procedures will be implemented. - For hazardous chemicals, including hydrocarbons, hazardous chemical management procedures will be in place to reduce the risk of an accidental release to sea. - Chemical assessment procedure will be implemented.
Accidental release – Minor loss of containment	Minor volumes of hydrocarbon or other chemicals (e.g. hydraulic fluids, deck spills) may be accidentally released to the marine environment due to: - Loss of primary/secondary containment - Incorrect handling and storage - ROV failure.	Minor accidental releases of hydrocarbons or chemicals can cause a change in water quality. Expected volumes are small (<1 m³), and there is no potential for injury or mortality to marine fauna. Eni will apply control measures to ensure the likelihood of the event occurring is reduced to ALARP and acceptable levels.	- Use of MDO rather than Heavy Fuel Oil (HFO) on vessels (MDO is lighter than HFO and will evaporate faster and persist less in the marine environment). - Response plans and equipment will be in place and maintained to manage spills to the environment (e.g. oil pollution emergency plans). - In the event of a minor loss of containment to sea, Oil Pollution Emergency Plan (OPEP) requirements will be implemented to mitigate environmental impacts. - Chemical assessment procedure will be implemented. - For hazardous chemicals, including hydrocarbons, hazardous chemical management procedures will be in place to reduce the risk of an accidental release to sea. - Remotely operated vehicle (ROV) inspection and maintenance procedures. - Procedures to reduce the potential for loss of non-hazardous and hazardous waste and dropped objects to be followed. - Vessel PMS in place to maintain DP, engines and machinery. - Where required, operational and scientific monitoring undertaken in accordance with Eni's Operational and Scientific Monitoring Plan.

Aspect	Description	Potential Impact / Risk	Proposed Management
Accidental release – MDO (vessel collision)	A release of up to 130m ³ marine diesel oil (MDO) could occur from a collision between the activity vessels and a third-party vessel due to factors such as human error, poor navigation, vessel equipment failure or poor weather.	An accidental release of MDO can cause a change in water quality, a change in fauna behaviour, injury or mortality to marine fauna and an impact to other marine users. Potential impacts include those to plankton, fish, marine turtles, marine mammals, seabirds and migratory shorebirds, commercial fisheries, and cultural heritage. MDO is a relatively volatile, non-persistent hydrocarbon with rapid evaporation on the sea-surface (typically ~36% within the first 24 hours). Whilst there may be very low levels of suspended oil droplets in intertidal zones, spill modelling does not predict any accumulation or buildup of hydrocarbons on any shorelines. Six active fisheries overlap the Operational Area; however, these commercial fisheries have recorded limited historical catch effort data within the area. There are no tourism or recreational fishing activities expected. The Operational Area is located within a military exercise zone (Northern Australia Exercise Area) which is administered by the Australian Defence Force and includes restricted airspace. Eni will apply control measures to ensure the likelihood of the event occurring is reduced to ALARP and acceptable levels.	• Pre-start notifications will be issued. • Regulatory requirements for the prevention of vessel collisions and safety and emergency arrangements. • Use of MDO rather than Heavy Fuel Oil (HFO) on vessels. • In the event of an oil spill to sea, OPEP requirements will be implemented to mitigate environmental impacts. • Response plans and equipment will be in place and maintained to manage spills to the environment (e.g., oil pollution emergency plans). • Vessels selected and on-boarded are operated, maintained and manned in accordance with industry standards (Marine Orders) and regulatory requirements. • Where required, operational and scientific monitoring undertaken in accordance with Eni's Operational and Scientific Monitoring Plan.



CONTACT ENI

Email: info@petreleni.com.au
 Phone: 1300 155 656
 Post: PO Box 6862
 East Perth WA 6892





NOPSEMA

Australia's offshore
energy regulator

Consultation on offshore petroleum environment plans

Information for the community



The National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA) is Australia's independent expert regulator for health and safety, structural and well integrity, and environmental management for offshore petroleum and greenhouse gas storage activities in Commonwealth waters.

The protection and preservation of the marine environment is best achieved when there are opportunities for the community to participate in the environmental approvals process through consultation.

Who can participate?

Under the Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2023 (the regulations) there are several ways the community can participate in the environmental approvals process for offshore petroleum activities in Commonwealth waters.

Public comment for new projects and exploration activities

Offshore project proposals (OPPs) for new offshore petroleum projects and environment plans for offshore petroleum exploration activities are subject to a mandatory public comment period. Public comment must be done before the OPP or environment plan is submitted to NOPSEMA for assessment. Further information about public comment can be found at nopsema.gov.au.

Relevant persons consultation

Titleholders must consult with a specific category of people or organisations referred to as 'relevant persons' while preparing an environment plan for any offshore petroleum activity. This consultation must be done before the environment plan is submitted to NOPSEMA.

Some categories of relevant persons are specified in the regulations, such as government departments, however the information in this brochure is for the category of relevant persons who are not specified but who have 'functions, interests or activities' that may be affected by the offshore activity.

Correspondence directly to the regulator (NOPSEMA)

You can send correspondence directly to NOPSEMA; however, this generally cannot be considered until after the environment plan has been submitted. It is always better to use the public comment and relevant persons consultation processes in the first instance.

What is 'relevant persons' consultation?

Consultation on offshore petroleum activities is a two-way process where information is shared between titleholders and relevant persons. It is a requirement for titleholders when preparing an environment plan and is an important part of good environmental management.

Consultation provides an opportunity for people or organisations who may be affected by an offshore petroleum activity to raise concerns, including objections or claims, about the potential impacts of the activity, to seek information about how they may be affected, and how the titleholder intends to manage the activity to ensure the associated impacts are as low as reasonably practicable and are acceptable.

Information provided by relevant persons in consultation may also help titleholders better understand the values and sensitivities of the environment and inform the evaluation of the potential impacts and risks associated with the activity and how to manage them appropriately.

Am I a relevant person?

You may be a relevant person if you or your organisation have functions, interests, or activities that may be affected by an offshore petroleum activity proposed under an environment plan being prepared or already underway under an environment plan being revised.

The terms 'functions' 'interests' and 'activities' should be read broadly. You do not have to have a legal or financial interest that may be affected by an offshore petroleum activity to be a relevant person.

Interests that may be affected can include things like cultural and spiritual connections to the sea or interests in the protection of specific marine species. However, to be a relevant person your interests should be more than a general interest in the environment and/or offshore petroleum activities.

If I am a representative body, can I consult on behalf of all my members?

The law recognises that interests may be held communally. In some cases, all members of a community may agree that their representative body can consult on their behalf. However, this may not always be the case. Representative bodies should inform titleholders whether or not they have the authority to consult with titleholders on behalf of all their members.

Representative bodies, such as peak bodies and prescribed body corporates, may be relevant persons in their own right. They may also be an initial point of contact for titleholders to seek information about who else they should approach for consultation.

It is the titleholder's responsibility to provide all members of a community who have a shared interest opportunities to participate in consultation. In some circumstances, representative bodies may offer to assist titleholders with this.

Do I have to participate?

If you are a relevant person, you have the right to be consulted by titleholders of offshore petroleum activities when they are preparing an environment plan to submit to NOPSEMA.

Titleholders have a duty to provide you an opportunity to be consulted, however there is no obligation on you to participate in consultation. If you do not wish to be consulted, you should advise titleholders of this when they first contact you.

Titleholders must make reasonable efforts to consult with relevant persons, but the regulations do not require them to get a response to their requests. If you want to participate in consultation but need more information or time then it is best to communicate this to titleholders when they contact you. If you do not respond, they might assume you do not wish to be consulted.

If you are an organisation or representative body that is regularly approached for consultation you may consider developing guidance outlining how and when you want to be consulted. You could also consider documenting your functions, interests and activities. Both measures may help with managing regular requests for consultation.

In some instances, the likelihood of you being affected by an activity is very low and/or the impact on your functions, interests or activities may be minor. For example, if you are only going to be affected by the activity in the very unlikely event of an oil spill you may wish to inform titleholders you only want to be consulted if a spill occurs as part of the requirement for ongoing consultation set out in the regulations.



What if I want to be consulted but the titleholder hasn't contacted me?

Titleholders have a duty to identify who may be a relevant person and provide them opportunities to participate in consultation. However, even with best endeavors, titleholders may miss people or organisations who may be relevant.

If you believe you are a relevant person and you want to be consulted on offshore petroleum activities, then you should contact titleholders directly and identify yourself as a relevant person.

If a titleholder refuses to consult with you, and you believe you are a relevant person, you can write to NOPSEMA. Once an environment plan is submitted to NOPSEMA, this information can be considered in the assessment of whether or not the titleholder has met the requirements for consultation.

It is always better to attempt to resolve issues with the titleholder in the first instance. Relevant persons consultation is carried out before an environment plan is submitted, so NOPSEMA is limited in its ability to require titleholders to consult with a particular person or organisation.

What is the process for consultation?

There is no detailed process set out for how consultation should be carried out, however there are requirements that must be met under the regulations. These include:

- That you are given sufficient information to make an informed assessment about whether you are likely to be affected by the activity, how you may be affected, and to raise any concerns, including objections or claims, about the potential impacts of the activity.
- That you are given a reasonable period of time to consider the information provided to you and give feedback to the titleholder on the potential impacts of the activity on your functions, interests or activities.

What constitutes sufficient information and a reasonable period of time depends on several factors including the nature of your functions, interests and activities. You should communicate as early as possible in consultation with titleholders about what information and how much time you may need so that they can consider, respond and address these in their planning.

The information provided to you should be in a form that is appropriate and readily accessible to you. Consultation is generally a two-way process where information is shared between titleholders and relevant persons rather than a one-way process of seeking feedback to a fact sheet or high-level information.



What if I don't have the resources to participate?

If you are a relevant person and you believe you have information that is important to the understanding of the potential impacts of an offshore petroleum activity or you want to raise concerns, including objections or claims, then you should discuss with the titleholder how you can participate in consultation.

This might include requesting information in a different format, asking for more time to consider information or help to understand the information to provide an informed response.

There is no requirement in the law for titleholders to pay the costs incurred by relevant persons to be consulted, however they may choose to provide assistance to relevant persons to ensure consultation is carried out efficiently and is robust. This is a matter between the titleholder and relevant persons.

How do I make sure my views are considered?

It is important to communicate clearly when participating in consultation with titleholders. You may provide information to titleholders that helps them understand the environment and raise specific concerns, objections or claims about the potential impacts of the activity or the way the titleholder proposes to manage the activity to ensure the associated impacts are as low as reasonably practicable and are acceptable.

The information you provide to a titleholder during consultation must be considered by that titleholder and addressed in their environment plan for NOPSEMA to consider in its assessment and decision-making.

NOPSEMA publishes environment plans on its website when they are submitted for public comment, for assessment and when they are approved. Relevant persons have the right to request that the information they have provided in consultation is not published and titleholders must ensure they communicate this right to relevant persons.

Relevant persons should be aware that while you are free to respond on any matter and raise any concern, this may not be able to be considered if it is outside the scope or purpose of the environment plan and approval process. Examples of issues that may not be considered under the regulations include statements of fundamental objection to offshore petroleum activities or information containing personal threats or profanities.

Do titleholders need my consent?

Titleholders are not required by law to obtain agreement or consent from relevant persons for their offshore petroleum activities to proceed; however, they are required to demonstrate in their environment plan how the concerns, objections or claims raised by relevant persons were considered and demonstrate that their response to that information was appropriate.

NOPSEMA's assessment and decision-making will consider if titleholders have adequately demonstrated in the environment plan that genuine consultation has taken place with relevant persons in accordance with regulations.

Do I need to respond to a request for consultation?

There is no obligation for relevant persons to respond to a request for consultation from a titleholder. However, if you are provided an opportunity to participate in consultation and you do not want to be consulted, or you only want to be consulted on specific offshore petroleum activities or environmental matters, then it is best that you communicate this to titleholders as soon as they contact you. If you do not respond to requests for consultation, titleholders may make many repeated attempts to contact you.

NOPSEMA can help you understand the requirements for consultation and how to effectively participate in the process. Please contact communications@nopsema.gov.au for assistance.



NOPSEMA

Australia's offshore
energy regulator

Further information

For further information visit nopsema.gov.au or
contact communications@nopsema.gov.au.

Key legislation

Offshore Petroleum and Greenhouse Gas
Storage Act 2006

Offshore Petroleum and Greenhouse Gas
Storage (Environment) Regulations 2023
Environment Protection and Biodiversity
Conservation Act 1999.

Contact details

p: +61 (08) 6188 8700

e: communications@nopsema.gov.au

Head office: Level 10, Alluvion Building
58 Mounts Bay Road, Perth WA 6000

Postal: GPO Box 2568 - Level 10 58 Mounts
Bay Road, Perth WA 6000

nopsema.gov.au

National Offshore Petroleum Safety and Environmental
Management Authority (NOPSEMA)

ABN 22 385 178 289

Published May 2023

2. ONLINE CONSULTATION INFORMATION

1. Landing Page at petreleni.com.au
 - a) Activity Flyer (Refer to Email Consultation Pack)
 - b) FAQs
 - c) EMBA
 - d) Risks & Mitigations Table
 - e) Contact Form (Refer to printout of Landing Page)

Note: The landing page includes links to:

- [OPGGS Environment Regulations](#)
- [Consultation on offshore petroleum environment plans; Information for the community](#)



Petrel Surveys

Eni through its subsidiary Eni Energy Bonaparte Pty Ltd, is the titleholder of the Petrel Gas Field (Petrel) in the Bonaparte Basin in North Western Australia. The Petrel field is located across two retention leases DJ/RL1 and WA-6-R, ~250km west of Darwin.

Eni is proposing to undertake surveys within the Petrel field in the Bonaparte Basin to support the Petrel Development and exploration activities within the Petrel field.

To better understand the existing environment and the seabed characteristics of the Petrel Development Area, Eni is proposing to undertake the following initial survey campaign in 2026. Confirmed activity dates will be dependent on a number of factors including access approvals, vessel availability and weather conditions:

- ✓ Geotechnical survey, to help the design of the subsea structures.
- ✓ Geophysical survey, to get a baseline of what the seabed looks like, what's underneath, and any hazards. This helps Eni to plan activities such as drilling, installing subsea equipment, and building wells.
- ✓ Environmental surveys, to understand the environmental conditions of the Petrel field

Subsequent surveys could be undertaken between 2027 and 2030.

Timeline

The Petrel Survey Environment Plan will cover a period of five years from 2026 to 2031.

The initial survey campaigns are proposed for Q3 and Q4 2026.

Subsequent surveys may be undertaken between 2027 and 2030.

Consultation opened on 27 January and will conclude on 17 March 2026.

Activity Resources

 Activity Flyer	
 Risks and Mitigations Table	
 FAQs	

Petrel Surveys EMBA

The Environment That May Be Affected (EMBA) is the area within which the operations activities could have an environmental impact. The outermost boundary of the EMBA (for this activity) is based on an accidental release of marine diesel (MDO) to the environment in the unlikely event of a vessel collision damaging a fuel tank.

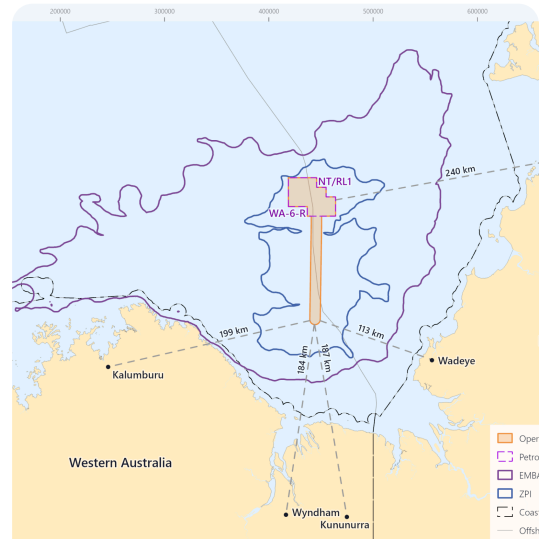
The final EMBA map is the outermost boundary of all the events considered. The actual footprint of any single possible event is expected to be much smaller.

The zone of potential impact (ZPI) or moderate exposure zone is smaller than the EMBA and represents the area where biological impacts may occur due to hydrocarbons released to the environment in the event of a vessel collision.

The loss of hydrocarbons to the environment is considered highly unlikely, and Eni implements a range of preventative measures to minimise this risk.

Refer to NOPSEMA's news bulletin for information on oil spill modelling (<https://www.nopsema.gov.au/sites/default/files/documents/2021-04/A652993.pdf>).

Oil Spill Modelling Video



(https://petreleni.com.au/wp-content/uploads/2026/01/P100606_S00_01_StakeholderConsultation_wit_scaled.png)

What Is An Environment Plan?

The *Offshore Petroleum and Greenhouse Gas Storage Act 2006 (OPGGs Act)* and associated regulations provides the legal framework for the exploration and recovery of petroleum and greenhouse gas activities in Commonwealth waters which are administered by the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA).

The purpose of an Environment Plan (EP) is for the titleholder of an offshore petroleum or greenhouse gas permit, to document their case for why their Petroleum Activity or Greenhouse Gas Activity meets the objects of the *Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2023 (OPGGs Environment Regulations)*.

An EP is a document submitted to NOPSEMA for assessment prior to the commencement of an activity, which contains information on:

- description of the activity
- description of the existing environment (natural, cultural and social)
- environmental risk assessment
- environmental management measures and commitments
- details of the titleholder and other information specified the *OPGGs Environment Regulations*.

The *OPGGs Environment Regulations*

(<https://www.legislation.gov.au/F2023L00998/latest/text>) require a titleholder to have an accepted EP in place prior to undertaking any offshore Petroleum Activity or Greenhouse Gas Activity, and require that the titleholder undertakes the activity in accordance with the EP.

Should I Be Consulted?

CONTACT US
The activity will be assessed under the *Offshore Petroleum and Greenhouse Gas Storage Act 2006 (OPGGGS Act)* and associated Regulations for the management of potential risks and impacts of the activity.
CONTACT US

Contact Eni

This process includes Eni's assessment of stakeholders and relevant persons that have an interest in the surveys (<https://petreleni.com.au/petrel-surveys/>)

Email
Eni treats all information provided by you as confidential, with the exception of providing information to NOPSEMA. Eni is required to

Address
provide NOPSEMA with details of all correspondence with relevant persons, including copies of written correspondence.

Eni House 226 Adelaide Terrace Perth WA 6000

PO Box 6862 East Perth WA 6892

Phone

1300 155 616(tel:1300-155-616)

Personal information (other than name and contact details) is sensitive information and will not be published in the EP. You can request that sensitive information provided to Eni, including your name and contact details, be treated as sensitive information not to be published in the Petrel Surveys Environment Plan. Please let us

know if your feedback for this activity is sensitive and we will make this known to NOPSEMA in order for this information to remain confidential to NOPSEMA. Register your interest in engagement for the Petrel Surveys and a representative will contact you accordingly.

First Name *

First Name

Last Name

Last Name

Email Address *

Email Address

Phone

Phone

- ☐ Petrel Field Development
☐ Petrel-3 / Petrel-4 Decommissioning
☐ Petrel Surveys

Interest in the project *

Max. 500 words

REGISTER INTEREST

RELEVANT PERSON CONSULTATION

Petrel Survey Activities
January 2026

Petrel Survey Activities

Eni, through its subsidiary Eni Energy Bonaparte Pty Ltd, is the titleholder of the Petrel Gas Field (Petrel) in the Bonaparte Basin in North Western Australia. The Petrel field is located across two retention leases, NT/RL1 and WA-6-R, ~250km west of Darwin.

Eni is proposing to undertake surveys within the Petrel field in the Bonaparte Basin to support the Petrel development and exploration activities within the Petrel Field. The objective of the surveys is to acquire geophysical, geotechnical and environmental baseline data to better understand the existing environment and seabed characteristics of the Petrel Development area. This information will contribute to understanding the locations of development infrastructure and may support the planning of any future exploration activities within the Petrel field.

The proposed activities will take place in accordance with the **Offshore Petroleum and Greenhouse Gas Storage Environment Regulations 2023 (Cth) (Environment Regulations)** and Eni is preparing the Environment Plan to submit to the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA).

As required by NOPSEMA, Eni must consult with people whose functions, interests and activities may be affected by the proposed survey activities. Environment Regulations refers to such people as relevant persons.

This fact sheet provides you with information to determine if you are a relevant person for the Petrel field survey activities.

You may be a relevant person if you or your organisation has functions, interests, or activities that may be affected by the offshore petroleum activities proposed under the environment plan being prepared. Interests that may be affected can include things like cultural and spiritual connections to the sea or interests in the protection of specific marine species.

FEEDBACK

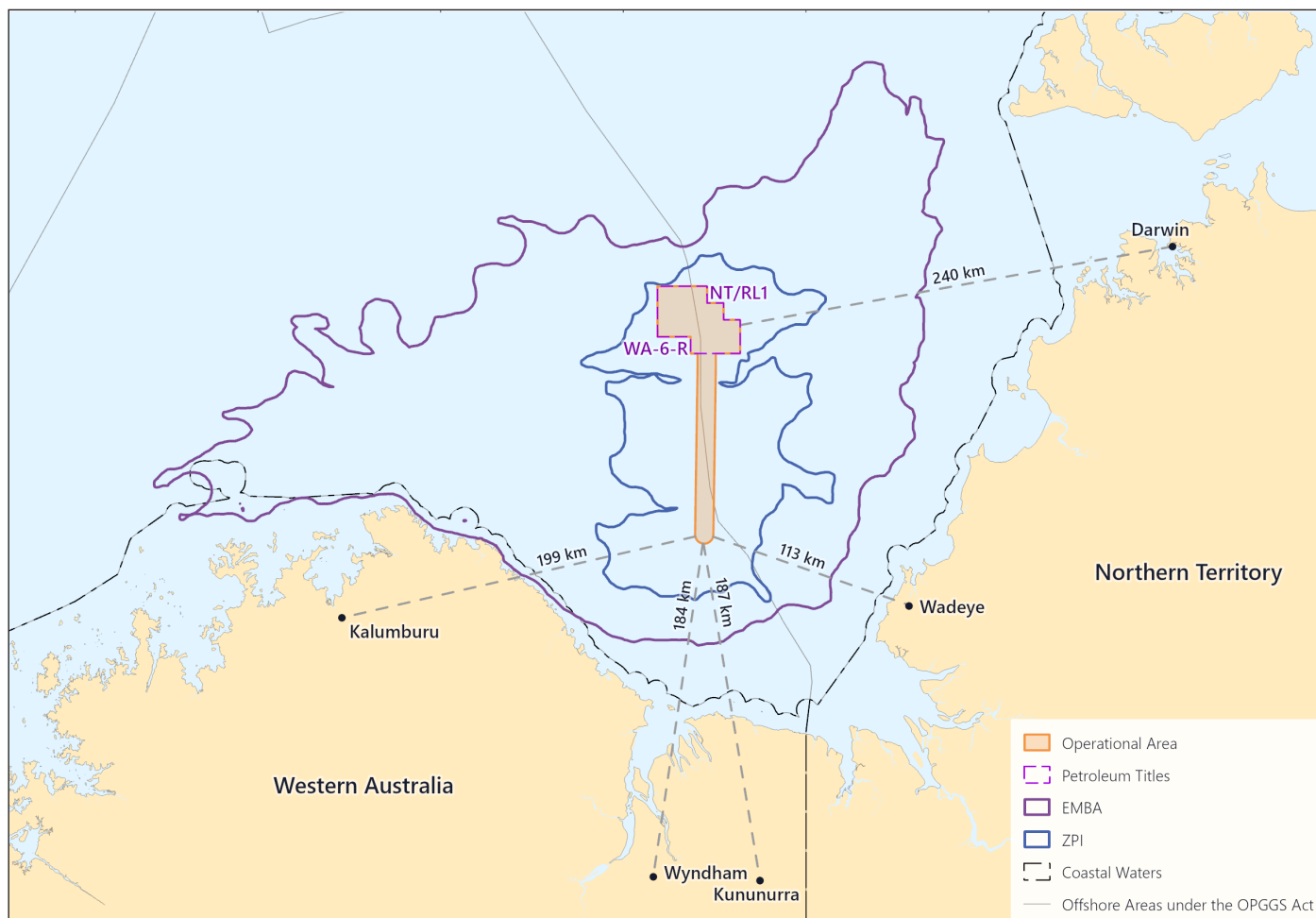
If you think you may be a relevant person, please review this information and provide any feedback to Eni. Additional information can be found online at petreleni.com.au. You are invited to submit your advice on control measures to mitigate potential impact (if any) that the proposed activities may have on you. We are seeking feedback by **17 March 2026**.

CONTACT ENI

Email: info@petreleni.com.au
 Phone: 1300 155 656
 Post: PO Box 6862
 East Perth WA 6892



Figure 1: Operational Area, ZPI and EMBA



ACTIVITIES AND DURATION

To better understand the existing environment and the seabed characteristics of the Petrel Development Area, Eni is proposing to undertake the following initial survey campaigns in Q3 and Q4 2026:

- Geotechnical survey, to help the design of the subsea structures.
- Geophysical survey, to get a baseline of what the seabed looks like, what's underneath, and any hazards. This helps Eni to plan activities such as drilling, installing subsea equipment, and building wells.
- Environmental surveys, to understand the environmental conditions of the Petrel field

The type of initial surveys, location, duration and expected timing can be found in the **Table 1** below.

Subsequent surveys could be undertaken between 2027 and 2030.

Table 1 – Planned Activities

Survey Type/ Campaign	Development			Exploration		
	Location	Duration	Expected Timing	Location	Duration	Expected Timing
Geophysical	Whole OA	40 days	Q3/Q4 2026	Retention leases only	20 days	Q3/Q4 2026
Environmental baseline	Whole OA	20 days	Q3/Q4 2026	Retention leases only	10 days	Q3/Q4 2026
Geotechnical	Whole OA	40 days	Q3/Q4 2026	Retention leases only	10 days	Q3/Q4 2026

LOCATION

The Petrel field is located across two retention leases, NT/RL1 and WA-6-R, ~250km west of Darwin. Eni proposes to link the Petrel field to the existing Blacktip Gas Export Pipeline (GEP) by the proposed Petrel GEP. The Petrel field and proposed GEP route are situated in a water depth of between 50m and approximately 100m. Location details are summarised in **Table 2**. A location map is provided in **Figure 1**.

The general transit of the vessels to and from the Operational Area (OA) is not considered a petroleum activity and is excluded from the scope of this EP. These activities will be undertaken in accordance with the **Navigation Act 2021 (Cth)**.

TIMING

The initial survey campaigns are proposed to occur in Q3 and Q4 2026. Additional surveys for additional hydrocarbon well locations could occur between 2027 and 2030. The actual timing of the activities will depend on a number of factors, including access approvals, vessel availability and weather conditions.

Table 2 – Location Details

Permits	NT/RL1 and WA-6-R	
Operational Area	The Operational Area (OA) is a defined area within which all petroleum activities associated within this EP occur, and which allows impact assessment of those activities. It includes the extent of all planned activities within the EP, and is defined to cover the spatial extent of: • Retention leases (WA-6-R and NT/RL1); • 5km radius around the proposed GEP route; from the boundary of the retention lease to the Blacktip GEP tie-in point; and • 5km radius around the Blacktip GEP tie-in point.	
Nearest proximity to Key Regional Features		
Permit Boundary (Eastern)	Darwin	240km
Gas Export Pipeline (Southern Point)	Wadeye	113km
	Kununurra	187km
	Wyndham	184km
	Kalumburu	199km
Worst case hydrocarbon spill	Maximum credible volume ~130m ³ marine diesel in the event of a ruptured fuel tank (full).	

ENVIRONMENT THAT MAY BE AFFECTED (EMBA)

The Environment That May Be Affected (EMBA) is the area where the activity could potentially affect the environment, including in the unlikely event of an unplanned incident. The outermost boundary of the EMBA for this activity is based on an accidental release of marine diesel oil (MDO) to the environment in the unlikely event of a vessel collision damaging a fuel tank.

The environmental impacts from planned activities will mostly be limited to within the Operational Area. The zone of potential impact (ZPI) or moderate exposure zone is smaller than the EMBA and represents the area where biological impacts may occur due to hydrocarbons released to the environment in the event of a vessel collision.

The loss of hydrocarbons to the environment is highly unlikely, and Eni implements a range of preventative measures to minimise the risk. The EMBA is shown in **Figure 1**.

Scientific modelling is used to assess the potential impacted zone should an unplanned hydrocarbon spill occur (eg: vessel collision). The EMBA is derived from this spill modelling, which incorporates hundreds of simulations across a range of wind and ocean current conditions. Refer to NOPSEMA's website for more information on oil spill modelling.

ENVIRONMENTAL MANAGEMENT

Eni will conduct an Environmental Impact Identification workshop to confirm and assess impacts, risks and management measures for the activity. A table of risks and assessments generated based on existing knowledge and experience, is provided in **Table 3**. A detailed list of the identified risks, assessment and mitigation can be found in the published Environment Plan (EP). This will become available upon approval by the regulator.

RELEVANT PERSON COMMENT AND FEEDBACK

Eni is seeking comment from relevant persons in relation to any potential impact that the proposed activities, covered by the Petrel Survey Environment Plan, may have on your functions, interests or activities as a relevant person.

If you wish to provide any comment or feedback on these activities, please do so by **17 March 2026** to the contact details provided. If you know anyone who may be a relevant person, we ask that you make them aware of our consultation.

Eni treats all information provided by you as confidential, with the exception of providing information to NOPSEMA. Eni is required to provide NOPSEMA with details of all correspondence with relevant persons, including copies of written correspondence. NOPSEMA routinely publish environment plans under assessment or accepted on their website.

Personal information (other than name and contact details) is sensitive information and will not be published in the EP. You can request that any material provided to Eni, including your name and contact details, be treated as sensitive information not to be published in the Petrel Survey Environment Plan.

All comments provided will be considered in the Petrel-Survey Environment Plan to be submitted to NOPSEMA, in accordance with the *Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2023*.

Please let us know if your feedback for this activity is sensitive and we will make this known to NOPSEMA in order for this information to remain confidential to NOPSEMA. If you wish to opt out of our consultation process after reviewing the information in this letter, please let us know via email. Please consider NOPSEMA's advice in Consultation on Offshore Petroleum Environment Plans – Information can also be found at the project landing page at petreleni.com.au.

Table 3 – Summary of Potential Key Environmental Impact/Risks and Management Measures

The potential key environmental impacts listed below are assumptions based on existing experience in the region and conducting similar activities. Final impacts, risks and management measures will be updated on the activity landing page at petreleni.com.au.

Aspect	Description	Potential Impact / Risk	Proposed Management
Planned Impacts			
Seabed disturbance	Seabed disturbance will be caused by: seabed sampling during the geotechnical survey	Seabed disturbance will cause a localised and temporary reduction in water quality, and disturbance to benthic habitat. There is no sensitive benthic habitat, Marine Parks or Key Ecological Features (KEFs) in the Operational Area.	- All deployed equipment will be recovered. - Post-activity ROV survey will be conducted.
Physical interaction – Other marine users	The movement of vessels within the Operational Area can interfere with other marine users by causing displacement from the area during activities.	The Operational Area is retention leases WA-6-R and NT/RL1 and a 10km wide corridor along the proposed GEP route; from the boundary of the retention lease to the Blacktip GEP tie-in point. Activities in the Operational Area are of short duration, expected to last up to 100 days. Six active fisheries overlap the Operational Area; however, these commercial fisheries have recorded limited historical catch effort data within the area. There are no tourism or recreational fishing activities expected in the Operational Area due to distance from shore, and no Maritime Defence Exercise areas.	- Navigation equipment and procedures, in accordance with legislative requirements. - Maritime notices will be complied with. - All the activities will occur within the Operational Area. - Other relevant notifications may be made, as requested by relevant persons. - Lighting will be used as required for safe work conditions and navigational purposes.
Atmospheric emissions and greenhouse gas (GHG)	Atmospheric and GHG emissions are generated by the vessels as a result of combustion for power generation. Vessels may also use ozone-depleting substances (ODS) in refrigeration systems. Waste incineration on vessels will be in accordance with legislative requirements.	Hydrocarbon combustion may result in a temporary, localised reduction of air quality in the environment immediately surrounding the release point. Non-GHG emissions (such as NOx and SOx) and GHG emissions can lead to a reduction in local air quality. Given the short duration of the campaigns (up to 100 days) and relatively low fuel usage, the contribution of atmospheric and GHG emissions to the global carbon budget is expected to be insignificant and is not evaluated further.	- Use low sulphur fuel on the vessels, in accordance with legislative requirements (e.g., Marine Orders). - Ozone-depleting substances (ODS) managed in accordance with MARPOL. - Compliance with regulatory requirements for marine air pollution and GHG missions reporting. - Vessel Planned Maintenance System (PMS) in place to maintain DP, engines and machinery.
Noise emissions - Continuous	Continuous noise emissions will be generated by the operation of support vessels, helicopters	Underwater noise emissions can cause: - a change in marine fauna behaviour - mask communication - temporary or permanent hearing loss. The greatest source of noise emissions is if Dynamic Positioning (DP) is used (from thruster noise) on vessels. The Operational Area does not overlap with any biologically important areas (BIAs) for marine mammals or fish/sharks, though it does for four species of marine turtles – any individuals present would be transitory. Potential impacts are likely to be restricted to localised and temporary avoidance behaviour. Given the short duration of the survey campaigns (up to 100 days), the potential impacts are considered low.	- Compliance with administrative controls (such as EPBC Regulations Part 8) to reduce interactions with marine fauna. - Documented maintenance program in place for equipment on vessels that provides a status on the maintenance of equipment. - Marine assurance standard in place.

Aspect	Description	Potential Impact / Risk	Proposed Management
Noise emissions – Impulsive	Impulsive noise emissions generated by acoustic survey techniques during the geophysical survey – i.e. Multibeam echo sounder, side scan sonar, sub-bottom profiling, magnetometer, ultra-short baseline positioning system. Such equipment is designed to characterise the seabed topography, bathymetry, potential geohazards, and other seafloor features .	The Operational Area does not overlap with any biologically important areas (BIAs) for marine mammals or fish/sharks, though it does for 4 species of marine turtles – any individuals present would be transitory. The impulsive noise emissions generated by the various acoustic survey instruments may result in localised and temporary behavioural changes to marine fauna.	• Compliance with administrative controls (such as EPBC Regulations 8 (Part 8) to reduce interactions with marine fauna. • Use of soft starts to minimise the sound intensity and exposure time of surveys.
Light emissions	Lights on the vessels will be required on a 24-hour basis during the activities for safety and navigational purposes, in accordance with navigational requirements.	Light emissions have the potential to result in changes to marine fauna behaviour, by acting as an attractant to light-sensitive species, leading to possible increased predation and/or disorientation. There is no potential to impact nesting females or hatchlings. The Operational Area does not overlap any BIAs for seabirds, and is >88 km from shore, meaning there is no potential to impact fledging behaviour. There is potential a small number of adult seabirds and migratory shorebirds may be attracted to the vessels, however given the short duration of the campaigns (up to 100 days), this is considered minor.	• Lighting will be used as required for safe work conditions and navigational purposes.
Planned discharges – Routine	Operation of vessels will routinely discharge the following to the marine environment: • sewage • greywater • putrescible waste • treated bilge • cooling water and brine • deck drainage	A temporary and localised impact on water quality may result in a change in water quality and changes to predator-prey dynamics. Given the relatively low volume and intermittent nature of planned vessel discharges, the short duration of the campaigns (up to 100 days), the water depth and open ocean environment of the Operational Area, the potential impact is expected to be localised to the immediate proximity of the release, and of short duration.	• All routine marine discharges will be managed according to legislative requirements. • Vessel PMS in place to maintain DP, engines and machinery.

Aspect	Description	Potential Impact / Risk	Proposed Management
Unplanned Risks			
Marine fauna interaction	There is the potential for vessels to collide with marine fauna, including marine mammals, fish, marine reptiles and seabirds. The main collision risk is through vessel collision with large, slow-moving cetaceans, potentially resulting in severe injury or mortality.	Given the short duration of the campaigns (up to 100 days), and the slow speeds at which vessels operate, collisions with marine fauna are considered highly unlikely. Eni will apply control measures to ensure the likelihood of the event occurring is reduced to ALARP and acceptable levels.	- Compliance with administrative controls (such as EPBC Regulations Part 8) to reduce interactions with marine fauna. - Any vessel strikes with cetaceans will be reported in the National Ship Strike Database. - Observations of the surroundings will be undertaken from the vessel/s for marine fauna.
Introduction of marine pest species	There is the potential for introduction and establishment of invasive marine pests to the Operational Area via vessels ballast water or biofouling on vessel hulls.	The risk of introducing IMS is limited by the depth of the Operational Area (>50 m), which is not directly adjacent to any shallow shoals or banks. The substrate in the Operational Area does not have any hard substrate to which IMS can attach. Eni will apply control measures to ensure the likelihood of the event occurring is reduced to ALARP and acceptable levels.	- All vessels will be assessed and managed as appropriate to prevent the introduction of marine pests. - Vessels will comply with biosecurity requirements for ballast water and biofouling and comply with the Maritime Arrivals Reporting System (MARS).
Accidental release – waste and solid objects	There is the potential for the accidental disposal of hazardous wastes (e.g. hydrocarbon contaminated materials, batteries, paint cans) and non-hazardous solid wastes (e.g. paper and cardboard, wooden pallets, scrap steel, rope, glass and plastics).	The accidental release of wastes can cause a temporary and localised reduction in water quality, and the potential for marine fauna to ingest or become entangled with solid waste (garbage). If equipment is dropped, this may cause disturbance or smothering of benthic habitats. This is a small area; and benthic habitats are known to rapidly recover. There are no KEFs or sensitive benthic habitat in the Operational Area. Eni will apply control measures to ensure the likelihood of the event occurring is reduced to ALARP and acceptable levels.	- Procedures to reduce the potential for loss of non-hazardous and hazardous waste and dropped objects to be followed. - Dropped objects to be retrieved where possible. - Lifting procedures will be implemented. - For hazardous chemicals, including hydrocarbons, hazardous chemical management procedures will be in place to reduce the risk of an accidental release to sea. - Chemical assessment procedure will be implemented.
Accidental release – Minor loss of containment	Minor volumes of hydrocarbon or other chemicals (e.g. hydraulic fluids, deck spills) may be accidentally released to the marine environment due to: - Loss of primary/secondary containment - Incorrect handling and storage - ROV failure.	Minor accidental releases of hydrocarbons or chemicals can cause a change in water quality. Expected volumes are small (<1 m³), and there is no potential for injury or mortality to marine fauna. Eni will apply control measures to ensure the likelihood of the event occurring is reduced to ALARP and acceptable levels.	- Use of MDO rather than Heavy Fuel Oil (HFO) on vessels (MDO is lighter than HFO and will evaporate faster and persist less in the marine environment). - Response plans and equipment will be in place and maintained to manage spills to the environment (e.g. oil pollution emergency plans). - In the event of a minor loss of containment to sea, Oil Pollution Emergency Plan (OPEP) requirements will be implemented to mitigate environmental impacts. - Chemical assessment procedure will be implemented. - For hazardous chemicals, including hydrocarbons, hazardous chemical management procedures will be in place to reduce the risk of an accidental release to sea. - Remotely operated vehicle (ROV) inspection and maintenance procedures. - Procedures to reduce the potential for loss of non-hazardous and hazardous waste and dropped objects to be followed. - Vessel PMS in place to maintain DP, engines and machinery. - Where required, operational and scientific monitoring undertaken in accordance with Eni's Operational and Scientific Monitoring Plan.

Aspect	Description	Potential Impact / Risk	Proposed Management
Accidental release – MDO (vessel collision)	A release of up to 130m ³ marine diesel oil (MDO) could occur from a collision between the activity vessels and a third-party vessel due to factors such as human error, poor navigation, vessel equipment failure or poor weather.	An accidental release of MDO can cause a change in water quality, a change in fauna behaviour, injury or mortality to marine fauna and an impact to other marine users. Potential impacts include those to plankton, fish, marine turtles, marine mammals, seabirds and migratory shorebirds, commercial fisheries, and cultural heritage. MDO is a relatively volatile, non-persistent hydrocarbon with rapid evaporation on the sea-surface (typically ~36% within the first 24 hours). Whilst there may be very low levels of suspended oil droplets in intertidal zones, spill modelling does not predict any accumulation or buildup of hydrocarbons on any shorelines. Six active fisheries overlap the Operational Area; however, these commercial fisheries have recorded limited historical catch effort data within the area. There are no tourism or recreational fishing activities expected. The Operational Area is located within a military exercise zone (Northern Australia Exercise Area) which is administered by the Australian Defence Force and includes restricted airspace. Eni will apply control measures to ensure the likelihood of the event occurring is reduced to ALARP and acceptable levels.	• Pre-start notifications will be issued. • Regulatory requirements for the prevention of vessel collisions and safety and emergency arrangements. • Use of MDO rather than Heavy Fuel Oil (HFO) on vessels. • In the event of an oil spill to sea, OPEP requirements will be implemented to mitigate environmental impacts. • Response plans and equipment will be in place and maintained to manage spills to the environment (e.g., oil pollution emergency plans). • Vessels selected and on-boarded are operated, maintained and manned in accordance with industry standards (Marine Orders) and regulatory requirements. • Where required, operational and scientific monitoring undertaken in accordance with Eni's Operational and Scientific Monitoring Plan.



CONTACT ENI

Email: info@petreleni.com.au
Phone: 1300 155 656
Post: PO Box 6862
East Perth WA 6892



PETREL SURVEYS

Frequently Asked Questions

Q. Who is conducting the Petrel surveys and why?

- A. Eni is an international energy company with a history of operating in Australia for over 20 years and, through its subsidiary Eni Energy Bonaparte Pty Ltd, is the titleholder of the Petrel Gas Field (Petrel) in the Bonaparte Basin in North Western Australia.

Eni are proposing to undertake surveys within the Petrel field in the Bonaparte Basin to support the Petrel Development and exploration activities within the Petrel Field.

Q. What are the surveys for?

- A. The objective of the surveys is to acquire geophysical, geotechnical and environmental baseline data to better understand the existing environment and seabed characteristics of the Petrel Development area.

This information will contribute to understanding the locations of development infrastructure and may support the planning of any future exploration activities within the Petrel field.

Q. What survey campaigns are being undertaken?

- A. Eni is proposing to undertake the following initial survey campaigns in Q3 and Q4 2026:

- Geotechnical survey, to help the design of the subsea structures.
- Geophysical survey, to get a handle on what the seabed looks like, what's underneath, and any hazards. This helps Eni to plan activities such as drilling, installing subsea equipment, and building wells.
- Environmental surveys, to understand the environmental conditions of the Petrel field

Development				Exploration		
Survey Type/Campaign	Location	Duration	Expected Timing	Location	Duration	Expected Timing
Geophysical Survey	Whole OA	40 days	Q3/Q4 2026	Retention leases only	20 days	Q3/Q4 2026
Environmental baseline	Whole OA	20 days	Q3/Q4 2026	Retention leases only	10 days	Q3/Q4 2026
Geotechnical	Whole OA	40 days	Q3/Q4 2026	Retention lease only	10 days	Q3/Q4 2026

Q. Are the surveys similar to a seismic acquisition activity?

- A. No. The survey activities are different and the potential noise impacts of the proposed geophysical and geotechnical surveys are much lower.

The proposed geophysical survey at Petrel and along the gas export pipeline aims to image the seafloor and 60m of sediment below the seabed floor. This geophysical survey work can be carried out using a small vessel (i.e. 35m catamaran) with the geophysical equipment installed on the back deck. The survey uses a small airgun (approx. 120 cubic inch) that emits underwater noise to image the seabed floor. Geophones (acoustic sensors) are towed behind the vessel on a short cable (approx. 400m long).

As the operational area is such a small part of the overall fishery, and given the short duration, it is unlikely that the extent of underwater noise emitted from the geophysical survey airguns will have any regional scale effects.

In contrast to this, for conventional seismic survey work (NOT the activity Eni is conducting), a large (70m-100m) specialised seismic vessel would be required. A conventional seismic survey is designed to image deep geological subsurface formations, which can be as deep as 8000m (8km) below the seabed floor. To achieve this imaging, multiple very large air guns (approx. 4000 cubic inch) and multiple long streamers (5km to 10km long) towed behind the vessel are utilised.

The extent of underwater noise emitted from the air guns used in these conventional seismic surveys has the potential to affect fish and crustaceans up to distances of several hundreds of meters, and so conventional seismic surveys generally require a greater level of environmental management to ensure potential ecological effects are mitigated.

Q. What does the Geophysical Survey involve?

- A. This survey collects high-resolution information about the seabed and very shallow subsurface. The focus is on seabed characterisation, hazard identification, and engineering support. Equipment that is used includes:
- a Side Scan Sonar (SSS) – for photographic-like images of the seabed;
 - a Sub-Bottom Profiler (SBP) – that provides images of shallow sediments below the seabed;
 - a Multibeam Echo Sounder (MBES) – which maps seabed depth and shape; and
 - a Magnetometer (MAG) – to detect ferrous (metallic) objects.

Parts of the survey involves low output sound sources to generate images of the seabed and shallow layers of ground (~60m) just below the seafloor. It involves a low-impact imaging technique that provides information on potential changes in the strength of the near-surface sediments.

Q. What does Environmental Baselineing involve?

- A. This helps us understand the environmental conditions of the Petrel field. Baseline physical, biological, and oceanographic data is collected to see the existing environmental conditions before activities occur. Seabed habitat characterisation is also considered alongside targeted benthic biological sampling, water column measurements and oceanographic and marine fauna observations.

Q. What does the Geotechnical Survey involve?

- A. Direct measurements and samples are taken of the seabed and shallow subsurface soils to support safe well design, infrastructure placement, and engineering assessments. This includes:
- measuring soil strength and the layering of soils beneath the seabed; and
 - collecting some physical samples of seabed sediments and limited core hole sampling to inform engineering designs.

Q. When will these activities take place?

- A. Timing of the initial survey campaigns is aimed at Q3 and Q4 2026. Confirmed activity dates will be dependent on a number of factors including access approvals, vessel availability and weather conditions. Subsequent surveys could be undertaken between 2027 and 2030.

Q. How big is the operational area and where is it?

- A. The operational area (OA) is a defined area within which all petroleum activities associated within the EP occur, and which allows impact assessment of those activities. It includes the extent of all planned activities within the EP, and is defined to cover the spatial extent of:
- Retention leases (WA-6-R and NT/RL1);
 - 10km wide corridor along the proposed GEP route; from the boundary of the retention lease to the Blacktip GEP tie-in point; and
 - 5km radius around the Blacktip GEP tie-in point.

A map of the area can be found at the project landing page petreleni.com.

Q. How can you access areas outside the retention leases for the activities?

- A. Eni will submit an Access Authority Application to the offshore titles administrator in Q1 2026, for access to the 10km wide survey corridor along the proposed gas export pipeline. This approval will be in place prior to the proposed survey activities.

Q. How far is the activity from shore?

- A. The Petrel field is located approximately 250 km WSW of Darwin. The tie-in point for the proposed Petrel Gas Export Pipeline and the southernmost point of the surveys operational area is approximately 113km from Wadeye, approximately 184km from Wyndham and approximately 199km from Kalumburu.

Q. Have potential impacts on the environment by the survey activities been assessed?

- A. Eni will conduct an Environmental Impact Identification workshop to confirm and assess impacts, risks and management measures for the activity. A table of risks and assessments generated based on existing knowledge and experience, is available on the landing page at petreleni.com.au. A detailed list of the identified risks, assessment and mitigations can be found in the published Environment Plan (EP), which will become available upon acceptance by the regulator.

Q. What vessels are required for the surveys?

A.

Survey	Expected Vessel Type
Geophysical and environmental surveys	Multi-purpose catamaran vessel 35m in length
	Single hull vessel 44m in length
Geotechnical	76m length vessel for downhole drilling
	65.8m vessel for all other geotechnical survey activities

Q. How do you assess and monitor the impact to the environment in which the activities will be conducted?

- A. The assessment of the environmental impact covers three areas:
1. the Operational Area – a defined area within which all petroleum activities associated within the EP occur, and which allows impact assessment of those activities. It includes the extent of all planned activities within the EP.
 2. The Zone of Potential Impact (ZPI) – the moderate exposure zone representative of an area of biological impact from hydrocarbons
 3. the Environment that May Be Affected (EMBA) – the area within which the operations activities could have an environmental impact. The outermost boundary of the EMBA (for this activity) is based on an accidental release of marine diesel oil (MDO) to the environment in the unlikely event of a vessel collision damaging a fuel tank.

The results of this analysis can be found on the map shown on the surveys project landing page petreleni.com and activity flyer along with an explanation of the three areas of assessment.

Q. What would be the worst-case hydrocarbon spill?

- A. In the unlikely event of a vessel failure or collision, a maximum of 130m³ marine diesel (the size of the largest vessel's single fuel tank) may be spilled. The assessment of a spill of this nature has confirmed the rapid evaporation of spilled fuel within the bounds of the EMBA. There is no likelihood of near shore contamination from such an event in the activity area.

Q. What are the emergency response arrangements to contain a hydrocarbon spill?

- A. Eni will activate their Oil Pollution Emergency Plan (OPEP), which is an operational document and contains all the information necessary for Eni to carry out a response to an accidental oil spill. The OPEP covers actions to stop, assess, report, monitor and combat an accidental oil spill, to ensure the effective and timely management and response to such an unlikely incident.

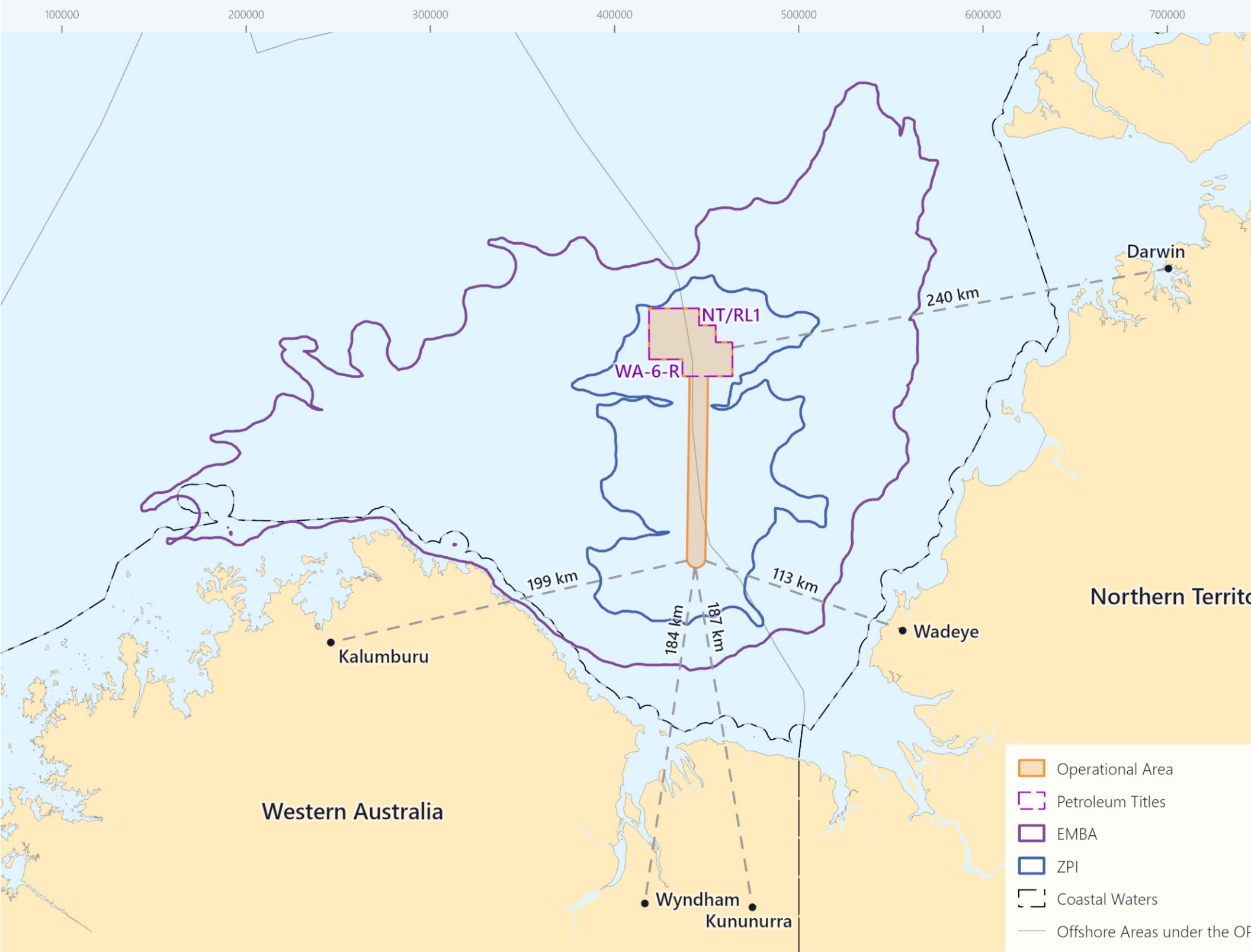
Q. Will the activity affect any marine life?

- A. All care is taken in protecting marine life and megafauna. This includes an induction for personnel on the activity vessels outlining the sighting requirements for marine life, assessment of migration and breeding grounds, fisheries and an in-place Oil Pollution Emergency Plan (OPEP) in the unlikely event of a spill from a vessel.

Q. What if I have concerns about this activity?

- A. Eni is conducting engagement activities with relevant persons from 27 January to 17 March 2026. If you believe you are a relevant person, please contact us by phone, email, or through our landing page at petreleni.com. Information on the definition of a relevant person can also be found on the landing page.

Phone: 1300 155 616
 Email: info@petreleni.com
 Landing Page: petreleni.com



Summary of Potential Key Environmental Impact/Risks and Management Measures

The potential key environmental impacts listed below are assumptions based on existing experience in the region and conducting similar activities. Final impacts, risks and management measures will be updated on the activity landing page at petreleni.com.au.

Aspect	Description	Potential Impact / Risk	Proposed Management
Planned Impacts			
Seabed disturbance	Seabed disturbance will be caused by: • seabed sampling during the geotechnical survey	Seabed disturbance will cause a localised and temporary reduction in water quality, and disturbance to benthic habitat. There is no sensitive benthic habitat, Marine Parks or Key Ecological Features (KEFs) in the Operational Area.	• All deployed equipment will be recovered. • Post-activity ROV survey will be conducted.
Physical interaction – Other marine users	The movement of vessels within the Operational Area can interfere with other marine users by causing displacement from the area during activities.	The Operational Area is retention leases WA-6-R and NT/RL1 and a 10km wide corridor along the proposed GEP route; from the boundary of the retention lease to the Blacktip GEP tie-in point. Activities in the Operational Area are of short duration, expected to last up to 100 days. Six active fisheries overlap the Operational Area; however, these commercial fisheries have recorded limited historical catch effort data within the area. There are no tourism or recreational fishing activities expected in the Operational Area due to distance from shore, and no Maritime Defence Exercise areas.	• Navigation equipment and procedures, in accordance with legislative requirements. • Maritime notices will be complied with. • All the activities will occur within the Operational Area. • Other relevant notifications may be made, as requested by relevant persons. • Lighting will be used as required for safe work conditions and navigational purposes.
Atmospheric emissions and greenhouse gas (GHG)	Atmospheric and GHG emissions are generated by the vessels as a result of combustion for power generation. Vessels may also use ozone-depleting substances (ODS) in refrigeration systems. Waste incineration on vessels will be in accordance with legislative requirements.	Hydrocarbon combustion may result in a temporary, localised reduction of air quality in the environment immediately surrounding the release point. Non-GHG emissions (such as NOx and SOx) and GHG emissions can lead to a reduction in local air quality. Given the short duration of the campaigns (up to 100 days) and relatively low fuel usage, the contribution of atmospheric and GHG emissions to the global carbon budget is expected to be insignificant and is not evaluated further.	• Use low sulphur fuel on the vessels, in accordance with legislative requirements (e.g., Marine Orders). • Ozone-depleting substances (ODS) managed in accordance with MARPOL. • Compliance with regulatory requirements for marine air pollution and GHG missions reporting. • Vessel Planned Maintenance System (PMS) in place to maintain DP, engines and machinery.
Noise emissions - Continuous	Continuous noise emissions will be generated by the operation of support vessels, helicopters	Underwater noise emissions can cause: • a change in marine fauna behaviour • mask communication • temporary or permanent hearing loss. The greatest source of noise emissions is if Dynamic Positioning (DP) is used (from thruster noise) on vessels. The Operational Area does not overlap with any biologically important areas (BIAs) for marine mammals or fish/sharks, though it does for four species of marine turtles – any individuals present would be transitory. Potential impacts are likely to be restricted to localised and temporary avoidance behaviour. Given the short duration of the survey campaigns (up to 100 days), the potential impacts are considered low.	• Compliance with administrative controls (such as EPBC Regulations Part 8) to reduce interactions with marine fauna. • Documented maintenance program in place for equipment on vessels that provides a status on the maintenance of equipment. • Marine assurance standard in place.

Aspect	Description	Potential Impact / Risk	Proposed Management
Noise emissions – Impulsive	Impulsive noise emissions generated by acoustic survey techniques during the geophysical survey – i.e. Multibeam echo sounder, side scan sonar, sub-bottom profiling, magnetometer, ultra-short baseline positioning system. Such equipment is designed to characterise the seabed topography, bathymetry, potential geohazards, and other seafloor features .	The Operational Area does not overlap with any biologically important areas (BIAs) for marine mammals or fish/sharks, though it does for 4 species of marine turtles – any individuals present would be transitory. The impulsive noise emissions generated by the various acoustic survey instruments may result in localised and temporary behavioural changes to marine fauna.	• Compliance with administrative controls (such as EPBC Regulations 8 (Part 8) to reduce interactions with marine fauna. • Use of soft starts to minimise the sound intensity and exposure time of surveys.
Light emissions	Lights on the vessels will be required on a 24-hour basis during the activities for safety and navigational purposes, in accordance with navigational requirements.	Light emissions have the potential to result in changes to marine fauna behaviour, by acting as an attractant to light-sensitive species, leading to possible increased predation and/or disorientation. There is no potential to impact nesting females or hatchlings. The Operational Area does not overlap any BIAs for seabirds, and is >88 km from shore, meaning there is no potential to impact fledging behaviour. There is potential a small number of adult seabirds and migratory shorebirds may be attracted to the vessels, however given the short duration of the campaigns (up to 100 days), this is considered minor.	• Lighting will be used as required for safe work conditions and navigational purposes.
Planned discharges – Routine	Operation of vessels will routinely discharge the following to the marine environment: • sewage • greywater • putrescible waste • treated bilge • cooling water and brine • deck drainage	A temporary and localised impact on water quality may result in a change in water quality and changes to predator-prey dynamics. Given the relatively low volume and intermittent nature of planned vessel discharges, the short duration of the campaigns (up to 100 days), the water depth and open ocean environment of the Operational Area, the potential impact is expected to be localised to the immediate proximity of the release, and of short duration.	• All routine marine discharges will be managed according to legislative requirements. • Vessel PMS in place to maintain DP, engines and machinery.

Aspect	Description	Potential Impact / Risk	Proposed Management
Unplanned Risks			
Marine fauna interaction	There is the potential for vessels to collide with marine fauna, including marine mammals, fish, marine reptiles and seabirds. The main collision risk is through vessel collision with large, slow-moving cetaceans, potentially resulting in severe injury or mortality.	Given the short duration of the campaigns (up to 100 days), and the slow speeds at which vessels operate, collisions with marine fauna are considered highly unlikely. Eni will apply control measures to ensure the likelihood of the event occurring is reduced to ALARP and acceptable levels.	- Compliance with administrative controls (such as EPBC Regulations Part 8) to reduce interactions with marine fauna. - Any vessel strikes with cetaceans will be reported in the National Ship Strike Database. - Observations of the surroundings will be undertaken from the vessel/s for marine fauna.
Introduction of marine pest species	There is the potential for introduction and establishment of invasive marine pests to the Operational Area via vessels ballast water or biofouling on vessel hulls.	The risk of introducing IMS is limited by the depth of the Operational Area (>50 m), which is not directly adjacent to any shallow shoals or banks. The substrate in the Operational Area does not have any hard substrate to which IMS can attach. Eni will apply control measures to ensure the likelihood of the event occurring is reduced to ALARP and acceptable levels.	- All vessels will be assessed and managed as appropriate to prevent the introduction of marine pests. - Vessels will comply with biosecurity requirements for ballast water and biofouling and comply with the Maritime Arrivals Reporting System (MARS).
Accidental release – waste and solid objects	There is the potential for the accidental disposal of hazardous wastes (e.g. hydrocarbon contaminated materials, batteries, paint cans) and non-hazardous solid wastes (e.g. paper and cardboard, wooden pallets, scrap steel, rope, glass and plastics).	The accidental release of wastes can cause a temporary and localised reduction in water quality, and the potential for marine fauna to ingest or become entangled with solid waste (garbage). If equipment is dropped, this may cause disturbance or smothering of benthic habitats. This is a small area; and benthic habitats are known to rapidly recover. There are no KEFs or sensitive benthic habitat in the Operational Area. Eni will apply control measures to ensure the likelihood of the event occurring is reduced to ALARP and acceptable levels.	- Procedures to reduce the potential for loss of non-hazardous and hazardous waste and dropped objects to be followed. - Dropped objects to be retrieved where possible. - Lifting procedures will be implemented. - For hazardous chemicals, including hydrocarbons, hazardous chemical management procedures will be in place to reduce the risk of an accidental release to sea. - Chemical assessment procedure will be implemented.
Accidental release – Minor loss of containment	Minor volumes of hydrocarbon or other chemicals (e.g. hydraulic fluids, deck spills) may be accidentally released to the marine environment due to: - Loss of primary/secondary containment - Incorrect handling and storage - ROV failure.	Minor accidental releases of hydrocarbons or chemicals can cause a change in water quality. Expected volumes are small (<1 m³), and there is no potential for injury or mortality to marine fauna. Eni will apply control measures to ensure the likelihood of the event occurring is reduced to ALARP and acceptable levels.	- Use of MDO rather than Heavy Fuel Oil (HFO) on vessels (MDO is lighter than HFO and will evaporate faster and persist less in the marine environment). - Response plans and equipment will be in place and maintained to manage spills to the environment (e.g. oil pollution emergency plans). - In the event of a minor loss of containment to sea, Oil Pollution Emergency Plan (OPEP) requirements will be implemented to mitigate environmental impacts. - Chemical assessment procedure will be implemented. - For hazardous chemicals, including hydrocarbons, hazardous chemical management procedures will be in place to reduce the risk of an accidental release to sea. - Remotely operated vehicle (ROV) inspection and maintenance procedures. - Procedures to reduce the potential for loss of non-hazardous and hazardous waste and dropped objects to be followed. - Vessel PMS in place to maintain DP, engines and machinery. - Where required, operational and scientific monitoring undertaken in accordance with Eni's Operational and Scientific Monitoring Plan.

Aspect	Description	Potential Impact / Risk	Proposed Management
Accidental release – MDO (vessel collision)	A release of up to 130m ³ marine diesel oil (MDO) could occur from a collision between the activity vessels and a third-party vessel due to factors such as human error, poor navigation, vessel equipment failure or poor weather.	An accidental release of MDO can cause a change in water quality, a change in fauna behaviour, injury or mortality to marine fauna and an impact to other marine users. Potential impacts include those to plankton, fish, marine turtles, marine mammals, seabirds and migratory shorebirds, commercial fisheries, and cultural heritage. MDO is a relatively volatile, non-persistent hydrocarbon with rapid evaporation on the sea-surface (typically ~36% within the first 24 hours). Whilst there may be very low levels of suspended oil droplets in intertidal zones, spill modelling does not predict any accumulation or buildup of hydrocarbons on any shorelines. Six active fisheries overlap the Operational Area; however, these commercial fisheries have recorded limited historical catch effort data within the area. There are no tourism or recreational fishing activities expected. The Operational Area is located within a military exercise zone (Northern Australia Exercise Area) which is administered by the Australian Defence Force and includes restricted airspace. Eni will apply control measures to ensure the likelihood of the event occurring is reduced to ALARP and acceptable levels.	• Pre-start notifications will be issued. • Regulatory requirements for the prevention of vessel collisions and safety and emergency arrangements. • Use of MDO rather than Heavy Fuel Oil (HFO) on vessels. • In the event of an oil spill to sea, OPEP requirements will be implemented to mitigate environmental impacts. • Response plans and equipment will be in place and maintained to manage spills to the environment (e.g., oil pollution emergency plans). • Vessels selected and on-boarded are operated, maintained and manned in accordance with industry standards (Marine Orders) and regulatory requirements. • Where required, operational and scientific monitoring undertaken in accordance with Eni's Operational and Scientific Monitoring Plan.



CONTACT ENI

Email: info@petreleni.com.au
Phone: 1300 155 656
Post: PO Box 6862
East Perth WA 6892



PUBLIC NOTICES

Relevant persons for Petrel Geotechnical and Geophysical Surveys Environment Plan



Eni is an international energy company committed to sustainable and responsible energy transition. Eni is the operator of the Petrel Field in the Bonaparte Basin in North Western Australia.

The Petrel permit is approximately 240km WSW of Darwin, and 170km offshore of the WA coast within the Joseph Bonaparte Gulf.

Eni proposes to undertake surveys within the Petrel Field to support future development and exploration activities.

The surveys will acquire geophysical, geotechnical and environmental baseline data to better understand the existing environment and seabed characteristics of the Petrel Development Area.

The initial activities are forecast for the second half of 2026.

Am I a 'relevant person' in relation to this work?

You may be a relevant person if you or your organisation has functions, interests, or activities that may be affected by the offshore petroleum activities proposed under the environment plan being prepared. Interests that may be affected can include things like cultural and spiritual connections to the sea or interests in the protection of specific marine species.

Provide your Feedback

By email on info@petreleni.com.au

By post at PO Box 6862 East Perth WA 6892

By phone on 1300155 616
or access online information at petreleni.com.au



Deadline for your Feedback is 17 March 2026



Government of Western Australia
Department of Water and Environmental Regulation

NOTIFICATION OF APPLICATIONS RECEIVED FOR WORKS APPROVALS, LICENCES, CLEARING PERMITS AND AMENDMENTS AND AVAILABLE FOR PUBLIC SUBMISSIONS AND/OR REGISTRATIONS OF INTEREST

In addition to this advertisement, the Department of Water and Environmental Regulation maintains a register of current applications which are open for comment on the Department's website (www.dwer.wa.gov.au). The register contains information on applications and the submission closing date for all comments. To receive notification of updates to the register, please subscribe at www.der.wa.gov.au/about-us/40-email-alert.

APPLICATIONS FOR WORKS APPROVALS AND NEW LICENCES

Sewage facility: Nanga Bay Caravan Park Pty Ltd (Nanga Bay Caravan Park), NANGA (W3187/2026/1)

Screening etc. of material: Q Stone Pty Ltd (Potts Road Quarry), WELBUNGIN (W6207/2018/1) – Amendment

Submissions may be forwarded to the Department of Water and Environmental Regulation, Locked Bag 10, Joondalup DC WA 6850 or by email info@dwer.wa.gov.au.

NOTIFICATION OF WORKS APPROVALS, LICENCES, CLEARING PERMITS AND NOTICES GRANTED, AMENDED OR GIVEN AND AVAILABLE FOR PUBLIC APPEAL

The Department of Water and Environmental Regulation updates a register of current decisions which are open to appeal on the Department's website (www.dwer.wa.gov.au). The register provides the decision dates of all works approvals, licences, and notices which are granted, amended or given and information on lodging appeals. To receive notification of updates to the register, please subscribe at www.der.wa.gov.au/about-us/40-email-alert.

Your views are welcome on any licensing matters.

Internet: www.dwer.wa.gov.au Email: info@dwer.wa.gov.au



Are you passionate about sustainability and driving positive environmental change?

The Minister for the Environment is inviting expressions of interest for **two Member** positions to the Waste Authority board – a unique opportunity to influence Western Australia's waste strategy and help create a cleaner, greener future.

As a member of the Waste Authority, you will:

- Lead the way** in implementing the **Waste Avoidance and Resource Recovery Strategy 2030**
- Advise and collaborate** with the Minister, CEO and key stakeholders on innovative solutions for waste avoidance and resource recovery
- Shape policy and programs** that make a real impact on sustainability
- Help WA** achieve its ambitious waste reduction goals

We're looking for individuals with **skills, experience, and knowledge** in areas such as:

- Sustainability and circular economy
- Waste services
- Waste avoidance and resource recovery
- Environmental policy and community engagement

If you have a **vision for a sustainable future** and want to make a meaningful contribution, we want to hear from you!

Send your confidential expression of interest to:

Alistair Jones
Director General
Department of Water and Environmental Regulation
Email: wasteauthoritynominations@dwer.wa.gov.au

Closing date 5pm, 23 February 2026.

Positions to the Waste Authority board are made in accordance with Part 2 of the Waste Avoidance and Resource Recovery Act 2007.

Please note that a person appointed as a member of the Waste Authority cannot also be employed under part 3 of the Public Sector Management Act 1994.

An information package is available on the Waste Authority website at: www.wasteauthority.wa.gov.au or contact the Executive Officer Circular Economy, Department of Water and Environmental Regulation at waste.authority@dwer.wa.gov.au.

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Basketball

NBA: Charlotte 111, San Antonio 106; Indiana 129, Atlanta 124; Philadelphia 124, New Orleans 114; Minnesota 131, Memphis 114; Chicago 125, Miami 118; Houston 111, Dallas 107

Boating

East Fremantle: Centreboard Fleets, Saturday Club Heat #4. Open Skiffs: 1. and Fastest No Limits (A Laroche); 2. Seas the Day (M Anastazjew); 3. Atom-bic Bomb (H Mellor). Open Skiffs - Silver: 1. and Fastest Skiffariffic (C Wenn); 2. R2BIC2 (W Cade); Sharks: 1. Ku De Ta (P Lees); 2. On Fire (P Johnston); 3. Dear Prudence (P (Jim) Gregson); Fastest Fly In (S Knight). Sharks Reef: 1. and Fastest TBA (M O'Neill); 2. Scimitar (J Roses); 3. Moonshadow (H Jones). RS Aero: 1. Das Boot (D Quinn); 2. Three Nines (S McCracken); 3. and Fastest Me and My Aero (M Kiemander). Skates: 1. and Fastest Gobstopper (S Fico-M Minuttillo); 2. Megasaourse (P Shiner-P Anesbury); Sharpies: 1. and Fastest Hoo Roo (D OByrne-C Back/M Stone); 2. Girt (J Heggart-N Heggart/C Renfrey); 3. All Scooped Out (J Preston-K Swallow/T Burtenshaw). Championship results: Open Skiffs: 1. No Limits; 2. Seas the Day; 3. Atom-bic Bomb. Open Skiffs - Silver: 1. Skiffariffic; 2. R2BIC2; RS Aero: 1. Me and My Aero; 2. Aeroplane (J Bellegarde); 3. Das Boot. Sharks: 1. Fly In; 2. On Fire; 3. Destiny (S Walker). Sharks Reef: 1. TBA; 2. Scimitar; 3. Moonshadow. Sharpies: 1. Hoo Roo; 2. The Usual Suspects (D Lightfoot-J Rees/S Laroche); 3. Vanquish (P Ivanac-S Lightfoot/G Box). Skates: 1. Gobstopper; 2. Megasaourse.

South of Perth: Keelboat Season 2025-26 - Saturday Series, Keelboats, Saturday. Division 1: 1. and Fastest K-Factor (D Thoms); Division 1 - ORC: 1. and Fastest K-Factor (D Thoms); Division 1 - ORC (PHS); 1. and Fastest K-Factor (D Thoms); Division 2: 1. and Fastest The Sidewalk Cafe (D Bradley); 2. Ballina (D Cowden); 3. Jindarra (R Male). S80: 1. and Fastest Dont Panic !! (M Selby); 2. Shadowfax (J and Mark Gooding); 3. Fair Game (S Game). H28: 1. Swiftsure Saga (B Richards & Mark Wimsurshurst); 2. Wynella (P Scott); 3. and Fastest Corella (D Locke). Division 3: 1. and Fastest Hellas (N Melidionis); 2. Commotion (M Compton); Spacesailer 27: No Finishers. Spacesailer 22: 1. and Fastest Mele Bilo III (D Mickle); 2. Wildlife (B Uren); 3. Shafto (K Cook). Red Witch: 1. Witch Doctor (D Marshall); 2. Hornblower (T Snow); 3. and Fastest Shenanigans (K Uren). Division 3 Invitation Series: 1. Commotion (M Compton); 2. and Fastest Hellas (N Melidionis); 3. Argo (B Rosen). Championship results: Division 1 - ORC: 1. K-Factor; Division 2: 1. Mingara (G Ruul); 2. Against All Odds (T Rakai); Division 3: 1. Hellas; 2. Commotion; H28: 1. Corella; 2. Swiftsure Saga; 3. Wynella. Red Witch: 1. Shenanigans; 2. Witch Doctor; 3. Hornblower. S80: 1. Dont Panic !!; 2. Shadowfax; 3. Fair Game. Spacesailer 22: 1. Mele Bilo III; 2. Wildlife; 3. Finovola (M McLean).

Bowls

Bunbury: Sunday Scroungers 25/1/26 Winner A. McGinniss R/up L. Blurton Plate M. Reynolds Saucer K. Mead Tuesday Drawn 1. B. Mickle & B. Dobrigh 2. B. Miller, D.Ponti & E. Brandis Wednesday Drawn Pairs 1. C. Robinson & C. Hayes 2. A. Dunn & B. Miller 3. D.Sorfleet & L. McFarland Thursday Drawn Pairs 1.B. Mickle & D. Norton (v) 2. E. Reid & L. Blurton 3. V. Usher & C. English Friday Railways 1. B. Carlson & T. Pelle 2. J. Head & L. Hornsby Saturday Drawn Pairs 1. J. George & M. Reynolds 2. G. Miller & T. Harding 3. J. Walker & A. McGinniss Sunday Scroungers Winner L. Blurton R/up B.Miller Plate S. Calligaro Saucer B. Hagan

Cambridge: Sat RAC Winning Teams: 1. T. Delaney P. Lee S. Parsons 2. C. Herring B. Dick C. Westergren.

Manning: Club Mixed Fours Championship: 1. G.Hogg, S.Hogg, C. Herald, M. Laszenby 2. A. Taylor, J. Angel, R. Angel, M. Seebeck

Mosman Park: Men's Fours Championship: Winners: J. Townsend, M. Jones, J. Pallett, M. van Bemmell.

Rockingham: Thursday Bankers: J Oates, V Murphy, J Laukkanen +27, R West-ern, J Edwards, M Western +6 Saturday Bankers: R McCarthy, H Young, J Evans +10, J Allen, V Oates, M Murphy, C Tibbits +6, J Laukkanen, V Murphy, J Spratt, G Radley +6

Wonthealla: Young Motors Mixed Pairs Winners: S Holland & K Pearce. 2nd: N Bunter & H Miller. 3rd: D Kempton & P Cream. 4th: J Foster & J Cream. 1st Round Winners: G Moon & G Alfrod. 2nd Round Winners: J Dallas & J Belotti. Club Mixed Championship Fours 2026 Winners: J Rudland, W Brown, S Brown, L Ayling. Runners Up: B Alfrod, K Exten, V Exten, G Alfrod. Mens Seniors Drawn Card Winners: R Hill, N Jackson, B Andreassen. J Rudland, G Omara, P Burton. J Beaver, D Bridger, M Kupsch, R Adamczyk, D Vandenberg, M Belajich. Mixed Scroungers Rink Winners: B Thomas, M Kupsch, R Hill, D Hagan, J Dallas, D Vandenberg, B Andreassen, P Johnson, BMW Walton, P Burton, J Wilson, A Dickson, M Belajich, L Harasmuik. Highest Score: J Wilson (53).Sixes: P Burton (2), J Wilson (2), K Cross, B Thomas, A Dickson, M Belajich, L Harasmuik, D Hagan, B Walters, 4th : P Johnson. 3rd: D Vandenberg. 2nd: P Burton. Winner: B Andreassen.

Golf

Albany: Mixed Stableford 31/1/26: J Hubbard 43, F Griffiths 42, K Webb 41, S Skirrow 40, R Marchesi 39, M Provost 39, M Bower 39, B Mason 38, G Cook 38, M Ashman 38, J Page 38, M Bunn 38, T Crowe 38, C Haven 38, D Dowdell 38, J Vincent 37, R Mountford 37, S Thomas 37, R Willison 37, R Weight 37, A Simpson 37, P Westerberg 37, M Quinn 37 Gross: L Pearce 31

Bussetton: Saturday Mixed Stableford: A Graham 44, C Heathcote 41, P Rose 41, J Kay 40, D Gazelle (Margaret River GC) 40, S Richardson 40, D Morgan 39, S Kopke-Moore 39, M Minogue 38, J Chandler 38, B Green 38, B Mezger 38, J Mclean 38, J Milligan 38, W Pember 37, B Priest 37, P Kingdon 37, A Grocock 37, S Seivwright 36, A Culnane 36, R Grosvenor 36, N Holland 36, A Sidebottom 36, P Morriss 36, G Noney 36, E Franklin 36,
Capel: Stableford: K Young 38, K Pegler 37, C Chapman 37, J Scott 34, L Hazelden 33, N Bellometti 33, S Flynn 33, G Marino 33, L Wake 33, K Turner 32, V Ilacqua 31. Ambrose (2 Player): J Wallrodt & S Cuniffe 63.25, A Wallrodt & L Wake 63.5, D Gilchrist & J Gilchrist 63.75, N Bellometti & A Young 64.75, K Western & D Parnell 65, J Crain & C Mcevoy 65.5, G Kneale (Bussetton Golf Club) & E Sewell (Bussetton Golf Club) 65.5, R Crabbe & C Cuomo 67, D Mance & K Turner 67, S Flynn & R Hogan 67.75, D Cross & R Cross 69.

Colliie: G Williams 39, V Graham 37, J Williamson 37, D Nelson 36, D Rakich 36, R Cavanagh 35, N Motion 36, P Law 34, B Rybarczyk 34, G Bell 34, R Marshall 34.
Cottesloe: Stableford: J Nagappa 38, J Porteous (Wanneroo Golf Club) 38, D Porteous (Wanneroo Golf Club) 35, A Rossetti (Western Australian Golf Club) 34, R Nagappa 34, D TUNKS (Western Australian Golf Club) 33, A Smith 33, K Mercer (Western Australian Golf Club) 32

Dongara: Saturday M Downes 37pts, S Aiken 36pts, T Sayers 35pts NTP # 5 B DeBeaux, #11 T Sayers Sunday J McKenzie 43pts, G Chaplin 39pts, J Webster 36pts NTP #3 & #5 G Chaplin, #14 D Broad.

Donnybrook: Scroungers Stroke. J Heath 68, B Swarbrick D DuPlessis T Rouse 70, L Bruyn A Perkins A Bunter J Bell 71, D Steicke 72, T Van Uden J McDonald D Bunter 74, J Reemeyer B Power 75, B Cooper G Cockman 76, J Palmer G Howlett B Heerman G Giudici S Carnaby 77. NTP 1 B Cooper 6 D Bunter 13 B Swarbrick. Long Putt 9 J Bell 18 D Bunter. Best back nine T Van Uden. A. and D Saturday Trophy Stableford. B Chernabaeff 43, G Cockman 39, B Swarbrick 37, J Bell 36, J Atwell 35, D Hulm C Welsh P Reynolds DK DuPlessis 33, S Mumme 32, L Morgan W Rees 30, A Bunter D Bunter 29, H Martindale J Kirkpatrick C Bourne 28. NTP 1 J Atwell 13 J Kirkpatrick 16 J Atwell. Long Putt 3 B Chernabaeff 9 B Swarbrick 17 A Bunter 18 S Mumme. Best 2nd shot 12 D Bunter.

Hartfield: Stableford: C De Wet 41, R Grindley 40, A Grindley 40, J Rochford 39, J Coyne 38, G Reading 38, A Carruthers 38, P Bewick 37, S Cook 37, J Warden 37, W Kilmartin 37, M Houston 37, T Veneris 37, T Salpietro 36, R Hollingum 36, R Ryan 36, M Dodd 36, T Cunningham 36, M Foster 36, J Waru 36, S Broadbent 35, M Foster 35, B Kinsella 35, M Chapman 35, R Hall 35, P Hunter (Meadow Springs Country Club) 35, J Owen 35, D Robertson 35, D Evans 35. Gross Stableford: : P Chappell 33.0. Nearest Pin: L Bingham (4th). Nearest Pin: D Evans (6th). Nearest Pin: G Reading (12th). Nearest Pin: P Chappell (15th). Hole Prize: J Coyne (18th). PCC: 0.0

Harvey: Monthly Mug: Stroke: J. Roberts 62, L. Brook 70, M. Baggetta 71, B. Humble 71, R. Peet 71, S. Doyle 72, G. Cole 72, P. Davey 72, R. Upton 72, N. Sav 72, G. Hodgson 72, Rita Rae 73, C. Klumpp 74, H. Ward 74, R. Mosele 74, J. Muller 74, A. Skoric 74, J. Gale 74, G. Underdown 74, D. Byham 74. Gross: G. Cole 77, M. Stirk 79. Team 4Ball: J. Roberts, C. Klumpp, N. Wooltorton, E. Hamer 53.

High Wycombe: Stroke 1st round club championships A. Redman 71 nett R. Craft 72 M. Devery 73 N/Ps 3rd K. Tutisai 6th J. Mathews 3rd R. Craft 8th D. Simpson L/Putt R. Haimona Best 2nd Shot B. McGrath L/D's 'A' K. Tutisai 'A'Res' B. McGrath 'B' club 'C' R. Haimona

Hillview Social: Stableford: G Robson 38, C Cole 38, G Murray 37, C Milburn 36, M Chesi 36, J Smith 35, M Devery 35, G Ledger 35, H Davey 35, R Osment 35, J Cameron 34, D Stocker 32, S Wood 31, B Lewis 31, B Coutinho 31, J Puddicombe 31, N Rendall 31, M Cameron 30, C Coutinho 30, J Oliver 30, S Cochrane 28, A Maio 27, A Gray 27, D Goff 26, G Thompson 25, K Rae 24, D Empsall 24, J Hansen 23, T Clark 22, E Cameron 21, G Cochrane 17, A Lampard 15.

Lake Kariinyup: NC: Stableford: C Burbridge 40, R Goddard 39, D Woods 39, R Tatchell 37, G Reed 37, R Clark 37, P Cooke 36, L Howe 36, M Burdett 35, N Kime 34, M Flynn 34. MC Stableford: J Mactier 39, A O'Neill 39, C Wedd 38, J Fitzgerald 38, D Anderson 38, B Stanley 37, S Wetherall 37, A Donald 37, P Bannan 37, R McLean 36, M Allen 36, F Kelly 36, M Hirani 36, M Crumby 36, R Perrie 36, R Scott 36, M Longman 35, S Seward 35, S Thomson 35, D Hewton 35, B Candy 35, D Martin 35, J Wallace 35, P Coningsby 35, Y Li 35, K Kirwan 34, M Simmonds 34, M Milburn 34, S Gill 34, T Howell 34, N Curnow 34.

Ledge Point: Stableford: D McDonald 50, N Keddie, K Scaddan 39, A Harris 38, L Maindok 37, K Wigg 36, J Gooch, F Paull, S Forrest 35, P Gee 34, J Cook, C Ellis, F Condo, L Ellis, R Teague, A McKean 33. Scroungers: J Bellantoni 21, J McDiarmid 20, O Abbott, S Denniston 19, L Maindok, D Mannix, T Fischer, P Philpott, A Wright 18.

Mandurah: Par: W Eales +3, W Davies +3, M Burrows +2, D Rafferty +2, S Pope +1, D Macdonald +1, B Secker +1, J Coombs +1, R Winkles +1, B Gilbert O, K Brandis O, T Naidoo O, S Putt O, W Chatfield O, R Fuge O, P Haines O, T Rasmus-

sen O, I Tanian O, P Winkless O, D Smith -1, C Gandy -1, J Dobos -1, N McVeigh -1, R Wallis -1, J Reason -1, G Bowen -2, H Tuckey -2, J O'Neill -2, B Corver -2, Z Schneider -2, B Johnson -2 PCC: 0.0. Mandurah Country Club: Nett: D Lowry 67, J North 68, W Chatfield 69, M Polanda 69, K Gillam 69, T Garratt 70, A Ward 70, B Rogers 70, D Harrop 70, A Maxwell 70, N Cox 70, D Larmour 70, C Gandy 71, R Williamson 71, M Devereux 71, T Simons 71, J Radburn 71, S Swanepoel 72, R Tregenza 72, S de Vasconcellos 72, A Boyce 72, R Gibbs 73, D Croft 73, P Bruce 73, D Winkless 73. PCC: 1.0. Stableford: W Baker 38, L Lasek 36, S Huntley 35, S Brennan 35, A Bryan 33, C Smith 32, T Durkin 31, A Williamson 31, S Elliot 31. PCC: 1.0. Nett: H Robins 71, J Walker 73, D Hardie 73, H Hatfield 75, N Devenish 75, K Clarke (Gosnells Golf Club) 76, J Brand 77, K Johnson 77, S Bloxidge 78, G Holland 78, T Dawson 78, R Marocchi 79, A Boyle 79. PCC: 1.0.

Manjimup Country Club: Monthly Mug Nett: R Reeve 68, L Chatley 69, D Ipsen 69, Lachlan Muir 70, K Kath 70, J Nicolaou 70, G Hancock (Donnybrook Country Club) 70, S Miolin 72, A PEDLAR 72, B Wills 73, H Gandy 73. Gross: J Nicolaou 77, Lachlan Muir 78, W Edwards 78.

Marri Park Riverton: Round 3 Captains Trophy: M Burnett d C Mortimer 3/2. G Edwards d R Thompson 2up ROF Par. A. P Tormay (ocb) J Sambell, S Gallichan square; L Oliver -1. B. GK Smith +3. M Caldwell -1; W Van Dalen-3; R Collard, D Vanderham-4. Side Comps. NTP 8. T Hard. Best 2nd. 3. R Foster. 6. GK Smith. Best 3rd 12. C Mortimer. Long Putt 17. G Edwards.

Meadow Springs: Stableford 2026 Best Gross: B Mitchell 37 Nett Winner: T Wood 41 A B Mitchell 40 V Nothnagel 39c/b P Conlan 39 J Ramsharg 38 B : J Coldman 39 D Raich 38 B Mitchell 37c/b D Burkett 37c/b C A Pelliccione 39 S Bretherton 36 C Dinnie 35 (Guest) C Lang 33 Ladies: R Wood 34 Good Scores: L Dawson M Blacker I Mitchell 37 M Bunyan P Okey D Bavy B Taylor M Lewis 36 I Stephenson T Mahoney 35. NTP 4th T Wood 8th P Okey 11th J Nickolle 16th P Okey LP 9th J Kenny 18th J Cockburn Eagles: V Anderson S Walker 7th.

Melville Glades: Fri Twilight Stableford Holes 1-9: Natalie McRobb 20cb Kerry Mclvor 20 Colleen Robinson 19 Z Herrick 18 G McRobb 18 N Jarvis 18. Sat Mixed Stableford: Shirley Van Der Bruggen 41 A Gregory 40 L McRobb 40 G Czubeck 39 D Davies 39 R Koijc 39 P Apps 38 S O'Hare 38 J Lee 38 R Fletcher 37 C Fletcher 37 M Coates 37 J White 37 C Reid 36 B Maramba 36 Vicki Taylor 36 Y Ha 36 J Hailes 36 G Huckle 36 R Fullard 36 J Rafala 36 J Ranford 36. Gross: J Jung (RPGC) 37. Eagle: G Holmes (13th). NTP's: A Gregory (5th) K Jin (9th) P Emberson (14th) A Blore (17th).

Mosman Park: Stableford: D Harris 38, T Hagan 37, M Egan-Logue 36, T Payton 36, C Flynn 36, S Boxshall 36, R James 35, J Holman 35, G Alexander 35.

Needlands: Pro-Stroke (Nett): R Morris -8, B Morris -3; M Lukianenko , P Mackay , L Nicholls , I McCallum , J Tomlin , R Edenburg -1; M Danckert , S Wharton , J Clarkson , D Revill , S Van Heurck E, D Morey E, M Craig E, J Nicol, G Saueracker, K Nelles, A McLaren E.

Sanctuary: Stableford Nett: N Nielsen 25 cb, R Halkyard 25 cb, P Fost 22 cb, Colin Davies 22 cb, S Evers 21, R Brace 20 cb, D Roberts 20 cb. NTP's: D Roberts & G Carter. Sunday 1st February 2026: Stableford: D Watts 39, C Squire 37, H Farrugia 36 c/b, B Brown 36 c/b, E House 36 c/b, H Wylie 36 c/b, B Smith 35: Best Gross Stableford S Bingham 29, NTP T Honeybone, H Wylie, D Zivanovic, R Simmons

Scuds Social: Whaleback Par: L Creighton +5 S Ogden c/b J Abrahamson D Chalmers +3 P Nagle +2 G Ryu sq A Phillips J Campbell B Vance -1 I Fairchild S Smith L Pearce R Evans -2 L Wrightson S Heagney -3 K Mann C Quinell A Benkovich B Watts -4 G Braithwaite -5 R Woods M Hill -6 G Ward I Leck P Leslie -7 D Crouch -8 P Faulks I Jorgensen L Bradley -9 R Henry -12. Novelities: NTP 13th G Ryu NP18th R Evans 2nd Shot 5th B Vance NP 10th S Ogden LP 1st I Fairchild LP 14th L Pearce.

The Cut: Saturday Stbleford: Overall Winner T Harrington 42 Division 1 1st D Barnes 39 2nd N Wilson 37 3rd A Baxendale 35 Division 2 1st R Huddy 38 C/B 2 nd A Impiazzi 38 3rd C Edmonds 37 Division 3 1st B Lyon 34 C/B 2nd J Bostock 34 3rd Rose Todd 32 C/B Gross: D Barnes 25 pts. Secret Six: J Carthew, C Edmonds 16 pts.

Wanneroo: AM Stableford: S Delnon 40, M Jarmyn 40, M Potts 39, S McCosh 39, J Thomas 39, N Goodwin 39, K White 38, G McLeod 38, J Ross 38, D Scott 38, P Laybourne 37, N Williams 37, I Dalgleish 37, B Trpchev 37, C McCrory 37, A Crawford 37, B Callaghan 36, B McCready 36, K Rudgeley 36, M Kane 36, M Cooper 36, S Varela 35, P Cassidy 35, I Downs 35, J Whitefoley 35, A Hamilton 35. Gross M Jarmyn 36. PM Stableford: T Carleton 42, R Allen 42, R McWilliams 41, L Archer 39, G McEwan 39, S Holland 38, J Mungavin 38, J Schmidt 37, G Ash 37, D McCulloch 37, A Gill 37, K Langlands 36, C Kavanagh 36, B Cunliffe 36, B Mence 36, J Eccles 36, G Brocket 36, J McCosh 35, A Marsh 35, C Marsh 35, A Tonich 35, M Coddington 35, J Walker 35, Gross L Archer 37.

Westviat: Saturday M/Medal: Pro-stroke: G Aitken c/b T Mullins +1, S Bissett +4; R Carnaby +5; G Fanning +6; G St Jack +7; P Kilgour C Lewis +8; R Cargeeg +10; S Bradshaw +11; M Bronkhorst +12.

Western Australian Golf Club: Stableford 18H: J Kim 36, C Weyer 36, G Croft 36, T Cawthorne 36, D Williams 36, R Clarke 36, B Turnbull 36, I Nelligan 35, G Bloomfield 35, B Briscoe 35, M Treharne 35, S Martino 35, A Gregory 34, J Dimitriou 34, J Boulton 34, J Gibson 34, R Jackson 34, S Grogan 34, C Evans 34, G Casham 34, J Gouteff 33, J Pleydell 33, A Bartlett 33, D Hawash (Albany Golf Club) 33, B Nuttall 33, S Rushforth 33, O Harris 33, G Dagg 33, S Kemp 33, L Taddie 33, I Rho 33. Stableford 9H: A Housley 22, A Saunders 21, A Szyoni 19, C Taylor 19, A Gaff 17, N Comito 17, B Ross 17, K Mercer 16, L Haskett (Sea View Golf Club) 16, G Pearson 16, B Sellars 16. Stableford: Grade A: T McAuliffe 40, J Farrow 39, L Gillan 39, R Jackson 37, G Sandeman 36, A Knight 35, A Billington 35, D Adams 34, D Crosara 34, M Scully 33, G Croft 33. Grade B: E Edmonds 39, M Payne 38, L Ling 37, J Stockden 36, G Brice 35, L Smith 35, R Boyd 34, S Stene 34, J Dickinson 34, J Bellombra 34, I Papasergio 34. Grade C: D Ebert 41, F Wong 38, J Monkhouse 37, R Hannan 35, W Jordaan 33, N Henderson 33, J Mobilia 33, B McAuliffe 33, M Maisey 32, I Housley 32, R Mears 32. Stableford: M Dowden 40, B Sabato 38, M Hurney 38, D Rapoff 37, K Lance 37, N Hannan 34, L Surman 33, N Edmonds 32, N Godecke 32, D Renfrey 32, L Edwards 31. Stableford: Grade A: C Wood 40, H Blom 39, P Cura 39, D Rendall 38, G Morissey 37, C Sabato 37, R Ftyngiannis 37, B Leckie 36, G Fijac 36, G Lantzie 36, J Chemello 35. Grade B: S Strijdrom 42, G Miller 37, N Cooke 37, J Carroll 36, J De Pledge 36, A Griffiths 35, M Higgins 34, G Gale 34, S Jennings 34, C van der Westhuizen 34, O Burns 34. Grade C: B Morris 38, P Marinich 38, J Smith 37, C Cumming 37, J Vissee 36, G Lyons 35, K Silsbury 34, M De Kerloy 34, M Stewart 33, L Kickett 32, S McKean 32.

Shooting

Bussetton-Bunbury: Cooliup: 01 Feb: 300m (10shot): FT/R: R Brown 111.03. **TR:** M Charlton 80.0; **F Standard:** G Oates 114.08; C LeMay 114.07; D Pink 111.09; J Cutbush 108.06; I Reynolds 107.06; P Palandri 104.01; **F Open:** B Merritt 116.10; G Reynolds 115.08; J Clark 115.06; B Day 115.04; A Duffield 112.04; **Sporter (PCF Class scoring):** P Cherry 110.06; B May 113.04; C Ewart 110.04; J Florczyk 109.05; K Thompson 107.03; A Keesing 106.03; J Hull 105.03; S Wdo-wynski 104.02; D Almen 102.04; K Sue 102.03; I Hume 101.01; G House 99.02; P Vardy 98.00; G Bennett 96.01; C Wolfenden 95.03; K Hogermeer 93.00; D Abrahams 92.01; B Abrahams 89.02; D Smith 88.01; R McDonald 88.0

3. PRINT ADVERTISING

1. The West Australian – Weekday & Saturdays
 - a) 2, 4, 7, 9, 11, 17, 24, 27 February 2026
 - b) 4, 6, 10 March 2026
2. NT News – Weekdays & Saturdays
 - a) 3 (print & digital), 6, 10, 13, 16, 18, 21, 23 February 2026
 - b) 3, 11 March 2026
3. Kimberley Echo, Thursdays
 - a) 5, 12, 19, 26 February 2026
 - b) 5 March 2026

Funeral Notices

FOX:
The Funeral Service to Celebrate the Life of Mrs Laura Fox, of Northam will be held at Bridgeley Community Centre on Wellington St, Northam at 9.30am on WEDNESDAY (11.2.2026) followed by a Burial at the NORTHAM Cemetery.



WA Family Owned 9622 1411

GALANTE:
A Combined Rosary and Funeral Mass for Mrs Lucia Galante of Baldivis will be celebrated in St Vincent's Catholic Church, 114 Parmelia Avenue, Parnall, commencing at 9:30 am on TUESDAY (10.02.2026).

Following the Mass the cortege will meet at main entrance of FREMANTLE Cemetery, at 12:00 pm for a Mausoleum Service.

BOWRA & O'DEA

FREMANTLE
312 SOUTH STREET
HILTON 9239 7744
WA Family Owned
www.bowraodea.com.au

HAYWARD:
The Funeral Service to Celebrate the Life of Peter John Hayward will be held Graveside Memorial Park on TUESDAY (10.02.2026) commencing at 10.30am for a Burial Interment.

Simplicity Funerals
Ellenbrook 6393 7388

HINKLEY:
The Funeral Service for Mrs Stella Maude Hinkley of Como will be held in the Bowra and O'Dea Chapel, 1307 Albany Highway, Cannington on THURSDAY (12.02.2026) at 2.30pm.

At the conclusion of the Service, refreshments will be served in the Condolence Lounge until 5.00pm.

BOWRA & O'DEA

1307 ALBANY HWY
CANNINGTON 9461 7133
WA Family Owned
www.bowraodea.com.au

JANSSEN:
Family and friends are warmly invited to the Funeral Service for Petronella "Nelly" Janssen of Kelmescott in our Chapel, cnr Albany Highway and Armitage Road, Kelmescott at 2.00pm on TUESDAY (10.02.2026).

Seasons
1800 732 766
ARMADALE - KELMSCOTT

KENNEDY:
The Funeral Service for the Late Patrick Gavin Kennedy, formerly of Kalgoorlie, will assemble at the main entrance of the GOLDFIELDS Crematorium, Memorial Drive, Kalgoorlie for a Cremation Service at 1.00pm on FRIDAY (13.02.2026).

IVAN VUKOVICH
Kalgoorlie 9021 2023
Member AFDA

LEENAARS:
The Funeral Cortege for Mr Henk Leenaars of Balga will arrive at the PINNAROO Valley Memorial Park in the West Chapel for a Service on WEDNESDAY (11.2.2026) commencing at 10:00am.

Simplicity Funerals
Joondalup 08 9300 0888

MARTIN:
The Service to Celebrate the Life of Dr Phillip Martin of East Fremantle will be held at KARRAKATTA Cemetery (Railway Road, Karakatta) commencing at 10:00am on FRIDAY (13.02.2026) in the Norfolk Chapel.
A Burial Service will then take place afterwards at 11:15am.

BOWRA & O'DEA

FREMANTLE
312 SOUTH STREET
HILTON 9239 7744
WA Family Owned
www.bowraodea.com.au

McGOON:
Family and Friends are warmly invited to the Funeral of Barney McGoon which will be held at 1.00pm on WEDNESDAY (11.02.2026) in the West Chapel, PINNAROO Cemetery, followed by a Burial at 2.15pm in Boronia Court, Pinnaroo Valley Memorial Park, Whitfords Avenue, Padbury.

McKEE FUNERALS
9401 1900

McLENNAN:
Family and Friends are warmly invited to the Funeral Service for Stephen Murray McLennan of Forrestdale in our Chapel, Cnr Albany Hwy and Armitage Road, Kelmescott at 10.00am on TUESDAY (10.02.2026).

Seasons
1800 732 766
ARMADALE - KELMSCOTT

SILKWOOD FUNERALS
MOYLE:
A Funeral Service to Celebrate the Life of the Late Shane Michael Moyle of Beachboro will be held in the Chapel of KARRAKATTA Cemetery, Railway Road, Karakatta commencing from the Main Gate at 10.30am THURSDAY (19.02.2026).
At the conclusion of the Service the Cortege will proceed to Graveside for a Burial Service at 12.30pm.
Please wear black and purple in Celebration of Shane's life.
WA Family Owned
Caring for all areas of Perth
08 9375 8888
silkwoodfunerals.com.au
in moments that matter

PEACOCK:
The Funeral Service for Mrs Gem Peacock of Inglewood will be held in Leanne O'Dea's Chapel, 502 Wanneroo Road, Westminster, commencing at 10:00am on TUESDAY (10.02.2026).
Cremation will take place privately at a later time.

Leanne O'DEA
502 WANNEROO RD
WESTMINSTER 9464 7266
WA Family Owned
www.leanneodea.com.au

PIPES:
The Funeral Service for Mrs Margaret Pipes of Lynwood will be held in Bowra & O'Dea's Chapel, 1307 Albany Highway, Cannington, commencing at 2:30pm on FRIDAY (06.02.2026).
Cremation will take place privately at a later time.

BOWRA & O'DEA
1307 ALBANY HWY
CANNINGTON 9461 7133
WA Family Owned
www.bowraodea.com.au

QUADROS:
The Funeral Mass for Mrs Evelyn Quadros, formerly of Morley, will be celebrated at Infant Jesus Catholic Church, corner Wellington Rd and Smith St, Morley commencing at 10:15am on TUESDAY (17.02.2026).
A Private Cremation will take place at a later time.

BOWRA & O'DEA

231 GRAND PROMENADE
DIANELLA 9229 7700
WA Family Owned
www.bowraodea.com.au

RASTON:
The Service to Celebrate the Life of Donald "Don" Raston of Willagee will take place at FREMANTLE Cemetery, Carrington St, Palmyra at 2:30pm on WEDNESDAY (11.02.2026) in the East Chapel.
Please assemble at the Carrington Pavilion prior.

BOWRA & O'DEA

FREMANTLE
312 SOUTH STREET
HILTON 9239 7744
WA Family Owned
www.bowraodea.com.au

ROADS:
The Funeral Service for the late Mr Kenneth Charles Roads of Popanyinning will be celebrated in the Popanyinning Town Hall, Francis St & Howard St, Popanyinning on FRIDAY (13.2.2026) commencing at 12:00pm.
A Private Cremation will take place at a later time.

DAWSONS FUNERAL HOME
NARROGIN & KATANNING
9881 1161
dawsonsfuneral.com.au

SANTOSTEFANO:
The Funeral Service for Ivka Santostefano will be held in the East Chapel of FREMANTLE Cemetery at 2.00pm on FRIDAY (13.2.2026).
MAREENA PURSLOWE FUNERALS
VICTORIA PARK 08 9470 5193

SCAFFIDI-GENNARINO:
06.09.1932 - 17.01.2026
A Funeral Mass for the late Natalino Scaffidi-Gennarino of Dianella will be held on TUESDAY (10.02.2026) at 10:30am at St Kieran's Church Tuat Hill for Rosary then Mass starting at 11:00am followed by Mausoleum at 1:00pm at the KARRAKATTA Cemetery.
Purslowe & Chipper Funerals
SUBIACO 08 9381 5888

SENZIO:
The Funeral Service for Mrs Melania Senzio of Beeliar will be celebrated in St Jerome's Catholic Church, Cnr Rockingham Road and Troode Street, Munster, commencing at 10:15am on WEDNESDAY (11.02.2026).

Following the Service the cortege will meet at FREMANTLE Cemetery, Carrington Street, Palmyra at 11:45am for a Burial Service. Please assemble at the Samson Pavilion at 11:30am.

Vigil Prayers and Rosary will be recited at Bowra Odea's Fremantle Chapel, 312 South Street, Hilton commencing at 7:00pm on TUESDAY (10.02.2026).

BOWRA & O'DEA

FREMANTLE
312 SOUTH STREET
HILTON 9239 7744
WA Family Owned
www.bowraodea.com.au

SHEPHERD:
The Funeral Service to Celebrate the Life of Anna Shepherd will be held at PINNAROO Cemetery, Whitfords Ave on MONDAY (09.02.2026) commencing at 10.00am. A Private Burial will follow the Service.

Simplicity Funerals
Osborne Park 08 9443 1666

SMITH:
The Funeral Service for the late Hazel Elizabeth Smith of Goomalling will be held at the Goomalling Sports Centre at 11.00am on THURSDAY (12.02.2026) followed by a Burial at GOOMALLING Cemetery.



WA Family Owned 9622 1411

STOCKLEY:
The Service to celebrate the life of Mrs Ann "Betty" Stockley of Piara Waters will be held in Bowra & O'Dea's Chapel, 312 South St, Hilton, commencing at 2:15pm on THURSDAY (12.02.2026).
Cremation will take place privately at a later time.

BOWRA & O'DEA

FREMANTLE
312 SOUTH STREET
HILTON 9239 7744
WA Family Owned
www.bowraodea.com.au

VULIN:
The Funeral Service for Mr Slobodan Vulin of Dianella will be celebrated in Serbian Orthodox Church of St Sava, Smith Street, Highgate commencing at 8:45am on MONDAY (09.02.2026).
Following the Service the cortege will meet at main entrance of KARRAKATTA Cemetery, Railway Road, Karakatta at 10:30am for a Burial Service.

BOWRA & O'DEA

231 GRAND PROMENADE
DIANELLA 9229 7700
WA Family Owned
www.bowraodea.com.au

YORK:
The Funeral Service to Celebrate the Life of Lesley Patricia York of Gosnells and formerly of Dwellingup will be held at Gosnells Baptist Church, 2378 Albany Highway, Gosnells on MONDAY (16.2.2026) commencing at 10.00am. Following the Church Service the cortege will arrive at the main entry of KARRAKATTA Cemetery at 12.15pm for a Burial Service. At Lesley's request, please wear bright colours, or blue to honour her favourite colour.

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PUBLIC NOTICES

GENERAL



ROAD TRAFFIC ACT 1974

SECTIONS 80G (3)(E) AND 80G(4) (B)

NOTICE OF INTENTION TO MAKE APPLICATION TO A COURT FOR AN ORDER TO IMPOUND/ CONFISCATE A VEHICLE

Pursuant to the Road Traffic Act 1974, the Western Australia Police hereby advise the below mentioned vehicles are subject to pending applications to have them impounded or confiscated.

W.A. Registration: 1DIK453
Vehicle: Suzuki Swift
Magistrates Court: Fitzroy Crossing

W.A. Registration: 1GSH125
Vehicle: Mazda BT-50
Magistrates Court: Bunbury

Any person with an interest in any of these vehicles who wishes to make a submission to the Court regarding the application to impound or confiscate the vehicles is advised to contact the relevant Magistrates Court Registry.

Col BLANCH
Commissioner of Police



DECEASED ESTATES

TRUSTEES ACT 1962
Deceased Estates
Notice to Creditors and Claimants

Barry Kevin Farrelly, late of 16 Dunlowe Loop, Warnbro, Western Australia, ceiling fixer.

Creditors and other persons having claims (to which Section 63 of the Trustees Act 1962 relates) in respect of the estate of the deceased who died between 20 February 2025 and 26 February 2025 are required by the Executor Kelly Allison Smolka of care of Curae Law, Level 4, 1008 Hay Street, Perth WA 6000 to send particulars of their claims to her by the date being one month from the date of publication of this notice after which date the executor may convey or distribute the assets having regard only to the claims of which she then has notice.

TRUSTEES ACT 1962
Notice to Creditors and Claimants

In the estate of Dorothy Maude Rodoreda, late of 1a North Street, Midland, Western Australia, deceased. Creditors and other persons having claims (to which Section 63 of the Trustees Act 1962 relates) in respect of the estate of the above named deceased who died on the 28th day of October 2025 are required by the Executor, Stephen Shane Rodoreda of 9 Anchorage Avenue, Safety Beach, Victoria, 3936, to send particulars of their claims to him by the 7th day of March 2026 after which date the executor may convey or distribute the assets having regard only to the claims of which he then has notice.

DECEASED ESTATES

THE ESTATE OF SHIRLEY JOAN BAIRD (DECEASED)
DATE OF DEATH: 12 October 2025

TAKE NOTICE that JOSEPHINE SACINO of 144 Railway Parade, Bayswater, in the State of Western Australia, the executor of the will of SHIRLEY JOAN BAIRD late of 3 Allen Court, Bentley, in the State of Western Australia, a retired administration officer (Deceased) intends to distribute the estate of the Deceased one month after the date of this notice.

Creditors and any other person having a claim against the estate of the Deceased should send full details of their claim to HFM Legal, PO Box 1 Maddington, Western Australia, 6889, before the expiration of that period failing which the executors may convey or distribute the assets of the estate, having regard only to the claims of which they then have notice.

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DECEASED ESTATES

ROBERT M GORDON formerly of Como passed away on 19 December 2025 aged 84. Seeking his 3rd future legal representatives. Contact rod.forgus@gmail.com.

TRUSTEES ACT 1962 AS AMENDED, SECTION 63

● **Dee Dorota Lilpop** late of 14 Bradbury Way, Samson, Western Australia, deceased.

● Creditors and other persons having claims (to which Section 63 of the Trustees Act, 1962, relates) in respect of the estate of the deceased who died on or before 22 October 2023 are required by the personal representative, Anna Zofia Lilpop (referred to in the will as Anna Michankow Lilpop) and Adam Marek Michankow, both of care of IRDI Legal, 248 Oxford Street, Leederville, Western Australia, 6007, to send particulars of their claims to them within 31 days from date of publication of this Notice after which date the personal representative may convey or distribute the assets having regard to the claims of which they then have notice.

IRDI Legal as solicitors for the personal representative.

TRUSTEES ACT 1962 DECEASED ESTATES
Notice to Creditors and Claimants

In the estate of **Robert James Davies** who died on 26 July 2025 of 37 Litoria Turn, Baldivis, Western Australia, deceased. Creditors and other persons having claims (to which Section 63 of the Trustees Act 1962 relates) in respect of the estate of the said deceased person are required by the Executor of the deceased's estate being Melissa Anne Davies, 13 Kudoe Circuit, Hartsdale, Western Australia, to send particulars of their claims to her by 6 March 2026, after which date the Executor may convey or distribute the assets having regard only to the claims of which she then has notice.

NOTICE TO CREDITORS

Glynn Stott late of Regis Bunbury, 926 Woodrow Street, Bunbury in the State of Western Australia, previously of Unit 7, 12 Queenslea Drive, Claremont in the State of Western Australia, deceased.

Creditors and other persons having claims (to which section 63 of the *Trustees Act 1962* relates) in respect of the estate of the deceased, who died on 31 July 2025 are required by Executor, Perpetual Trustee Company Limited ACN 000 001 007 of Level 18, 123 Pitt Street, Sydney, New South Wales to send particulars of their claims to them within one (1) month from the date of publication of this Notice, after which date it may convey or distribute the assets, having regard only to the claims of which it then has notice.

Perpetual Trustee Company Limited, Level 18, 123 Pitt Street, Sydney, New South Wales

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Relevant persons for Petrel Geotechnical and Geophysical Surveys Environment Plan



Eni is an international energy company committed to sustainable and responsible energy transition. Eni is the operator of the Petrel Field in the Bonaparte Basin in North Western Australia.

The Petrel permit is approximately 240km WSW of Darwin, and 170km offshore of the WA coast within the Joseph Bonaparte Gulf.

Eni proposes to undertake surveys within the Petrel Field to support future development and exploration activities.

The surveys will acquire geophysical, geotechnical and environmental baseline data to better understand the existing environment and seabed characteristics of the Petrel Development Area.

The initial activities are forecast for the second half of 2026.

Am I a 'relevant person' in relation to this work?

You may be a relevant person if you or your organisation has functions, interests, or activities that may be affected by the offshore petroleum activities proposed under the environment plan being prepared. Interests that may be affected can include things like cultural and spiritual connections to the sea or interests in the protection of specific marine species.

Provide your Feedback

By email on info@petreleni.com.au

By post at PO Box 6862 East Perth WA 6892

By phone on 1300155 616 or access online information at petreleni.com.au



Deadline for your Feedback is 17 March 2026

Local Govt. Notices



SHIRE OF WEST ARTHUR

Form 5 [reg. 75]

Local Government Act 1995
Local Government (Financial Management) Regulations 1996

Notice pursuant to Schedule 6.3 of the Local Government Act 1995 of sale of land for non-payment of outstanding rates or service charges

Notice is hereby given that, under section 6.64 of the Local Government Act 1995, as rates/service charges have been owing for a period of at least 3 years the Shire of WEST ARTHUR is to offer for sale by public auction at Council Chambers, Shire of West Arthur, 31 Burrows Street, Darken on Saturday 18 April 2026 at 11.00am, the land described below.

Description of Land etc.
Description of land and lot or location number: LOT 31 Plan or Diagram Number: DEPOSITED PLAN 141056
Title reference: VOLUME 1107 FOLIO 571
Area: 1012 m2
Street: 14 HORLEY ST, DURANILLIN
Name of Owner: ERIC DOUGLAS COCHRANE OF GORDERING
Rates/service charges outstanding: AMOUNT OF \$45,822.18

COMPRISING OF LOCAL GOVERNMENT RATES, LOCAL GOVERNMENT SERVICE CHARGES, EMERGENCY SERVICES LEVY, RECOVERY COSTS AND INTEREST

VINCENT FORDHAM
LAMONT
CEO



Position vacancies?

PUBLIC NOTICES

DECEASED ESTATES

TRUSTEES ACT 1962
Deceased Estate

Notice to Creditors and Claimants of Kevin George Hogg late of 60/16 Leeuwin Boulevard, West Busselton in the State of Western Australia, Deceased. Creditors and other persons having claims (to which Section 63 of the Trustees Act 1962 relate) in respect of the Estate of the Deceased who died on 6 May 2025 are required by the Executor, Ian Ross Gregory, care of Shaddicks Lawyers, PO Box 515, Busselton Western Australia to send particulars of their claim within one month of the date of publication of this notice after which date the Executor may convey or distribute the assets having regard only to the claims of which they have notice.

GENERAL

Relevant persons for Petrel Geotechnical and Geophysical Surveys Environment Plan



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By post at PO Box 6862 East Perth WA 6892

By phone on 1300155 616
or access online information at petreleni.com.au



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Announcements

Special Occasions

ANNIVERSARIES



100th ANNIVERSARY..
...since our Father and Grandfather, arrived in Australia (on 6th February 1926).

DELLA-SANTINA (Giuseppe Ernesto):
Ernesto was born 2nd June 1910, in the town of Lucca, Tuscany, Italy.

On 6th February 1926, aged 16 years, Ernesto arrived in Australia - Fremantle in fact - accompanied by his Father.

And so the Tale of the Tough Tuscan was born. Ernie (as he came to be known) often said you had to be tough to live in this country. Ernie also said Australia was the best country in the world!

Like many of his countrymen, Ernie worked a wide-range of positions, which included market gardening, below-ground mining in Wiluna, Cue and Big Bell; drycleaner, cafe proprietor, taxi driver, fish and chip shop proprietor, delivering vehicles for Winterbottoms and he also worked for the GPO in Forrest Place, Perth.

Ernie married Dorothy Jane Amelia Pridmore. They had four children, Ernest (Ernie), Albert (Alby), Margarita (Margaret) and Arthur.

After 77 years in Australia, Ernie passed away on 4th September 2003.

One hundred years on from the date of your arrival in Australia, we salute you, Ernie - Dad - Pop!

We love you and respect you, and thank God for a life well-lived.

Lovingly remembered by Margaret, Ray (dec), Cheryl, Robyn and Pete, Patrick, Michelle and David, Ray and Mal, and their respective families.



BURGESS (Lawrence):
Forever loved,
never forgotten.
Jessica and family.



DANIELS (Ivan Wayne):
Three years have passed since you left us but not a day goes by when you are not in our thoughts. Love always, Mum, Beau, Azlyn and Jake.

Remembered Always

DICKERSON (Wayne Barry):
24.09.1968 - 08.02.2002
24 years since the day you said goodbye. Sadly missed and deeply loved. Until we meet again, I will see you at Ascot Races today.
Dad, Angel Mum, Rodney, Allen and Stephen and all your loving family

FOTI Pietro (Peter):
Five sad years have passed and not a day goes by that we don't miss or think of you. Love always, your loving family. RIP.



GUELF (Maria):
14.04.1955 - 07.02.2015
The years may pass but the memories remain with us.
Colin, Leah and Olivia

HARRIS (Toby):
9.8.1976 - 9.2.2015
11 sad years without you Tobes, Dad now with you. Miss you endlessly.
Love for all eternity.
Mum and all your family



McDERMOTT (Jan Lorimer):
Dearly loved Wife of John. Loved Mother of Kym and Steele and Nanny to

Kick start your weekend! Read...
What's On in the West

Friday's
The West Australian

Public Notices

DECEASED ESTATES

DECEASED ESTATE

Any person having a claim upon the estate of the late **Glenda Irene Carboni** of Apartment 26, 17 Segrave Street, GWELUP, who died on 26th April 2025 must send particulars of their claim to the executor, Alison Camel TAYLOR at 83 Campbourne Street, Balcatta, within 30 (thirty) days from the publication of this notice.

TRUSTEES ACT 1962
DECEASED ESTATES

Notice to Creditors and Claimants

Beryl Lynette Fitzgerald, late of 176/41 Portrush Pde, MEADOW SPRINGS, WA, died on 6 November 2025. Creditors and other persons having claims (to which Section 63 of the *Trustees Act 1962 (WA)* relates) are required by the executors, c/- 30 Joslin St HILTON, WA, to send particulars of their claim to them by no later than one (1) month from the date of publication hereof after which date the executors may convey or distribute the assets, having regard only to the claims of which they then have notice.

To advertise in the
West Wheels liftout call
13 22 80.

TRUSTEES ACT 1962

IN THE MATTER of the Estate of **June Lee Boddy**, late of 23 Harvest Road, North Fremantle in the State of Western Australia, deceased.

Creditors and other persons having claims (to which Section 63 of the *Trustees Act 1962* relate in respect of the Estate of the deceased, who died on 9 May 2021, are required by joint Executors **Elizabeth Wiese** and **Ruth Levett**, to send the particulars of their claim to Taylor Smart of Level 2, 100 Railway Road in the State of Western Australia, by 13 March 2026, after which date the said Executor may convey or distribute the assets, having regard only to the claims of which he then has had notice.

DATED the 6th day of February 2026

Peter Nevin
Taylor Smart Lawyers

Personal

GENERAL

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Basketball

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Boating

Cleamont yacht club: Combined Fleet: The Beagle (R. Boykett) First & Fastest; Krista (A. Orford) 2; Beaujolais (A. Poland) Third.
East Fremantle: EFYC, Centreboard Fleets, Saturday, Pelicans: 1. and Fastest Cleopatra (C Rees-L Russo); 125: 1. and Fastest Under Pressure (A Fishwick-D Fishwick); Skates: 1. and Fastest Gosttopper (S Fico-M Minutillio); 2. Megasaurae (P Shiner-R Oliver); Sharpies: 1. Girt (J Heggart-N Heggart/C Renfrey); 2. All Scooped Out (J Preston-A Tidy/M Jenkins); 3. Sideshow Bob (M Nagle-G Tweedie/S Hall); Fastest The Usual Suspects (D Lightfoot-L Cunningham/G Rollerson).

Bowls

Bayswater: Men's Club Championship Triples 1st & 8th February 2026 1st M Acton / A Spooner / P Simonetti 2nd S Hill / A Green / G Chivers
Bunbury: Men's Novice Championship Winner L. McWilliam R/up L. Rolfe Tuesday Drawn Pairs 1. B. Mickle & B. Kinkella & T. Pelusey 3. J. George & N. Scott Thursday Drawn Pairs 1.E. Brandis & P. Bartholomew 2. B. Kinkella & M. Spadaccini 3. B. Cream & G. Mason Friday Railways 1. M. Cross & R. Scanlon 2. W. Smith (v) & G. Coward Saturday Drawn J. George, B. Miller & G. Coward Sunday Scroungers Winner L. Rolfe R/up K. Dent Plate G. Coward Saucer G. Davis
Byford: Men's Novice Singles Championship: 1. J. Todd, 2. S King.
Cambridge: Sat RAC Winning Teams: P. Werrett C. Herring 2. J. Medhat R. Stevenson.
Rockingham: Thursday Bankers: J Oates, B Miller, B Mickle, G Western +23, J Edwards, R Thoron, J Spratt, G Perry +8. Saturday Bankers: J Oates, J Edwards, G Western +17, A Riley, B Bunraksa, J Laukkanen +15, H Young, L Allen, G Perry +8.
Willetton: Championship Men's Pairs: Semifinals: J Wright T Thompson def K Piotrowski N Phillips P Mcsweeney J Porter def G Sheardown S Clayton. Final: J Wright T Thompson def P Mcsweeney J Porter Plate final: G Dodge M Phillips def L Clissa S Tranchita. Ladies Pairs Championship Winners: M Berson, D Bryans, Runners Up: J Fenner, S Bartels. Plate Winners: M Heiner, S Creed, Runners Up: K Collins, T Piotrowski.
Wonthella: PS Chester & Sons Mens Triples Winners: T Main, M Bone, S Bone. 2nd : J Foster, I Parke, D Vandenberg, 3rd: T Greenaway, K Pearce, A Cooper, 4th : S May, N Messina, G Bryant, 5th : R Johnson, Z Slawinski, R Hazelby. Mens Seniors Drawn card rink winners: W Brown, BMW Walton, M McGillvray, R Hill, G O'Meara, D Vandenberg, Tr Greenaway, R Wilson, J Belotti, K Easton, P Dymond, M Kupsch. Mixed Scroungers Rink Winners: K Cross, C Meerman, B Andreassen, R Adamczyk, J Messina, B Alford, M Lalor, P Holland, J Wilson, J Sims. Highest Score: B Alford (51). Sixes: P Holland (2), C Meerman, T Greenaway, J Foster, P Rowell, P Swaan. 3rd: B Andreassen. 2nd: K Cross. Winner : B Alford.

Cricket

Sheffield Shield, WA v Tasmania, WACA Ground
Tasmania 1st innings 239
WA 1st innings 155
Tasmania 2nd innings 260
WA 2nd innings

Sam Whiteam (c)	c †Doran b Webster	R	B
Cameron Bancroft	c †Doran b Bell	57	143
Sam Fanning	c Bird b Stanlake	74	135
Hilton Cartwright	c Bell b MacMillan	13	27
Aaron Hardie	c Ward b Bell	2	27
Teague Wylie	lbw b Bell	56	96
Joel Curtis †	b Bell	21	64
Jhye Richardson	c †Doran b Bell	4	9
Corey Rocchiccioli	run out (Silk)	46	115
Cameron Gannon	c †Doran b Bell	1	7
Brody Couch	not out	23	52
Extras (b6, lb6, nb6, w1)		6	13
Total		19	
		322	

Fall: 1-116 (Cameron Bancroft, 374 ov), 2-134 (Sam Fanning, 44.4 ov), 3-151 (Sam Whiteam, 54.1 ov), 4-155 (Hilton Cartwright, 55.2 ov), 5-211 (Teague Wylie, 75.6 ov), 6-218 (Joel Curtis, 77.6 ov), 7-255 (Aaron Hardie, 89.3 ov), 8-258 (Corey Rocchiccioli, 91.6 ov), 9-313 (Cameron Gannon, 109.5 ov), 10-322 (Jhye Richardson, 113.4 ov)

Bowling

	O	M	R	W
Jackson Bird	22	8	49	0
Gabe Bell	32.4	7	82	6
Billy Stanlake	21	4	56	1
Beau Webster	21	3	59	1
Raf MacMillan	15	0	59	1
Nikhil Chaudhary	2	0	5	0

Overs: 113.4
Tasmania won by 22 runs

Sheffield Shield, Queensland v Victoria, MCG: Queensland 1st innings 149 (H Burdon 43, J Peirson 25, M Sweeney 22no) 5 Elliott 4-43; Victoria 1st innings 144 (P Handscomb 67, S Elliott 37) M Nesar 3-15, T Straker 3-45; Queensland 2nd innings 236 (H Burdon 43, M Labuschagne 41; H Kerr 36, U Khawaja 36) F O'Neill 3-36, S Elliott 3-37) Victoria 2nd innings 205 (D Brasher 72, P Handscomb 34, M Perry 27) T Straker 4-32, M Sweeney 3-55. Queensland won by 36 runs. Player of the match: H Burdon (Qld)

Sheffield Shield, NSW v SA, SCG: NSW 1st innings 202 (S Konstas 44, J Philippe 33, J Davies 32) N McAndrew 4-23, B Doggett 3-70; SA 1st innings 197 (J Sangha 59, J Lehmann 31) L Hatcher 4-41, J Edwards 3-48; NSW 2nd innings 8(dec)-440 (K Patterson 173no, J Edwards 61, T Sangha 53) N McAndrew 3-68, B Doggett 3-79) SA 2nd innings 2-118 (M Harvey 62no, J Sangha 13no) J Davies 1-8. Match drawn. Player of the match: K Patterson (NSW)

Golf

Albany: Mixed Stroke Monthly Mug: G Grey 67, L Knight 69, B Andrews 70, M Auld 70, R Marchesi 70, D Carey 70, P Gill 71, A Clancy 71, M Tindale 71, R Willocks 71, H Ericson 71, D Guthrie 71, C Ridley 71, B Gors 71, R Bowman 72, L Sumich 72, S Paggitt 72, K Lane 72, C Andrich 72, M Flavel 72, R Leonard 72, S Pietropaolo 72, D Ash 72. Gross: L Pearce 76.
Busselton: Tuesday Vets Stableford: L Marsden 40, G Clements 40, J Cook 39, S Richardson 39, P Snook 39, M Motzel 39, D Sukroo 38, M Ryan 38, P Marshall (Westaviat Golf Club) 38, S St Clair 38, F Di Nardo 38, L Delahunty 37, G Wilkinson 37, G White 37, R Tate 37, D Coster (Royal Fremantle GC) 37, D Ames 37, P Brandenburg 37, D Radovan 37, S Wiseman 37, Wednesday Ladies Stableford: D Hardy 38, P Blake 38, R Wallace 37, C Roberts 37, L Parrott 37, J Moyle 34, J Reilly 34, C Fleming 34, J Kay 34 9 Hole F Zuccala 27, J Leach 23, P Baxendale 22, C Lysaght 22, J Charlton 20, B Castlemain 19, J Ayres 18, B Chugg 18 Thursday Mens Stableford: R Larsen 44, A Pettit 41, D McKenzie 41, C Groat 40, M Stewart 40, J Summers 40, G Kaminski 39, C Stewart 38, A Whyte 38, D Smith 38, N Hampson 38, G Cook 37, A Sidebottom 37, E Watts 37, D Usher 37, M Hilsz 37, K Butler 37, Saturday Mens Nett: D Watson 67, L Marsden 68, R Lee 69, J Hanlon 70, D Jones 70, B Clarke 70, D McGinlay 70, P Rose 71, W Dowding 71, P Rickard 72, J Johnson 72, P Van Hees 72, Ladies Nett: S Kopke-Moore 75, J Mountney 75, J Morgan 76, S Sukroo 76, E Franklin 76, K Milligan 77.
Cottesloe: Ladies 18 Stableford: L Trott 36, M Hughes 35, L Ball 33, A Halbert 33, M Fenner 33, J Oldfield 33. Ladies Front 9 Stableford: A Mincherton 22, S Seward 19, H Kidd 18, L Arnold 17, N Iffla 16, L Woodland 16. Ladies Back 9 Stableford : A Tralcos 23, C McCausland 19, A Donovan 18, N Bandfield 18, L McCallum 17, J Rance 17, Mixed18 Stableford : J Warburton 42, M Hanrahan Smith 37, T Pannell 37, C Weyer 36, D Wall 34, J Stanton 34. Mixed 18 Hole Stableford Summer Cup: P Graham 42, K Mahon 41, B Summers 40, L Fariss 40, C Such 40, S Orr 39, S Moyle 39, A Halbert 39, K Rosenthal 39, G Davey 38, R Stonier 38.

Donnybrook:

Scroungers Stableford. M Walker 37, G Hancock D Steicke A Perkins 35, W Rees 34, J Bell B Hearman D Bunter T Van Uden G Giudici 33, S Carnaby L Cooke R Gansberg 32, J Reemeyer J McDonald 31, J Atherton B Power C Chernabaeff G Hunt I Blore 30. NTP 1 N Clifford 6 S Carnaby 10 L Bruyn 13 L Cooke. Long Putt 9 G Hancock 18 L Cooke. Summer Club Trophy Stableford. A Bunter 38, C Chernabaeff DK DuPlessis 36, H Martindale B Power T Rouse 35, P Breman D Saunders 34, B Swarbrick W Rees 33, L Eastman A Perkins 31, B Chernabaeff S Carnaby G Howlett J Atwell 30. NTP 6 G Howlett 10 B Swarbrick 13 H Martindale. Long Putt 3 DK DuPlessis 9 B Swarbrick 17 I Blore 18 S Carnaby. Best front nine A Perkins.

Hartfield Country Club:

Stableford: J Gill 41, J Solomon (Royal Fremantle Golf Club) 40, K Hignett 40, B Hayward 40, S Ferguson 39, H Beus 39, L Ashby 39, T Jones 39, P Street (Melville Glades Golf Club) 39, R Ng 39, K Kikuchi 38, Z McLEAN (Mandurah Country Club) 38, J Hall 38, S McLennan 38, G Hays 38, A Fairchild 38, G Dodd 37, C Obrien (Perth Golf Network) 37, B Livingston 37, J Watt 37, R Forbes 37, J O'Hanlon 37. Gross Stableford : L Ashby 36.0. Eagle: L Ashby. Eagle: B Owens. Nearest Pin: J Chitty (4th). Nearest Pin: J Waru (6th). Nearest Pin: T Veneris (12th). Nearest Pin: N Gillies (15th). Hole Prize: R Frost (18th). PCC: 0.0

Hillview Social:

Stableford: D Goff 39, N Rendall 38, G Ledger 38, R Klingenberg 37, D Stocker 37, M Devery 36, G Murray 35, H Davey 33, M Spencer 32, C Cole 32, J Hansen 31, A Spencer 31, A Gray 31, A Maiolo 31, M Cheski 31, T Clark 31, S Wood 30, K Winter 29, K Rae 29, G Robson 29, G Thompson 29, T Cory 28, M Rolfe 28, R Osment 27, J Puddicombe 26, S Cochrane 25, C Milburn 25, J Smith 23, L Newstead 19, B Lewis 18.

Ledge Point:

Stableford: L Philpott 41, F Condo 36, J Wilson, L Hunter, K Wigg, G Beswick, G Taylor 35, L Ellis, D McDonald, S Forrest 34, T Bryant, S Denniston 33, P Woolstencroft, D Low, P Gee, J Gooch, J Pardo, S Bellotti, M Paterson, M Byrnes 32. Scroungers: L Hunter 23, A Wright 22, K Wigg, G Wesson, L Philpott,

J Gooch 19, R Atyeo 18.

Mandurah: Nett: H Wynne 65, B Gilbert 67, M Harrison 67, E Baker 69, M Manassah 69, A Payrits 69, N Renouf 69, R Constable 69, A Hempstead-Jones 69, R Bruce 70, K Brandis 70, C Mills 70, S Roney 71, K Bobridge 71, P Price 71, D Taylor 71, W Davies 72, P Bruce 72, J Parsons 72, G Hood 73, B Johnson 73, J Coombs 73, C Metcalf 73, S Muir 73, W Dix 73, W Baker 73. Nett: H Wynne 65, B Gilbert 67, M Harrison 67, E Baker 69, M Manassah 69, A Payrits 69, N Renouf 69, R Constable 69, A Hempstead-Jones 69, R Bruce 70, K Brandis 70, C Mills 70, S Roney 71, K Bobridge 71, P Price 71, D Taylor 71, W Davies 72, P Bruce 72, J Parsons 72, G Hood 73, B Johnson 73, J Coombs 73, C Metcalf 73, S Muir 73, W Dix 73, W Baker 73. PCC: 0.0. Stableford: H Wynne 43, M Barber 43, M Devereux 42, H McLeod 41, J Cameron 40, D Brown 39, D Larmour 39, J Dillon 38, J Hodges 38, M Van der Westhuizen 38, D Macdonald 37, D Holland 37, L Montgomerie 37, J Coombs 36, B Copple 36, J Hetharia 36, P Bruce 36, A Williamson 36, B Thomas 36, S Elliot 36, A Ward 36, L Lasek 36, G Matthews 35, J Ennis 35, D Harrop 35, S Russell 35. PCC: 0.0. Stableford: C Parsons 45, S Bloxidge 41, L Donnelly 40, L Cooper 36, H Hatfield 35, C Ryan 35, D Hardie 34, H Robins 34, N Devenish 33, R Marocchi 33, J Walker 33. PCC: 0.0

Marri Park Riverton: Final Round Captains Trophy: G Edwards d M Burnett lup, ROF Stableford, A. D Gallichan 35; S Della-Marta, D Scraigh 34; M Brookes 33; W Carter, N Cook, L Oliver 31. B. R Brookes 36, G Smith, W Van Dalen 35; R Thompson 32; P Moflin 31; M. Caldwell 30. Side Comps. NTP 4. A McKinley, K Bennett. Best 2nd. 13. J Forzatti. 15. P Inkster. Best 3rd. 9. S Gallichan. 18. W Van Dalen. Eagles Nest 8th hole R Brookes.

Meadow Springs: Monthly Medal Stroke Best Gross: I Cahill 73 Best Nett: S Sharrett 69c/b A I Mitchell 72c/b I Cahill 72 M Bunyan 73c/b B D Jones 70 W Hunt 71c/b D Burkett 71 C A Thorn 69 P Harman 74c/b C Lang 74. Ladies: J Nicole 72 Good Scores: D Conlan K Gordon G Hindle 72 B Hughes 73 B Mitchell 74. NTP 4th J Ramshaw 8th A Taylor 11th C Le Roux 16th V Notnagel LP 9th I Cahill 18th S Glover.

Melville Glades: Thurs Womens' Par: C Haines +2 J Lim +1 A Hau O K S Myung O J Dagg O J Davies O, 9 Holes (10-18): R Jones +3 E Oliver +2 N Toh +1 J Collins +1. NTP's: L Wilson (5th) A Searles (14th), Fri Mixed Stableford: R Halden 40 D Herd 39 S Roberts 39 M Boland 37 M Sherwin 37 N Sajatnac 37 K Adey 37 M Downes 37 W Williams 37 B Borgomastro 37 G Dunn 36 P Wong 36 R Malde 36 T Chronican 36 S Bylsma 36 J Gilmour 36 B Moulden 36 J McGlynn 36 K Cooper 36. Gross: A Corbitt 34. Hole in One: T Chronican (5th). Eagles: D Raymond A Corbitt (13th). NTP's: A Daly (9th) V Voykovich (14th) M Boland (17th).

Mosman Park: Stroke: R Campbell 67, P McKenzie 70, M Pearce 70, C Parsons 71, M Howe 71, J Bennett 72, B Green 72, J Palandri Smr 73, T Hagan 74, S Boxshall 74, P Lynch 74.

Needlands: American Foursomes: N Winmar & B Fitzgerald 65.125; D Falconer & B Lawrence 66.125; I Mumford & B Stuart 68.1; Alexander & B Thompson 68.7; T Mangan & G Paddon 69; D Watkins & S Van Heurck 69.125; F Hanks & L Rainsford 69.125; A Henderson & M Matthews 69.25.

Point Walter: Stroke 15t P Ettridge 61 2nd W Jagers 71 3rd D Samson 73

Sanctuary: Stableford: H Wylie 27, D Seaman Jnr 23, C Carmody 21 cb, P Post 21 cb, W Davis 21 cb, J Williams 21 cb, S Evers 20 cb. NTP's: P Hastie and C Cook. Sunday 8th February: Stroke: G Carter 69, A Jovonovic 71, R Smith 72, S Germon 72 c/b, J Monro 72 c/b, B D' Agostino 72 c/b: Stableford: T Honeybone 41, B Pienaar 40, D Simmons 40 c/b, H Sieradzki 40 c/b, C Mallis 38, C Hart 38: NTP: C Salmon, B D'Agostino, K Lavric, C Northey: Best Gross T Smith, Best Lady

The Cut: Saturday Stroke: Overall Winner D Izzard 69 Division 1 1st R Stone 72 C/B 2nd A Oliver 72 C/B 3rd A Baxendale 72 C/B Division 2 1st V Jackson 71 C/B 2nd J Cartewh 71 3rd S Harcus 73 C/B Division 3 1st J Bostock 74 2nd K Burgess 76 3rd S Temple 77. Gross: B McCulloch 77.

Whaleback Seniors: Friday Stableford Winner F Buemi 40; R/U R Buckley 36; T Jennings 35; G Kilburn, M Penhaligon 34; K Felton, J McArdle, M Penfold, T Whitten 33; J Anderson, G Bridle, P Sparks, T Wakamatsu, P Williams 32; C Linder 31; R Pike, P Porter, S Prickett, A Whitehead 30; L Shryock 29; R Gusterson 28; T Banton, V McGrath 26; P Robotham 25; T Moore 24; J Gordon 23; D Hertnott 21; T Riseborough 20.

Wanneroo: AM Nett: M Cooper 65, J Tyson 66, D McCosh 69, J McLaughlin 70, J King 70, G Wood 71, B Kimber 71, J Giles 71, J Porteous 71, F Anderson 72, P Arnold 72, A Rigo 72, J Thomas 72, H Dickson 72, D Bennett 72, F Timmons 72, B Campbell 72, P Mildenhall 73, D Tedesco 70, B Strijk 73, S Ayling 73, Gross J Tyson 69, PM Nett: J Langlands 66, P Dixon 69, A Rowe 69, P Hunt 71, M Patience 71, M Jones 72, G Brockett 72, D Neilson 72, T Villanova 72, J Todd 73, T Sutton 73, G Ash 73, T Fitzgerald 74, D Mullumby 74, J Schmidt 74, A Ludik 74, J Middleton 74, B Menca 74, S Ralph 74, M McQueen 75, W Andrews 75, C Ginbey 75, A Marsh 75, T Coulthard 75, Gross D Neilson 73.

Westaviat: Saturday Stableford - R Simm 42; R Cargeeg 38; S Bradshaw 34; G Fanning 32; G St Jack, R Carnaby C Lewis 31; D Adams 28; P Kilgour 27; M Bronkhorst 25; S Baker 17.

Western Australian Golf Club: Pro-Stroke (Nett): Grade A: S Dowling -4, B M Payne -3, Grade C: G Boots -1, S Dembo -2, G Sandeman -1, D Meates E, D McKenzie +1, W McHardie +1, T Murphy +2, R Gott +3, D D'Adamo +3, A Billington +4, P Rich +4. Grade G Onn -1, C Harper -1, E Edmonds E, I Misich +1, M McLean +1, J Taylor +2, J Steward +2, A Doyle +3, M Parnell +3, C Lancey +3, A Agnello -1, P McGovern E, I Housley +1, M Maisey +1, C Burlinson +3, B Nuttall +3, A Anderson +4, W Jordaan +4, S Cole +4, K Byrne +5. Stableford: A Oliver 43, L Surman 35, D Ireland 34, K Hammer 33, R Riatti 32, N Edmonds 32, L Fairley 32, I Street 32, D Renfrey 31, J Holm 30, M Hurney 29. Pro-Stroke (Nett): Grade A: I Evans +1, B: S Strijdrom -3, C: D Goldsworthy -3, R McKenzie +1, N Newman +1, C Vernon +1, J Walton +2, J Isaia +2, R Giudici +2, C Harbrow +2, P Cura +2, D Rendall +3, S Butler +4. Grade D Davila E, C van der Westhuizen E, G Miller E, G Lantzke E, A Araujo +2, M Higgins +2, J De Pledge +2, T McKenna +2, P Jones -3, P Holt +3. Grade I Platts E, B Freeman +1, R Taylor +2, R Tallon +2, G Lyons +2, P Marinich +2, T Walker +3, J Hunter +4, R Lowther +4, L Collison +5.

School sport

Public Schools Association of WA: Summer Sports Round 8: Basketball
– Aquinas College 80 defeated Christ Church Grammar School 72, Hale School 87 defeated Trinity College 76, Scotch College 83 defeated Wesley College 80.
Cricket - Christ Church Grammar School 209 & 0/0 defeated Aquinas College 203, Hale School 9/390 defeated Trinity College 180, Scotch College 131 & 8/140 defeated Wesley College 106.
Rowing - Trinity Regatta - 1st VIII Results: 1st Aquinas College 6:29.91 2nd Christ Church Grammar School 6:35.05 3rd Trinity College 6:38.62 4th Wesley College 6:41.10 5th Scotch College 6:43.66 6th Guildford Grammar School 6:53.63 7th Hale School 6:53.63.
Tennis - Christ Church Grammar School 20 defeated Aquinas College 4, Hale School 21 defeated Trinity College 3, Wesley College 21 defeated Scotch College 3.
Volleyball - Aquinas College 3 defeated Christ Church Grammar School 0, Hale School 3 defeated Trinity College 0, Scotch College 3 defeated Wesley College 1.
Water Polo - Christ Church Grammar School 21 defeated Aquinas College 9, Hale School 19 defeated Trinity College 14, Wesley College 15 defeated Scotch College 9.

Shooting

Busselton-Bunbury: Coolilup: 08 Feb: 400m (10shot): F/TR: B Blakeway 112.03; **TR:** M Charlton 62.00; **F Standard:** G Oates 117.07; G Wittorff 117.06; D Pink 116.09; N Yates 114.04; J Cutbush 104.00; S Brown 99.02; C Webb 85.03 : **F Open:** M Bradshaw 116.07; B Day 114.00; D Eames 113.03; B Merritt 112.04; J Clark 111.05; C Mitchell 102.05; **Sporter (PC F Class scoring):** J Peat 106.05; I Hume 106.01; N Thuel 105.01; Q Rae 103.02; S Clutterbuck 103.02; T Van Beem 101.0; G Bennett 100.02; T Hindor 100.01; S Wdowinski 99.02; A Keesing 98.01; B May 98.00; N Gangell 95.02; P Vardy 95.00; K Sue 92.01; G Pearce 92.01; C Wolfenden 91.02; C Reading 89.01; D Almen 89.01; S Schmidt 89.00; M House 89.00; N Brown 89.00; C Ward 87.00; K Hogermeier 84.01; S Rogers 75.00; M Lightfoot 74; K Sears 71.01; **Sporter (PCO F Class scoring):** M Day 113.05; J Roche 112.02; G Thuel 111.05; M Fitzpatrick 111.02; J Haugh 111.02; P Flux 109.04; R Turner 109.03; J Gow 109.06; J Van Den Elzen 108.02; J Hohnen 107.04; J M Hohnen 107.02; T Snitch 100.02; M Bell 100.01; P Darlow 94.00; M Gibberd 89.00; P Filipiak 88.01:

Soccer

English Premier League: Leeds 3, Nottingham Forest 1; Man United 2, Tottenham 0; Bournemouth 1, Aston Villa 1; Arsenal 3, Sunderland 0; Burnley 0, West Ham 2; Fulham 1, Everton 2; Wolverhampton 1, Chelsea 3; Newcastle 2, Brentford 3

Arsenal	GP	W	D	L	GF	GA	Pts
Man City	25	17	5	3	49	17	56
Aston Villa	24	14	5	5	49	23	47
Man United	25	14	5	6	36	27	47
Chelsea	25	12	8	5	46	36	44
Liverpool	25	12	7	6	45	28	43
Brentford	24	11	6	7	39	33	39
Everton	25	12	3	10	39	34	39
Sunderland	25	10	7	8	28	28	37
Fulham	25	9	9	7	27	29	36
Bournemouth	25	10	4	11	35	37	34
Newcastle	25	8	10	7	41	44	34
Brighton	25	9	6	10	35	36	33
Tottenham	24	7	10	7	34	32	31
Crystal Palace	25	7	8	10	35	35	29
Leeds	24	7	8	10	25	43	29
Nottingham Forest	25	7	5	13	25	38	26
West Ham	25	6	5	14	31	48	23
Burnley	25	3	6	16	25	49	15
Wolverhampton	25	1	5	19	16	48	8

Surf lifesaving

Cottesloe Surf Veterans: I. B. Clare. 2. B. Simpson. 3. L. Ross. Fastest: P. Gray. Visitors: M. Ivey

Scarboro: Board race: 1. A Trend 2. P Watson, 3. L Turner, Swim: 1. O Firth, 2. W Manning, 3. R Pawlowitsch, Long-run: 1. R Pawlowitsch, 2. D Hall, 3. M Thomas, Sprint 1: 1. A Meleux, 2. E Fonseca, 3. L Hollingsworth, Sprint 2: 1. R Pawlowitsch, 2. N D'Alessandro, 3. M Thomas



Department of Primary Industries and Regional Development

FISH RESOURCES MANAGEMENT ACT 1994

Notice of Decision to Grant, Vary or Transfer Authorisation(s)

Section 148(1)(C) – Notice of Decision to -

- Transfer Aquaculture Licence 1312 from The Estate of the Late Donald Graeme Watts to Wildwater Pty Ltd.

In accordance with the provisions of Section 149 of

PUBLIC NOTICES

Relevant persons for Petrel Geotechnical and Geophysical Surveys Environment Plan



Eni is an international energy company committed to sustainable and responsible energy transition. Eni is the operator of the Petrel Field in the Bonaparte Basin in North Western Australia. The Petrel permit is approximately 240km WSW of Darwin, and 170km offshore of the WA coast within the Joseph Bonaparte Gulf. Eni proposes to undertake surveys within the Petrel Field to support future development and exploration activities. The surveys will acquire geophysical, geotechnical and environmental baseline data to better understand the existing environment and seabed characteristics of the Petrel Development Area. The initial activities are forecast for the second half of 2026.

Am I a 'relevant person' in relation to this work?
You may be a relevant person if you or your organisation has functions, interests, or activities that may be affected by the offshore petroleum activities proposed under the environment plan being prepared. Interests that may be affected can include things like cultural and spiritual connections to the sea or interests in the protection of specific marine species.
Provide your Feedback
By email on info@petreleni.com.au
By post at PO Box 6862 East Perth WA 6892
By phone on 1300155 616 or access online information at petreleni.com.au



Deadline for your Feedback is 17 March 2026

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Local Govt. Tenders



SHIRE OF ASHBURTON REQUEST FOR TENDER

RFT 04.26 No 397 Acalypha Street Refurbishment, Tom Price

The Shire of Ashburton seeks to engage a suitably licensed and experienced contractor to refurbish 397 Acalypha Street in Tom Price.

Tender Close: 2.00pm Western Standard Time (WST) Thursday 5th March 2026

The Tender document can be obtained by registering on VendorPanel. Further information regarding this request can be obtained from Procurement via VendorPanel only.

Tenders may only be lodged electronically VendorPanel, prior to its closing. Hard copy, facsimile or emailed tenders will not be accepted.

<https://www.vendorpanel.com.au/publictenders.aspx>

Canvassing of Council Members or Shire Staff will disqualify Tenderers.

Keith Woodward Chief Executive Officer



REQUEST FOR TENDER

QUANTITY SURVEYING SERVICES RFT0000066

The City is seeking tenders from suitably qualified and competent consultants for the provision of Quantity Surveying Services.

A copy of the tender documents must be obtained by registering your details via the City's Tenderlink website: www.tenderlink.com/karratha. Tenders can only be lodged electronically via the City's Tenderlink website.

The deadline for tenders to be submitted is 2.00pm (AWST) Wednesday, 11 March 2026.

Please direct any enquiries to Zoe Roosendaal via the Tenderlink online forum.

Canvassing of Elected Members may disqualify.

Virginia Miltrup Chief Executive Officer



RFT252629 - Construction of Goolgatup Stage 2 - Welcome Place

Offers are invited from suitably qualified and experienced contractors for the above Request for Tender.

A copy of the Request documentation must be obtained by registering your details via the City of Melville tender portal website: www.tenderlink.com/melville

Offers must be submitted electronically via the City's e-tendering portal no later than 2.00pm (AWST) Thursday, 5 March 2026.

All enquiries should be in the first instance via the Tenderlink Forum otherwise directed to Simon Taroo on 9364 0918.

Offers that are late or submitted by facsimile, email or in hard copy will not be accepted. The City reserves the right to reject any or all Offers and the lowest Offer will not necessarily be accepted. Canvassing of City of Melville Councillors or staff will disqualify Respondents from the evaluation process.

Gail Bowman Chief Executive Officer



Department of Planning, Lands and Heritage



EXTRACTS FROM ORDER(S) FOR TAKING LAND LAND ADMINISTRATION ACT 1997 (Section 177(5)(a))

and HOPE VALLEY-WATTLEUP REDEVELOPMENT ACT 2000 (Section 6)

The land/interests in land in the schedule below has/have been taken by order of the Minister for Lands in accordance with sections 177 and 178 of the Land Administration Act 1997 and section 6 of the Hope Valley-Wattleup Redevelopment Act 2000. The order(s) has/have been registered by the Registrar of Titles, with registration number(s) stated in the schedule. Extract(s) of order(s) follow:

Location of Land	Designation	Description of Land/Interests Taken	Registration Number of Order	Job Number / Reference
The land under the heading 'Description of Land Affected' are located at 205 Abercrombie Road and 233 Hope Valley Road, Hope Valley, WA	Development, redevelopment or use of land as a public work under the Hope Valley-Wattleup Redevelopment Act 2000	That part of Lot 112 on Diagram 88143 as is comprised in Lot 3 on Deposited Plan 430478 being part of the land in Certificate of Title Volume 2215 Folio 263 Lot 241 on Deposited Plan 245456 being the whole of the land in Certificate of Title Volume 1993 Folio 78	Q734165	Case 2500249 File 00231-2009

Copy(s) of the order(s) can be obtained from Landgate, 1 Midland Square, Midland, WA or www.landgate.wa.gov.au.

For other queries, contact Kate Davies, Manager, Land Use Management, Department of Planning, Lands and Heritage, Locked Bag 2506 Perth WA 6001 or Level 2, 140 William Street, Perth. Tel (08) 6552 4431.

Dated this 5th February 2026

DIRECTOR GENERAL DEPARTMENT OF PLANNING, LANDS AND HERITAGE

DOP.LH. 29396



NOTICE TO GRANT AMALGAMATION APPLICATIONS

NATIVE TITLE ACT 1993 (CTH) SECTION 29

The State of Western Australia HEREBY GIVES NOTICE that the Minister for Mines and Petroleum, C/- Department of Mines, Petroleum and Exploration, 100 Plain Street, East Perth WA 6004 may grant the following amalgamation applications under the Mining Act 1978:

Exploration No.	Applicant	Amalg No	Area	Locality	Centroid	Shire
57/793	ESTUARY RESOURCES PTY LTD MONTAGUE GOLD PROJECT PTY LTD	749940	2.02HA	68.2km NE'ly of Sandstone	Lat: 27° 24' S ; Long: 119° 33' E	SANDSTONE SHIRE

Nature of the act : Grant of amalgamation applications which authorises the applicant to explore for minerals.

Notification day: 11 February 2026

Native title parties: Under Section 30 of the Native Title Act 1993 (Cth), persons have until 3 months after the notification day to take certain steps to become native title parties in relation to the applications. The 3 month period closes on 11 May 2026. Any person who is, or becomes a native title party, is entitled to the negotiation and/or procedural rights provided in Part 2 Division 3 Subdivision P of the Native Title Act 1993 (Cth). Enquiries in relation to filing a native title determination application to become a native title party should be directed to the Federal Court of Australia, 1 Victoria Avenue, Perth, WA 6000, telephone (08) 9268 7100.

Expedited procedure: The State of Western Australia considers that these acts are acts attracting the expedited procedure. Each amalgamation application may be granted unless, within the period of 4 months after the notification day (i.e. 11 June 2026), a native title party lodges an objection with the National Native Title Tribunal against the inclusion of the statement that the State considers the grant of the licence is an act attracting the expedited procedure. Enquiries in relation to lodging an objection should be directed to the National Native Title Tribunal, Level 5, 1 Victoria Avenue, Perth, or GPO Box 9973, Perth, WA 6848, telephone (08) 9425 1000.

For further information about the act (including extracts of plans showing the boundaries of the applications), contact the Department of Mines, Petroleum and Exploration, 100 Plain Street, East Perth WA 6004, or telephone (08) 9222 3518.

DMPE_29328



NOTICE OF PROPOSAL TO RENEW MINING LEASE

NATIVE TITLE ACT 1993 (CTH) SECTION 29

The State of Western Australia HEREBY GIVES NOTICE that the Minister for Mines and Petroleum, C/- Department of Mines, Petroleum and Exploration, 100 Plain Street, East Perth WA 6004 may renew the following mining leases under section 78(2) of the Mining Act 1978:

Mining No.	Renewal of Term No.	Applicant	Area	Locality	Centroid	Shire
M 24/29	747838	PADDINGTON GOLD PTY LIMITED	844.81 Ha	1.4km S'ly of Ora Banda	Lat 30° 22' 53" S ; Long 121° 3' 38" E	KALGOORLIE-BOULDER CITY
M 26/27	748346	NORTHERN STAR (SARACEN KALGOORLIE) PTY LTD NORTHERN STAR (KLV) PTY LTD	7.98 Ha	1.9km SE'ly of Kalgoorlie	Lat 30° 45' 30" S ; Long 121° 29' 14" E	KALGOORLIE-BOULDER CITY

Nature of the act: The renewal of mining lease, which authorises the applicant to mine for minerals for a term of 21 years.

Notification day: 11 February 2026

Native title parties: Under section 30 of the Native Title Act 1993 (Cth), persons have until 3 months after the notification day to take certain steps to become native title parties in relation to the notice. The 3 month period closes on 11 May 2026. Any person who is, or becomes a native title party, is entitled to the negotiation and/or procedural rights provided in Part 2 Division 3 Subdivision P of Native Title Act 1993 (Cth). Enquiries in relation to filing a native title determination application to become a native title party should be directed to the Federal Court of Australia, 1 Victoria Avenue, Perth WA 6000, telephone (08) 9268 7100. The mining lease may be renewed if, by the end of the period of 4 months after the notification day (i.e. 11 June 2026), there is no native title party under section 30 of the Native Title Act 1993 (Cth) in relation to the area of the application for renewal.

For further information about the act (including extracts of plans showing the boundaries of the application for renewal), contact the Department of Mines, Petroleum and Exploration, 100 Plain Street, East Perth WA 6004, or telephone (08) 9222 3518.

DMIRS 29329

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Deaths



Funeral Notices

This index is a complimentary service. Care is taken to include all names however, there are circumstances when this is beyond our control. Please browse all insertions if checking for a specific listing.

www.westannouncements.com.au

Peillon, Fiona
Remigio, Rosina

MACRIDES:
The Funeral Service for Dr George Macrides of Subiaco will be celebrated in Greek Orthodox Cathedral St Constantine and Helene Church, Parker Street Northbridge, commencing at 9:30am on THURSDAY (26.02.2026). Following the Service the cortege will meet at main entrance of KARRAKATTA Cemetery, Railway Road, Karrakatta at 11:00am for a Burial Service.

BOWRA & O'DEA

68 STIRLING ST
PERTH 9231 5199

WA Family Owned

www.bowraodea.com.au

PEILLON:
The Funeral Service to Celebrate the Life of Fiona Joy Peillon of Northam will be held in the Brown Chapel, KARRAKATTA Cemetery commencing at 3.15pm on FRIDAY (20.02.2026). Please gather at the Main Entrance.

**PURLOWE
TINETTI
FUNERALS**

WA Family Owned 9622 1411

REMIGIO:
A Funeral Service Mass to Celebrate the Life of Rosina Remigio will be held at St Brigid's Catholic Church, Midland 69B Morrison Road, Midland on WEDNESDAY (18.2.2026) commencing at 10:15am. This will be followed by a Burial at MIDLAND Cemetery, Roman Catholic Section L 0660 at 11:30am.

Purslowe & Chipper
Funerals
MIDLAND 08 9274 3866

HARLEY:
A Private Cremation with Family will be held on THURSDAY (19.02.2026). Relatives and Friends of the Late John Patrick Harley are invited to attend a Memorial Service at Rockingham SDA Church, 21 Wanliiss Street on WEDNESDAY afternoon (25.02.2026) commencing at 5.00pm.

Purslowe & Chipper
Funerals
ROCKINGHAM 08 9528 1244

INNES:
Family and Friends are warmly invited to attend a Farewell Service for the late George Bruce Innes of Doubleview. The Service will be held on WEDNESDAY (25.2.2026) at 11:15am at the PINNAROO Cemetery West Chapel.

**HETHERINGTON
FUNERALS**

hetheringtonfunerals.com.au
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EMPLOYMENT

Local Govt. Tenders

CITY OF GOSNELLS

Panel 01/2026 - Tree Planting Services

Description: The City is seeking to engage a panel of pre-qualified suppliers to provide street tree planting services in road reserves, landscapes and parks.

Deadline is Thursday 05 March 2026 at 2:00pm (AWST).

Documentation can be obtained from <https://360providers.apetsoftware.com.au>.

Enquiries can be made to Nikki Ham, via the City's eProcurement portal.

Lodgement must be made via the City's eProcurement Portal. No late, telephoned, faxed, mailed, emailed or hand delivered tenders will be accepted.

Local Govt. Notices

CATALINA REGIONAL COUNCIL

Unit 2/369 Scarborough Beach Road, Innaloo WA 6015

www.catalina.wa.gov.au

DISPOSITION OF PROPERTY Section 3.58 (2) & (3) of the Local Government Act 1995

The Catalina Regional Council on behalf of the Cities of Joondalup, Perth, Stirling, Vincent and Wanneroo and the Towns of Cambridge and Victoria Park, is considering offers to dispose of the following lots at the Catalina Estate:

Lot: 3483
Purchaser: MA & RT Bovell
Valuation: \$530,000
Price: \$580,000

Lot: 3488
Purchaser: KL Guest & KJ Kendrick
Valuation: \$525,000
Price: \$570,000

Anyone wishing to make a submission on the proposal should do so before 3 March 2026.

Chris Adams
Chief Executive Officer

Local Govt. Notices

CITY OF SWAN

Public Notice

Notice of proposed sale of land

Notice of proposed lease of land section 3.58 of the Local Government Act 1995

Property: Lot 9509 Junction Parade, Midland WA 6056

Purchaser: MPG Corporation Pty Ltd as Trustee for the MPG Trust

Purchase amount: \$1,150,000 plus GST as per Margin Scheme

Valuation: \$1,150,000 plus GST

Submissions in writing and addressed to the undersigned may be lodged on or before, Wednesday March 4, 2026.

Stephen Cain
Chief Executive Officer
City of Swan
PO Box 196, Midland, 6936

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Employment

The West Australian

PUBLIC NOTICES

DECEASED ESTATES

DENIS LINCOLN CAVEY
LATE OF 26/2 PLANTATION STREET, MENORA, WESTERN AUSTRALIA.
Creditors and other persons having claims (to which section 63 of the Trustees Act 1962 relates) in respect of the estate of the deceased, who died on 27/09/2025, are required by the personal representative KATHRYN LOUISE MILLS, C/- Lynn & Brown Lawyers, PO Box 1114, Morley, WA 6943 to send particulars of their claims to her by the 18/03/2026, after which date the personal representative may convey or distribute the assets of the estate, having regard only to the claims of which she then has notice.

TRUSTEES ACT 1962
of PETA BARBARA DULLARD who died on 23 December 2022, of 4 - 10 Hayman Road, Bentley, Western Australia. CREDITORS and other persons having claims (to which Section 63 of the Trustees Act 1962 relates) in respect of the estate of the said deceased person are required by the Executor of the deceased's estate being Iain Robert Watson care of Angus Tibbits Solicitors, Suite 9, 73 Calley Drive, Leeming Western Australia, to send particulars of their claims to him by 31 MARCH 2026, after which date the Executor may convey or distribute the assets having regard only to the claims of which he then has notice.

NOTICE TO CREDITORS AND CLAIMANTS

SIMON ANDREW JAMES WILLIAMS late of 51 Ailsacraig Rumble, Kinross, the State of Western Australia.

Creditors and other persons having claims (to which section 63 of the Trustees Act 1962 (WA) relates) in respect of the Estate of the deceased, who was found on 11 June 2025 are required by the Executor of the Estate, JOHN WILLIAMS, to send the particulars of their claims care of Gregson & Associates PO Box 25017 St Georges Terrace, Perth WA 6831 on or before 30 days from the date of publication of this notice after which date the trustee may convey or distribute the assets, having regard only to the claims of which he then have notice.

DECEASED ESTATES

TRUSTEES ACT 1962 AS AMENDED, SECTION 63

GRIZELDA HITCHCOCK (also known as Griselda Hitchcock) late of 74 Baronia Loop, Greenfields, retired microbiologist, deceased.

Creditors and other persons having claims (to which Section 63 of the Trustees Act 1962 relates) in respect of the estate of the deceased who died on 10 July 2025 are required by the personal representative to send particulars of their claims to the care of Amanda Liston Legal, PO Box 4234, North Mandurah WA 6210 within 4 weeks from the date of this advertisement after which date the personal representative may convey or distribute the assets having regard to the claims of which he/she then has notice.

Amanda Liston Legal as solicitors for the personal representative.

NOTICE CREDITORS & CLAIMANTS OF DECEASED ESTATE

Alice Isabel Dudgeon Johnson of 21a Grimsay Rd, Ardross WA 6154 (Deceased 16.11.25). Creditors & Persons with claims pursuant to S63 of Trustees Act 1962 are required by the Executor, Fiona Margaret Reed of 2b Jackman St, Willagee WA 6156, to send particulars of claim to the said address within ONE month of this date, after which time they may distribute assets based on claims for which notice has been received.

TRUSTEES ACT 1962 Notice to Creditors or Claimants

RICHARD CHARLES DE GRYS late of 11 Quin Street, Swan View, Western Australia, Boilermaker, deceased.

Creditors and other persons having claims (to which section 63 of the Trustees Act 1962 relates) in respect of the Estate of the deceased, who died on 20/04/2021, are required by the Executor, being David Alan Earnshaw, to send particulars of their claims to David Alan Earnshaw at PO Box 71 Albany DC 6331 WA within 1 month of publication of this notice after which date the Executor may convey or distribute the assets, having regard only to the claims of which he then has notice.

David Alan Earnshaw

DECEASED ESTATES

TRUSTEES ACT 1962 (WA) DECEASED ESTATE Notice to Creditors and Claimants.

Norma Ann Murphy of late of 21 Spencer Road, Kelmscott in the State of Western Australia, deceased.

Creditors and other persons having claims (to which section 63 of the Trustees Act 1962 (WA) relates) in respect of the estate of the deceased who died on 7 November 2025 are required by the administrator John Leslie Wills to send particulars of their claim to MGD Law of care of PO Box 274 Mount Hawthorn WA 6915 by the date that is one (1) month from the date of publication of this notice, after which date the executor may convey or distribute the assets having regard only to the claims of which he then has notice.

GENERAL

RIGHTS IN WATER AND IRRIGATION ACT 1914

Magnetic Resources NL has made application for a licence under s6C to take 450,000 kL/a from the Goldfields, Lake Carey, Combined Fractured Rock West - Fractured Rock groundwater resource for dust suppression and construction purposes at tenements L38/395, M38/1315, M38/1317 & M38/1318. People who are interested in the application, may make a written submission within 15 days of this publication to the Department of Water and Environmental Regulation, Ellam St Victoria Park WA 6100, quoting DWERTV12776-3. If you object to the proposal, you must in your submission specify what actions, if any, would overcome your objections. General enquiries to Andrew Naskos on 6250 8004.

GENERAL

ROAD TRAFFIC ACT 1974 SECTIONS 80G (3)(E) AND 80G(4) (B)

NOTICE OF INTENTION TO MAKE APPLICATION TO A COURT FOR AN ORDER TO IMPOUND/CONFISCATE A VEHICLE

Pursuant to the Road Traffic Act 1974, the Western Australia Police hereby advise the below mentioned vehicles are subject to pending applications to have them impounded or confiscated.

W.A. Registration: 1BXR645
Vehicle: Hyundai Elantra
Magistrates Court: Perth

W.A. Registration: 1DAF734
Vehicle: Holden Commodore
Magistrates Court: Midland

Any person with an interest in any of these vehicles who wishes to make a submission to the Court regarding the application to impound or confiscate the vehicle is advised to contact the relevant Magistrates Court Registry.

Col BLANCH
Commissioner of Police

Relevant persons for Petrel Geotechnical and Geophysical Surveys Environment Plan

Eni is an international energy company committed to sustainable and responsible energy transition. Eni is the operator of the Petrel Field in the Bonaparte Basin in North Western Australia.

The Petrel permit is approximately 240km WSW of Darwin, and 170km offshore of the WA coast within the Joseph Bonaparte Gulf.

Eni proposes to undertake surveys within the Petrel Field to support future development and exploration activities.

The surveys will acquire geophysical, geotechnical and environmental baseline data to better understand the existing environment and seabed characteristics of the Petrel Development Area.

The initial activities are forecast for the second half of 2026.

Am I a 'relevant person' in relation to this work?

You may be a relevant person if you or your organisation has functions, interests, or activities that may be affected by the offshore petroleum activities proposed under the environment plan being prepared. Interests that may be affected can include things like cultural and spiritual connections to the sea or interests in the protection of specific marine species.

Provide your Feedback

By email on info@petreleni.com.au
By post at PO Box 6862 East Perth WA 6892
By phone on 1300155 616
or access online information at petreleni.com.au

Deadline for your Feedback is 17 March 2026

Personal

GENERAL

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Good Full Serv 0432 585 328

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erlands, and Constantin Frantzen, Germany, 4-6, 63, 10, 8

PUBLIC NOTICES

DECEASED ESTATES

DECEASED ESTATE
DAVID ROBERT BUTLER
DAVID ROBERT BUTLER late of Pen 106, 43 Mews Road, Fremantle, Western Australia. Creditors and other persons having claims (to which section 63 of the Trustees Act 1962 relates) in respect of the estate of the deceased, who died was found deceased on 24 September 2025, are required by the personal representative Kent Steven Mills of C/- Luna Legal Group of 106 Burswood Road, Burswood, Western Australia 6100 to send particulars of their claims to him by 30 March 2026, after which date the personal representative may convey or distribute the assets of the estate, having regard only to the claims of which he has then been given notice.

THE ESTATE OF
BRONWYN ANNE CROGHAN
(DECEASED)
DATE OF DEATH:
13 March 2025

TAKE NOTICE that SUSANNE GRAY of Unit 5, 68 Ivanhoe Street, Bassendean, in the State of Western Australia the executor of the will of BRONWYN ANNE CROGHAN late of Unit 3, 34 Eighth Avenue, Maylands, in the State of Western Australia, a retired teacher (Deceased) intends to distribute the estate of the Deceased one month after the date of this notice.

Creditors and any other person having a claim against the estate of the Deceased should send full details of their claim to HFM Legal, PO Box 1, Maddington, Western Australia, 6989, before the expiration of that period failing which the executors may convey or distribute the assets of the estate, having regard only to the claims of which they then have notice.

DECEASED ESTATES

TRUSTEES ACT 1962 Deceased Estates Notice to Creditors and Claimants

Trudy Althea Ann Berghuber, late of 9 Argyle Court, Thornlie in Western Australia.

Creditors and other persons having claims (to which section 63 of the Trustees Act 1962 (WA) relates) in respect of the estate of the deceased, who died on 28 July 2025, are required by the personal representative, Aaron Gustav Berghuber of care of liberys Lawyers, GPO Box B51, Perth WA 6938 to send particulars of their claims to him by no later than 30 March 2026, after which date the personal representative may convey or distribute the assets, having regard only to the claims of which he then has notice.

TRUSTEES ACT 1962 Notice to Creditors and Claimants

Anita Gross, formerly of 17 Gloucester Street, Victoria Park, late of 63 Hawkevale Road, High Wycombe, Western Australia. Creditors and other persons having claims (to which Section 63 of the Trustees Act 1962 relates) in respect of the estate of the deceased, who died on 29 November 2025, are required by the Executor Michael Gross of 13 Wanbrow Way, Duncraig WA 6023, to send particulars of their claims to him within one month of the date of publication of this notice after which date the Executor may convey or distribute the assets, having regard only to the claims of which he then has notice.

DECEASED ESTATES

TRUSTEES ACT 1962 DECEASED ESTATES

Notice to Creditors and Claimants

CREDITORS and other persons having claims (to which Section 63 of the Trustees Act 1962 relates) in respect of the Estates of the undermentioned deceased persons are required to send particulars of their claims to me on or before **27 March 2026**, after which date I may convey or distribute the assets, having regard only to the claims of which I then have notice.

CHRISTIE, James Norman, late of Juniper Chrystal Halliday Residential Aged Care Home, 27 Prisk Street, Karrinyup, who died on 30 November 2025 (PM33179326 EM27).

DJ BOULAY, Margot Jon, late of 1 Eyre Court, Two Rocks, who died on 29 December 2025 (DE33167194 EM110).

GERWEIN, Samuel Klaus, late of Brightwater Warnbro, 2 Minilya Loop, Warnbro, who died on 3 September 2025 (DE19863267 EM57).

GILLSON, Barry Rolfe, late of Unit 15, 28 Marangaroo Drive, Marangaroo, who died on 4 February 2026 (DE33118357 EM53).

HETHERINGTON, Geoffrey Albert, late of 77 Tuart Road, Greenwood, who died on 9 December 2025 (DE33043002 EM52).

LEFMANN, Stephen Eliazar, late of 4B Alba Street, Kununurra, who died on 4 November 2025 (DE19990817 EM26).

LOVEDAY, Leah Maria (also known as Leah Mari LOVEDAY), formerly of Unit 1, 41 George Street, Midland, late of 118 Railway Parade, Queens Park, who died on 3 September 2025 (DE33206107 EM32).

O'BOYLE, Martin Shane, late of 9 Garden Street, Cannington, who died on 8 January 2026 (DE19863793 EM32).

RADFORD, John Brian, late of Bethanie Waters, 18 Olivenza Crescent, Port Kennedy, who died on 26 July 2025 (DE33065915 EM56).

SEXTON, Ronald James, late of Belmont Aged Care Home by Hall and Prior, 14 Cleaver Terrace, Rivervale, who died on 26 July 2025 (DE20012238 EM15).

STEVENS, Frederick Thomas, late of Unit 8, 18 Knutsford Street, Fremantle, who died on 30 September 2025 (DE19962278 EM55).

TORNEY, Maureen Joy, late of Unit 4, 12 Hobart Place, Willeton, who died on 30 October 2025 (DE33158101 EM213).

Brian Roche
Public Trustee
563 Hay Street
PERTH WA 6000
TELEPHONE: 1300 746 212

DECEASED ESTATES

TRUSTEES ACT 1962 (WA) DECEASED ESTATES NOTICE TO CREDITORS AND CLAIMANTS

In the estate of Susan Claire Norris, late of Unit 8/31 Leonard Street, Victoria Park, Western Australia 6100, deceased.

Creditors and other persons having claims (to which section 63 of the Trustees Act 1962 relates) in respect of the estate of the deceased, who died on 02.03.2023, are required by the Executor, Kelly Norris, of Unit 1502/3 Kintail Road, Applecross, WA 6153 to send particulars of their claims to the Executor within one month of the date of publication of this notice, after which date the Executor may convey or distribute the assets, having regard only to the claims of which notice has then been given.

ESTATE OF VINAY NEELAKANTAM

VINAY NEELAKANTAM late of Unit 705, 2 Oldfield Street, Burswood, Western Australia. Creditors and other persons having claims (to which section 63 of the Trustees Act 1962 relates) in respect of the estate of the deceased, who died on 24 January 2025, are required by the personal representative Deepa Neelakantam of C/- Luna Legal Group of 106 Burswood Road, Burswood, Western Australia 6100 to send particulars of their claims to her by 30 March 2026, after which date the personal representative may convey or distribute the assets of the estate, having regard only to the claims of which she has then been given notice.

RUBY MELVA COOK LATE OF SEAFORTH GARDENS, 2542 ALBANY HIGHWAY, GOSNELLS, WESTERN AUSTRALIA, DECEASED.

Creditors and other persons having claims (to which Section 63 of the Trustees Act 1962 relates) in respect of the estate of the deceased, who died on 15 October 2025, are required by the Executor, Michelle Hawksley c/- Solomon Brothers, Level 15, 197 St Georges Tce, Perth, WA 6000, to send particulars of their claims to the Executor by 27 March 2026, after which date the Executor may convey or distribute the assets, having regard only to the claims of which she then has notice.

GENERAL

UNITED Rentals hereby gives notice to the following that goods held in storage will be disposed of unless payment is received in full by 13.03.26
● Tracey Derschow

The West Australian
Friday, February 27, 2026

LANCASTER FIT TO FLY

BEN SMITH

Western Force coach Simon Cron cannot wait to see debutant winger Darby Lancaster in action after an injury-disrupted start to the season and tipped the new recruit to challenge for international honours.

But Cron said another international outside back, Dylan Pietsch, will have a longer wait until he can get his season off the ground after he suffered a setback with his foot injury.

One-cap Wallaby and former Australian sevens representative Lancaster will start for the Force against Moana Pasifika in Auckland on Friday as the visitors look to avoid a third winless game on the trot to start the season.

A quad injury forced Lancaster, right, to miss the first two games of the Super Rugby Pacific season and Cron said there was no reason the speed demon could not add to his lone Wallabies cap, which came in 2024 against



Georgia. "From the moment he came over to us and started training and working with the team, he's been so excited and I am ecstatic to get him back," Cron said.

"He's got X-factor, he's got speed, he's a student of the game.

"We've really enjoyed him in our team, and you'll notice on our edges that it'd be great to get somebody who has the experience he has, so it's awesome.

"You haven't seen the best of him yet. We're hoping we can be part of his pathway back into the Wallabies, and he has all the talent and skill and drive to go a very long way."

On paper, the Force's back three depth looked to be a strength ahead of the season with Lancaster on Pietsch on either wing — but the latter's foot injury has bled into the start of the campaign.

Now, it appears Pietsch, who sported crutches as he watched the Force's round two defeat to the Blues in the crowd, could miss the next two weeks before their bye, leading into a home match against the Chiefs.

Summary

Basketball

NBA: Philadelphia 135, Indiana 114; Atlanta 119, Washington 98; Dallas 123, Brooklyn 114; Oklahoma City 116, Toronto 107; Cleveland 109, New York 94; Charlotte 131, Chicago 99; Milwaukee 128, Miami 117; New Orleans 113, Golden State 109; Boston 97, Phoenix 81; Minnesota 24, Portland 121; Orlando 110, L.A. Lakers 109; Golden State 133, Memphis 112; Detroit 124, Oklahoma City 116; San Antonio 110, Toronto 107; Houston 128, Sacramento 97; Milwaukee 118, Cleveland 116; Denver 103, Boston 84.

Boating

South of Perth: Midweek Series 2025-2026, Keelboats, Wednesday. Division 1: 1. Sky Walker (I Stewart & Cliff Lawrence); 2. Wicked (R Evans); 3. Tora Tobu (P Batt); Fastest Helios II (C Higham). Division 2: 1. Fair Game (S Game); 2. and Fastest Magic Moment (H Heimans); 3. Shadowfax (J & Mark Gooding). H28: 1. and Fastest Alma (R Newton & Christina Heydon); 2. Wynella (G Stanley); 3. Mariner (B Cross). Division 3: 1. Lady Claire (B Easterbrook); 2. and Fastest Abeelas (B Saleeba); 3. Wildfire (B Uren). Division 1-ORC: 1. Wicked (R Evans); 2. and Fastest Helios II (C Higham); 3. K Factor (D Thomis). Division 1-ORC (PHS): 1. Wicked (R Evans); 2. and Fastest Helios II (C Higham); 3. Slippery When Wet (P Harry & Martin Softly & Tom Tieman).

Bowls

Albany: Wednesday Social Mixed Triples. 1st, PTomlinson. W. Tidy. S Body. 2nd, D. Stephens. W. Jury. J. Tonkin. 3rd. J. Vandervien, G. McAlley, C. Haddland.

East Fremantle: Wednesday Bankers. Winners. K. Rennie R. Monger, R/up. M. Thompson R. Buratto. W/los. D. Kitson P. Schmidt.

Kardinia: Wednesday Scroungers 1 Alan McCullagh 2 Daryl Radford 3 Neil Carter 4 David McGinnis

Manning: Jack Attack Week 4 1st: Unbelievable 2nd: Buffed Helmets 3rd: Manning Up 4th: Rock N Bowl

Mosman Park: Wednesday. Scroungers: Winner - Paul Hall Runner Up. - J. Pinker

Golf

Albany: Men's Modified Stableford: A Dewar 51, B Lowrie 49, P Wettin 46, G Bassen 44, R Barnes 42, C Haven 41, T Crowe 41, S Johnson 41, K Brown 40, G Cook 40, T Jolly 40, G Griskonis 39, B Gors 39, A Clancy 39, D Dobber 39. Gross: S Griskonis 31. Women American Foursomes Stableford: B Blayney & J Moyle 38, M Vanderbyl & A George 37, A Pinchen & J Munday 36, S Carey & K Steicke 36, N Caddy & V Webster 35, M Nelson & I Moran 35, J Wright & J Scott 34. 9 hole stableford P Joyce 23, V Floyd 21, C Offer 20, J Smith.

Armadae Seniors: 9-hole Stableford competition : D McEwan (winner) 21pts, K Forbes (runner-up) 20, F Holroyd, C Bradley & R Jarvis 19, D Garland 18; L/D (No.8) "A" J King, "B" D Garland; NTP (No.7) D McEwan; L/P (No.6) B Hawker; Birdies D McEwan (No.7). 15 players in attendance.

Busselton: Monday Ladies Stableford: L Parrott 37, K Lloyd 32, S Hull 23 9 Hole K Slattery 22, P Tearle 21, D Cumbers 20, R Davies 20, S Wendelin 20, M Blythe 19, T Hyder 18, S O'Connor 18, V Johnston 17, M Moore 17, C Lawson 17, D Godson 17, C Roberts 17, E Minarik 17, Tuesday Vets Stableford: E Watts 41, J House 40, B Brown 40, J Mackie 39, I Walter 39, C West 39, A Ridgwell 39, T Sewell 38, J Morgan 38, C Stewart 38, R Hoskins 38, P Thompson 38, J Robinson 38, G Barkla 37, G Carr 37, R Johnston 37, D Barendrecht 37, E Bunbury 37, D Pinnock 37, P Izzard 37, Wednesday Ladies Stableford: K Denney 40, C Ryan 38, P Glossop 36, L Thompson 34, J Espinos 33, J Hansen 33, E Franklin 33, C Roberts 33, C Mole 32, D Sanderson 32, J Kay 32 9 Hole L Bird 20, E Minarik 20, C Ayres 18, M Beacham 18, M Blythe 18, E Malone 17, J Oldfield 17, B Adams 16, D Godson 16, S Watts 16.

Carramar Seniors: 1. J Nash 33. 2nd: S Reed 34. 3rd: J Evans 36. A - C Onhermus 37 B - D Fogarty 38. C - A K Leach 37. NTP: Ith H Shah, 13th C Onhermus, 15th R Frost, 16th C Onhermus. Long putt: S Hill, least points: B. Bennett

Chequers: Scroungers: Medley Stableford TEAH JOVIC Trophy: Winner: B Brody 38, H Brennan 37, T Jovic 37, C Parker 36, Y Hooper 35, M Tranter 35, S Rakela 34, D Wyper 34, J McCormick 34, R Woods 34, G McClurkin 34. Best Front Nine: F Schmidt 20 NTPs: 3rd H Brennan - 8th D Brown - 11th G Baldock - 15th G McClurkin.

Collie: M Crowther 38, K Metcalfe 37, L Giblett 36, J Mead 36, N Motion 36, D Raikich 36, B Edwards 35.

Cottesloe: Women - Stableford: R Cull 39. Good Scores: S Seward 39, G Ryan 38, R Davies, E Reeves, B Wilmot, J Owens 37, K Halligan, A Morrison 36; SE McKay, L Penberthy, T Cawthorne(WAGC), N Netherway, M Dobson 35. Near-est Pins: A Dennis 2nd, A Morrison 5th. L Penberthy 11th. S Galvin 13th. Front 9: K Mahon, S Storm 14. Seniors: A Campbell 16; R Rear 15.

Dongara: Wednesday R Patten 34pts, L McNavboe 34pts, S McTaggart 32pts, NTP #3 & #11 C Mitchell. Thursday Scroungers J Schagen 40pts, A Moreschi 36pts, P Blair 35pts, G Day 35pts. NTP #5 E Campbell, #14 A Moreschi.

Harvey: Mixed Stableford: T Vidovich 38, G Hancock (Donnybrook CC) 38, R Vidovich 38, V. Rake 38, R. Upton 37, P. Davey 37, M. Dellit 36, K. Abbott 36, L.

Relevant persons for Petrel Geotechnical and Geophysical Surveys Environment Plan



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Provide your Feedback

By email on info@petreleni.com.au

By post at PO Box 6862 East Perth WA 6892

By phone on 1300155 616
or access online information at petreleni.com.au



Deadline for your Feedback is 17 March 2026

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Funeral Notices

FRAGOMENI:
A Funeral Mass to celebrate the life of Mr Carlo Fragomeni will be held at St Gerard Majella Catholic Church, Ravenswood Drive and Majella Road, Westminster on FRIDAY (13.3.2026) at 10:00am.
At the conclusion of Mass, the Cortege will proceed to the main entrance of KARRAKATTA Cemetery, Railway Road, Karrakatta, at 12:15pm for a Burial Service.

Vigil Prayers and Rosary will be recited in our Seasons Chapel, 401 Wanneroo Road, Balcatta on THURSDAY (12.3.2026) at 6:30pm.


1800 732 766
BALCATTA - STIRLING

GIBSON:
His Family respectfully advise Relatives and Friends, that the Funeral Service lovingly celebrating the life of Mr Collin Anthony Gibson Late of Geraldton, will be held at the GERALDTON Crematorium on FRIDAY (13.03.2026) beginning at 10.00a.m.


GERALDTON 9964 3767
NFDA

GROVER:
The Service to Celebrate the Life of the late Mrs Minakshi Grover formerly of Floreat, will be held in the KARRAKATTA Norfolk Chapel on THURSDAY (5.3.2026) commencing at 3:30pm.
Refreshments will be held after the service in the Condolence Lounge.

Simplicity Funerals
Osborne Park 08 9443 1666

LEONG:
The Funeral Service for the late Mr. Alan Khoon Lum Leong will be held in our Chapel at 1 Tulloch Way, Canning Vale on THURSDAY (12.03.2026) commencing at 10:00am.


1800 732 766
CANNING VALE

MACKIEWICZ:
The Funeral Service for Steven Mackiewicz of Dunsborough will be held in the Bantley Chapel, Busselton Funeral Centre, 105 Bussell Highway, Busselton commencing at 2:30pm next TUESDAY (10.03.2026).

WILLIAM BARRETT & SONS
9752 1484

BUSSELTON
Place a Tribute at barrettfunerals.com.au
South West Family-Owned

MARTIN:
The Funeral Service to celebrate the life of the late Warren Martin of Applecross, will be held at 3.00pm WEDNESDAY (11.3.2026) in the Norfolk Chapel at KARRAKATTA Cemetery, Railway Road, Karrakatta.


MYAREE 08 9330 6344

McGINN:
The Funeral Service for Mrs Catherine McGinn of Bull Creek will be held in Bowra & O'Dea's Chapel, 1307 Albany Highway, Cannington, commencing at 10:00am, WEDNESDAY (11.03.2026).

Cremation will take place privately at a later time.

BOWRA & O'DEA
1307 ALBANY HWY
CANNINGTON 9461 7133
WA Family Owned
www.bowraodea.com.au

MORAN:
The Funeral Cortege for Robert Moran of Cloverdale will arrive at the main entrance of KARRAKATTA Cemetery, Railway Road, Karrakatta at 9.45am on THURSDAY (12.03.2026) for a service in the Cemetery Chapel followed by a Burial Service.

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NAZZARI:
Family and Friends are invited to Celebrate the Life of Isabell Anne Nazzari, in our Seasons Canning Vale Chapel, 1 Tulloch Way, on TUESDAY (10.03.2026) commencing at 10.00am.


1800 732 766
CANNING VALE

POPE:
Family and Friends are warmly invited to attend the Funeral Service to celebrate the life of the late Mr Ian Pope, to be held in our Seasons Lake Joondalup Chapel, 607 Wanneroo Road, (entry via Mangano Place) on MONDAY (09.03.2026) commencing at 10.30am.


1800 732 766
LAKE JOONDALUP

QUILTY:
The Funeral Mass for John Quilty of Port Kennedy and formerly of Warnbro will be celebrated in St Bernadette's Catholic Church, cnr Grand Ocean Boulevard and Strasbourg Ramble, Port Kennedy on THURSDAY (12.03.2026) at 10:00am.

No flowers please. Instead make a donation to the Cambodian organisation with whom we volunteered for many years, Chumkriel Language School (CLS). Donations can be made via Chumkriel Supporters, <https://www.chumkrielsupporters.com/donate-now/>


460 PINJARRA RD
GREENFIELDS
MANDURAH 9535 4261
WA Family Owned
www.leanneodea.com.au

RATE:
Family and Friends are warmly invited to the Funeral Service for Ronald Eric Rate of Huntingdale in our Chapel, 1 Tulloch Way, Canning Vale at 2:00pm on FRIDAY (06.03.2026).


1800 732 766
CANNING VALE

SHORT:
The Funeral Service for Mr Gordon Short of Rivervale will be held in Bowra & O'Dea's Chapel, 1307 Albany Hwy, Cannington, commencing at 2:30pm on WEDNESDAY (11.3.2026).

Cremation will take place privately at a later time.

The family respectfully ask that no children attend this Service.

The family ask that you wear something bright to reflect Gordon's bright personality.

No flowers by request, donations in lieu to the Cancer Foundation would be appreciated.

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SJOLAND:
The Funeral Mass for Mrs Marie Francoise Niza (Lisa) Sjoland (nee Ravat) will be celebrated in St Andrew's Church, corner Victorsen Pde and Belleville Gdns, Clarkson, commencing at 2:15pm on THURSDAY (05.03.2026).

Following the Mass the Cortege will meet at PINNAROO Valley Memorial Park, Whitfords Ave, Padbury at 3:45pm for a Service in the West Chapel.

BOWRA & O'DEA
502 WANNEROO RD
WESTMINSTER 9464 7266
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www.bowraodea.com.au

SMITH:
A Memorial Service for Barton Smith will be held on FRIDAY (06.03.2026) at the Geraldton Anglican Cathedral, 101 Cathedral Ave, Geraldton, beginning at 7:00p.m.
All are welcome to come and celebrate Barton's life.


GERALDTON 9964 3767
NFDA

SPUTORE:
The Vigil Prayers and Rosary for the late Mrs Elisabetta Sputore will be recited in St Kieran's Catholic Church, 122 Waterloo Street, Tuart Hill at 8:45am on MONDAY (09.03.2026), followed by a Funeral Mass commencing at 9:15am.

Following the Mass the cortege will meet at main entrance of KARRAKATTA Cemetery, Railway Road, Karrakatta at 11:00am for a Burial Service.


502 WANNEROO RD
WESTMINSTER 9464 7266
WA Family Owned
www.leanneodea.com.au

WEIGHTMAN:
The Funeral Service for Mrs Carol Anne Weightman formerly of Kalgoorlie and Brookdale will be held in Bowra & O'Dea's Midland Chapel, 131 Great Eastern Hwy, Bellevue.

Commencing at 10:00 am on TUESDAY (10.03.2026). Cremation will take place privately at a later time.

BOWRA & O'DEA
131 GRT EASTERN HWY
MIDLAND 9229 7255
WA Family Owned
www.bowraodea.com.au

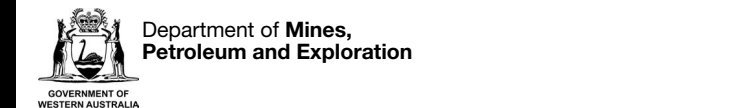
ZOETBROOD:
Family and friends are warmly invited to Celebrate the Life of Johannes Zoetbrood at a Service to be held in our Chapel, 607 Wanneroo Rd, Wanneroo on MONDAY (09.03.2026) commencing at 2:00pm.


1800 732 766
LAKE JOONDALUP

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MINING NOTICES



Release of Mineral Exploration Information (Mining Regulation 96(4))

The Department of Mines, Petroleum and Exploration (DMPE) plans to release mineral exploration reports submitted by companies to DMPE under Section 115A of the *Mining Act 1978*. Release of the reports is pursuant to Regulation 96(4), that is, where such statutory exploration reports have been held at the department for a period of five years or more. Reports proposed to be released were submitted to the department from January to December 2020.

The release of reports will commence on **4 May 2026**.

Pursuant to Regulation 96(5), the holder of a mining tenement covered by the report, or any subsequent tenement granted in renewal of or substitution for such mining tenement, may object to the release. Objections to the immediate release of a report must set out specific reasons why identified reports, or parts of reports, should not be released and must be received prior to the release of the report.

Also pursuant to Regulation 96(5) objections to the release of a report are only valid for a period not exceeding five years in each case. Therefore, objections made during 2020 to the release of reports submitted in 2015 have now lapsed and need to be renewed or the report will be released.

Objections to the release of reports should be addressed to the Executive Director, Geological Survey and Resource Strategy Division, and emailed to: sunsetclause@dmpe.wa.gov.au

There are two lists of reports on the department's website at: www.dmpe.wa.gov.au/wamex

The first list is for those reports proposed for release in May 2026, whereas the second list contains reports where the objections are expiring or have expired.

Further information may be obtained on the website or by contacting the department – telephone (08) 9222 3478 or email: sunsetclause@dmpe.wa.gov.au

DMIRS 29608

PUBLIC NOTICES

DECEASED ESTATES

DECEASED ESTATE TRUSTEES ACT 1962

NOTICES TO CREDITORS AND CLAIMANTS
Creditors and other persons having claims (to which Section 63 of the *Trustees Act 1962* relates) in respect of the estates of the below mentioned deceased persons, are required to send particulars of claims to the attention of the Trustee within 30 days of this notice, after which date the Trustee may convey or distribute the assets, having regard only to the claims of which they have notice.

- Ashton, Frances Ann - late of 35/9 Bradbury Street, Rockingham WA, who died on 01.10.2025 (7543E);
- Williams, Fred Henry - late of 22 Fenue, Shoalwater WA, who died on 04.02.2025 (7166E);
- Smith, Beverley Anne - late of 80 Walkiki Road, Safety Bay WA, who died on 14.08.2025 (7485E);
- Spencer, Wendy Muriel - late of 72 Fourth Avenue, Shoalwater WA, who died on 13.02.2025 (7180E);
- Williams, Janice Kathleen - late of 127 Prosserpine Loop, Port Kennedy WA, who died on 01.09.2025 (7475E);
- Castle, John Victor - late of 17 Kybra Mews, Rockingham WA, who died on or about 27.05.2025 (7347E); and
- Mulcahy, Sheridan Gaye - late of 5/34 Penguin Road, Shoalwater WA, who died on 02.12.2024 (7401E).

Mountains Lawyers, PO Box 5379, Rockingham Beach WA 6069, for a Trustee - Ph: 08 9592 7326

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DECEASED ESTATES

TRUSTEES ACT 1962 Notice to Creditors and Claimants

ESTATE LAURA GOMES GOUVEIA DE CAIRES
Creditors and other persons having a claim to which section 63 of the *Trustees Act 1962* relates, in respect of the estate of Laura Gomes Gouveia de Caires, late of 31 Blackwood Avenue, Hamilton Hill, who died on the 21st December 2025, are required by the executor, Geoffrey Romano Paganoni, of 19B Forrest Street, Fremantle, to send particulars of their claims addressed to the executor at his above address, within 30 days of the date of publication of this notice, after which date the executor may convey or distribute the assets of the Estate, having regard only to the claims of which he then has notice.

GENERAL

PUBLIC AUCTION: NON - TOWABLE CARAVAN (STRUCTURE ONLY)

Notice is given that Northam Caravan Park, located at 150 Yilgarn Ave, Northam 6401, will offer for sale by public auction the following abandoned goods:
● One (1) caravan structure : non-towable and not roadworthy, left uncollected and deemed abandoned
The sale is conducted under the Residential Parks (long-Stay Tenants) Act 2006 and the Caravan Parks and Camping Grounds Act 1995

Auction Details:
Date: Friday, 6th March 2026
Time: 9am
Location : 150 Yilgarn Avenue, Northam 6401
Goods are sold as is, with no warranties and must be removed at buyer's expense.
Enquiries: 0400 452 586

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Relevant persons for Petrel Geotechnical and Geophysical Surveys Environment Plan

Eni is an international energy company committed to sustainable and responsible energy transition. Eni is the operator of the Petrel Field in the Bonaparte Basin in North Western Australia.

The Petrel permit is approximately 240km WSW of Darwin, and 170km offshore of the WA coast within the Joseph Bonaparte Gulf.

Eni proposes to undertake surveys within the Petrel Field to support future development and exploration activities.

The surveys will acquire geophysical, geotechnical and environmental baseline data to better understand the existing environment and seabed characteristics of the Petrel Development Area.

The initial activities are forecast for the second half of 2026.

Deadline for your Feedback is 17 March 2026

GENERAL

GREATLAND

PUBLIC NOTICE

Havieron Underground Mine
Greasy Sandy Desert,
Western Australia (WA)
EPBC 2021/9085

The following notice is published pursuant to Section 95B (2) of the *Environmental Protection and Biodiversity Conservation (EPBC) Act 1999*.

The Greatland Havieron Underground Mine proposal (Havieron Project) is a greenfield gold-copper deposit located approximately 45 km east of the Greatland Telfer Gold Mine, in the Shire of East Pilbara and within the Great Sandy Desert region of Western Australia. The proposal is linked to the existing Telfer Gold Mine where ore would be processed. The Havieron Underground Mine is located within the Martu People and Ngurra Native Title Determination area on unallocated Crown Land. The protected matters relating to the Havieron Project are threatened species and communities listed under EPBC Act, Part 3, Sections 18 and 18A.

In accordance with Section 95A Greatland sought Public Comments and made the Preliminary Documentation available for viewing from 18 December 2025 until 3 February 2026. An extended period was provided to account for the holiday season. Two submissions were received. In accordance with Section 95B (2) the final Preliminary Documentation reflecting the response to public comments is now available. This is provided for information only given that the final date for comment has passed.

The final Preliminary Documentation will be available for viewing for a period of 10 business days from 5 March 2026 to 18 March 2026 at the following locations:

- Online at <https://www.greatland.com.au/sustainability/environmental/>
- Available for viewing from:
o The Department of Climate Change, Energy, Environment and Water (DCCEEW), John Gorton Building, King Edward Terrace, Parkes ACT 2600
o The Western Australian State Library, 25 Francis Street, Perth, 6000

Persons with special needs or otherwise requiring assistance with accessing materials, may contact Louise Cherrie on 0427 686 501 or by email at louise.cherrie@greatland.com.au.



ROAD TRAFFIC ACT 1974

SECTIONS 80G (3)(E) AND 80G(4) (B)

NOTICE OF INTENTION TO MAKE APPLICATION TO A COURT FOR AN ORDER TO IMPOUND/ CONFISCATE A VEHICLE

Pursuant to the Road Traffic Act 1974, the Western Australia Police hereby advise the below mentioned vehicles are subject to pending applications to have them impounded or confiscated.

W.A. Registration: 11G373
Vehicle: Honda Motor Cycle
Magistrates Court: Perth

W.A. Registration: 11RK046
Vehicle: Toyota RAV4
Magistrates Court: Rockingham

W.A. Registration: 1BH255
Vehicle: Holden Commodore
Magistrates Court: Fremantle

W.A. Registration: 1BOR343
Vehicle: Ford Focus
Magistrates Court: Perth

Any person with an interest in any of these vehicles who wishes to make a submission to the Court regarding the application to impound or confiscate the vehicles is advised to contact the relevant Magistrates Court Registry.

Col BLANCH
Commissioner of Police



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PUBLIC NOTICES

GENERAL

CORONERS ACT 1996

An inquest into the suspected death of Messiah Augustin YOUNG whose death was reported to have occurred on or about 11 February 2021 will commence at the Coroner's Court, Court 85, 8th floor Central Law Courts, 501 Hay Street, Perth on 17 March 2026 at 10.00am.

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ROAD TRAFFIC ACT 1974 SECTIONS 80G (3)(E) AND 80G(4) (B)

NOTICE OF INTENTION TO MAKE APPLICATION TO A COURT FOR AN ORDER TO IMPOUND/ CONFISCATE A VEHICLE

Pursuant to the Road Traffic Act 1974, the Western Australia Police hereby advise the below mentioned vehicles are subject to pending applications to have them impounded or confiscated.

W.A. Registration: 1CDZ970
Vehicle: Subaru Liberty
Magistrates Court: Bunbury

W.A. Registration: 1HCL755
Vehicle: Tesla Sedan
Magistrates Court: Albany

Any person with an interest in any of these vehicles who wishes to make a submission to the Court regarding the application to impound or confiscate the vehicles is advised to contact the relevant Magistrates Court Registry.

Col BLANCH
Commissioner of Police



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56 SPORT

PIASTRI ALL ABOUT TEAM

SCOTT BAILEY

Oscar Piastri insists he's ready to play the team game for McLaren, adamant world championships are not won by defying team orders.

McLaren's handling of Piastri and Lando Norris dominated Formula One last season, as Norris came from behind to take the championship from his teammate.

The English team are one of the few major players on the grid who do not have a No.1 driver and attempt to have complete fairness between the two.

But their pursuit of "Papaya Rules" reached its controversial zenith at Monza last year when Piastri, pictured, was ordered to let his teammate pass following a slow pit stop for Norris.

McLaren have arrived in Melbourne in a different position to last year with Piastri tipping Ferrari and Mercedes to be the fastest cars under the new regulations.

Reminded on Thursday he'd lost the championship by 13 points after contentious McLaren tactical decisions, Piastri



quipped there was "a lot to digest" in the question.

"I have nothing to prove, I am certainly not going to have a rebellious streak or anything like that," the Australian said.

"A pretty quick-fire way to make sure you're not going to win a championship is go against your own team. I don't think that's a very wise move. But definitely we have had discussions and worked on things we can do better this year."

Piastri said his relationship with McLaren had only got stronger out of the tough end to last season with discussions over how they handled several situations. "We are always going to race for the best interest of the team," Piastri said, when asked if he would be racing for McLaren or to prove he was not a No.2 driver. "We've always had freedom to race for our own individual results as well.

"Maybe on some occasions we've not always made the perfect decision, but the important part for me (is) there has never been bad intentions with that."

Summary

Basketball

NBA: Oklahoma City 103, New York 100; Charlotte 118, Boston 89; Philadelphia 106, Utah 102; Portland 122, Memphis 114; Atlanta 131, Milwaukee 113; L.A. Clippers 130, Indiana 107.

Boating

Royal Freshwater Bay: Midweek Summer Series 2025-26, Keelboats, Thursday. Mid Week B Fleet: 1. Seajoy (G McGinn); 2. Abacus (B Foster); 3. Spirit of Olympia (D Meager); Fastest En Avant (B Galton-Fenzi). Mid Week A Fleet: 1. and Fastest Black Betty (G McNally); 2. Gypsy (S Schulbergs/R Robertson); 3. Ballistic (J Cassidy). IRC Mid Week Fleet: 1. Cone of Silence (M Crier); 2. RF Six Six (W Hammond); 3. and Fastest Black Betty (G McNally). International 2-4mR: 1. and Fastest Maarli (S Anderson); 2. Cappelino (S Parker); 3. Get in Line (D Maher).

Bowls

Albany: Albany bowls Wednesday Social mixed Triples. 1st. J. Tonkin, G. McAlay, K. O'Donnell. 2nd. K. Thompson, G. L. Lloyd, H. Bean. 3rd. N. Sharpe, H. Pearce, P. Hughes.

East Fremantle: Wednesday Bankers. Winners: T. Steel, P. Schmidt, R/up. N. Morrison, B. Schmidt, W/los. M. Brown, B. Merks.

Mosman Park: Wednesday Scroungers: 1. J. Worthington, 2. P. Bennett, S. Whelan.

Wanneroo: Ladies Championship Singles. Winner of Major: L. Ritchie, R/up K. Beazley. Winner of Plate: R. Anderson, R/up J. Rho.

Cricket

Sheffield Shield
Allan Border Field, Western Australia v Queensland, day one, stumps WA

1st innings

	Runs	Balls
C BANCROFT c Peirson b Ryan	15	39
S FANNING c & b Ryan	62	132
S WHITEMAN c Khawaja b Wildermuth	0	9
H CARTWRIGHT c Peirson b McGiffin	21	35
J INGLIS c Peirson b Wildermuth	32	33
C CONNOLLY c Labuschagne b Renshaw	10	12
J PARIS b Skelly	38	105
C ROCCHICCIOLI c sub b Ryan	7	14
B COUCH c Ryan b Swepson	15	49
C GANNON c Renshaw b Swepson	0	2
A ESTERHUYSEN not out	2	10
SUNDRIES (b 5, nb 1, w 2)	8	
TOTAL	210	

Fall: 1-24 (Cameron Bancroft, 12.1 ov), 2-25 (Sam Whiteman, 13.5 ov), 3-54 (Hilton Cartwright, 23.3 ov), 4-110 (Josh Inglis, 35.1 ov), 5-126 (Cooper Connolly, 39.2 ov), 6-157 (Sam Fanning, 51.2 ov), 7-166 (Corey Rocchiccioli, 53.6 ov), 8-200 (Brody Couch, 68.6 ov), 9-200 (Cameron Gannon, 70.2 ov), 10-210 (Joel Paris, 73.1 ov).

Bowling: J Wildermuth 10-4-16-2, S Skelly 14.1-6-51-1, J Ryan 16-6-48-3, S McGiffin 7.1-25-1, M Swepson 17-2-42-2, M Renshaw 5-0-13-1, M Labuschagne 4-10-10-0.

Overs: 73.1.

Queensland

1st innings

M RENSHAW not out	12	60
H BURDON c Rocchiccioli b Gannon	6	7
M LABUSCHAGNE c Inglis b Gannon	0	3
U KHAWAJA c Inglis b Gannon	13	12
H WEIBGEN not out	6	20
TOTAL, for 3 wkts	37	

Fall: 1-6 (Hugo Burdon, 3.1 ov), 2-6 (Marnus Labuschagne, 3.4 ov), 3-22 (Usman Khawaja, 7.5 ov).

Bowling: J Paris 5-3-3-0, C Gannon 6-1-26-3, A Esterhuysen 3-1-2-0, B Couch 1-0-5-0, C Rocchiccioli 1-1-0-0, C Connolly 1-0-1-0.

Overs: 17.

Bellerive Oval, day one, stumps: Victoria 222 off 64.5 overs (S Harper 93, M Short 40; R Meredith 4-53) v Tasmania 4-52 off 24 overs (T Ward 17, M Wright 12; S Elliott 2-13).

Karen Rolton Oval, Adelaide, day one, stumps: New South Wales 269 off 76.2 overs (J Davies 47, S Abbott 40; H Thornton 5-71 v South Australia 1-20 off nine overs (N McAndrew 9, T Head 5; S Abbott 1-8).

Golf

Albany: Stableford: V Webster 41, G Waugh 38, F Griffiths, L Morey, P Williams 37, D Dowdell 36, P Joyce, M Young 36, W Cooke, D Laffin, J Trezona 35, 9 hole Stableford: J Smith 24, D Guthrie 23, E Stocks 22. Men's Stableford: J Derby 42, D James 41, E Ackland 40, M Howson 39, R Carruthers 38, I Nichols 38, P Murray 38, P Grist 37, C Gliosca 37, J Roggio 36, R Marsh 36, M Parker 36, R Williams 36, S Leckie 36, R Willcocks 36, A Talmage 36. Gross: J Derby 34.



EXTRACT OF ORDER FOR TAKING LAND

LAND ADMINISTRATION ACT 1997

(Section 178(1)(b)(ii) and (c))

The taking of the land/interests in land in the schedule below has been ordered by the Minister for Transport in accordance with sections 177 and 178 of the *Land Administration Act 1997*. Such order(s) has been registered by the Registrar of Titles, with registration number(s) stated in the schedule. Extract(s) of such order(s) follows:

Local Govt	Taking Purposes	Land Description	Plan	Reg. No. of Order	Job No. Reference
Swan (City of)	Tonkin Highway North Ellenbrook Interchange	Lot 110 "Road Widening" on Deposited Plan 404848	DP404848	Q780026	25/6375

Further details can be obtained from Daniel Vary, Acting Senior Land Acquisition Manager Main Roads Western Australia, Don Aitken Centre, Waterloo Crescent, East Perth, WA, 6004 or by telephoning (08) 9323 4183.

Dated this 5 day of March 2026

Rita Saffioti, MLA

MINISTER FOR TRANSPORT

MRWA_29679

Relevant persons for Petrel Geotechnical and Geophysical Surveys Environment Plan



Eni is an international energy company committed to sustainable and responsible energy transition. Eni is the operator of the Petrel Field in the Bonaparte Basin in North Western Australia.

The Petrel permit is approximately 240km WSW of Darwin, and 170km offshore of the WA coast within the Joseph Bonaparte Gulf.

Eni proposes to undertake surveys within the Petrel Field to support future development and exploration activities.

The surveys will acquire geophysical, geotechnical and environmental baseline data to better understand the existing environment and seabed characteristics of the Petrel Development Area.

The initial activities are forecast for the second half of 2026.

Am I a 'relevant person' in relation to this work?

You may be a relevant person if you or your organisation has functions, interests, or activities that may be affected by the offshore petroleum activities proposed under the environment plan being prepared. Interests that may be affected can include things like cultural and spiritual connections to the sea or interests in the protection of specific marine species.

Provide your feedback

By email on info@petreleni.com.au

By post at PO Box 6862 East Perth WA 6892

By phone on 1300155 616
or access online information
at petreleni.com.au



Deadline for your Feedback is 17 March 2026

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AUSSIES PUT ON TOP SHO

TOKYO

In front of Japan's Emperor Naruhito and pitted against the country's sporting king Shohei Ohtani, Australia gave their illustrious hosts a real scare in their World Baseball Classic showdown in the Tokyo Dome before succumbing to a 4-3 defeat.

With the royal visitor — the first sitting Japanese monarch to attend a pro baseball game in 60 years — among the full house of 42,331 hoping to witness more wonders from the game's greatest player on Sunday, Australia's pitchers managed to keep Ohtani, right, quiet as they moved into a 1-0 lead with just three innings remaining. But even without Ohtani managing to add a third home run in successive days on a rare off-night for the great LA Dodger, the reigning

champions did finally manage to grab the lead in the seventh inning thanks to a two-run homer from Masataka Yoshida off the Aussies' fifth pitcher of the night, Jon Kennedy.

The hosts added two insurance runs in the eighth inning — and they needed them as the resilient Australians roared back with Alex Hall clattering a home run in the ninth inning and Rixon Wingrove blasting another on the next at-bat to narrow the gap to 4-3. Having won their first two matches, Australia were due to play South Korea in the final group game overnight and a win would send them to the quarterfinals in Miami. Megastar Ohtani led Japan to victory in the US in the last WBC edition in 2023 and the tournament is a huge source of pride for the nation.



Summary

Baseball

World Baseball Classic: Australia 3, Taiwan 0; South Korea 11, Czech Republic 4; Australia 5, Czech Republic 1; Japan 13, Taiwan 0, 7 innings; Cuba 3, Panama 1; Venezuela 6, Netherlands 2; Mexico 8, Britain 2; Puerto Rico 5, Colombia 0; Dominican Republic 12, Nicaragua 3; United States 15, Brazil 5; Taiwan 14, Czech Republic 0, 7 innings; Japan 8, South Korea 6; Canada 8, Colombia 2; Netherlands 4, Nicaragua 3; Italy 8, Brazil 0; Venezuela 11, Israel 3; United States 9, Britain 1; Taiwan 5, South Korea 4, 10 innings; Japan 4, Australia 3; Cuba 7, Colombia 4; Dominican Republic 12, Netherlands 1; Italy 7, Britain 4; Israel 5, Nicaragua 0; Mexico 16, Brazil 0

Basketball

NBA: Boston 109, Cleveland 98; L.A. Lakers 110, New York 97; Toronto 122, Dallas 92; Miami 121, Detroit 110; New Orleans 138, Washington 118; Orlando 130, Milwaukee 91; San Antonio 145, Houston 120; Portland 131, Indiana 111; Sacramento 126, Chicago 110; Phoenix 111, Charlotte 99

Bowls

Belmont City: Ladies Singles Championships. 1. S Forde def J Carr Plate 1 D Metcalf def C Mason
Broomehill: Pennants; Broomehill 46 (0) lost to Gnowangerup Red 87 (6): R. Dunn lost to A. Crabbe 20 - 26, T. Kempin lost to M. Harris 14 - 28, M. O'Brien lost to M. Johnston 12 - 33.

Cambridge: Sat RAC Winning Teams C.Herring C.Racey 2, C.Westergren R.Stevenson
Central Stirling: Bowling League Men's Pennants Rd 13 : At Tambellup. Tambellup 77 (5) def Gnowangerup 54 (1) . A Hankinson 26 - D Nelid 28, J Gillies 24 - K Heberle 13, B Aylemore 27 - V Wellstead 13. At Ongerup. Ongerup 79 (5) def Borden 72 (1) . B Ashton 19 - T O'Meehan 35, D Baum 25 - G Jansen 18, M O'Neill 35 - H Milne 19. At Gnowangerup. Gnowangerup Red 87 (6) def Broomehill 46 (0) A Crabbe 26 - R Dunn 20, M Johnston 33 - M O'Brien 12, M Harris 28 - T Kempin 14. Sunday 8/3/26 League Pairs at Tambellup Rd 1 Gnowangerup Red 14 def Tambellup 7. Ongerup 12 def Gnowangerup White 9. Jerramungup 24 def Broomehill 6. Borden bye. Semi finals Gnowangerup Red 14 def Ongerup 7. Borden 14 def Jerramungup 10. Final Borden (S Moir R Moir) 19 def Gnowangerup Red (M Harris D Brown) 12. League Fours Rd 1 Gnowangerup Red 19 def Jerramungup 8. Ongerup 16 def Borden 8. Tambellup bye. Semi finals Gnowangerup White 20 def Gnowangerup Red 9. Ongerup 19 def Tambellup 14. Final Gnowangerup White (K Heberle V Wellstead D Murray J Komene) 16 def Ongerup (D Baum M Craig B Ashton G Hams) 12.

Dunsborough: Men's Veterans Championship. G. Atkinson def B. Logan 21/14. Novice Championship. G. Buchholz def T O'Connor 17/16
Manning: Women's Singles Championship: 1. K. Van Nierop, 2. S.Hogg Women's Novice Singles Championship: 1. K.Swanton, 2. C.Guppy Men's Singles Championship: 1. W.Holt, 2. J.Titteradge Men's Novice Singles Championship: 1. M.Murray, 2. P.Davison

Mandurah: Nett: J Benbow 63, D Stewart 67, P Machen 67, P Smoker 69, W Baker 70, M Reed 70, W Towers 71, R Constable 71, J Dobos 71, Z Schneider 71, J Coombs 72, B Matters 72, D Smith 72, D Macdonald 72, P Price 72, J Holohan 73, P Bruce 73, L Harper 73, G McCarney 73, G Sanders 73, S Bryant 74, W Davies 74, J Dillon 74, C Madden 74, E Curley 74, S Tolomei 75, L Lasek 75, R Rogers 75, I Tanian 75, G Sieniskiewicz 75, C Chapman 75.
Melville Glades: Sun Mixed Opening Weekend 4BBB Trophy: J Lim & S Lim 49 P Sinagra & R Nguyen 48 J Hein & L Miller 47 S Loller & R Allomes 47 J Summers & J Donaldson 46 C Lilley & P Kennelly 46 G Golokin & J Ku 45 B Berresford & T Logan 45 V Peh & E Ee 45 C Butler & A Moores 44 N Sajtanic & H Ang 44 D Johnson & A Bethel 44 J Middleton & N Middleton 44 Robyn Millett & S Sexton 44. Eagle: S Russell (15th). NTP's: P Kennelly (5th) B Davies (9th) R Rice (14th) C Muunu (17th).

Pinjarra: 9 Hole Ladies Competition Friday 6th March 1. M. Almond 16, 2. C. Lawson 14, 3. K. Newman 13 9 Hole Ladies Competition Monday 9th - 9 Hole Ladies Opening Day - 1. V. Warren 18, J. Burston 18, H. Melkielejohn 17
Wanneroo: Mixed Stableford: M Gillard 42, M Robins 39, W Crooks 38, G Millar 37, L Delahey 37, D Patel 37, D Geraghty 36, N Ratcliffe 36, J Rowse 36, P Ball 36, J Bowdler 36, P Porter 36, J Goudge 36, West.

Westviat: Stableford - M Hutch 37, D Hunter 36, W Hincliffe 36, R Weppner 34, L Coker 32, T Baker 32, D Adams 32, S Baker 32, W Eberhard 32, L Yann 30, G Hutch 29, R Carnaby 29, M Garner 27, P Bowditch 22.
West Coast: Monday at Wembley Turt Course, match play. B Boyd def D Lynn 3 & 2, R Heldt def R Bensky 1 up. Stableford: T McClain 40 (and best gross 77), J Campbell c/b G McHarrie 36, I Johnsen 35, D Hayes 32.



Australian guard Josh Giddey handles the ball in the Chicago Bulls' 126-110 loss to the Sacramento Kings.

Tennis

Megaraspay Open, Turkey: Women's Singles Championship: Anhelina Kalinina, Ukraine, def. Oleksandra Olynykova (1), Ukraine, 6-3, 3-6, 6-2.

Paribas Open at Indian Wells: Men's Singles Round of 32: Alexander Zverev (4), Germany, def. Brandon Nakashima (28), United States, 7-6 (2), 5-7, 6-4. Learner Tien (25), United States, def. Ben Shelton (8), United States, 7-6 (3), 4-6, 6-3.

Alejandro Davidovich Fokina (18), Spain, def. Jakub Mensik (12), Czechia, 6-2, 4-6, 6-2. Jannik Sinner (2), Italy, def. Denis Shapovalov, Canada, 6-3, 6-2. Arthur Fils (30), France, def. Marton Fucsovics, Hungary, 6-3, 7-5. Frances Tiafoe (21), United States, def. Flavio Cobolli (15), Italy, 6-1, 6-2.

Women's Singles Round of 32: Aryna Sabalenka (1), Belarus, def. Jacqueline Cristian, Romania, 6-4, 6-1. Linda Noskova (14), Czechia, def. Sorana Cirstea, Romania, 6-7 (5), 6-4, 6-4. Talia Gibson, Australia, def. Clara Tauson (17), Denmark, 7-6 (2), 4-6, 6-4. Naomi Osaka (16), Japan, def. Jakub Osorio, Colombia, 6-1, 3-6, 6-1. Jasmine Paolini (7), Italy, def. Ajla Tomljanovic, Australia, 7-5, 5-7, 6-1.

Amanda Anisimova (6), United States, def. Emma Raducanu (25), Britain, 6-1, 6-1. Alexandra Eala (31), Philippines, def. Coco Gauff (4), United States, 6-2, 2-0, ret.

Men's Doubles Round of 32: Yuki Bhambhani, India, and Andre Goransson, Sweden, def. Fabrice Martin, France, and David Pel, Netherlands, 6-1, 6-3. Maximo Gonzalez and Andres Molteni, Argentina, def. Albano Olivetti and Fabian Marozsan, Hungary, 6-2, 6-2. Sander Arends, Netherlands, and Jiri Lehecka, Czechia, def. Lloyd Glasspool and Julian Cash, Britain, 6-3, 6-4. Arthur Rinderknech, France, and Valentin Vacherot, Monaco, def. Daniil Medvedev, Russia, and Learner Tien, United States, 7-5, 6-3.

Women's Doubles Round of 16: Nicole Melichar-Martinez, United States, and Cristina Bucsa (7), Spain, def. Hao-Ching Chan, Taiwan, and Janice Tjen, Indonesia, 6-7 (10), 6-4, 10-5. Kristina Mladenovic, France, and Hanyu Guo, China, def. Alexandra Panova, Russia, and Laura Siegemund, Germany, 6-4, 6-3. Taylor Townsend, United States, and Katerina Sinikova (3), Czechia, def. Ekaterina Alexandrova, Russia, and Sofia Kenin, United States, 6-1, 6-2. Aleksandra Krunic, Serbia, and Anna Danilina (5), Kazakhstan, def. Lyudmyla Kichenok, Ukraine, and Desirae Krawczyk, United States, 6-4, 6-1.

Public Notices

DECEASED ESTATES

TRUSTEES ACT 1962 DECEASED ESTATES
Notice to Creditors and Claimants
In the estate of **Marjorie May Nelson**, late of 6 Arnott Street, Wagin, Western Australia, and formerly of 21/1 Cormorant Entrance, Eaton, Western Australia, deceased. Creditors and other persons having claims (to which section 63 of the Trustees Act 1962 relates) in respect of the estate of the deceased who died on 15 November 2025 are required by the Executor Anne Lynette Lavrick to send particulars of their claim to The Executor, P.O. Box 931 Katanning W.A. 6317, by the date being one month following the publication of this notice, after which date the Executor may convey or distribute the assets, having regard only to the claims of which she then has notice.

TRUSTEES ACT 1962 DECEASED ESTATE DALJIT KAUR
Notice to Creditors and Claimants of Adrian Frederick William Egginton, late of 53 Lawkevale Road, High Wycombe, Western Australia, deceased. Creditors and other persons having claims (to which section 63 of the Trustees Act 1962 relates) in respect of the estate of the deceased, who died on 28 March 2020, are required by the Administrator Ajeet Hansra to send the particulars of their claims to 41 St Kilda Road, Rivervale WA 6103 within one (1) month of the date of publication of this notice after which date the Administrator may convey or distribute the assets, having regard only to the claims of which he then has notice.

TRUSTEES ACT 1962 DECEASED ESTATE DALJIT KAUR
Daljit Kaur, late of 3/9 Broadway, Bassendean, Western Australia, deceased. Creditors and other persons having claims (to which section 63 of the Trustees Act 1962 relates) in respect of the Estate of the deceased, who died on the 28 March 2020, are required by the Administrator Ajeet Hansra to send the particulars of their claims to 41 St Kilda Road, Rivervale WA 6103 within one (1) month of the date of publication of this notice after which date the Administrator may convey or distribute the assets, having regard only to the claims of which he then has notice.

GENERAL

KENT RELOCATION GROUP PTY LTD
In accordance with **Warehousemen's Liens Act 1952 (WA)**
We would like to notify Pam Moodie, Rosemary Wanjiur, Steve Asher, Widya Ridwan, Jordan Riseborough, Scott Casas that due to lack of payment for storage services rendered, the company will be selling the stored items at auction to recover cost, unless said Pam Moodie, Rosemary Wanjiur, Steve Asher, Widya Ridwan, Jordan Riseborough, Scott Casas to contact us immediately on 03 9271 5074 or by email ar@kentrelocationgroup.com

EMPLOYMENT

Local Govt Vacancies



Employment - Executive Officer

The Shire of Sandstone seeks the services of a suitably qualified person to in the position of Executive Officer supporting the executive support to the CEO in executive functions.

This position requires a person with excellent communication skills, ability to be part of a harmonious office environment in a small office, organisational skills, anticipatory skills, emotional intelligence, and knowledge in local government structures.

The anticipated pay rate is \$60 per hour dependent on experience.

The Shire provides cost free accommodation and utilities based in the Sandstone townsite. Please send full application to email ceo@sandstone.wa.gov.au

For further enquiries please contact Chief Executive Officer, Peter Murray on 0407 470 754 prior to 2:00 PM on 19 March 2026.

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The West
Australian

Funeral Notices

This index is a complimentary service. Care is taken to include all names however, there are circumstances when this is beyond our control. Please browse all insertions if checking for a specific listing.

www.westannouncements.com.au

Jansen, Garry

Smart, Thomas

Deaths

RIDGE (Alan):
So very sad to hear of our dearest friend's passing. Much love and deepest sympathy to Faye, Alison, Susan, Julie and all families. Thinking of you all Dot (dec), Vicki and Kerry

RIDLEY (Janine):
Sincere condolences to Brett and family on the loss of your Mum. Beer Bet and Bite Syndicate

STEER (Patsy):
It is with very heavy hearts that we say goodbye to our Auntie who passed away on 6th March aged 95. Patsy lived a very fulfilling life in three acts. Before Arthur with Arthur who she married in 1965 (who passed away in 2001) and who she referred to as her "Sweetie Pie", and after Arthur. Patsy found life without Arthur very tough but she continued to live a very productive life and was a wonderful relative and friend to many. Reunited with Arthur, having left us with many wonderful memories. Love Kim and family.

TRELOAR (Kim):
Much loved Poppy and father-in-law. We will miss you. Love Mackenzie, Tom and Mouse (Naomie).

VAN DIDDEN (Maree):
Maree, Anne van Didden (nee Hunter) passed away on 3.3.26 at Yallambee Hostel Mundaring. Resting peacefully beside Gerald at last.

VAN DIDDEN (Maree):
Beloved wife of Gerald (dec). Precious mum of Craig and Tara. Nanna to Jasmin, Chloe, Damon, Reagan, Abbey. Great nanna to Lainey. We Love you for being you and for Loving us. We'll miss you forever.



VAUGHAN (Michael):
Dear Robyn and family, sincere condolences from the Reynoldson family for your sad loss. R I P Mike.



VAUGHAN (Michael):
In loving memory of Mike who made his mark in Wickiepin. His enthusiasm and hard work for the community of Wickiepin has left a legacy which all of us who worked with him will always appreciate. Love to Robyn and family. Judy and Murray

WALLACE (Rosalea):
Our condolences to John and family, Connie, Elvera and family. May she RIP. Auntie Gloria and family.



WALLACE (Rosemary):
Rest in peace my beautiful friend, Rose. My deepest condolences to your beloved family. You will always be missed. Love from Philippa, Doug and family.



Mum

WORNES (Helen):
Our beautiful Mum, Helen, passed away peacefully on Sunday morning. Mum was the heart and glue of our family, growing up and guiding us with love, strength, and kindness throughout our lives. Her warmth, wisdom, and unwavering care shaped who we are today. Now reunited with Dad. She will be deeply missed and forever loved.

Tony, Sib, Carol, Sue and Michael.



Funeral Notices

JANSEN:
Family and Friends are warmly invited to the Funeral Service for Garry Jansen of Jarrahdale in our Chapel, Cnr Albany Hwy and Armitage Rd, Kelmescott at 10:30am on WEDNESDAY (11.3.2026).



1800 732 766
ARMADALE - KELMSCOTT

SMART:
Family and Friends are warmly invited to the Funeral Service for Thomas Rodger Smart formerly of Thornlie in our Chapel, 1 Tulloch Way, Canning Vale at 2.00pm on THURSDAY (12.03.2026).



1800 732 766
CANNING VALE

Relevant persons for Petrel Geotechnical and Geophysical Surveys Environment Plan



Eni is an international energy company committed to sustainable and responsible energy transition. Eni is the operator of the Petrel Field in the Bonaparte Basin in North Western Australia.

The Petrel permit is approximately 240km WSW of Darwin, and 170km offshore of the WA coast within the Joseph Bonaparte Gulf.

Eni proposes to undertake surveys within the Petrel Field to support future development and exploration activities.

The surveys will acquire geophysical, geotechnical and environmental baseline data to better understand the existing environment and seabed characteristics of the Petrel Development Area.

The initial activities are forecast for the second half of 2026.

Am I a 'relevant person' in relation to this work?

You may be a relevant person if you or your organisation has functions, interests, or activities that may be affected by the offshore petroleum activities proposed under the environment plan being prepared. Interests that may be affected can include things like cultural and spiritual connections to the sea or interests in the protection of specific marine species.

Provide your Feedback

By email on info@petreleni.com.au

By post at PO Box 6862 East Perth WA 6892

By phone on 1300155 616

or access online information at petreleni.com.au



Deadline for your Feedback is 17 March 2026

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Sports update



Cricket

Third T20I

Pakistan v Australia
at Gaddafi Stadium

Pakistan innings

F ZAMAN c Green b Short	10 (7)
S AYUB c Renshaw b Kuhnemann	56 (37)
S AGHA c Green b Dwarshuis	5 (3)
B AZAM not out	50 (36)
K NAFAY c Short b Connolly	21 (12)
S KHAN c Philippe b Dwarshuis	46 (19)
M NAWAZ c Short b Green	5 (4)
F ASHRAF not out	10 (4)
Extras (2w 2nb)	4
Six wickets for	207
Fall: 14 (F Zaman), 34 (S Agha), 103 (S Ayub), 131 (K Nafay), 188 (S Khan), 194 (M Nawaz)	

Bowling: M Kuhnemann 4-0-27-1, M Short 3-0-31-1, C Connolly 4-0-47-1, B Dwarshuis 4-0-39-2, A Zampa 2-0-20-0, C Green 3-0-43-1. **Overs:** 20

Australia innings

M MARSH b Afridi	1 (3)
M SHORT c Azam b Nawaz	2 (4)
C GREEN b Nawaz	22 (24)
M RENSRAW b Afridi	1 (6)
M STOINIS b Nawaz	23 (22)
J PHILIPPE c (sub) b Nawaz	24 (15)
M OWEN lbw b Ahmed	8 (10)
C CONNOLLY st Nafay b Nawaz	0 (2)
B DWARSHUIS not out	7 (8)
M KUHNEMANN c Zaman b Shah	5 (8)
A ZAMPA absent hurt	0 (0)
Extras (5lb 2lb 5w 1nb)	13
Total	96
Fall: 2 (M Marsh), 4 (M Short), 16 (M Renshaw), 60 (M Stoinis), 63 (C Green), 82 (J Philippe), 82 (C Connolly), 86 (M Owen), 96 (M Kuhnemann)	

Bowling: S Afridi 3-0-16-2, M Nawaz 4-0-18-5, A Ahmed 3-0-18-1, N Shah 2-5-0-17-1, S Khan 3-0-14-0, F Ashraf 1-0-6-0. **Overs:** 16.5

Result: Pakistan won by 111 runs

Second T20I

Sri Lanka v England
at Palallekele International Cricket Stadium

Sri Lanka innings

P NISSANKA b Archer	34 (22)
K MISHARA c Overton b Jacks	36 (30)
KU MENDIS c Rashid b Dawson	32 (17)
P RATHNAYAKE c Bethell b Archer	40 (22)
D SHANAKA lbw b Rashid	1 (6)
C ASALANKA not out	28 (22)
J LIYANAGE not out	1 (1)
Extras (1b 4lb 12w)	17
Fall: 56, 106, 128, 131, 187	
Bowling: S Curran 2-0-31-0, J Archer 4-0-42-2, W Jacks 4-0-24-1, L Dawson 4-0-32-1, A Rashid 4-0-25-1, J Overton 2-0-30-0. Overs: 20	

England innings

P SALT c Mishara b Pathirana	1 (2)
J BUTTLER c Rathnayake b Wellalage	39 (29)
J BETHELL c Ku. Mendis b Shanaka	13 (11)
T BANTON not out	54 (33)
H BROOK c Hasaranga b Pathirana	36 (12)
S CURRAN not out	20 (14)
Extras (4b 5w 1nb)	10
Fall: 10, 38, 81, 130	
Bowling: M Pathirana 4-0-47-2, D Shanaka 3-0-24-1, D Wellalage 3-0-30-1, E Malinga 1-2-0-6-0, W Hasaranga 4-0-44-0, J Liyanage 1-2-0-18-0. Overs: 16.4	

Result: England won by 6 wickets (DLS Method)

Basketball

NBA

(home team in CAPS)

SAN ANTONIO SPURS	112	Orlando Magic	103;
BOSTON CELTICS	107	Milwaukee Bucks	79;
DETROIT PISTONS	130	Brooklyn Nets	77;
MIAMI HEAT	134	Chicago Bulls	91;
TORONTO RAPTORS	107	Utah Jazz	100;
WASHINGTON WIZARDS	116	Sacramento Kings	112;
NEW YORK KNICKS	112	Los Angeles Lakers	100;
Cleveland Cavaliers	130	PORTLAND TRAIL BLAZERS	111;
Oklahoma City Thunder	121	DENVER NUGGETS	111

Eastern Conference

Atlantic Division	W	L	PCT	GB
New York Knicks	31	18	0.633	0
Boston Celtics	31	18	0.633	0
Toronto Raptors	30	21	0.588	2
Philadelphia 76ers	27	21	0.563	3.5
Brooklyn Nets	13	35	0.271	17.5

Central Division

Central Division	W	L	PCT	GB
Detroit Pistons	36	12	0.75	0
Cleveland Cavaliers	30	21	0.588	7.5
Chicago Bulls	24	26	0.48	13
Milwaukee Bucks	18	29	0.383	17.5
Indiana Pacers	13	36	0.265	23.5

Southeast Division

Southeast Division	W	L	PCT	GB
Miami Heat	27	24	0.529	0
Orlando Magic	25	23	0.521	1.5
Atlanta Hawks	24	27	0.471	3
Charlotte Hornets	22	28	0.44	4.5
Washington Wizards	13	35	0.271	12.5

Western Conference

Northwest Division	W	L	PCT	GB
Oklahoma City Thunder	38	11	0.776	0
Denver Nuggets	33	16	0.673	5
Minnesota Timberwolves	31	19	0.62	7.5
Portland Trail Blazers	23	27	0.46	15.5
Utah Jazz	15	35	0.3	23.5

Pacific Division

Pacific Division	W	L	PCT	GB
Los Angeles Lakers	29	19	0.604	0
Phoenix Suns	30	20	0.6	0
Golden State Warriors	27	23	0.54	3
LA Clippers	23	25	0.479	6
Sacramento Kings	12	39	0.235	18.5

Southwest Division

Southwest Division	W	L	PCT	GB
San Antonio Spurs	33	16	0.673	0
Houston Rockets	30	17	0.638	2
Dallas Mavericks	19	30	0.388	14
Memphis Grizzlies	18	29	0.383	14
New Orleans Pelicans	13	38	0.255	21

Golf

PGA Tour Farmers Insurance Open
Final round at Torrey Pines (North Course) & Torrey Pines (South Course), La Jolla, California (par 72)

265: Justin Rose (ENG) 62 65 68 70; 272: Kim Si Woo (KOR) 68 66 69 69, Ryo Hisatsune (JPN) 69 66 68 69, Pierceon Coody (USA) 68 70 69 65; 273: Jake Knapp (USA) 66 70 70 67, Stephan Jager (GER) 65 75 65 68; 274: Sahith Theegala (USA) 66 69 73 66, Andrew Novak (USA) 69 69 70 66, Joel Dahmen (USA) 70 63 68 73; 275: Maverick McNealy (USA) 65 70 70 70; 276: Li Haotong (CHN) 69 68 69 70, Hideki Matsuyama (JPN) 64 73 69 70, Adam Schenk (USA) 69 70 68 69, Keith Mitchell (USA) 67 72 68 69, Ryan Gerard (USA) 67 71 68, Tony Finau (USA) 72 67 71 66, Seamus Power (IRL) 65 66 74 71; 277: Michael Thorbjornsen (USA) 68 67 72 70, Matt McCarty (USA) 70 68 69 70, Chris Gotterup (USA) 68 70 70 69, David Lipsky (USA) 71 65 70 71; Australians: 280: Adam Scott 68 71 73 68; 281: Karl Vilips 67 72 72 70, Jason Day 67 74 68 72; 290: Cameron Davis 69 71 71 79	
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European Tour Bahrain C'ship

Final round at Royal GC, Al Mazrowiah (par 72)	
271: Calum Hill (SCO) 67 61 72 71, Patrick Reed (USA) 71 67 66 67, Frederik Schott (GER) 65 67 70 69 F Schott won after playoff; 272: Daniel Hillier (NZL) 66 70 70 66, Sergio Garcia (ESP) 70 66 68 68; 273: Ugo Coussaud (FRA) 67 68 71 67; 274: Nacho Elvira (ESP) 69 67 69 69, Grant Forrest (SCO) 71 66 67 70; 275: Casey Jarvis (RSA) 71 65 70 69, Andrea Pavan (ITA) 69 67 70 69, Nathan Kimsey (ENG) 72 65 69 69, Oliver Lindell (FIN) 67 71 69 68; 276: Mikael Lindberg (SWE) 67 72 66 71, Jonathan Broomhead (RSA) 72 66 69 69, Josh Berry (ENG) 70 70 67 69; 277: Jason Scrivener (AUS) 70 68 68 71, Hennie du Plessis (RSA) 68 69 69 71, Jens Dantorp (SWE) 70 71 69 67, Rafael Cabrera (ESP) 70 71 69 67, Alex Fitzpatrick (ENG) 69 68 71 69, Francesco Laporta (ITA) 70 68 71 68, Ben Schmidt (ENG) 68 69 68 72, Jorge Campillo (ESP) 68 69 68 72; Other Australians: 279: Anthony Quayle 73 66 68 72; 289: Connor McKinney 69 71 75 74	

LPGA Hilton Grand Vacations Tournament of Champions

Third round at Lake Nona Golf & Country Club - Orlando, Florida (par 72)

203: Nelly Korda (USA) 68 71 64; 209: Brooke Henderson (CAN) 73 70 66; 210: Lydia Ko (NZL) 69 67 74; 211: Hwang Youmin (KOR) 71 67 73, Miyuu Yamashita (JPN) 74 69 68; 212: Jeeno Thitikul (THA) 67 72 73, Lottie Woad (ENG) 67 69 76; 213: Ayaka Furue (JPN) 74 66 73, Nasa Hataoka (JPN) 66 71 76, Kim A Lim (KOR) 69 69 75, Lee Somi (KOR) 69 74 70, Rose Zhang (USA) 70 73 70, Ryu Haeran (KOR) 73 69 71; 214: Jasmine Suwannapura (THA) 73 72 69, Akie Iwai (JPN) 69 71 74; 215: Yin Ruoning (CHN) 72 69 74, Charley Hull (ENG) 70 71 74, Yealimi Noh (USA) 72 70 73, Linn Grant (SWE) 67 75 73, Chanettee Wannasaeen (THA) 67 72 76, Lilia Vu (USA) 72 68 75	
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Ice Hockey

NHL

(home team in CAPS)

TAMPA BAY LIGHTNING	6	Boston Bruins	5
CAROLINA HURRICANES	3	Los Angeles Kings	2
OT; ANAHEIM DUCKS	4	Vegas Golden Knights	3

Soccer

English Premier League

Tottenham Hotspur	2	(Solanke 53, 70)
Manchester City	2	(Cherki 11, Semenyio 44);
Manchester United	3	(Casemiro 19, Cunha 56, Sesko 90+4)
Fulham	2	(Jimenez 85 pen, Macedo 90+1);
Crystal Palace	1	(Sarr 45+2 pen)
Nottingham Forest	1	(Gibbs-White 5);
Brentford	1	(Ouattara 47)
Aston Villa	0	

Standings

	P	W	D	L	F	A	Pts
Arsenal	24	16	5	3	46	17	53
Manchester City	24	14	5	5	49	23	47
Aston Villa	24	14	4	6	35	26	46
Manchester United	24	11	8	5	44	36	41
Chelsea	24	11	7	6	42	27	40
Liverpool	24	11	6	7	39	33	39
Brentford	24	11	10	3	36	32	36
Fulham	24	10	4	10	34	35	34
Everton	24	9	7	8	26	27	34
Newcastle United	24	9	6	9	33	33	33
Sunderland	23	8	9	6	24	26	33
Bournemouth	24	8	9	7	40	43	33
Brighton	24	7	10	7	34	32	31
Tottenham Hotspur	24	7	8	9	35	33	29
Crystal Palace	24	7	8	9	25	29	29
Leeds United	24	6	8	10	31	42	26
Nottingham Forest	24	7	5	12	24	35	26
West Ham United	24	5	5	14	29	48	20
Burnley	23	3	6	14	25	44	15
Wolves	24	1	5	18	15	45	8

Spanish First Division

Real Sociedad 1 (Guedes 37) Athletic Club 1 (Ruiz de Galarreta 88); Getafe 0 Celta 0; Real Betis 2 (Avila 23 pen, Fornals 88) Valencia 1 (Rioja 20); Real Madrid 2 (Vinicius Junior 15, Mbappe 90+10 pen) Rayo Vallecano 1 (de Frutos 49)

Standings

Standings

	P	W	D	L	F	A	Pts
FC Barcelona	22	18	1	3	60	23	55
Real Madrid	22	17	3	2	47	18	54
Atletico Madrid	22	13	6	3	38	17	45
Villarreal	21	13	3	5	39	23	42
Real Betis	22	9	8	5	36	28	35
Espanyol	22	10	4	8	26	27	34
Celta	22	8	9	5	29	23	33
Real Sociedad	22	7	7	8	30	30	28
Osasuna	22	7	5	10	26	27	26
Alaves	22	7	4	11	20	27	25
Athletic Club	22	7	4	11	21	31	25
Girona	22	6	7	9	21	36	25
Elche	22	5	9	8	30	32	24
Sevilla	21	7	3	11	28	33	24
Valencia	22	5	8	9	23	35	23
Getafe	22	6	5	11	16	27	23
Rayo Vallecano	22	5	7	10	18	30	22
Mallorca	21	5	6	10	24	33	21
Levante	21	4	6	11	24	34	18
Real Oviedo	22	3	7	12	12	34	16

French First Division

PSG 2 (Mayulu 22, Mendes 81) Strasbourg 1 (Doue 27); Auxerre 0 Toulouse 0; Brest 2 (Del Castillo 15 pen, Dombia 23) Nice 2 (Abdi 63, Wahi 71); Angers 1 (Mouton 25) Metz 0; Lyon 1 (Nartey 37) Lille 0

Standings

Standings

	P	W	D	L	F	A	Pts
PSG	20	15	3	2	43	16	48
Lens	20	15	1	4	34	16	46
Marseille	20	12	3	5	46	22	39
Lyon	20	12	3	5	33	20	39
Lille	20	10	2	8	34	30	32
Rennes	20	8	7	5	30	31	31
Strasbourg	20	9	3	8	33	25	30
Toulouse	20	8	6	6	31	23	30
Lorient	20	7	7	6	27	31	28
Monaco	20	8	3	9	32	33	27
Angers	20	7	5	8	21	25	26
Brest	20	6	5	9	26	33	23
Nice	20	6	4	10	27	38	22
Paris FC	20	5	6	9	26	34	21
Le Havre	20	4	8	8	16	25	20
Nantes	20	3	5	12	19	36	14
Auxerre	20	3	4	13	14	29	13
Metz	20	3	3	14	21	46	12

Italian First Division

Juventus 4 (Bremer 15, 54, McKennie 37, David 64) Parma 1 (Cambiaso 51 og); Inter Milan 2 (Martinez 16, Zielinski 31) Cremonese 0; Como 0 Atalanta 0; Torino 1 (Adams 29) Lecce 0

Standings

Standings

Inter Milan	23	18	1	4	52	19	55
AC Milan	22	13	8	1	35	17	47
Napoli	23	14	4	5	33	21	46
Juventus	23	13	6	4	39	18	45
Roma	22	14	1	7	27	13	43
Como	23	11	8	4	37	16	41
Atalanta	23	9	9	5	30	20	36
Lazio	23	8	8	7	24	21	32
Bologna	22	8	6	8	32	27	30
Udinese	22	8	5	9	25	34	29
Sassuolo	23	8	5	10	27	29	29
Cagliari	23	7	7	9	28	31	28
Torino	23	7	5	11	42	40	26
Genoa	23	5	8	10	27	34	23
Cremonese	23	5	8	10	20	31	23
Parma	23	5	8	10	15	30	23
Florence	23	4	6	13	13	30	18
Frosinone	23	3	8	12	25	36	17
Pisa	23	1	11	11	19	40	14
Verona	23	2	8	13	18	41	14

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RELEVANT
PERSONS FOR
PETREL
GEOTECHNICAL
AND GEOPHYSICAL
SURVEYS
ENVIRONMENT
PLAN



 2/2/2026



Eni is an international energy company committed to sustainable and responsible energy transition.

Eni is the operator of the Petrel Field in the Bonaparte Basin in North Western Australia.

The Petrel permit is approximately 240km WSW of Darwin, and 170km offshore of the WA coast within the Joseph Bonaparte Gulf.

Eni proposes to undertake surveys within the Petrel Field to support future development and exploration activities.

The surveys will acquire geophysical, geotechnical and environmental baseline data to better understand the existing environment and seabed characteristics of the Petrel Development Area.

The initial activities are forecast for the second half of 2026.

Am I a 'relevant person' in relation to this work?

You may be a relevant person if you or your organisation has functions, interests, or activities that may be affected by the offshore petroleum activities proposed under the environment plan being prepared. Interests that may be affected can include things like cultural and spiritual connections to the sea or interests in the protection of specific marine species.

Relevant persons for Petrel Geotechnical and Geophysical Surveys Environment Plan

Provide your Feedback

By email on info@petreleni.com.au

By post at PO Box 6862 East Perth WA 6892

By phone on 1300155 616

or access online information at petreleni.com.au

Deadline for your Feedback is 17 March 2026



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Notices

Legal Notices

TO DENNIS RONALD ORR

"TO DENNIS RONALD ORR of 48 Erumba Street, Braiiling NT 8070 TAKE NOTICE THAT: 1) by initiating application dated 05 January 2026, TRANSITIONAL LEGAL PTY LTD has commenced a proceeding against you in the Northern Territory Civil and Administrative Tribunal ('NTCAT'); 2) NTCAT has ordered that publication of this notice shall be sufficient service on you of the initiating application; 3) a copy of the initiating application may be obtained by contacting NTCAT Registry; 4) you must file a Form 2 Response with NTCAT on or before 4pm 27 February 2026; and 5) if you do not file a Form 2 Response by that date, orders may be made against you in your absence".

Public Notices

Relevant persons for Petrel Geotechnical and Geophysical Surveys Environment Plan

eni

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Provide your Feedback

By email on info@petreleni.com.au
By post at PO Box 6862 East Perth WA 6892
By phone on 1300155 616 or access online information at petreleni.com.au



Deadline for your Feedback is 17 March 2026

Notice is hereby given pursuant to section 41 of the **Partnership Act 1958** that the limited partnership known as the **SkyCity Australian Limited Partnership**, previously subsisting between SkyCity Australia Pty Ltd, ACN 090 828 612, and SkyCity Treasury Australia Pty Limited, ACN 137 547 132, was dissolved by mutual agreement with effect on and from 16 January 2026.

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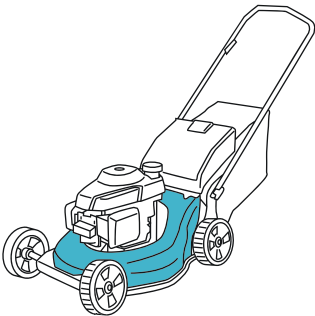
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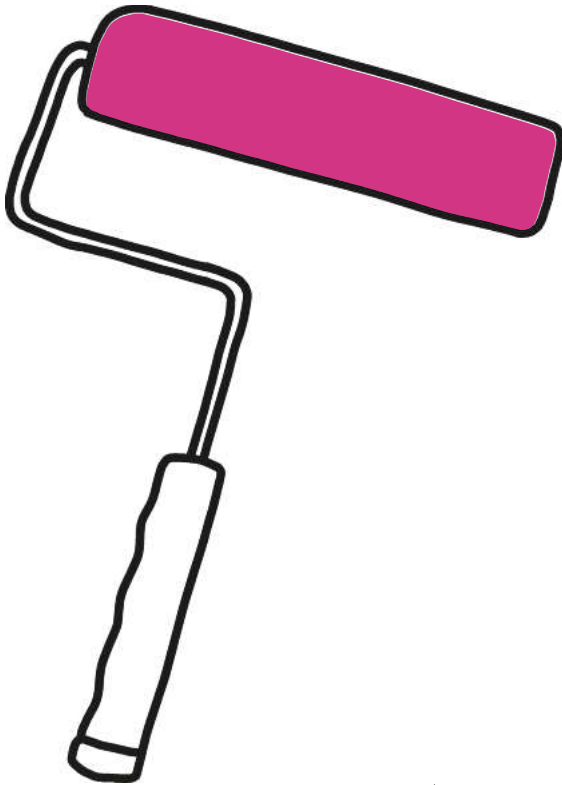
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American Football

NFL Super Bowl LX
Seattle Seahawks 29 New England Patriots 13

Basketball

NBA
(home team in CAPS)
New York Knicks 111 BOSTON CELTICS 89;
Miami Heat 132 WASHINGTON WIZARDS 101;
TORONTO RAPTORS 122 Indiana Pacers 104; LA
Clippers 115 MINNESOTA TIMBERWOLVES 96

Eastern Conference
Atlantic Division
New York Knicks 34 19 0.642 0
Boston Celtics 34 19 0.642 0
Toronto Raptors 32 22 0.593 2.5
Philadelphia 76ers 30 22 0.577 3.5
Brooklyn Nets 14 37 0.275 19
Central Division
Detroit Pistons 38 13 0.475 0
Cleveland Cavaliers 32 21 0.604 7
Chicago Bulls 24 29 0.453 15
Milwaukee Bucks 21 29 0.42 16.5
Indiana Pacers 13 40 0.245 26
Southeast Division
Orlando Magic 27 24 0.529 0
Miami Heat 28 26 0.519 0.5
Atlanta Hawks 26 28 0.481 2.5
Charlotte Hornets 25 28 0.472 3
Washington Wizards 14 38 0.269 13.5

Western Conference
Northwest Division
Oklahoma City Thunder 40 13 0.755 0
Denver Nuggets 34 19 0.642 0
Minnesota Timberwolves 30 22 0.593 8.5
Portland Trail Blazers 25 28 0.472 15
Utah Jazz 16 37 0.302 24
Pacific Division
Los Angeles Lakers 32 19 0.627 0
Phoenix Suns 31 22 0.585 2
Golden State Warriors 28 25 0.528 5
LA Clippers 25 27 0.481 7.5
Sacramento Kings 12 42 0.222 21.5
Southwest Division
San Antonio Spurs 36 16 0.692 0
Houston Rockets 32 19 0.627 3.5
Memphis Grizzlies 20 31 0.392 15.5
Dallas Mavericks 19 33 0.365 17
New Orleans Pelicans 14 40 0.259 23

Cricket
ICC Men's T20 World Cup
England v Nepal
at Wankhede Stadium
England innings
P SALT c Lamichhane b Malla1 (2)
J BUTTLER c Aas. Sheikh b Yadav26 (17)
J BETHELL c Bam b Singh Airee55 (35)
T BANTON lbw b Lamichhane2 (5)
H BROOK c Malla b Yadav53 (32)
S CURRAN b Singh Airee2 (8)
W JACKS not out39 (18)
J ARCHER run out (Aas. Sheikh)1 (3)
L DAWSON not out0 (0)
Extras (1lb 4w)5
Seven wickets for184
Fall: 5 (P Salt), 43 (J Buttler), 57 (T Banton),
128 (J Bethell), 137 (S Curran), 157 (H Brook),
178 (J Archer)

Bowling: K KC 3-0-35-0, S Malla 3-0-35-1, D Singh
Airee 3-0-23-2, N Yadav 3-0-25-2, S Lamichhane
4-0-25-1, K Bhurtel 4-0-40-0. **Overs:** 20

Nepal innings
K BHURTEL c & b Jacks29 (17)
AAS SHEIKH c Wood b Dawson7 (9)
R PAUDEL c Salt b Dawson39 (34)
D SINGH AIREE c Banton b Curran44 (29)
AAR SHEIKH c Buttler b Archer10 (8)
L BAM not out39 (20)
G JHA b Wood1 (2)
K KC not out1 (1)
Extras (10w)10
Six wickets for180
Fall: 37 (Aas. Sheikh), 42 (K Bhurtel), 124 (D
Singh Airee), 126 (R Paudel), 146 (Aar. Sheikh),
175 (G Jha)
Bowling: L Wood 3-0-31-1, J Archer 4-0-42-
1, L Dawson 4-0-21-2, W Jacks 2-0-17-1, A
Rashid 3-0-42-0, S Curran 4-0-27-1. **Overs:** 20
Result: England won by 4 runs

Sri Lanka v Ireland
at R.Premadasa Stadium
Sri Lanka innings
P NISSANKA c Stirling b Dockrell24 (23)
K MISHARA c McCarthy b Adair14 (11)
KU MENDIS not out56 (43)
P RATHNAYAKE b Dockrell5 (9)
D WELLALAGE c Dockrell b Delany10 (13)
KA MENDIS c Dockrell b McCarthy44 (19)
D SHANAKA c Adair b McCarthy0 (1)
W HASARANGA not out0 (1)
Extras (8w 1nb)9
Six wickets for163
Fall: 28 (K Mishara), 62 (P Nissanka), 68
(P Rathnayake), 86 (D Wellalage), 153 (Ka.
Mendis), 153 (D Shanaka)
Bowling: M Humphreys 4-0-44-0, M Adair 4-0-
33-1, B McCarthy 3-0-40-2, G Dockrell 4-0-17-2,
G Delany 4-0-24-1, H Tector 1-0-5-0. **Overs:** 20

Ireland innings
P STIRLING b Theekshana6 (13)
R ADAIR b Hasaranga34 (23)
H TECTOR c Rathnayake b Hasaranga40 (34)
L TUCKER c Mishara b Wellalage21 (18)
C CAMPLER c Shanaka b Hasaranga13 (11)
B CALITZ st Ku. Mendis b Theekshana4 (4)
G DELANY c Chameera b Theekshana0 (1)
G DOCKRELL c Ka. Mendis b Pathirana9 (7)
M ADAIR c Shanaka b Chameera10 (6)
B MCCARTHY not out0 (0)
M HUMPHREYS b Pathirana0 (2)
Extras (1lb 3b 2w)6
Total143
Fall: 24 (P Stirling), 56 (R Adair), 105 (L
Tucker), 113 (H Tector), 120 (B Calitz), 120 (G
Delany), 126 (C Campher), 137 (M Adair), 143
(G Dockrell), 143 (M Humphreys)
Bowling: D Chameera 3-0-25-1, M Theekshana
4-0-23-3, M Pathirana 2-5-0-26-2, D Wellalage
4-0-28-1, W Hasaranga 4-0-25-3, D Shanaka
2-0-12-0. **Overs:** 19.5
Result: Sri Lanka won by 20 runs

Golf

PGA Tour Phoenix Open
Final round at TPC Scottsdale - Stadium
Course, Arizona (par 71)

268: Chris Gotterup (USA) 63 71 70 64, Hideki
Matsuyama (JPN) 68 64 68 68 C Gotterup
won after playoff; **269:** Scottie Scheffler
(USA) 73 65 67 64, Kim Si Woo (KOR) 73 62
66 68, Nicolai Hojgaard (DEN) 66 70 65 68,
Akshay Bhatia (USA) 68 67 67 67, Michael
Thorbjornsen (USA) 66 71 65 67; **270:** Jake
Knapp (USA) 67 69 66 68; **271:** Matt Fitzpatrick
(ENG) 65 70 67 69; **272:** Viktor Hovland (NOR)
69 70 65 68, Pierceson Coody (USA) 66 68 70
68, Ryo Hisatsune (JPN) 68 63 70 71; **273:**
Kevin Roy (USA) 67 69 69 68, Dou Zecheng
(CHN) 72 66 72 63, Maverick McNealy (USA)
67 69 65 72; **Australians:** 277: Min Woo Lee
71 65 68 73; **291:** Cameron Davis 72 68 71 80

European Tour Qatar Masters

Final round at Doha GC (par 72)
272: Patrick Reed (USA) 65 67 70 70; **274:** Calum
Hill (SCO) 72 69 66 67; **275:** Jacob Skov Olesen
(DEN) 66 70 68 71, Johannes Veerman (USA) 69
68 70 68; **276:** Oliver Lindell (FIN) 66 72 68 70,
Angel Ayora (ESP) 66 69 70 71, Dan Bradbury
(ENG) 70 69 68 69, Sebastian Sodergberg (SWE)
70 72 65 69; **277:** Antoine Rozner (FRA) 70
71 66 70, Kazuma Kobori (NZL) 67 70 70 70,
Gregorio De Leo (ITA) 66 71 69 71, David
Micheluzzi (AUS) 71 66 69 71, Jayden Schaper
(RSA) 70 71 71 65; **278:** Nacho Elvira (ESP) 74
66 69 69; **279:** Kota Kaneko (JPN) 68 68 73 70,
Richard Sterne (RSA) 68 66 75 70, Grant Forrest
(SCO) 70 67 72 70, Hennie du Plessis (RSA) 72
65 71 71, Joakim Lagergren (SWE) 67 66 73 73;
Other Australians: **281:** Jason Scrivener 71 68
70 72; **285:** Ryan Peake 71 71 71 72

Soccer

English Premier League
Manchester City 2 (Silva 84, Haaland 90+3 pen)
Liverpool 1 (Szoboszlai 74); Crystal Palace 1
(Sarr 61) Brighton & Hove Albion 0

	P	W	D	L	F	A	Pts
Arsenal	25	17	5	3	49	17	56
Manchester City	25	15	5	5	51	24	50
Aston Villa	25	14	5	6	36	27	47
Manchester United	25	12	8	5	46	36	44
Chelsea	25	12	7	6	45	28	43
Liverpool	25	11	6	8	40	35	39
Brentford	25	12	10	3	39	34	37
Everton	25	10	7	8	28	28	37
Sunderland	25	9	7	9	27	29	36
Fulham	25	10	4	11	35	37	34
Bournemouth	25	8	10	7	41	44	34
Newcastle United	25	9	6	10	35	36	33
Crystal Palace	25	8	8	9	26	29	32
Brighton	25	7	10	8	34	33	31
Tottenham Hotspur	25	7	8	10	35	35	29
Leeds United	25	7	8	10	34	33	29
Nottingham Forest	25	7	5	13	25	38	26
West Ham United	25	6	5	14	31	48	23
Burnley	25	3	6	16	25	49	15
Wolves	25	1	5	19	16	48	8

English Championship

Swansea City 4 (Franco 20, Vipotnik 71, 79,
Yalcouye 89) Sheffield Wednesday 0

	P	W	D	L	F	A	Pts
Coventry City	31	17	8	6	63	35	59
Middlesbrough	30	17	7	6	47	29	58
Ipswich Town	30	15	9	6	51	29	54
Hull City	31	16	6	9	50	43	54
Millwall	31	15	8	9	39	36	53
Wrexham	31	12	11	8	44	39	47
Preston North End	31	12	11	8	38	34	47
Bristol City	31	13	7	11	43	38	46
Derby County	31	12	9	10	45	39	45
Birmingham City	31	12	9	10	43	39	45
Watford	31	11	11	9	39	36	44
QPR	31	12	8	11	42	43	44
Stoke City	31	12	7	12	34	28	43
Southampton	31	11	10	10	44	41	43
Swansea City	31	12	6	13	38	37	42
Sheffield United	30	12	3	15	43	43	39
Norwich City	31	10	6	15	39	42	36
Charlton Athletic	30	9	9	12	29	38	36
Portsmouth	29	8	9	12	27	38	33
West Brom	31	9	6	16	32	47	33
Leicester City	31	10	8	13	41	47	32
Blackburn Rovers	31	8	8	15	27	40	32
Oxford United	31	6	10	15	28	41	28
Sheffield Wed	31	1	8	22	18	62	-7

Spanish First Division

Real Madrid 2 (Carreras 65, Mbappe 90+1) Valencia
0; Real Betis 1 (Antony 28) Atletico Madrid 0;
Sevilla 1 (Salas 90+2) Girona 1 (Lemar 2); Athletic
Club 4 (Guruzeta 29, 34, Serrano 86, Navarro
90+9) Levante 2 (Elgezabal 81, Olasagasti 90+4);
Getafe 2 (Vazquez 53, Arambarri 72 pen) Alaves 0

	P	W	D	L	F	A	Pts
FC Barcelona	23	19	1	3	63	23	58
Real Madrid	23	18	3	2	49	18	57
Atletico Madrid	23	13	6	4	38	18	45
Villarreal	21	13	3	5	39	23	42
Real Betis	23	10	8	5	37	28	38
Espanyol	22	10	4	8	26	27	34
Celta	23	8	9	6	30	25	33
Real Sociedad	23	8	7	8	33	31	31
Osasuna	23	8	5	10	28	28	29
Athletic Club	23	8	4	11	25	33	28
Getafe	23	7	5	11	18	27	26
Girona	23	6	8	9	22	37	26
Sevilla	23	7	4	12	30	38	25
Alaves	23	7	4	12	20	29	25
Elche	23	5	9	9	31	35	24
Mallorca	23	6	6	11	28	37	24
Valencia	23	5	8	10	23	37	23
Vallecano	22	5	7	10	18	30	22
Levante	22	4	6	12	26	38	18
Real Oviedo	22	3	7	12	12	34	16

French First Division
PSG 5 (Dembele 12, 37, Medina 64 og,
Kvaratskhelia 66, Lee 74) Marseille 0; Angers
1 (Rao-Lisoa 89) Toulouse 0; Le Havre 2
(Zagadou 26, Soumare 54) Strasbourg 1 (Godo
36); Auxerre 0 Paris FC 0; Monaco 0 Nice 0

Italian First Division

Juventus 2 (McKennie 59, Kalulu 90+6) Lazio 2
(Isaksen 47, Pedro 47); Inter Milan 5 (Bisseck
11, Thuram 28, Martinez 50, Akanji 54,
Henrique 89) Sassuolo 0; Lecce 2 (Gandelman
5, Banda 90) Udinese 1 (Solet 26 pen); Parma 1
(Ordenez 90+5) Bologna 0

German Bundesliga

Bayern Munich 5 (Kane 20 pen, 45 pen, Diaz
47, 62, 89) Hoffenheim 1 (Kramaric 35);
Leipzig 2 (Baumgartner 29, 56) FC Cologne 1
(Thielmann 51)

Tennis

Open Occitanie
at Montpellier, France
(prefix denotes seeding)
Men Final: 1-Félix Auger-Aliassime (CAN) d
Adrian Mannarino (FRA) 6-3 7-6(4)

Qatar Open

at Doha
Women Rd 1: Alycia Parks (USA) d 15-Diana
Shnaider (RUS) 1-6 6-4 7-6(5); Karolína
Plíšková (CZE) d Solana Sierra (ARG) 6-1
6-2; Vera Zvonareva (RUS) d Peyton Stearns
(USA) 2-6 6-2 6-3; Magda Linette (POL) d
Sonay Kartal (GBR) 6-4 3-6 6-3; 10-Victoria
Mboko (CAN) d Marie Bouzková (CZE) 7-5
6-2; Ann Li (USA) d Leylah Fernandez (CAN)
6-4 6-3; 16-Elise Mertens (BEL) d Anastasia
Pavlyuchenkova (RUS) 6-2 6-1; Magdalena
Frech (POL) d 13-Liudmila Samsonova (RUS)
6-3 4-6 7-6(7); 14-Karolína Muchová (CZE)
d Jaqueline Cristian (ROU) 6-2 6-3; Daria
Kasatkina (AUS) d Moyuka Uchijima (JPN) 4-6
6-3 6-0; Elisabetta Cocciaretto (ITA) d Elsa
Jacquemot (FRA) 7-6(4) 6-2; Varvara Gracheva
(FRA) d Laura Siegemund (GER) 7-6(3) 6-4

Abu Dhabi Open

at Abu Dhabi, UAE
Women Final: Sára Bejlek (CZE) d 2-Ekaterina
Alexandrova (RUS) 7-6(5) 6-1

Ostrava Open

at Ostrava, Czech Republic
Women Final: Katie Boulter (GBR) d Tamara
Korpatsch (GER) 5-7 6-2 6-1

Transylvania Open

at Cluj-Napoca, Romania
Women Final: 3-Sorana Cirstea (ROU) d
1-Emma Raducanu (GBR) 6-0 6-2

Horse Racing

Yesterday's Dividends

CAULFIELD HEATH

Race 1: 2 Best Time \$15.30 \$2.20 5 Jimmy
Beans \$1.10 3 Nothin' Wong Here \$1.30. Q:
\$9.40. E: \$40.10. T: \$66.50. A2: 2-5: \$3.90,
2-3: \$4.20, 5-3: \$1.30. FIRST 4: (2 5 3 7)
\$214.10. All Started.
Race 2: 3 Xtra Rush \$3.10 \$2.00 2 Single
Choice \$2.20 7 So Suave NTD. Q: \$6.20. E:
\$13.50. T: \$91.90. A2: F-F: Not won pool
jackpots. FIRST 4: (3 2 7 4) \$442.30. Scr: 1.
Race 3: 3 Yes Yoshi \$1.60 \$1.10 5 Savitri \$2.20
2 Electric Elvis \$1.50. Q: \$6.10. E: \$5.80.
T: \$33.10. A2: 3-5: \$3.40, 3-2: \$2.90, 5-2:
\$8.40. FIRST 4: (3 5 2 1) \$93.60. All Started.
Race 4: 9 Gentle Steel \$5.60 \$1.60 1 Celerity
\$1.10 11 Tiz Worthy \$3.00. Q: \$4.00. E:
\$12.20. T: \$61.90. A2: 9-1: \$1.40, 9-11:
\$9.00, 1-11: \$4.40. FIRST 4: (9 1 11 6)
\$325.30. Scr: 5,7,10.
Race 5: 2 She's An Artist \$1.50 \$1.20 4 Excess
\$4.90 3 Along Time The River NTD. Q: \$9.20. E:
\$12.40. T: \$22.50. A2: F-F: Not won pool
jackpots. FIRST 4: (2 4 3 6) \$89.90. Scr: 5.
Race 6: 6 Curse It! \$2.40 \$1.10 4 Vivacissimo
\$1.70 7 Just Jenni \$1.90. Q: \$7.20. E: \$9.90.
T: \$35.10. A2: 6-4: \$2.40, 6-7: \$3.20, 4-7:
\$4.00. FIRST 4: (6 4 7 1) \$393.80. Scr: 8.

EARLY QUADDIE: 2 Best Time 3 Xtra Rush 3
Yes Yoshi 9 Gentle Steel \$933.40. Sub: 5 3 3 1.

MUSWELLBROOK

Race 1: 7 Extraglow \$1.50 \$1.10 1 Moke
Lake \$2.60 8 Russian Words NTD. Q: \$4.90.
E: \$9.80. T: \$48.30. A2: F-F: Not won pool
jackpots. FIRST 4: (7 1 8 4) \$133.40. Scr:
3,5,9.
Race 2: 2 Are You Kidding \$1.20 \$1.00 5
Warm Front \$2.80 9 Robbed By Rob NTD. Q:
\$5.00. E: \$4.70. T: \$17.50. A2: F-F: Not won
pool jackpots. FIRST 4: (2 5 9 10) \$36.50. Scr:
1,3,6.
Race 3: 8 Alarthill \$20.20 \$3.80 6 Velka \$1.40
4 Morpeth \$3.70. Q: \$21.20. E: \$100.00. T:
\$508.50. A2: 8-6: \$6.10, 8-4: \$26.00, 6-4:
\$5.80. FIRST 4: (8 6 4 5) \$1,650.40. Scr: 2,10.

Race 4: 6 Miss Rebel \$2.70 \$1.50 3 Xtra
Appoval \$9.60 1 Kranich NTD. Q: \$77.80. E:
\$156.20. T: \$216.30. A2: F-F: Not won pool
jackpots. FIRST 4: (6 3 1 4) \$513.10. Scr: 2,7,8.
Race 5: 5 Damascus Gate \$5.90 \$2.30 4
Commando Jack \$1.80 1 Jasper's Way \$2.10.
Q: \$19.00. E: \$29.10. T: \$193.90. A2: 5-4:
\$7.10, 5-1: \$6.40, 4-1: \$7.10. FIRST 4: (5 4 1
2) \$570.20. Scr: 6.
Race 6: 5 Lune D'excellence \$5.00 \$1.30 2
Explosive Tycoon \$2.90 7 Vicious Rumour
\$1.00. Q: \$18.90. E: \$41.30. T: \$92.60. A2:
5-2: \$6.80, 5-7: \$3.00, 2-7: \$3.30. FIRST 4:
(5 2 7 8) \$145.60. Scr: 1,4,6,10,11,3(L),9(L).

Race 7: 4 Viipuri \$2.60 \$1.40 3 Sapphire Kiss
\$2.70 13 Seeni \$4.70. Q: \$11.50. E: \$16.70.
T: \$104.80. A2: 4-3: \$3.50, 4-13: \$8.30, 3-13:
\$15.20. FIRST 4: (4 3 13 11) \$575.20. Scr:
8,1(L),5(L),9(L).

DOUBLE: 5 Damascus Gate 4 Viipuri \$12.10.
Sub: 3 4. **TREBLE:** 5 Damascus Gate 5 Lune
D'excellence 4 Viipuri \$66.60. Sub: 3 7 4.
EARLY QUADDIE: 7 Extraglow 2 Are You
Kidding 8 Alarthill 6 Miss Rebel \$154.70. Sub:
7 2 5 6. **QUADDIE:** 6 Miss Rebel 5 Damascus
Gate 5 Lune D'excellence 4 Viipuri \$247.00.
Sub: 6 3 7 4.

ORANGE

Jobs

CEO & General Management

General Manager
Road Transport Historical Society (RTHS)

Location: **Alice Springs, NT**
Employment Type: **Full-time**
Contract: **12-month contract (with potential extension)**

The Road Transport Historical Society (RTHS) is seeking an experienced and hands-on General Manager to lead the organisation through a critical period of stabilisation, renewal and growth.

This is a senior employee role reporting directly to the Management Committee and responsible for the overall leadership, financial sustainability and operational performance of RTHS.

ABOUT THE ROLE

- The General Manager will:
- lead implementation of priority reforms arising from a Strategic Investment Review
 - strengthen governance, solvency and financial management
 - act as the principal liaison with NT Government, industry and funding partners
 - drive commercial and visitor-experience improvements, including café leasing and re-establishment of the Mini-Ghan
 - oversee operations, assets, safety, staff and volunteers
 - provide high-quality advice and reporting to the Management Committee

ABOUT YOU

- You will bring:
- senior leadership experience in not-for-profit, cultural, tourism, heritage or asset-based organisations
 - strong financial and commercial acumen, including cash-flow management, budgets and funding agreements
 - demonstrated experience negotiating with government, industry and partners
 - sound governance, compliance and WHS capability
 - experience leading staff and volunteers through change
 - excellent communication skills and confidence working with boards or committees

A genuine interest in heritage, education and tourism outcomes for Central Australia and the Northern Territory is highly regarded.

WHY JOIN RTHS

This is a rare opportunity to:

- lead a respected heritage organisation at a pivotal moment
- shape long-term sustainability and investment readiness
- work closely with government and industry on nationally significant projects
- make a lasting contribution to Alice Springs' cultural and tourism landscape

HOW TO APPLY

For further information or to request the Position Description, please contact:
Erin Cassidy
Erin.Cassidy@nt.gov.au

Applications should include a cover letter and CV and be submitted by:
20 February 2026

Notices

Public Notices



**CHINESE FESTIVAL DATES & TIMES
YEAR OF THE HORSE - 2026 (FIRECRACKERS)**

Date	Time	Events
Monday 16th February	Midnight	Chinese New Year
Saturday 21st February	8:30 am	Shop Blessing
Saturday 28th February	8:30 am	Shop Blessing

Locations: Darwin Chinese Temple, CBD, Parap, Fannie Bay & Northern Suburbs
For further information please contact on 0407 725 845

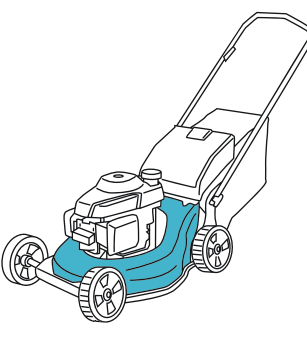
**LIQUOR ACT
NOTICE OF APPLICATION FOR GRANT
OF LIQUOR LICENCE**

Oceanview Developments Pty Ltd hereby gives notice it has applied to the Director of Liquor Licensing for the grant of a liquor licence with a Major Event Authority applied for their premises to be known as Darwin River Tavern located at 195 Darwin River Road DARWIN RIVER NT 0841 Australia.

The Liquor Act 2019 requires a notice to be published of the application along with a detailed description of the business proposed to be conducted, how to obtain a copy of the Community Impact Assessment and how to lodge an objection to the liquor licence, which may be found at the following address: <https://dth.nt.gov.au/publications/racing-gaming-and-licensing/advertised-liquor-licence-applications> or by email directorliquorlicensing@nt.gov.au

Dated 11/02/2026

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Relevant persons for Petrel Geotechnical and Geophysical Surveys Environment Plan



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Provide your Feedback

By email on info@petreleni.com.au
By post at PO Box 6862 East Perth WA 6892
By phone on 1300155 616 or access online information at petreleni.com.au



Deadline for your Feedback is 17 March 2026

**2026 NIGHTCLIFF
BY-ELECTION**

**CANDIDATE
NOMINATIONS
NOW OPEN**



HOW TO NOMINATE

Candidate nominations are now open and close at 12 noon on Thursday 19 February 2026.

Submit your nominations early, late nominations cannot be accepted.

For more information and to nominate go to ntec.nt.gov.au

ISSUE OF THE WRIT

The NT Electoral Commission, pursuant to section 29(b) of the *Electoral Act 2004*, gives notice that a writ for a by-election for the division of Nightcliff was issued on Thursday 12 February 2026.

NEED HELP AND STAY UP TO DATE

Contact the NT Electoral Commission

 1800 698 683  ntec@nt.gov.au

KEY ELECTION DATES

Issue of the writ
Thursday 12 February

Nominations open
Thursday 12 February

Electoral roll close
Friday 13 February, 5:00 pm

Nominations close
Thursday 19 February, 12:00 noon

Early voting commences
Monday 23 February

Election day
Saturday 7 March

Postal vote applications are now open and close:
Domestic - Thursday 5 March, 5:00 pm/ International - Tuesday 3 March, 5:00 pm

ntec.nt.gov.au
Authorised by the NT Electoral Commission, Darwin



Northern Territory
Electoral Commission
EVERY VOTE COUNTS

Notices

Meetings



NORTHERN TERRITORY CATTLEMEN'S ASSOCIATION INC.
Advancing and protecting the interests of cattle producers in the Northern Territory
Member - National Farmers' Federation

NOTICE OF MEETING

42nd Annual General Meeting
Northern Territory
Cattlemen's Association Inc.

**3.30pm
Thursday 19th March 2024**
Darwin Convention Centre

**Nominees:
President:**
Mr Henry Burke, Consolidated Pastoral Company

National Farmers Federation Delegate:
Mr. Ross Stanes, Lyndavale Pty Ltd

Enquiries: (08) 8981 5976 or office.darwin@ntca.org.au

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Careers

Jobs

CEO & General Management

General Manager Road Transport Historical Society (RTHS)

Location: **Alice Springs, NT**
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By email on info@petreleni.com.au
By post at PO Box 6862 East Perth WA 6892
By phone on 1300155 616 or access online information at petreleni.com.au



Deadline for your Feedback is 17 March 2026

Legal Notices

NOTICE OF LOST TITLE

Would anyone holding or knowing the whereabouts of the duplicate Certificate as to Title for: Volume: **864** Folio: **951** for Unit 6932 Hundred of Bagot Plan UTS2014/083, in the name of **LISA JOY THOMASON** please contact De Silva Hebron, Barristers & Solicitors at NTSolicitors@desilvahebron.com.au



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Tributes

Tributes & Condolences

CERCARELLI, Paolina

12 May 1940
06 Feb 2026

The Mayor, Elected Members, Chief Executive Officer and staff of City of Palmerston extend their heartfelt condolences and sympathy to Paolina Cercarelli's children Luccio, Rino and Lilia and the entire Cercarelli family.

Over 1.9 million historical records

From across Australia dating back over 30 years.



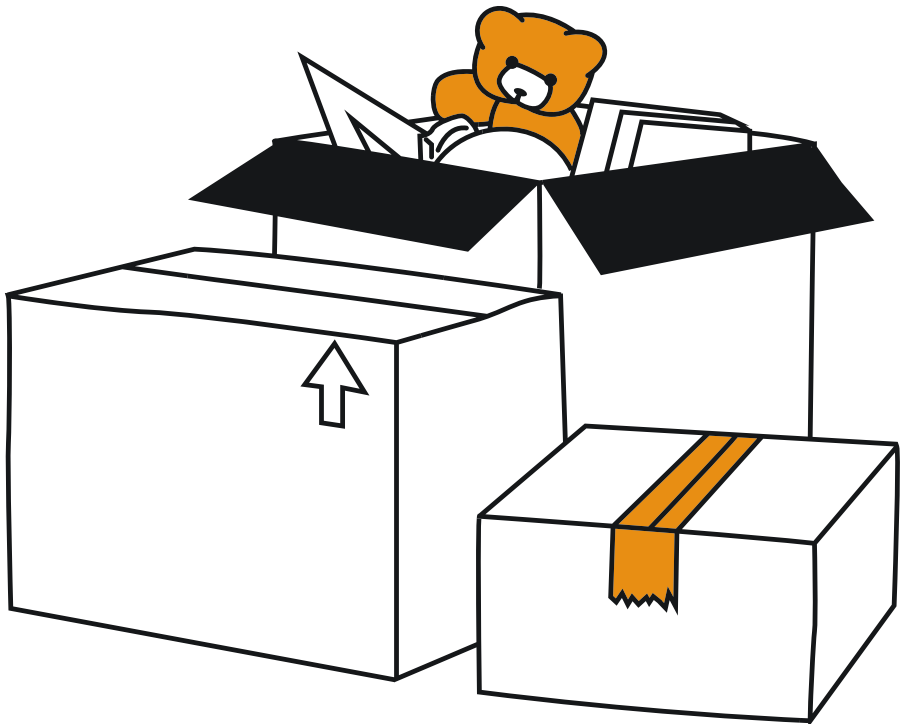
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Jobs

Manufacturing, Transport & Logistics



FIFO MC OPERATORS WANTED

Mine Haul Logistics are seeking experienced, multiskilled, FIFO MC operators to work regionally in WA. Casual position, attractive hrly rate, paid weekly, flights covered ex Darwin & opportunity to work on a variety of heavy equipment.

- ROAD TRAIN SIDE TIPPER OPERATORS
- ROAD TRAIN WATERCART OPERATORS
- LOADER OPERATORS

Criteria:

- Current MC Driver's license (proven exp. 18-speed Road Ranger gearbox)
- Min 1-2 years of road train driving exp.
- Exp. operating heavy equipment in mining/civil
- White/Blue Card
- Ability to obtain a NPC
- Ability to pass pre employment medical & ongoing drug/alcohol screening

TO APPLY: Email your resume through to:
kate.darcy@minehaullogistics.com.au

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Notices

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Deadline for your Feedback is 17 March 2026

What a find!

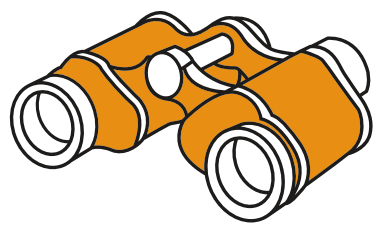
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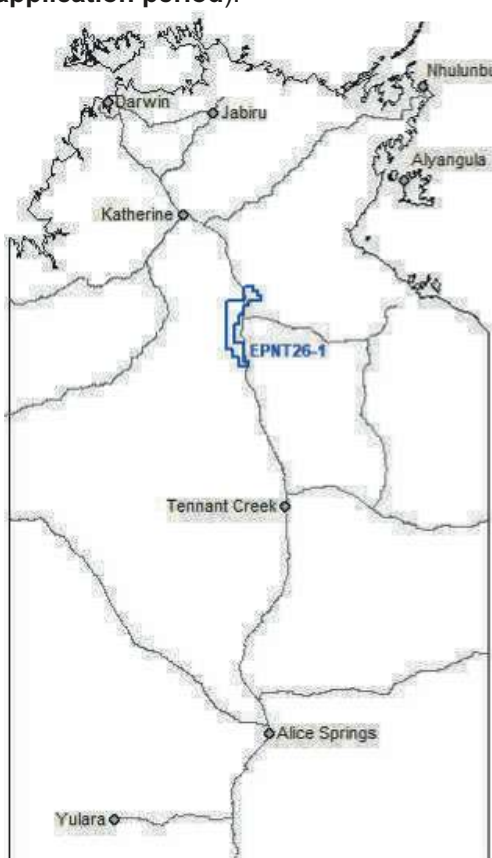


Northern Territory of Australia

Petroleum Act 1984

Notice of Invitation for a Petroleum Exploration Permit Application (ACREAGE RELEASE)

Under section 16(1) of the *Petroleum Act 1984*, the Minister for Mining and Energy invites applications and submissions for the grant of a petroleum exploration permit for the areas described below. This invitation commences on **19 February 2026** and ends at **4pm ACST on Friday, 31 July 2026** (the application period).



Description of Area Acreage Release Area EPNT26-1

(46 full and 4-part blocks)

Map Sheet SD53
Roper River
Designated Block No.s
3258, 3259, 3330, 3331, 3332, 3402, 3403, 3404, 3405.

Map Sheet SE53
Newcastle Waters
Designated Block No.s
14, 15, 16, 17, 18, 86, 87, 88, 89, 158, 159, 160, 161 part, 230, 231, 232, 302, 303, 304, 374, 375, 446, 447, 518, 519, 590, 591, 662, 663, 664, 665, 734 part, 735 part, 736, 737, 807 part, 808, 809, 881, 953, 954.

Acreage Release Area EPNT26-1 may be viewed at <http://strike.nt.gov.au/wss.html>.

The reason why the blocks are intended to be released for exploration

The area proposed for release includes areas within the defined boundaries of the Beetaloo Sub-basin, within the greater McArthur Basin. This is a highly prospective onshore basin with proven unconventional petroleum systems. The area is supported by a substantial subsurface dataset, including 37 wells and more than 9,000 km of seismic data within the sub-basin, as well as regional seismic and well data. This release provides an opportunity to further appraise and develop a strategically important gas resource, supporting domestic energy security.

The Northern Territory Geological Survey assesses the acreage release area as highly prospective for petroleum, with the Beetaloo Sub-basin representing one of Australia's most significant onshore gas provinces. Drilling, testing, and geochemical studies have confirmed a series of working unconventional petroleum systems, characterised by thick, organic-rich shale source rocks with demonstrated hydrocarbon generation, and retention, and supported by recent flow tests indicating significant gas rates and stable production.

Some reservoir-seal pairs within the Beetaloo Sub-basin have also been identified as potential Carbon Capture and Storage targets.

Submissions

The public can comment on the proposed acreage release by lodging a submission under section 16(2)(db) of the *Petroleum Act 1984*. The Minister for Mining and Energy will consider the submissions and make a determination to release the specified blocks for exploration or otherwise. The period during which submissions may be made is the same as the **application period** and are limited to the following:

- (a) if there are other existing or proposed industries for a specified block – whether exploration of the specified block is possible at the same time
- (b) whether the land of a specified block is suitable for exploration.

Note: The submission may submit that the land is not suitable for exploration because the land is subject to intensive agriculture, of high ecological value, of high scenic value, culturally significant or of strategic importance to nearby residential areas.

Submissions are to be emailed to DME.PetroleumRelease@nt.gov.au.

Applications

Applications should be prepared in accordance with section 16(3) of the *Petroleum Act 1984* and submitted to the Department of Mining and Energy prior to **4pm ACST on Friday, 31 July 2026**.

The *Native Title Act 1993*, Right to Negotiate Procedure is used for all petroleum negotiations on pastoral leasehold land. Further details of the application requirements are set out in the Northern Territory Petroleum Exploration Permit Application Guidelines.

The guidelines and the acreage release data package are available at <https://dme.nt.gov.au/energy/petroleum-acreage-releases>.

Applications together with supporting data for Acreage Release area EPNT26-1 may be submitted to DME.PetroleumRelease@nt.gov.au.

Enquiries may be directed to the Director Petroleum Tenure, on telephone + 61 8 8999 5396 or DME.PetroleumRelease@nt.gov.au.

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By post at PO Box 6862 East Perth WA 6892
By phone on 1300155 616 or access online information at petreleni.com.au



Deadline for your Feedback is 17 March 2026

Tenders, Quotes & Contracts

Tender Notice



RFQ Number: 6012026
RFQ Title: Tiwi Land Council Roof Rectification Project
Description: The project aims to eliminate water ingress, replace deteriorated roofing components, and ensure long-term waterproofing integrity.
Location: Darwin
Tender Documents: Available Via Email: finance@tiwilandcouncil.com
Closing Date: 2:00 PM Darwin Time (CST) Monday 2/03/26

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Tributes

Deaths

Vale
Peter Holland

Remembering all the good times

- Kate, Daniel, Peter, Aaron and Hannah

PLENTY, Helen Marjorie



29 May 1931
16 Feb 2026

In loving memory
Cherished wife of Ed, loving mother to Geoff, Brian, Robin, Olwyn, and Matt. Wonderful grandmother to eleven, and great grandmother to thirteen. At peace and lovingly reunited with Ed

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Funerals

HELEN PLENTY

A funeral service for Helen will be held in our Resthaven Chapel, 121 Amy Johnson Avenue, Marrara at 3.30pm Wednesday 25.2.2026.

A private cremation will follow.

Darwin Funeral Services
8945 2222

Find Support

Griefline:
1300 845 745
griefline.org.au

Beyond Blue:
1300 22 46 36
beyondblue.org.au

Lifeline:
13 11 14
lifeline.org.au



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RAMSAY, Colleen Ann

It is with heavy hearts we announce the passing of our beloved mother.

24th May 1945 - 10th February 2026.

Beloved wife/widow of James (dec). Devoted mother to Nathan and Gina.

Loving sister to Alan (dec) John (dec) June, Peter and respected aunty and dear friend to many.

Her service will be held at 3pm on Friday 6th March 2026, at Somerville Funerals Nerang Chapel, 129 Nerang Broadbeach Road, Nerang, Gold Coast, QLD, 4211.

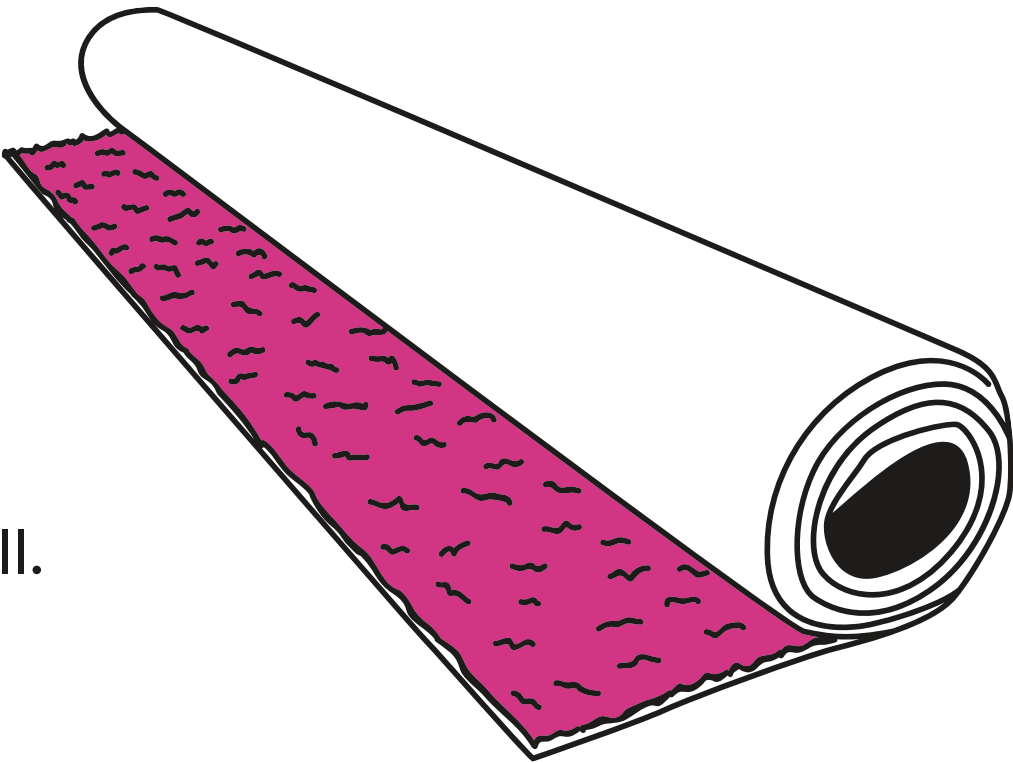


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2026

NIGHTCLIFF
BY-ELECTION

VOTING PERIOD

23 FEBRUARY - 7 MARCH

The NT Electoral Commission gives notice of early, election day and mobile voting centres in accordance with s42(2) and 78(5)(a) of the *Electoral Act 2004*.

WHEN AND WHERE TO VOTE

EARLY VOTING

NIGHTCLIFF COMMERCIAL PRECINCT
69 Progress Drive, Nightcliff
(old ten pin bowling site)

Monday 23 to Friday 27 February
8am to 5pm

Saturday 28 February
8am to 3pm

Monday 2 to Thursday 5 March
8am to 5pm

Friday 6 March from 8am to 5pm

POSTAL VOTE

Applications are now open and close
6pm on Thursday 5 March 2026.
Go to www.ntec.nt.gov.au

NEED HELP?
Contact the NT Electoral Commission
tel: 1800 698 683
email: ntec@nt.gov.au



ELECTION DAY VOTING

NIGHTCLIFF HIGH SCHOOL GYMNASIUM
90 Aralia Street, Nightcliff

Saturday 7 March: 8am to 6pm

URBAN MOBILE SCHEDULE

Urban mobile voting services will be available at the below hospitals for patients, hospital staff and visitors.

Palmerston Hospital
Tuesday 24 February: 9am to 12pm

Darwin Private Hospital
Wednesday 25 February: 9am to 12pm

Royall Darwin Hospital
Thursday 26 February: 9am to 2pm

Visit www.ntec.nt.gov.au for the voting schedules.

In accordance with section 85A(3) of the *Electoral Act 2004* the Commissioner gives public notice of the following approved systems for specified purposes for the 2026 Nightcliff By-election:

- eLAPPs (elector mark off) – recording the issue of ballot papers
- TIGER (election management system) issuing and returning of postal voting papers, counting and processing of votes.

LITCHFIELD COUNCIL

PUBLIC NOTICE

Proposed Declaration of
Dog Restriction Area – Asche

Notice is hereby given that Litchfield Council proposes to declare the suburb of Asche a Dog Restriction Area pursuant to Section 23 of the Litchfield Council (Dog Management) By-Laws 2017.

If declared, the restriction would limit all properties in Asche to a maximum of two (2) dogs, unless a licence is granted by Council.

Asche is a newly established suburb within the Greater Holtze development and is not yet occupied. The area will comprise approximately 544 residential lots (average size approximately 450m²) with low-medium and medium density zoning and interconnected community parks as well as commercial areas proposed for the Territory Reserve Parcel.

The proposed restriction aims to proactively support community wellbeing in a high-density environment by:

- Reducing the risk of excessive barking and noise complaints
- Minimising odour and waste concerns
- Preventing dog overcrowding and promoting animal welfare
- Providing clear expectations for future residents.

Introducing the restriction prior to occupation will avoid retrospective enforcement issues.

You can provide feedback on the proposed Declaration of Dog Restriction Area, Asche from Monday, 23 February 2026 until 5pm on Monday, 23 March 2026.

Submissions can be made in writing via:
Email: council@litchfield.nt.gov.au
Mail: Supervisor Regulatory Services, Litchfield Council, PO Box 446, Humpty Doo, NT 0836
Council will consider all submissions prior to making a final decision at the Ordinary Council Meeting in April 2026.

For further information, please contact Council on (08) 8983 0600 or visit Council's website <https://litchfield.nt.gov.au/>.

Tel (08) 8983 0600 • Email council@litchfield.nt.gov.au
7 Bees Creek Road, Freds Pass NT 0822
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Relevant persons for Petrel Geotechnical and Geophysical Surveys Environment Plan



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Provide your Feedback
By email on info@petreleni.com.au
By post at PO Box 6862 East Perth WA 6892
By phone on 1300155 616 or access online information at petreleni.com.au



Deadline for your Feedback is 17 March 2026

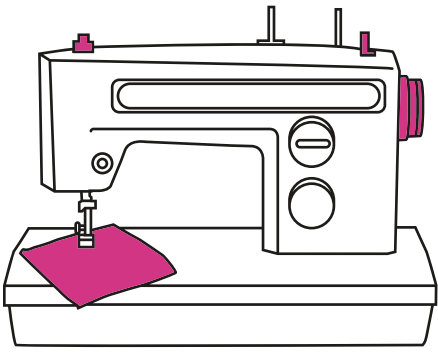
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Tenders, Quotes & Contracts

REQUEST FOR TENDER
ATKINS DRIVE
LIGHTING PROJECT

Contract No: 2026-003
Closing: 2:00pm ACST
Tuesday 24 March 2026

Tender documents can be downloaded from: tenderlink.com/darwin

Enquiries should be referred via the e-tendering forum on the tender portal.

Tenders must be lodged electronically through the City of Darwin Tender Portal and must be received in the electronic tender box prior to the prescribed closing time and date.

Any canvassing of Elected Members or City of Darwin staff in relation to this RFT shall result in the proposal being automatically disqualified.

City of Darwin reserves the right to accept or reject any proposal.

Notice of the successful tenderer will be published on City of Darwin website darwin.nt.gov.au

Simone Saunders
Chief Executive Officer



EAST
ARNHEM
REGIONAL
COUNCIL

CURRENT TENDER
NOTIFICATIONS

- RFT2627.01 Supply of Loaders
Closing - 23 March 2026 - 2PM ACST
- RFT2627.02 Supply of Tractors
Closing - 23 March 2026 - 2PM ACST
- RFT2627.03 Supply of Trucks
Closing - 23 March 2026 - 2PM ACST
- RFT2627.04 Supply of Vehicles
Closing - 23 March 2026 - 2PM ACST

A full description and details of the works are included in the Tender Documentation which are available via the **Tenders.net** portal.

Submissions shall be lodged on the **Tenders.net** portal by the closing date of as noted above. Late, emailed or facsimiled submissions will not be accepted.

<http://tenders.net/>

For Enquiries:
Procurement Officer
East Arnhem Regional Council
(08) 8943 9521
procurement@eastarnhem.nt.gov.au
www.eastarnhem.nt.gov.au

REQUEST FOR TENDER
WEST LANE CAR PARK
SOLAR: DESIGN AND
CONSTRUCT

Contract No: 2026-006
Closing: 2:00pm ACST
Tuesday 24 March 2026

Tender documents can be downloaded from: tenderlink.com/darwin

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Chief Executive Officer



DARWIN WATERFRONT
CORPORATION

Request for Tender - New Office
and Community Hall Development

Darwin Waterfront Corporation is seeking tender submissions for the design and construction of a new office and community hall, located at the Darwin Waterfront.

A detailed description of the scope and tender documentation is available at www.waterfront.nt.gov.au/tenders

Closing date: Tuesday, 31st March 2026, 4pm ACST.



Call 13 11 13



13 11 35

Tributes

Deaths

**DICKINSON
(nee Litchfield),
Janet Margaret**
13.2.1940 - 12.2.2026

Daughter of
Boyne Litchfield
and granddaughter of
Jessie Litchfield.
Loving wife of
Noel Dickinson.
Adored mother of Stella,
Seth & Noela and families.
Privately cremated.

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with us



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1.9 million
historical
notices

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historical records online.



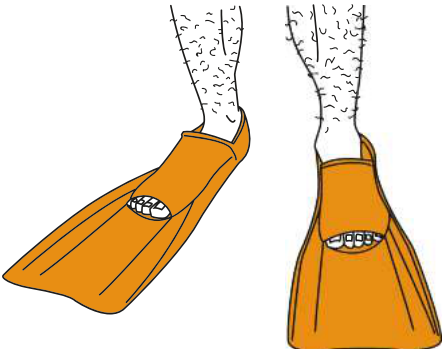
PUBLIC QUOTE REQUEST
LARAMBA CHILDCARE UPGRADES

Closing date: 4:00 PM Australian CST
Tuesday 17th March 2026

Visit - <https://www.centraldesert.nt.gov.au/business-with-council/request-for-quotes>
Email: Quotations@centraldesert.nt.gov.au



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Mining Notices

NOTICE OF MINERAL TITLE APPLICATIONS

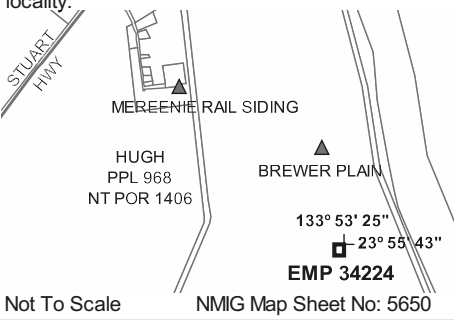
MINERAL TITLES ACT 2010 SECTION 71

Objections or Submissions to mineral title applications (s71 [3])

The landowner(s) of land in respect of which the following applications are made may lodge an objection to the grant of the application; any other persons may lodge a submission. Objections and submissions must be lodged in writing to the Department of Mining and Energy, GPO Box 4550, DARWIN NT 0801 or emailed to titles.info@nt.gov.au.

Objections and submissions can also be lodged at Centrepont Building, 48-50 Smith Street, Darwin, within 30 days from the relevant Notification Date, which is set out below.

Extractive Mineral Permit 34224 sought by APJ CONCRETE PTY LTD, ACN 009 652 868 over an area of 13 Hectares depicted below for a term of 5 years, within the ALICE SPRINGS locality.



Not To Scale NMIG Map Sheet No: 5650

Notification Date: 11 March 2026

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Exercise stress test raised by State Coroner

CAIN ANDREWS

The WA Coroner has found an Aboriginal man who died after suffering a heart attack at West Kimberley Regional Prison in 2023 may have been prevented if he had undergone an exercise stress-test earlier.

However, Acting State Coroner Sarah Helen Linton also noted that she could not make a finding that the man's death could have definitely been prevented.

Lewis Walter Ward, who was in his early 30s, died in Royal Perth Hospital on July 25, 2023, after suffering a heart attack while playing football at the prison near Derby on July 15.

Despite conducting CPR and using a defibrillator on Ward as soon as possible after his collapse, the inquest noted that by the time he had reached RPH, oxygen deprivation had caused brain death.

Mr Ward was due to

undergo an exercise stress test in February 2022 but due to miscommunication, Ward missed the appointment.

On July 3, 2023, the missed appointment was finally identified with another made for July 18, 2023.

However, he collapsed three days before that appointment.

"Taking the evidence before me at its highest, I am satisfied there was a missed opportunity to investigate Mr Ward's cardiovascular health through an exercise stress test, due to the failure by the Department and WACHS to identify the appointment had been missed for a lengthy period," Ms Linton said.

"Such testing may have identified that Mr Ward required further cardiovascular testing/intervention, but I cannot find conclusively that it would have prevented Mr Ward's death, given the many unknowns."

Ward was serving a sen-

tence for "a serious act of violence" against his baby daughter when he died.

He was sentenced in August 2021 for the "act of violence" which was intended for his partner and was due to be eligible for parole in September 2023.

Ward had a history of heart disease and other medical conditions including type 2 diabetes and high cholesterol.

An echocardiogram (ECG) performed before Ward's death on September 20, 2022, suggested he had suffered from a heart attack in the past, although Ward may have been unaware it had occurred.

Ms Linton recommended the Department of Justice consider improving the coverage of CCTV cameras over the football oval at West Kimberley Regional Prison and work towards introducing body-worn cameras in all prisons, including at West Kimberley.



Black Stump Gallery owners Emma Blyth and Simon Haggett. Pictures: Phoebe Solon

Gallery's artists inspired by land

PHOEBE SOLON

Black Stump Gallery in Broome has announced its 2026 exhibition program, which will showcase Indigenous and contemporary artists whose works are inspired by the Kimberley region and its landscapes.

Located in Old Broome, the gallery exhibits a wide range of works across various media, alongside locally inspired, Australian-made art and gifts.

The original artworks on display are characterised by a deep connection to the land and its natural beauty, bringing together artists who present their own interpretations of the Kimberley.

Gallery owners, Emma Blyth and Simon Haggett say the upcoming program reflects long-standing relationships with artists and art centres across northern WA, as well as a commitment to presenting diverse creative practices.

Hosting a number of exhibition opening nights, Ms Blyth said these events were always popular with the community.



Some Indigenous art.



Artist Jeanne Barnes.

"They are great nights ... we have drinks, nibbles and music and are always really popular," she said.

The exhibition season begins with artist Jeanne Barnes, whose work will be on display from June 5 to 18, with an opening night on June 5 from 5pm to 7pm.

From June 19 to July 2, the gallery will present an exhibition by Ros Hamdorf, with opening night June 19.

Jules Bulleid, a contemporary landscape painter, will exhibit from July 3 to 16, followed by Leon Pericles from July 17 to 30, with opening nights scheduled for July 3 and 17 respectively.

A group exhibition by artists from Warmun Art Centre will run from July 31 to August 13,

with opening night on July 31.

Warmun artists are widely known for their use of natural ochres, which are sourced and prepared on country, resulting in works that are closely tied to place, culture and tradition.

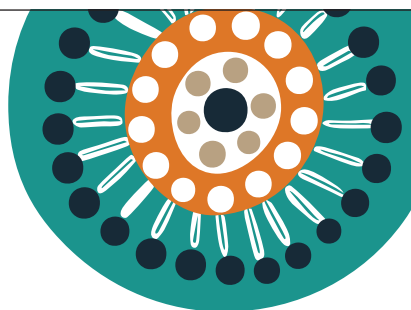
"All the women use all natural ochres in their painting, taken from certain areas to create different colours," Mr Haggett said.

The program concludes with Jeanette Dyson, whose exhibition will be held from August 28 to September 10, with an opening night on August 28.

Visitors can also enjoy the gallery's permanent exhibition featuring Kimberley artists including Robert Nanala Tjapaltjarri, Leon Pericles, April Nulgit and many more.



Australian Government
National Indigenous
Australians Agency



Consultation

Recognition of Kimberley Land Council as a Native Title Representative Body

The Minister for Indigenous Australians, Senator the Hon Malarndirri McCarthy, has invited the Kimberley Land Council (KLC) to apply for a further term as the native title representative body for the Kimberley Region. Native title representative bodies help people to make native title claims and agreements and resolve native title disputes. KLC's current term as the native title representative body ends on 30 June 2026.

People with native title interests in KLC's region and Aboriginal and Torres Strait Islander people living in the region can make a submission about KLC to inform the Minister's decision.

Submissions are due by **5.00 pm AEDT on 2 March 2026**. They can be emailed to nativetitle@niaa.gov.au or posted to Land and Native Title Branch, National Indigenous Australians Agency, PO Box 2191, Canberra, ACT, 2600.

KLC will be given an opportunity to comment on submissions.

For more information visit www.niaa.gov.au/have-your-say or contact us on **1800 079 098**.

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Deadline for your Feedback is 17 March 2026



KLC team members Molly Woof, Darren Jury and Eduardo Maher. Picture: KLC

KLC staff embrace step challenge

PHOEBE SOLON

Kimberley Land Council staff racked up close to 12 million steps during the organisation's end-of-year wellbeing step challenge.

The challenge, which brought staff from Broome to Kununurra and remote ranger bases, together was part of an incentive designed to strengthen connection, wellbeing and health through walking together.

KLC deputy chief of staff Sarah Parriman said creating a positive and supportive workplace culture was a priority.

"As one of the larger employers in the Kimberley, creating a positive and supportive workplace culture is a real priority for us," Ms Parriman said.

"Our staff are spread right across the region, from Broome to Kununurra and out on ranger bases in remote communities, so

the step challenge was a simple but powerful way to bring people together around a shared goal.

"Many of our roles require staff to be physically fit, particularly those working on country and in fire management.

"Initiatives like the step challenge help encourage healthy habits while also boosting morale, connection and friendly competition across the organisation."

Staff averaged 51km per person each week, with overall activity levels increasing 20 per cent over the the challenge.

In total, participants walked close to 8900km, the equivalent of travelling from Broome to Kununurra and back four times.

KLC staff member and former Nyul Nyul ranger Zynal Cox said the incentive was a positive initiative for rangers across the region. Highest steppers

overall were Paruku IPA co-ordinator Geoff Brook and regional fire officer Hamish McAlpine, with Bardi Jawi Oorany ranger Julia Stumpagee recognised as the highest stepper in a remote role, Ben Dunphy for the Broome office and Geoff Brook took top honours in the Kununurra office.

Awards for most consistent steppers went to Gooniyandi ranger Temuera Smiler, fire program manager Andrew Morton, HR adviser Brodie Harris, two-way science project officer Molly Woof and ecologist Natarsha Babic.

The most improved steppers category recognised Gooniyandi ranger Kaulnell Shaw and Bardi Jawi Oorany ranger Julie Stumpagee. A special mention was given to Mr Brook, who in week four of the challenge walked the equivalent of six marathons in a single week.

Record number of appeals hit big gas project

CAIN ANDREWS

An "unprecedented" number of appeals have been lodged against the WA Environmental Protection Authority's recommendation to approve the Valhalla Gas Exploration and Appraisal Program in the Kimberley, according to the Office of the Appeals Convenor.

While the office did not confirm the number of appeals, Environs Kimberley and Lock the Gate Alliance have claimed it is "the most highly contested EPA decision in WA's history".

According to the two conservation groups, the EPA's report on the gas project received more than 8000 submissions ahead of the appeals deadline on February 10.

Environs Kimberley executive director Martin Pritchard said the high number of appeals reflected the "serious risks" posed by the proposal.

"The Kimberley is home to the most pristine tropical savannah woodlands anywhere in the world, spectacular waterfalls and gorges, and wildlife seen nowhere else on earth," he said.

"Black Mountain Energy's application to the EPA admits that the chemicals they would pump into the ground can cause severe burns, genetic mutations and organ toxicity, to name a few.

"Thousands of community members are standing up to say the Kimberley is worth protecting, and we won't allow Texan-owned Black Mountain Energy to destroy its unique splendour."

A statement on the Office of the Appeals Convenor's website said assessing the appeals may take longer than usual due to the high number.

"Our office has received an unprecedented number of appeals relating to Valhalla Gas Exploration and Appraisal Program," it said.

"With the appeal period closing on 10 February 2026, the Appeals Convenor advises that while our team will be working as efficiently as possible to progress all matters, the significant volume of appeals may result in delays in responding within our usual timeframes.

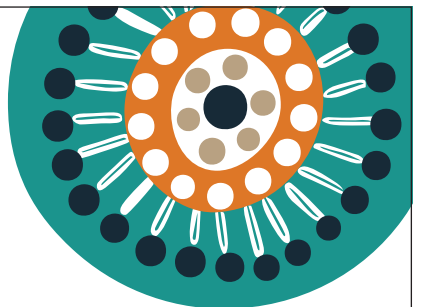
"We kindly ask appellants and stakeholders to remain patient."

Many traditional owners and custodians whose countries are in the Martuwarra Fitzroy River catchment have called for the project to be rejected, including Bunuba traditional owner Millie Hills, Nyikina woman Pat Riley and Kimberley Land Council chief executive Tyrone Garstone.

Environment Minister Matthew Swinbourn was contacted for comment.



Australian Government
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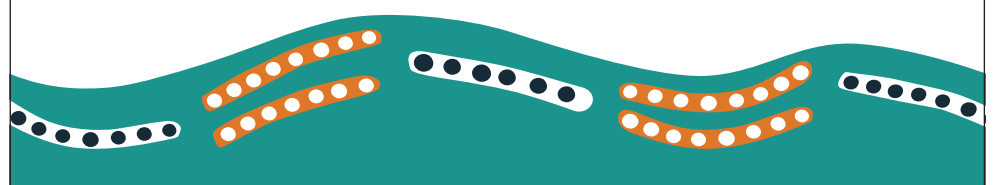
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RSL Australia president Peter Tinley is the new non-executive director at Mungalu North Kimberley Airport.



Tinley takes on airport role

CAIN ANDREWS

RSL Australia president Peter Tinley has taken up the role of non-executive director at the remote Mungalu North Kimberley Airport 40km north of the remote community of Kalumburu.

Mr Tinley will be in the role for three years, bringing his extensive experience in defence, government and regional development to the airport's board.

"Mungalu North Kimberley Airport has both a rich history

and a bright future, and I'm excited to be part of a business that is central to national resilience," Mr Tinley said.

"Northern Australia is one of the country's fastest-growing regions, and MNKA will be essential to unlocking vast economic opportunities including oil and gas, carbon capture and storage, mining and tourism.

"MNKA is also a critical link in Australia's northern defence and border protection network, enabling operations to extend further into strategically important

areas of the Timor Sea and the Browse and Bonaparte basins.

"It was great to see the airport move back into full Australian ownership last year, and I look forward to working with the team on growth projects that have real purpose and are vital to our country's future."

The airport has a rich history. It was first established as the top-secret World War II airbase in 1944 known as the Truscott Airfield, named after RAAF Sqn-Leader Keith "Bluey" Truscott, a famous Australian air ace who

died in a training accident in 1943.

The airport now supports oil and gas and mining operations, the Australian Defence Force, Border Force and the Wunambal Gaambara Aboriginal Corporation, facilitating more than 26,000 passenger movements annually.

MNKA managing director Luke Gleeson welcomed Mr Tinley's experience and expertise to the board.

"Peter Tinley is an outstanding addition to the MNKA team, bringing a wealth of skills and insight across defence, govern-

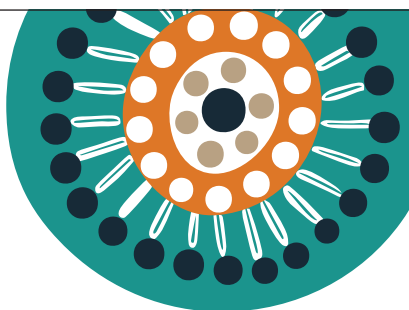
ment and regional strategy," he said. "His experience as a Western Australian parliamentarian and his distinguished service with the Australian Army and SAS connect strongly with both the history of our facility and its strategic outlook over coming decades.

"We are committed to ensuring MNKA supports communities throughout Northern Australia, including the Wunambal Gaambara people on whose country the airport operates.

"Peter will make a strong contribution to this mission."



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Horizon powers community groups

PHOEBE SOLON

Kimberley community organisations are being encouraged to apply for a share of \$1.1 million in funding through Horizon Power's Community Partnerships program, with the latest round now open.

The program, delivered on behalf of the WA Government, supports residents in Horizon Power's regional and remote service areas.

Sporting clubs, arts and cultural groups, schools and community associations are eligible to apply.

Funding is aimed at projects that deliver strong com-

munity benefits, with a focus on building vibrancy and supporting wellbeing in regional WA.

Past recipients have included sporting associations, music and cultural festivals, and arts and education programs for school-aged children.

Organisations needing upgrades to club facilities or specialist equipment are also encouraged to submit an application.

Horizon Power chief executive Krystal Skinner said the initiative strengthened regional communities.

"Our Community Partnerships program really

bolsters and celebrates our regional communities," Ms Skinner said.

"Whether it's supporting local festivals, upgrading sporting facilities, or funding youth and cultural initiatives, we're committed to backing projects that have a strong and lasting impact."

Mr Skinner also said empowering local organisations was key to helping towns thrive.

Applications close on February 27, with successful recipients to be announced in April 2026.

More information is available at horizonpower.com.au/partnerships.

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Rise in FDV cases alarming

Training for workers in disability sector on trauma-informed care

PHOEBE SOLON

As the grim toll of family and domestic violence continues to rise across the Kimberley, the first professional training workshops for workers in the disability sector — as part of a program designed to support trauma-informed care — have been held.

It comes as the latest figures released by WA Police show an overall year-on-year rise in family related recorded offences across the region.

The data shows that threatening behaviour (family) offences rose from 1190 in 2024 to 1446 last year, and breaches of violence restraining orders increased from 1766 to 2035. Family assault numbers, however, showed a slight decline from 4679 in 2024 to 4628 in 2025.

Media reports last week revealed five women were assaulted in just five days in the Kimberley, with the statistics from Derby showing there were 753 reported family violence offences last year in that town alone.

Derby police station officer in charge Sen. Sgt Nathan Smith said the increase was clear, but cautioned it should be understood in the context of the town's unique population dynamics.

"There's a clear increase, the numbers are going up each year," he said.

"But in Derby, those statistics have to be caveated with the fact that it is a population that can be quite transient."

WA Prevention of Domestic Violence Minister Jessica Stojkovski, said it was crucial that Derby locals knew support was available.

"It is distressing to hear about reports of family and domestic violence incidents," she said.

"Family and domestic violence has a profound impact on communities and culturally led and community-driven responses are critical to support healing and safety."

She said more than \$700 million had been invested in addressing domestic violence in WA since 2017, with \$6m going to the West Kimberley for the 2025-26 financial year.

"This includes primary prevention, advocacy and support services, mobile outreach services, perpetrator programs, two refuges and one safe house," Ms Stojkovski said.

Figures indicate assaults across the Kimberley also increased during the wet season.

Between October and the height of the wet in December, incidents of family assault increased from about 411 to approximately 452, reflecting a noticeable seasonal lift.

Sen. Sgt Smith said while it was difficult to draw a direct cause-and-effect link, police consistently observe a surge over that period.

"We certainly notice an increase over that Christmas period and wet season as a whole," he said.

"I don't know whether there's necessarily a direct correlation, but we do see a surge in numbers in Derby over that time."

He said seasonal population movement may partly explain the rise, with Derby experiencing periodic influxes of people who do not permanently reside in the town.

"The population can ebb and flow, especially over that period," he said.

Sen. Sgt Smith also noted the challenges of the festive season.

"The Christmas period is a traumatic time for people at the best of times, let alone in remote areas," he said.

Improved policing practices may also be contributing to higher recorded figures.

"I'd like to think the overall increase is also due to police being better at identifying poor behaviour and holding people to account," he said.

"That means offences are being recorded more accurately than they may have been in the past."

The release of the data coincides with targeted awareness and enforcement initiatives, including Ochre Ribbon Week, focused on domestic and family violence prevention in regional communities.

Sen. Sgt Smith said police were taking a proactive approach while recognising enforcement alone cannot resolve what he described as a "complex problem".

"We make no secret of the fact that we're proactive in processing and locating people who are doing the wrong thing," he said.

"But we're also wholeheartedly supportive of community-led solutions."

Just this week, specialist FDV project educator Daphne White travelled from Geraldton at the invitation of Kin Advocacy to deliver three tailored workshops for the disability sector, focused on trauma-informed care and trauma-informed responses to FDV.

The organisation extended its visit to offer



Derby police station's Sen. Sgt Nathan Smith.



DVassist chief executive Ella Ailenei.

four additional free sessions for community agencies across Broome and the wider Kimberley.

Topics included trauma-informed practice, responding to children and young people impacted by FDV, and understanding coercive control through a culturally diverse lens.

DVassist CEO Ella Ailenei said delivering training locally was a step toward improving accessibility.

"We know that for many regional and remote services, travelling to Perth for professional development involves high cost, time away from community and the challenge of backfilling already stretched roles," she said.

"Delivering training locally allows teams to learn together and stay connected to their community."

She said the visit reinforced the importance of tai-

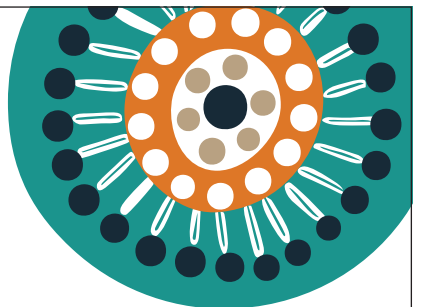
loring training to regional and cultural contexts and adopting a "listen first" mindset.

"When working in areas with strong Aboriginal communities such as the Kimberley, it is essential to approach with humility and respect," Ms Ailenei said.

"Any external contribution must build on local knowledge and relationships rather than assume a one-size-fits-all model."



Australian Government
National Indigenous
Australians Agency



Consultation

Recognition of Kimberley Land Council as a Native Title Representative Body

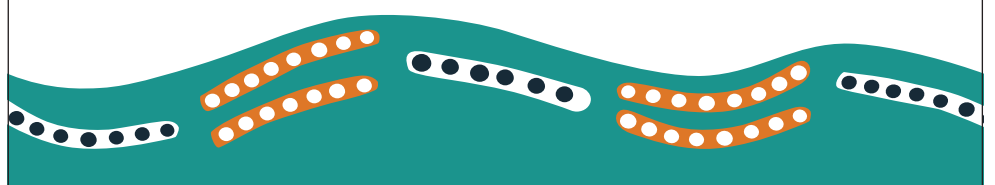
The Minister for Indigenous Australians, Senator the Hon Malarndirri McCarthy, has invited the Kimberley Land Council (KLC) to apply for a further term as the native title representative body for the Kimberley Region. Native title representative bodies help people to make native title claims and agreements and resolve native title disputes. KLC's current term as the native title representative body ends on 30 June 2026.

People with native title interests in KLC's region and Aboriginal and Torres Strait Islander people living in the region can make a submission about KLC to inform the Minister's decision.

Submissions are due by **5.00 pm AEDT on 2 March 2026**. They can be emailed to nativetitle@niaa.gov.au or posted to Land and Native Title Branch, National Indigenous Australians Agency, PO Box 2191, Canberra, ACT, 2600.

KLC will be given an opportunity to comment on submissions.

For more information visit www.niaa.gov.au/have-your-say or contact us on **1800 079 098**.



Relevant persons for Petrel Geotechnical and Geophysical Surveys Environment Plan



Eni is an international energy company committed to sustainable and responsible energy transition. Eni is the operator of the Petrel Field in the Bonaparte Basin in North Western Australia.

The Petrel permit is approximately 240km WSW of Darwin, and 170km offshore of the WA coast within the Joseph Bonaparte Gulf.

Eni proposes to undertake surveys within the Petrel Field to support future development and exploration activities.

The surveys will acquire geophysical, geotechnical and environmental baseline data to better understand the existing environment and seabed characteristics of the Petrel Development Area.

The initial activities are forecast for the second half of 2026.

Am I a 'relevant person' in relation to this work?

You may be a relevant person if you or your organisation has functions, interests, or activities that may be affected by the offshore petroleum activities proposed under the environment plan being prepared. Interests that may be affected can include things like cultural and spiritual connections to the sea or interests in the protection of specific marine species.

Provide your Feedback

By email on info@petreleni.com.au

By post at PO Box 6862 East Perth WA 6892

By phone on 1300155 616 or access online information at petreleni.com.au



Deadline for your Feedback is 17 March 2026

New citizens welcomed

CAIN ANDREWS

The Shire of Wyndham East Kimberley has welcomed 12 new Australian citizens at a citizenship ceremony last week.

The citizenship ceremony was held at the Kununurra council chambers ahead of the ordinary council meeting on February 24. Nine adults and three children become new Australians.

It marks the first citizenship ceremony for the shire this year, which is historically held on Australia Day on January 26.

The 12 candidates represented a diverse array of backgrounds, contributing to the growing multicultural community within the East Kimberley. During the ceremony, the new citizens recited the Australian Citizenship Pledge, marking the final step in their journey to citizenship.

Shire president David Menzel said it was always a pleasure to welcome new residents into the community officially.



The Shire of Wyndham East Kimberley welcomed 12 new citizens at a citizenship ceremony on February 24. Picture: SWEK

Funding for Durack volunteers

Community organisations in the Kimberley are being urged to apply for Federal funding aimed at boosting support for volunteers.

The Volunteer Grants Program offers between \$1000 and \$5000 to be used to pay for things like insurance, volunteer training, the purchase of small assets, food preparation equipment and appliances, educational equipment, fuel and transport costs and the cost of working with children checks and police clearances.

Expressions of Interest close on April 7 at 5pm. The EOI form is at melissaprice@petreleni.com.au or melissa.price.mp@aph.gov.au or posted or delivered to Federal member for Durack Melissa Price's Geraldton office at 2B/209 Foreshore Drive, Geraldton, WA 6530. "I greatly respect the thousands of volunteers across Durack whose commitment and generosity enhance the wellbeing of our community," Ms Price said.

Shire to focus on engaging people to vote

FROM PAGE 1

reject the changes at the February 24 ordinary council meeting, shire president David Menzel said compulsory voting was unlikely to be useful in a local government setting.

"I think it's desirable to have a higher turnout and engage community, but I'm not convinced that making compulsory voting in the local government space is of any particular benefit to the good governance of our community," he said.

While Cr Beau Robinson voted in favour of rejecting the reforms, he said compulsory voting could be a "good thing" in the long term.

"Our voter turnout is pretty low, and we had a little surge when we did postal

voting," he said. "And I think that the issues of compulsory voting may be able to be worked through."

Cr Clare Cane said the shire should focus on engaging the community to get them out to vote rather than making it compulsory.

"I don't think just increasing voter numbers means it (increases) the quality of a vote. I think people just vote to tick a box because it's compulsory a lot of the time," she said.

"I think we should focus more on communicating to our constituents and to our community about the importance of voting and how to vote.

"A lot of people in the last elections didn't even know how to vote.

"I think compulsory vot-

ing doesn't solve that. I think communicating better solves it."

It is a direct rebuff to Local Government Minister Hannah Beazley, who said in October reforms were on the cards after voter turnout across WA dipped to 29.7 per cent — below the 2023 figure of 31.2 per cent.

SWEK's turnout at those elections was 24.96 per cent — below the already underwhelming State average.

Voter turnout was well below the State average across the Kimberley, with Halls Creek recording 13.68 per cent, Derby recording 22.17 per cent, and Broome recording just 11.28 per cent.

WA and South Australia are the only two States where local government voting remains voluntary.

Relevant persons for Petrel Geotechnical and Geophysical Surveys Environment Plan



Eni is an international energy company committed to sustainable and responsible energy transition. Eni is the operator of the Petrel Field in the Bonaparte Basin in North Western Australia.

The Petrel permit is approximately 240km WSW of Darwin, and 170km offshore of the WA coast within the Joseph Bonaparte Gulf.

Eni proposes to undertake surveys within the Petrel Field to support future development and exploration activities.

The surveys will acquire geophysical, geotechnical and environmental baseline data to better understand the existing environment and seabed characteristics of the Petrel Development Area.

The initial activities are forecast for the second half of 2026.

Am I a 'relevant person' in relation to this work?

You may be a relevant person if you or your organisation has functions, interests, or activities that may be affected by the offshore petroleum activities proposed under the environment plan being prepared. Interests that may be affected can include things like cultural and spiritual connections to the sea or interests in the protection of specific marine species.

Provide your Feedback

By email on info@petreleni.com.au
By post at PO Box 6862 East Perth WA 6892
By phone on 1300155 616 or access online information at petreleni.com.au



Deadline for your Feedback is 17 March 2026

KUNUNURRA Entertainment Guide

THURSDAY 05TH MARCH Various Activities Cocktail Night Pool Competition	Kununurra Library Ord River Sports Club Hotel Kununurra	8.30-4PM 5.00PM 6.00PM	MONDAY 09TH MARCH Various Activities Parent & Baby Group Just Born Group	Kununurra Library Kununurra Neighborhood House Kununurra Neighborhood House	8-4PM 9.00AM 11.00AM
FRIDAY 06TH MARCH Various Activities Members Draw	Kununurra Library Ord River Sports Club	8.30-4PM 5.00PM	TUESDAY 10TH MARCH Various Activities Trivia Night Wild Brumby Line Dancers	Kununurra Library Hotel Kununurra Kununurra Neighborhood House	8-4.00PM 5.00PM 5.30PM
SATURDAY 07TH MARCH Kununurra Park Run	Kununurra Swim Beach	7.00AM	WEDNESDAY 11TH MARCH Young at Heart Group Karaoke Night	Kununurra Neighborhood House Hotel Kununurra	10.30AM 7.00PM
SUNDAY 08TH MARCH Kununurra Knit & Natter Family Fun Day Wild Brumby Line Dancers	Hotel Kununurra Hotel Kununurra Kununurra Neighborhood House	10.00AM 12.00PM 4.30PM			

4. RADIO ADVERTISING

1. Script
2. Confirmed booking schedules
 - a) Mix 104.9 Darwin
 - i) 4, 11, 18, 26 February and 5, 11 March 2026
 - b) Palmerston FM88
 - i) 3, 10, 17, 24 February and 4, 10 March 2026
 - c) First Nations Radio – 94.5
 - i) 2, 6, 9, 13, 16, 20, 23, 27 February and 3, 9 March
 - d) First Nations Radio – National
 - i) 2, 6, 9, 13, 16, 20, 23, 27 February and 3, 9 March

Public Notice

Relevant persons for Petrel Geotechnical and Geophysical Surveys Environment Plan

MV: Professional Straight Read
PRON: Eni – like “eeee En eye”

Duration: 60 seconds

Script:

Eni

Radio Announcement

Petrel Geotechnical and Geophysical Surveys Environment Plan

Eni Energy Bonaparte Pty Ltd operates the Petrel field in the Bonaparte Basin, approximately 170 kilometres offshore of WA and 260 kilometres from Darwin, within the Joseph Bonaparte Gulf.

Eni is committed to sustainable and responsible energy transition and proposes to undertake surveys to support future offshore oil and gas development and exploration activities.

The surveys are forecast for the second half of 2026 and will acquire geophysical, geotechnical, and environmental baseline data for the existing environment and seabed.

You may be a relevant person if you or your organisation has functions, interests, or activities that may be affected by the offshore petroleum activities proposed under the environment plan being prepared. Interests that may be affected can include things like cultural and spiritual connections to the sea or interests in the protection of specific marine species.

You can enquire or provide feedback by 17 March 2026.

For information and contact details you can visit this website petreleni.com.au.

[illegible]



Client: Eni Energy Bonaparte
 Date Presented: 23/01/2026
 Note: Rates quoted are valid for 14 days and may change based on availability and demand.

SCHEDULING DETAILS		LENGTH	PLACEMENT	DELIVERY	SPOT VALUE	TOTAL VALUE	DISCOUNTED RATE	TOTAL INVESTMENT	FEBRUARY				MARCH				
									4	11	18	25	5	11	16	23	30
MIX104.9																	
Breakfast, Morning, Afternoon, Drive - Days provided		60 sec	05:25 to 19:00	6	\$274	\$1,644	\$219	\$1,314	1	1	1	1	1	1			
Best Time Available - Days provided		60 sec	05:25 to 19:00	1	\$362	\$362	BONUS	BONUS	1								
Audio Commercial Production																	
Production - Commercial First Ad		-	-	1	\$500	\$500	\$500	\$500	1								
All Prices ex GST if not stated. Bonus Ads at No Charge subject to availablty. Cancellation terms - 28 days notice in writing.				8	VALUE	\$2,506	INVESTMENT	\$1,814									
					GST	\$251	GST	\$181									
					TOTAL	\$2,757	TOTAL	\$1,995									

Dates Live
4, 11, 18, 25 February
5, 11 March

5. POSTERS & NEWSLETTERS

1. General Poster
2. Northern Territory Seafood Council Weekly Email – 30 January 2026
3. Thamarrurr Development Corporation Newsletter – 30 January 2026

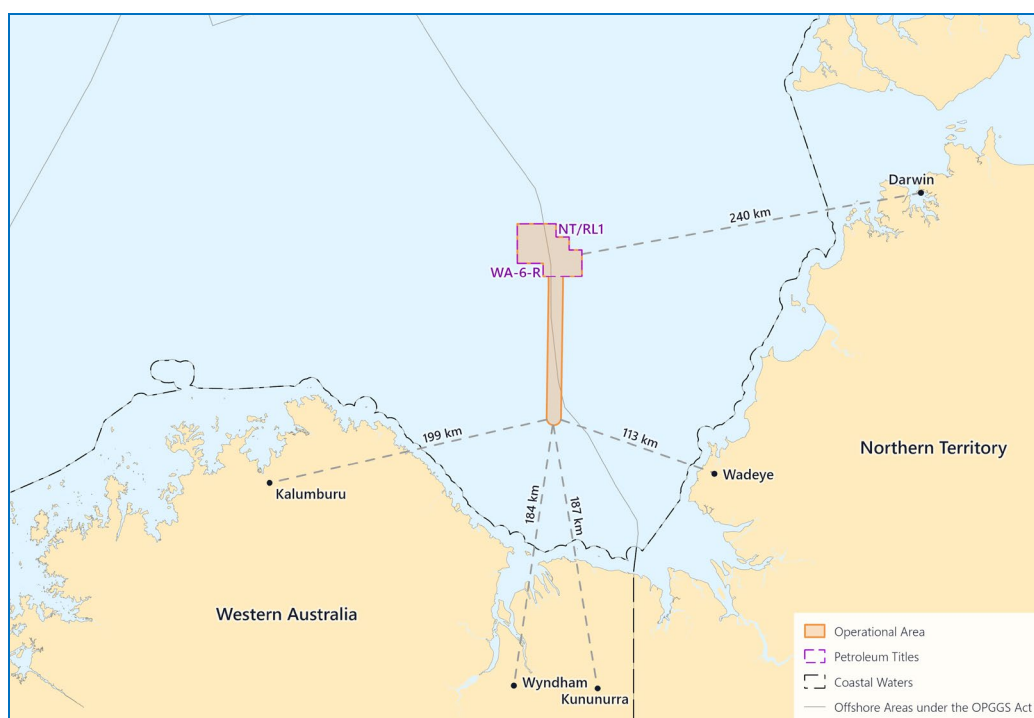


PUBLIC NOTICE

Petrel Geophysical and Geotechnical Surveys

Eni is an international energy company committed to sustainable and responsible energy transition. Eni is the titleholder of the Petrel gas field in the Joseph Bonaparte Gulf between Western Australia and Northern Territory.

The Petrel gas field is located approximately 240km WSW of Darwin, and approximately 180km NNE off the WA coastline.



Eni plans to conduct a vessel survey study in the operational area shown in the map by completing seabed floor and environmental surveys. The surveys will help Eni understand the existing seabed and marine environment and will help plan for future development safely and responsibly.

Timing of the activities will depend on vessel availability and weather conditions.

WE WELCOME YOUR FEEDBACK

You may be a relevant person if the proposed surveys may affect you or your organisation's functions, interests, or activities.

[Please scan the QR code for detailed information](#)

By email
By phone

info@petreleni.com.au
1300 155 616





Username: projects@ntsc.com.au

Forgotten your password? [Click here if you've forgotten your password](#)

Spanish Mackerel Fishery

The Fishery held its AGM and GM this week, where Tiger Davey was appointed the Committee Chair and appointed as the committee's representative on the Seafood Council Board. The Seafood Council would like to sincerely thank Peter Manning a long-serving Chair and Board member, for his leadership and contribution to the fishery and the broader NT seafood industry. We welcome Tiger, who we look forward to working with in this new role.

Coastal Line Fishery CPUE assessment update

The Fisheries Division of the Department of Agriculture and Fisheries undertakes quarterly monitoring of the commercial catch rate of Black Jewfish within the Black Jewfish Management Areas. This monitoring is intended to detect short-term changes in localised abundance and to enable additional management to be implemented promptly if a decline is indicated.

The most recent assessment found that CPUE for the period 1 October and 31 December was above the target levels in both the Mitchell Point and Point Stuart Management Areas. The Channel Point Management Area remains closed following the previous assessment outcomes. Please note that the Channel Point Management Area remains closed to the commercial and tourism sectors until 28 February 2026 (inclusive).

Eni - Petrel survey consultation

Eni Energy Bonaparte has advised of proposed geophysical and geotechnical surveys, along with environmental baseline studies, planned for the [Petrel field in the Bonaparte Basin](#) (approximately 250 km west of Darwin). The surveys are scheduled for Q3–Q4 2026 and will help inform seabed understanding and future development planning. We met with Eni today to discuss the proposed activities and have requested further information. We will share additional details with members as they become available. Members with queries or concerns can contact Eni directly, with feedback requested by 17 March 2026. Further details are available via the [activities flyer](#) or at petreleni.com.au.

New marine heatwave outlook tool launched

A new [marine heatwave outlook tool](#) is now publicly available, providing up to four months' advance warning of ocean temperature extremes. The tool helps predict the likelihood, location and severity of marine heatwaves events that can impact fisheries, aquaculture, marine ecosystems and coastal communities. The forecasts are updated regularly and presented through regional maps showing both the probability and intensity of potential marine heatwaves. This early warning system supports better planning and decision-making for those working in and dependent on the marine environment. [Click here to view the tool](#).

Local notice to mariners

[Declared Darwin Port depths 2026](#)

Fish-LIGHT: alternate gear types for inshore fisheries - Youtube Videos

- [Fish-LIGHT alternate gear types- Program overview](#)
- [Fish-LIGHT alternate gear types - Line fishing](#)
- [Fish-LIGHT alternate gear types - Trap nets](#)
- [Fish-LIGHT alternate gear types - Fish traps](#)
- [Fish-LIGHT alternate gear types - Tunnel](#)

News

- ABC Country Hr [Barramundi fishers prepare for their season, against the backdrop of the phasing out of gillnets](#) (starts 06:28mins in)
- Yahoo News [Aussie fisherman's shark warning after controversial ban cuts income in half: 'Out of hand'](#)
- Seafood Industry Australia Proposed [Dilution of Australia's Fuel Tax Credit scheme](#)

e-News

- [FRDC January 2026 News](#)
- [AMSA Update - January 2026](#)
- [Women in Seafood Australasia](#)
- [Rural Business Support - In Focus](#)

Sent by Northern Territory Seafood Council, Level 1, Darwin Shipstores Building Fisherman's Wharf Darwin NT
0800

[Unsubscribe](#)

Thamarrurr

Development Corporation

'Coming Together To Work As One People'

TDC Approved as ENI Implementing Partner

We are very excited to announce that after a year of working through an assessment process, Thamarrurr Development Corporation (TDC) has been approved as an ENI Implementing Partner.



This means TDC will be ENI's primary project implementing partner for projects delivered in our region. This is a significant milestone and reflects the strength of our organisation, our governance, and our ability to deliver projects that create real outcomes for our communities.



ENI's implementing partners across the world include organisations such as UNICEF, the UNESCO, and Caritas International, and we are extremely proud that TDC has been selected to hold this status. Our next step is to work closely with ENI to design and deliver a major, high-impact project that will bring long-term benefits to our region and our people.

A big thanks to Angelina Branco and Mike Prime for all of their efforts to support us through this process and for valuing the work that we do.

TDC Board Meeting Update



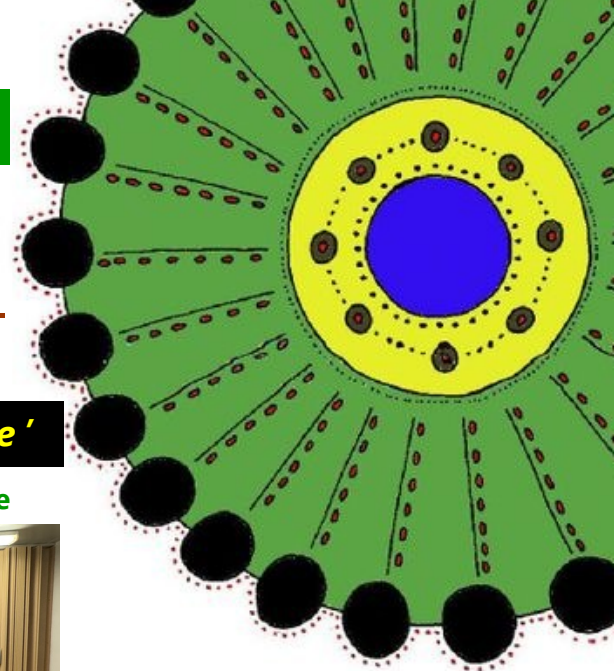
TDC held its monthly Board meeting this week. Alongside core business matters, the Board discussed the recent wave of violence across the community. Board members expressed serious concern about the growing lack of respect for people, property, and cultural authority, and the ongoing impact this violence is having on families, businesses, and community wellbeing.

The Board noted with disappointment that there have been no visits from Ministers from the new Northern Territory Government during its entire first term, despite requests and escalating issues in the region.

As a result, the Board resolved to write to the NT Government Minister for Aboriginal Affairs to formally request an urgent meeting. The Board is seeking government support for the following priority initiatives:

- **More Police Officers** and Aboriginal Liaison Officers, with representation from each ceremonial group
- **Evidentiary reform**, removing the requirement for local community members to make identifying statements where there is clear evidence identifying perpetrators of crime
- **Stronger accountability measures**, including linking welfare payments to school attendance and participation in employment or training

The Board remains committed to advocating for practical solutions that restore safety, strengthen cultural authority, and support a safe and respectful community for everyone.



Rangers & Sea Farmers Boat Shed



The Rangers & Sea Farmers boat shed is now in its final stages of completion.

This new facility will provide safe, secure storage for boats and equipment, improving day-to-day operations for both Rangers and Sea Farmers. It will support on-Country work, protect valuable assets, and strengthen local marine and sea-based enterprises.



The shed has been designed so boats can be driven straight through, removing the need to reverse boat trailers thus improving safety and efficiency. The shed build has provided ongoing work over the wet season, ensuring we can retain our tradies as the H&C Team gear up for the Manthethepe new builds.

We thank everyone involved in delivering this important project and look forward to the boat shed becoming fully operational in the coming months.

Bistro Refurbishment Update



The Village Mob has been working hard to complete the bistro refurbishment, with a grand reopening planned for late February.

The refreshed space will provide a better dining experience for the community, and we look forward to welcoming everyone back once the works are finished.



Once reopened, the bistro will host a range of fun dining and social events, including trivia nights, themed evenings, and other activities designed to bring people together and create a welcoming community space.

More details about the reopening will be shared soon.



Wadeye Safe House – Temporary Closure Notice

Please be advised that the Wadeye Safe House is temporarily closed for urgent repairs to ensure the building is safe. TDC will work quickly to support a swift reopening. During this period:

- Staff remain on call for urgent referrals from the Clinic and Police
- High-risk clients will be evacuated out of Wadeye where required
- Security will remain onsite at the Safe House
- On-call number: 0419 111 850

We will continue to provide updates on repair progress and advise the community of the reopening date as soon as it is confirmed.



Community Safety Alert – Crocodile Removal Underway

TDC has been working closely with police, NTG Parks and Wildlife, and the community to manage a large crocodile (over 4 metres) that has become a serious safety risk in Palumpa. The crocodile has been seen coming up onto the road near the town and has not been deterred by people or animals.



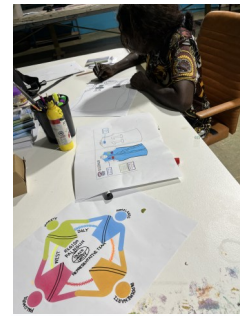
This situation is extremely distressing for the community, particularly following the tragic loss of a young girl at Mango Farm Creek in 2024.

Wet weather has cut off the community, making it difficult to bring in experienced personnel to remove the animal. Work is continuing as conditions allow.

Everyone is strongly urged to stay away from the area until the crocodile is safely removed. Community safety remains the highest priority.

AA Meetings
Da Ngimalmin (Old Church)
Men Tuesday 5-6pm
Women Thursday 5-6pm

Palngun Guernsey Taking Shape



Local artist Celeste Dumoo has been commissioned to design the Women's AFL guernseys for the Regional United team, representing Wadeye, Peppimenarti, Palumpa and surrounding homelands.

This is a proud opportunity to showcase local talent and culture, with the draft design reflecting the strength, unity and identity of palngun (women) across the region.



Thank You to Our Hard Working Police and Sad Goodbye to Jimmy

The Sea Farmers recently took local police and Aboriginal Liaison Officers (ALOs) out on a crabbing run as a way of saying thank you for their hard work and support.



We are very sad to be saying goodbye to Acting Senior Sergeant Jimmy Yengayenga, who is being posted to Darwin next week. Jimmy has been an outstanding police officer, showing strong leadership in both community engagement and action-focused responses.

We wish Jimmy all the very best in his new role. He will be sorely missed by the community.

6. PRESENTATIONS

1. General Presentation
2. Covers for Relevant Person presentations as provided in face to face meetings and/or in pdf format by email



Petrel Survey Environment Plan

Relevant Person Consultation

Group

Group Address

Date

Introduction to the Eni team



Angelina Branco

Stakeholder Engagement & CSR Manager

Mike Prime

Senior Stakeholder Engagement Adviser



Why are we meeting with you?

Reasons for this consultation

Why are we here?

(The reason for this consultation)



❑ **Meeting people in our footprint is a part of how we like to work**

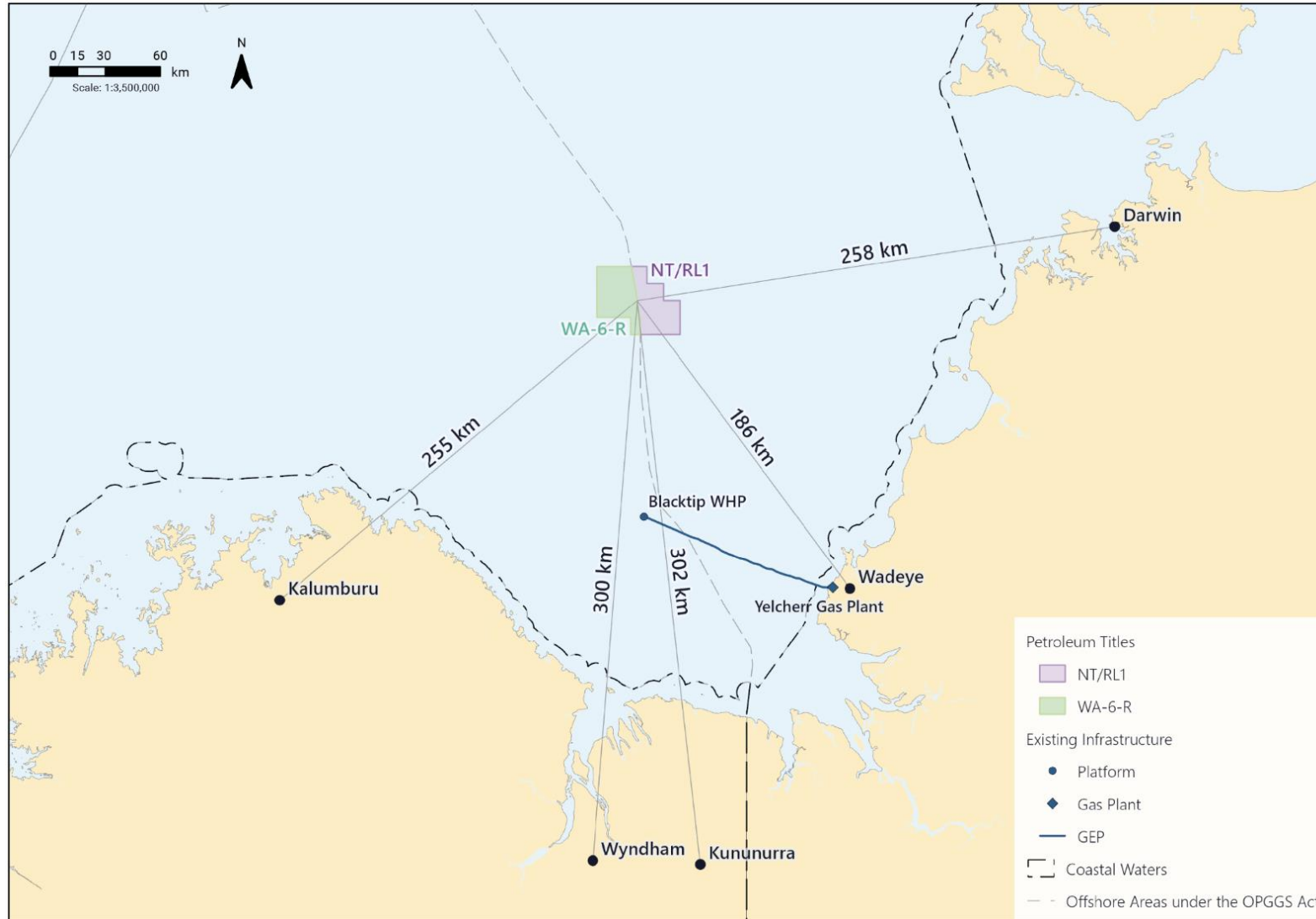
- We aim to be transparent and accountable, and we care about any effect our activities may have on others
- We can learn about and respond to community interests and requests
- It helps tune in on knowing about those specific persons that are interested in our activities
- It sometimes results in cooperative working initiatives [or activities] together

❑ **We're specifically here to consult about the Petrel Survey Environment Plan**

- NOPSEMA* requires consultation on the preparation of any Environment Plan for offshore petroleum activities, prior to its submission.
- This includes relevant and interested individuals, groups and communities (relevant persons)
- We want to provide relevant persons with face-to-face opportunities to give us feedback directly
- We want to understand the impacts, risks and opportunities linked to our activities in our footprint

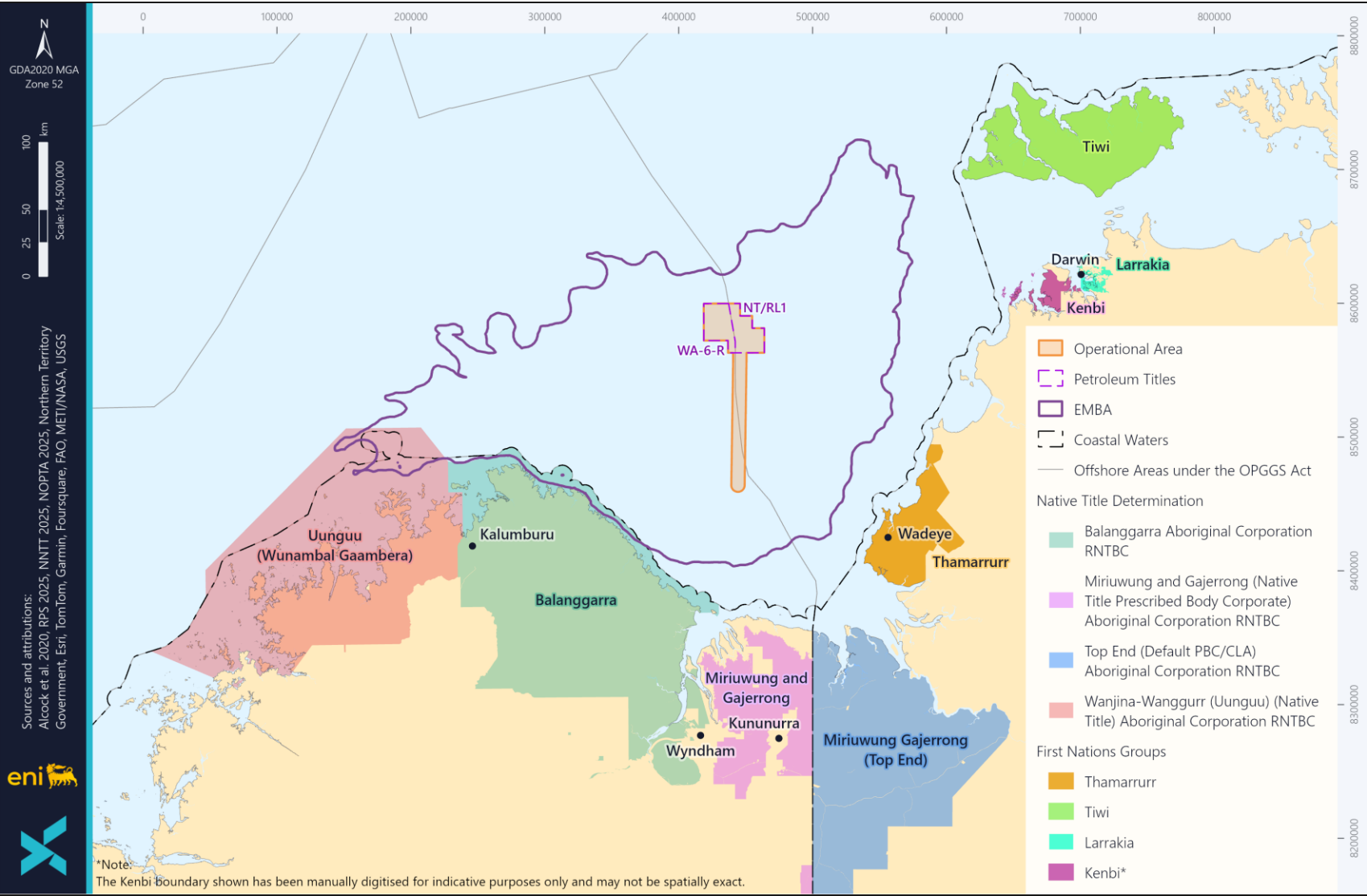
** National Offshore Petroleum Safety & Environmental Management Authority*

The Region Where We Consult



The Petrel field is located within two adjacent offshore retention leases NT/RL1 and WA-6-R.

The Region Where We Consult - 2





About Eni

Eni in Australia & Timor-Leste

Introducing Eni SpA



Integrated Energy company
HQ in Italy



Works in 61 countries
32K+ employees globally



101 employees in Australia & Timor-Leste



Eni believes in contributing to community
in places it operates

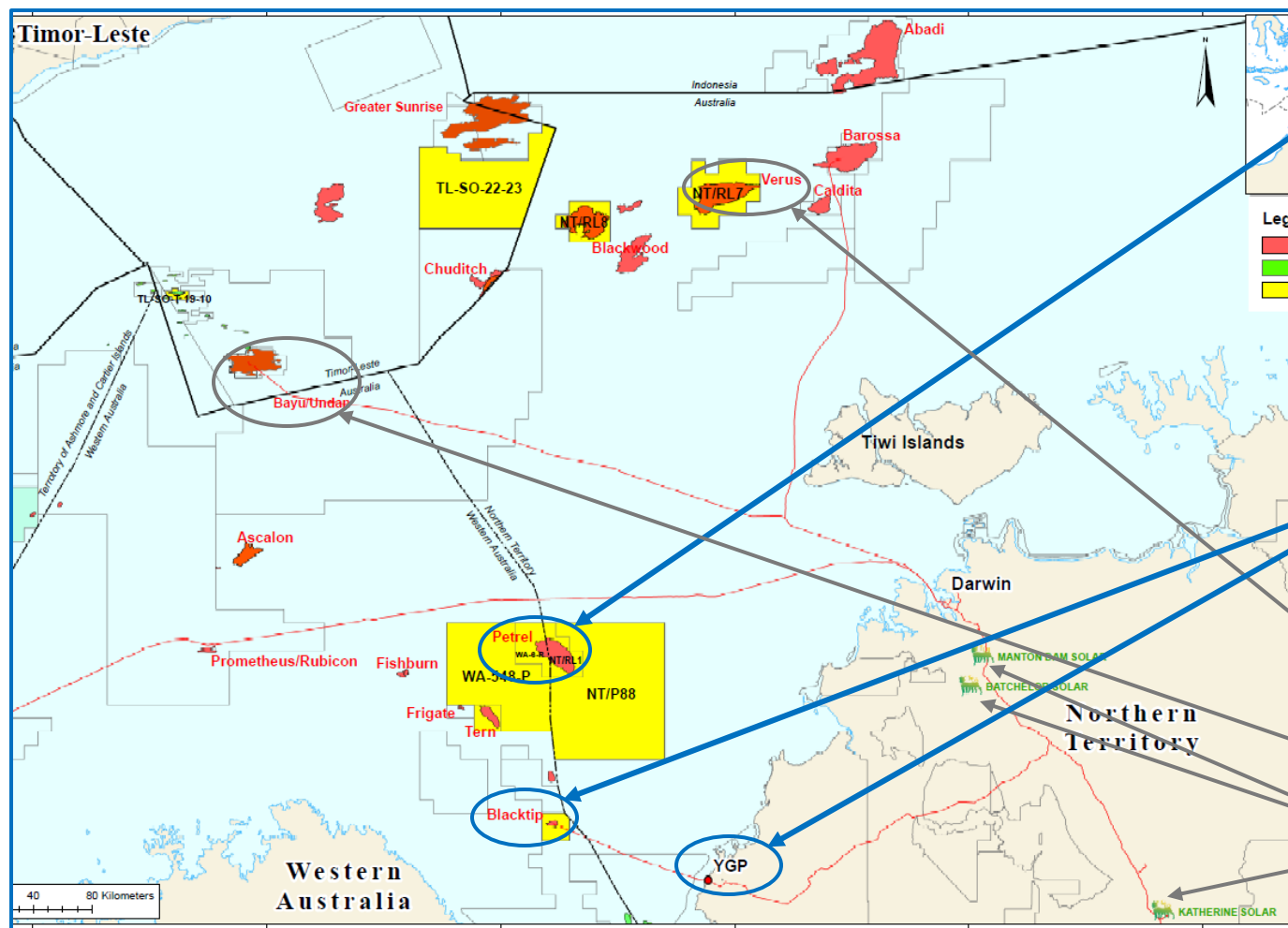
<https://www.eni.com/en-IT/sustainability/our-commitment.html>



Offices:

- Perth,
- Darwin,
- Yelcherr Gas Plant (Wadeye)
- Dili (Timor-Leste)

Eni in Australia and Timor Leste



Petrel Gas Field

- A large, undeveloped gas field with positive potential to produce natural gas (dry gas, low CO₂) for domestic market
- Permit acquired by Eni Feb. 2024
- Plan to decommission (plug and abandon) two existing subsea wells (Petrel-3 and Petrel -4)

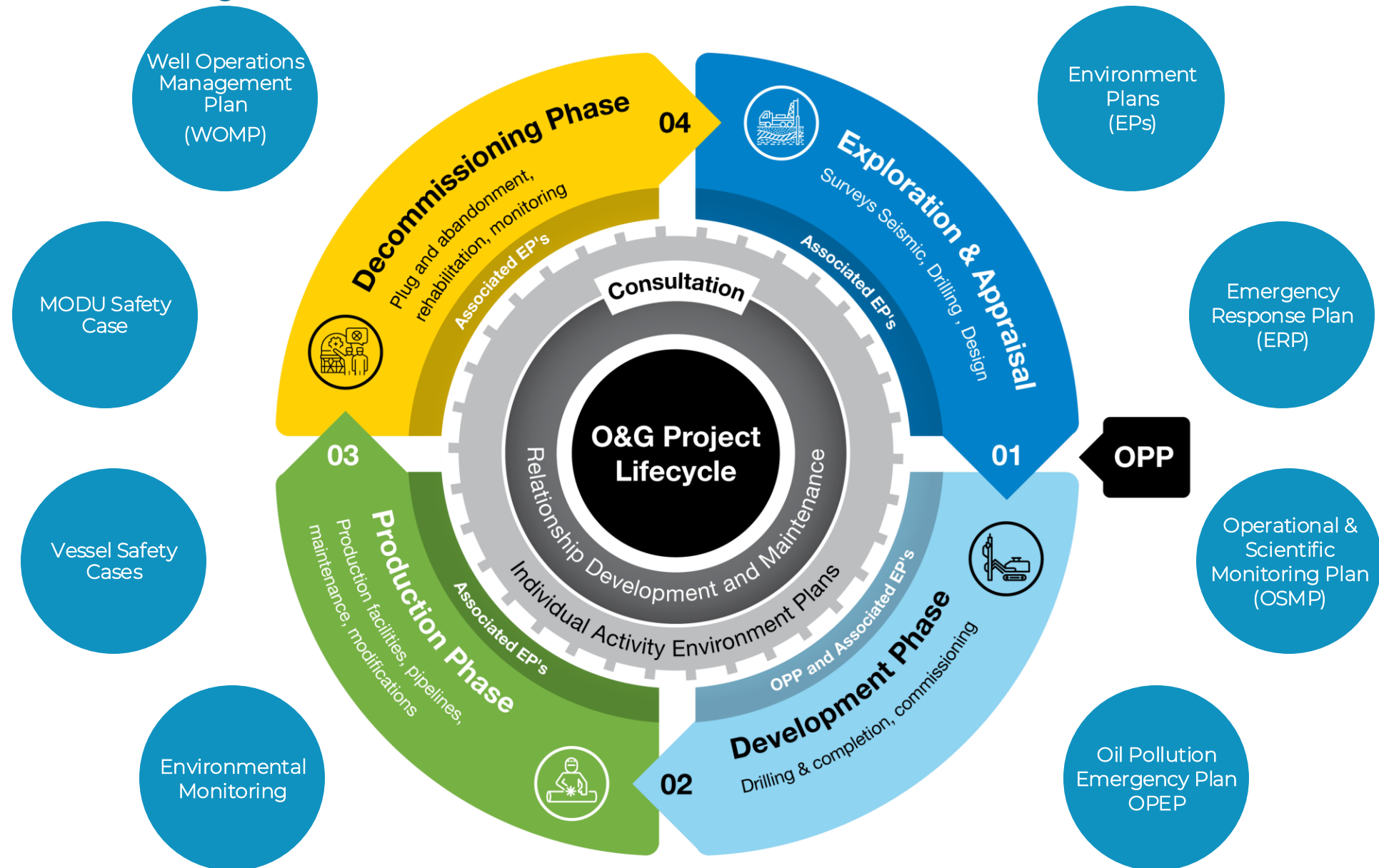
Blacktip and YGP Gas Operations

- Providing gas to Territory to generate electricity for homes, industry and business since 2009
- Providing gas to Wadeye for power generation (since 2021)

Other Projects

- Verus (Offshore)
- Bayu-Undan Gas Field (9.2% Eni) and DLNG (11% Eni)
- Renewables – 3x Solar Plants with total capacity 59 Megawatts
(Katherine, Batchelor, Manton Dam)

Project Life Cycle - Consultation





Our Community Work

Local Community Engagement and Development

Eni's Mission



Mission

We are an energy company.



We concretely support a just energy transition,
with the objective of preserving our planet



and promoting an efficient and sustainable access to energy for all.



Our work is based on passion and innovation,
on our unique strengths and skills,
on the equal dignity of each person,



recognizing diversity as a key value for human development,
on the responsibility, integrity and transparency of our actions.

We believe in the value of long-term partnerships with the Countries



and communities where we operate, bringing long-lasting prosperity for all.



Global Community Programs



Five SDG Priority Areas for Eni's Sustainability Programs

ACCESS TO ENERGY	ACCESS TO WATER	HEALTH	EDUCATION & VOCATIONAL TRAINING	ECONOMIC DIVERSIFICATION
				
Tunisia	Iraq	Ivory Coast	Australia	Ivory Coast

Integrating Human Rights and Transparency
across the business lifecycle

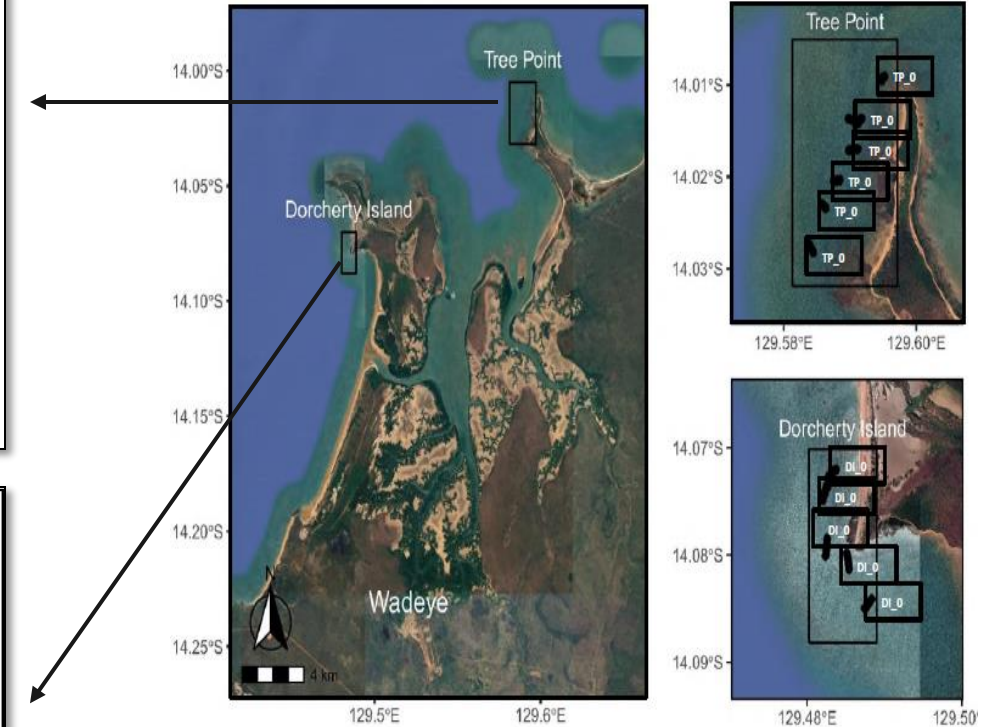
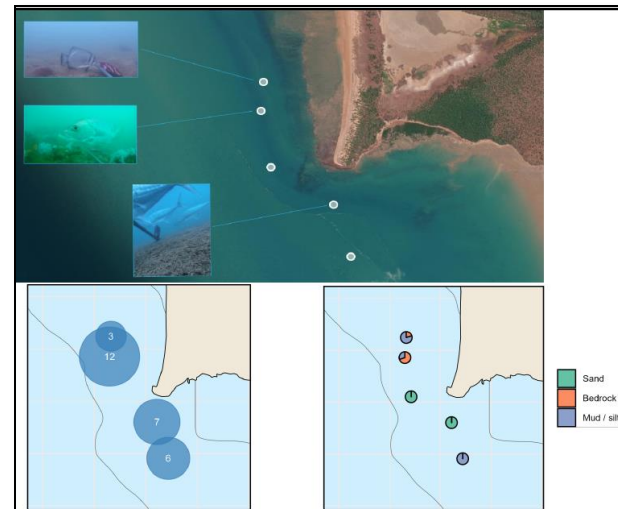
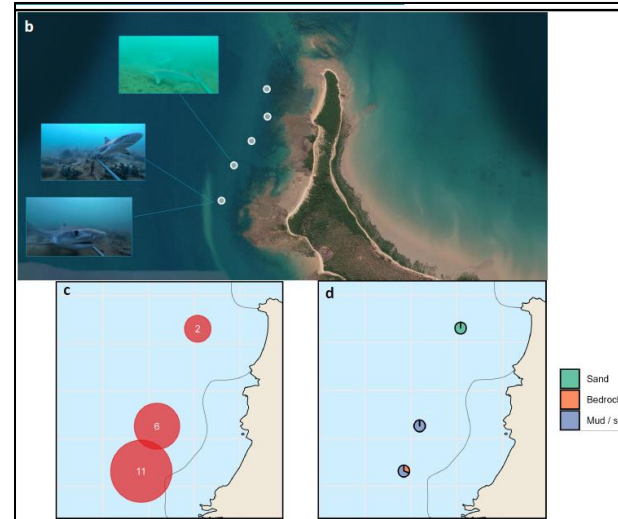
Supporting National Development Plans

Adopting **International Organizations'** standards, methodologies and tools



Eni's Local Contribution-Thamarrurr Country

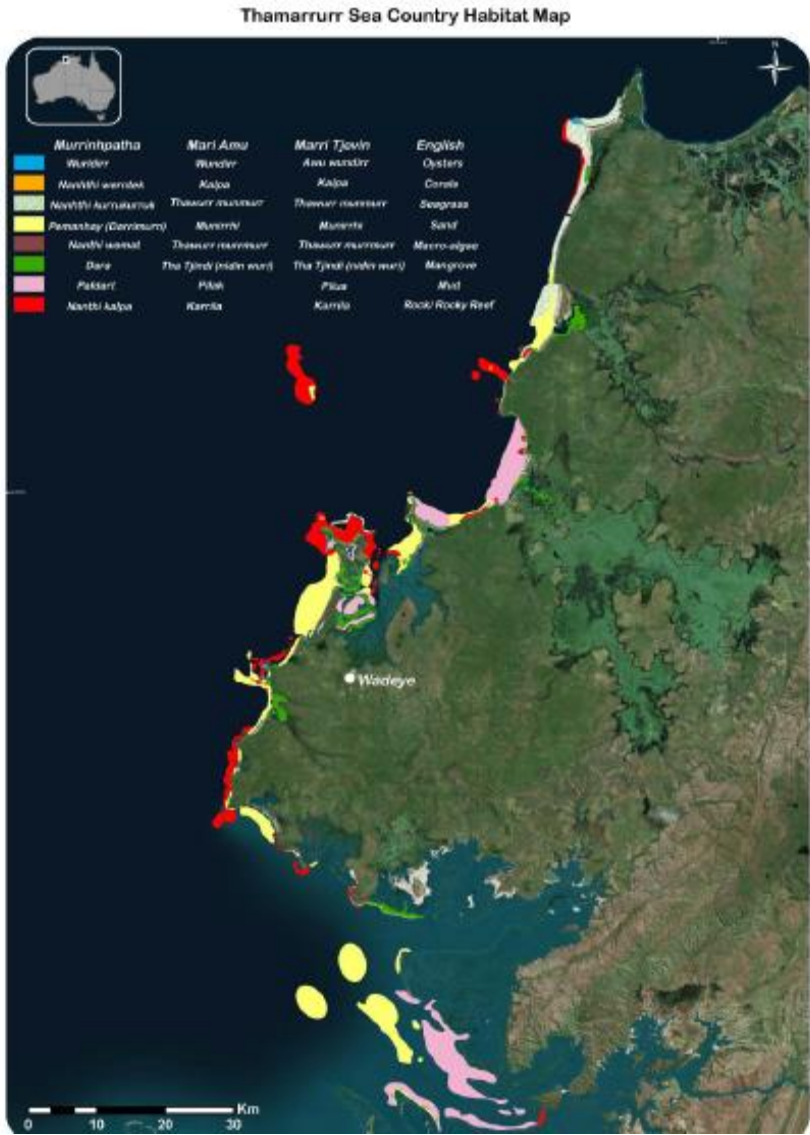
Baited Remote Underwater Video Training & data collection



Eni's Local Contribution-Thamarrurr Country



Participatory Mapping with TOs & Rangers



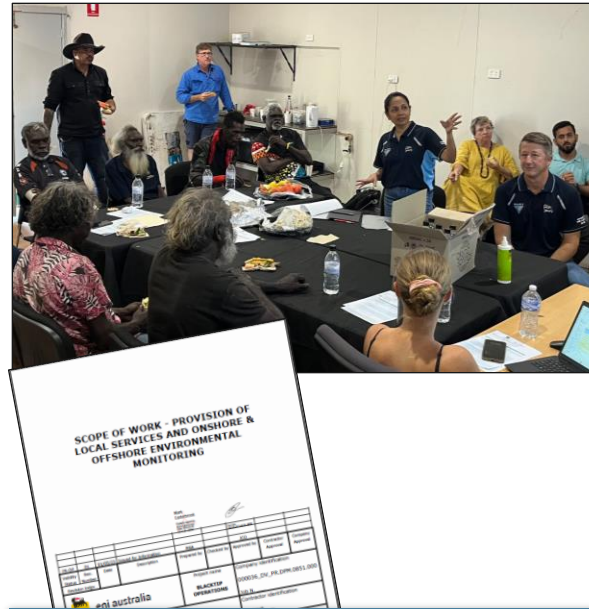
Eni's Local Contribution-Thamarrurr Country



AIMS Water Sampling Training



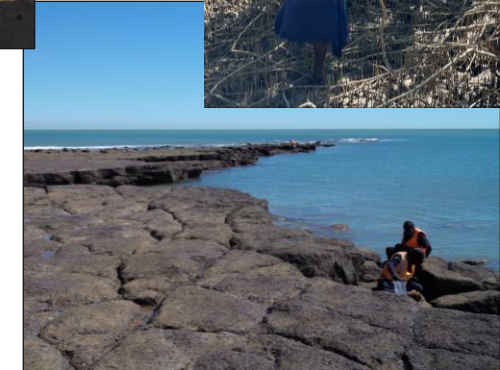
Contract Consultation



TDC Engagement & Consultation



Shellfish & Sediment Monitoring - Rangers



SPM Monitoring by Rangers





Petrel

Petrel Survey Proposed Activities

Q3 2026

About Petrel



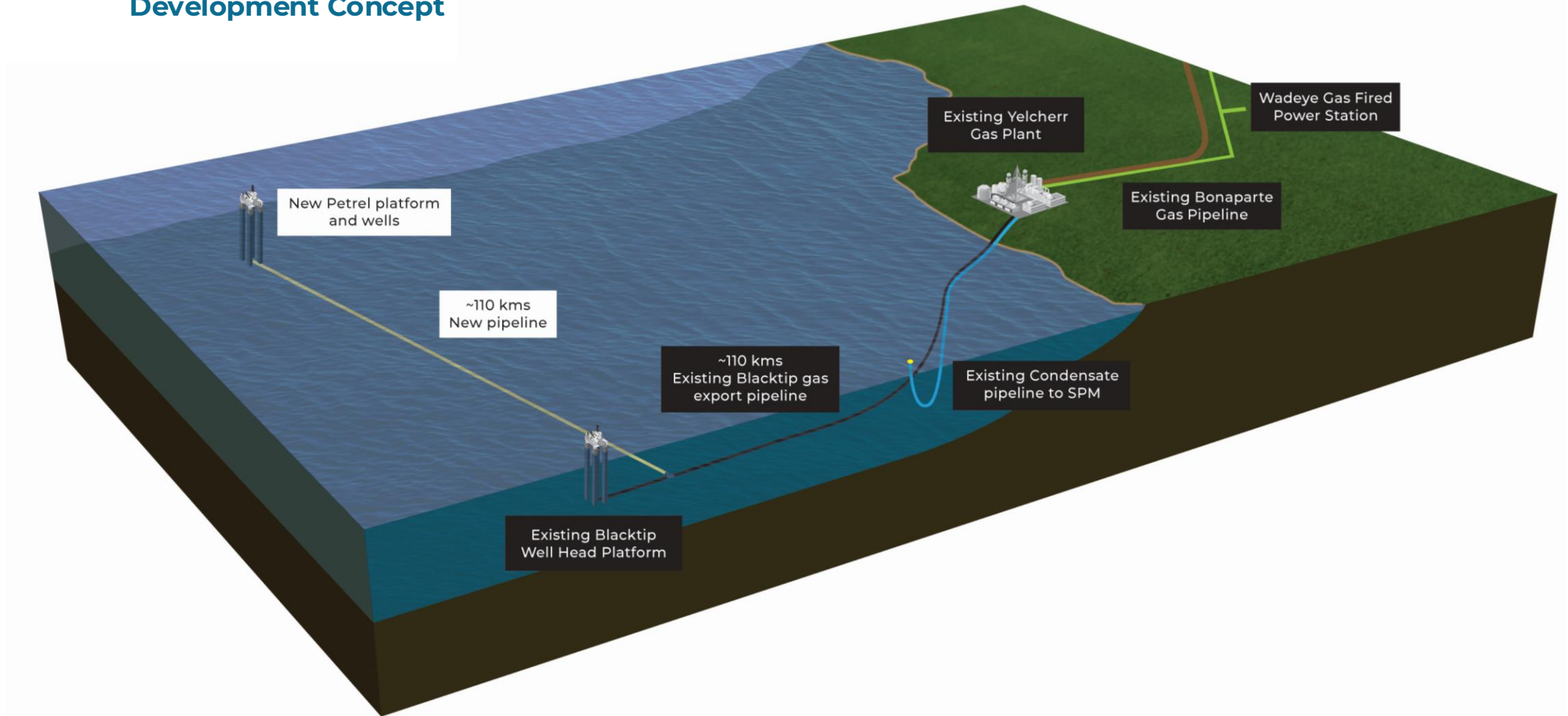
- An already discovered natural gas field (dry gas with low CO₂)
- Eni to complete the inherited responsibility of decommissioning P-3 and P-4 wells (EP already accepted)
- Development potential to produce gas for the domestic market
- Estimated that the reservoir has more than 20 years of natural gas
- Future well targets have been identified as well as location for proposed gas export pipeline
- Future exploration activities within the Petrel field are also being considered.

The Proposed Petrel Development

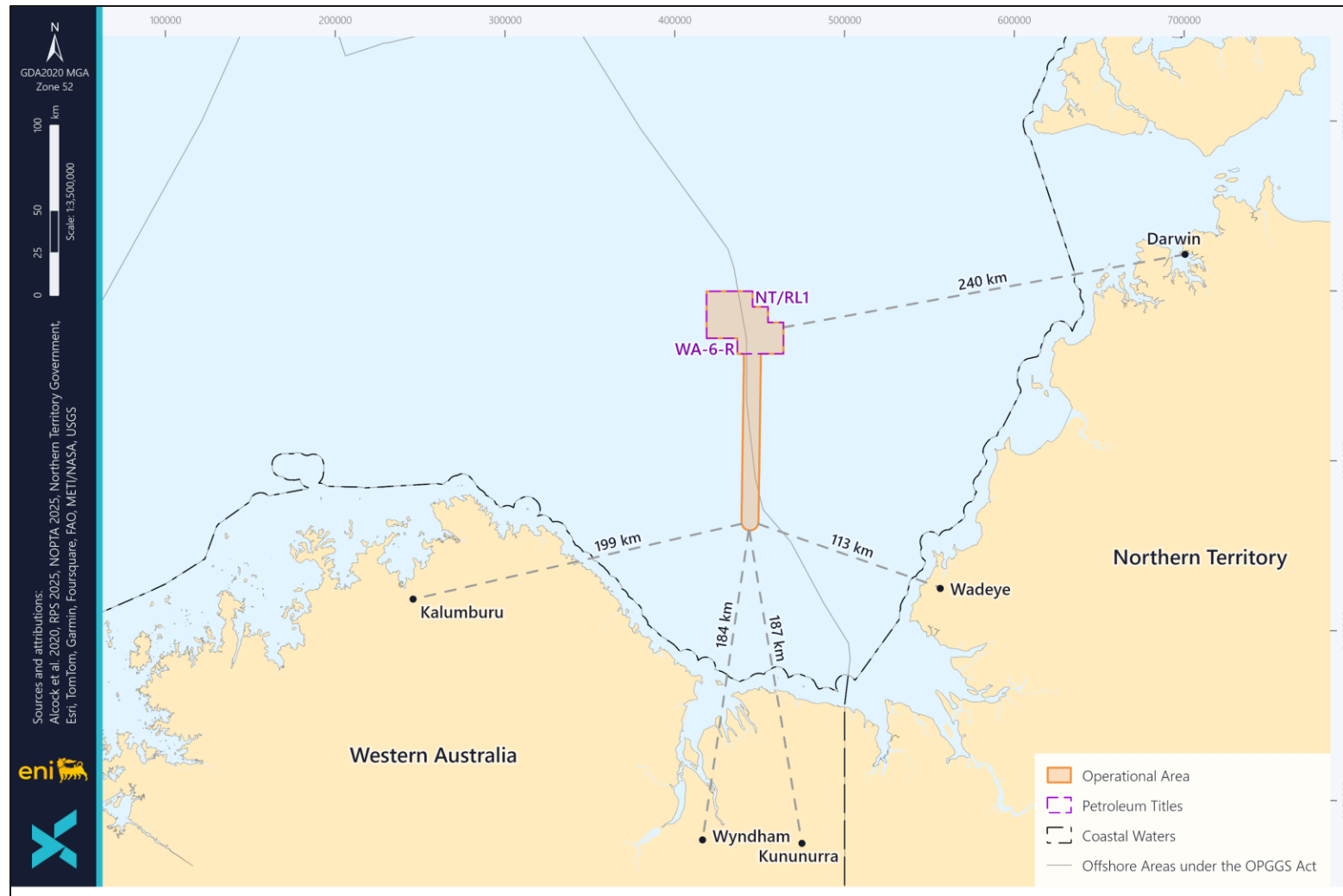
Value optimisation through tie-in (connection):



Development Concept



Petrel Survey Location



The Survey location considers the location of the Petrel field and the location of the proposed gas export pipeline from the Petrel field to the Blacktip Gas Export Pipeline.

Survey Activities - Summary



Eni is proposing to undertake surveys to better understand the existing environment and seabed characteristics to support the development and exploration activities within the Petrel field:

- ❑ **Geotechnical Survey**
 - to help the design of the subsea structures
- ❑ **Geophysical Survey**
 - to get a baseline of what the seabed looks like, what's underneath, and any hazards.
- ❑ **Environmental surveys**
 - to understand the environmental conditions of the Petrel field

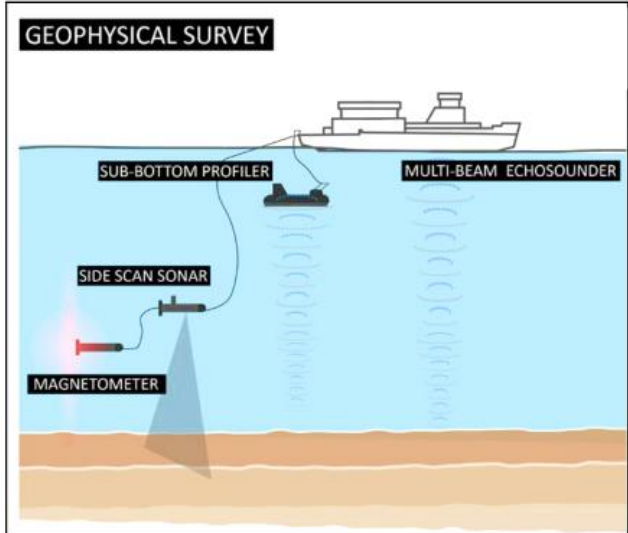


Petrel Survey – Overview of Activities - 1



Proposed activities for the development of the Petrel Geophysical Survey:

- ❑ Geophysical 2DHR and VHR survey (40 + 20 days)
 - to collect high-resolution information about the seabed and very shallow subsurface.
 - focused on seabed characterisation, hazard identification, and engineering support
 - Side Scan Sonar (SSS) - photographic-like images of the seabed
 - Sub-Bottom Profiler (SBP) - Images shallow sediments below seabed
 - Multibeam Echo Sounder (MBES) - Map seabed depth and shape
 - Magnetometer (MAG) - Detect ferrous (metallic) objects
 - Seabed high resolution geophysical survey. This survey uses low output sound sources because it only needs to look at the shallow layer of ground (~60m) just below the seafloor.
 - This is a low-impact imaging technique that provides information on potential changes in the strength of the near-surface sediments.



Survey Type/ Campaign	Development			Exploration		
	Location	Duration	Expected Timing	Location	Duration	Expected Timing
Geophysical	Whole OA	40 days	Q3/Q4 2026	Retention leases only	20 days	Q3/Q4 2026
Environmental baseline	Whole OA	20 days	Q3/Q4 2026	Retention leases only	10 days	Q3/Q4 2026
Geotechnical	Whole OA	40 days	Q3/Q4 2026	Retention leases only	10 days	Q3/Q4 2026

Petrel Survey – Overview of Activities - 2



Proposed activities for the development of the Petrel Environment & Geotechnical survey:

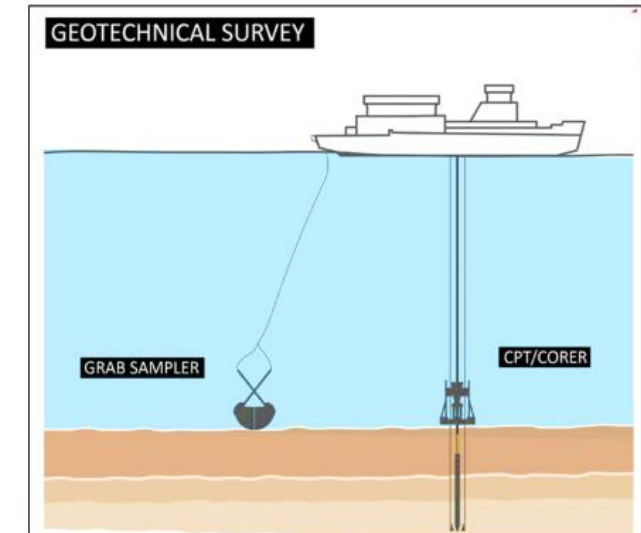
❑ Environmental baseline (20 + 10 days)

- To understand the environmental conditions of the Petrel field
- Data collection for existing environmental conditions before activities occur
- Establishes baseline physical, biological, and oceanographic conditions
- Seabed habitat characterisation
- Targeted Benthic biological sampling
- Water column measurements
- Oceanographic and Marine fauna observations

Survey Type/ Campaign	Development			Exploration		
	Location	Duration	Expected Timing	Location	Duration	Expected Timing
Geophysical	Whole OA	40 days	Q3/Q4 2026	Retention leases only	20 days	Q3/Q4 2026
Environmental baseline	Whole OA	20 days	Q3/Q4 2026	Retention leases only	10 days	Q3/Q4 2026
Geotechnical	Whole OA	40 days	Q3/Q4 2026	Retention leases only	10 days	Q3/Q4 2026

❑ Geotechnical (40 + 10 days)

- Direct measurements and samples of seabed and shallow subsurface soils to support safe well design, infrastructure placement, and engineering assessments
- Measure soil strength and layering of soils beneath the seabed.
- Collect physical samples of seabed sediments
- Core hole sampling to inform engineering designs



How We Address Risks and Impacts



- For all petroleum activities, Eni identifies potential environmental impacts/risks and management measures
- Once identified, each risk is assessed in terms of severity of the impact and the likelihood of it occurring
- This assessment helps establish whether the risk of these impacts is low, medium or high
- Mitigation/management measures/actions are then developed to reduce risk levels to as low as reasonably practicable
- The potential key environmental impacts listed are assumptions based on existing experience in the region and conducting similar activities.
- Final impacts, risks and management measures will be updated on the activity landing page at petreleni.com.au

Impact & Mitigation Measures



Example for Planned Impact

IT WILL OCCUR (Planned Event)	WHAT MIGHT HAPPEN BECAUSE OF THIS (Potential Impact)	HOW WE'LL LOWER THE RISK (Proposed Mitigation / Control)
Physical interaction – other marine users	• Short duration - approximately 100 days • Area covers permits WA-6-R and NT/RL1 and 5km radius around proposed GEP to extend from permit boundary to Blacktip GEP. • Six active fisheries - limited historical catch effort • No tourism or recreational fishing expected in the Operational Area • The Operational Area is located within a military exercise zone (Northern Australia Exercise Area) which is administered by the Australian Defence Force and includes restricted airspace.	• Navigation equipment and procedures • Maritime notices and notifications as requested • Lighting for safety and navigation work



Impact & Mitigation Measures



Example for Unplanned Impact

IT MAY OCCUR (Unplanned Event)	WHAT MIGHT HAPPEN BECAUSE OF THIS (Potential Impact)	HOW WE'LL LOWER THE RISK (Proposed Mitigation / Control)
Marine fauna interaction	Collision with marine fauna highly unlikely due to short duration (~100 days), and slow vessel speed.	- Regulatory compliance to reduce interactions with marine fauna - control measures to ensure event likelihood reduced to ALARP - Observations of surroundings from vessel - Reporting compliance





Oil Spill Modelling

The Environment that May Be Affected (EMBA)

Petrel – Scenarios for Spill Modelling

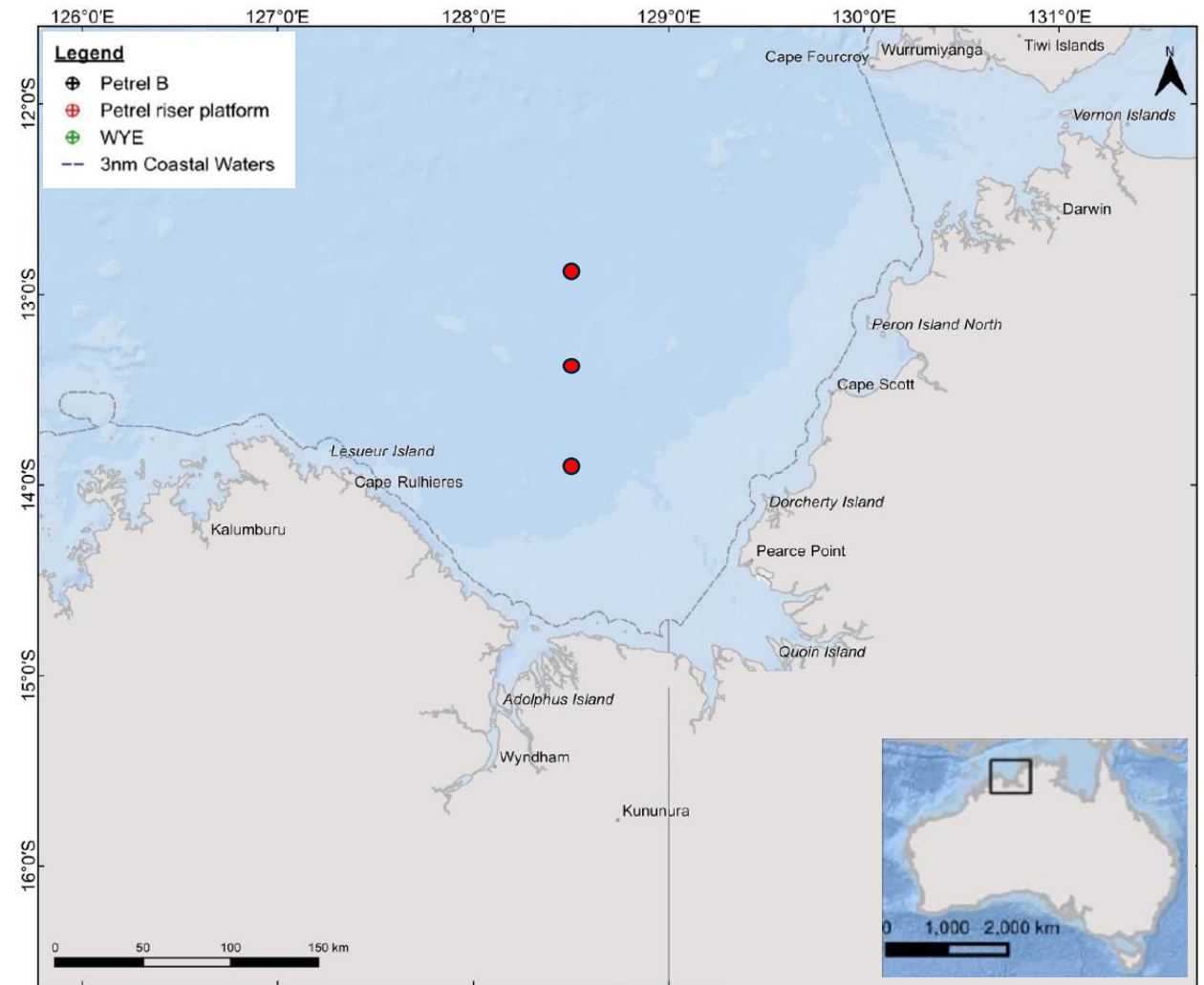


Spill modelling evaluated three scenarios:

1. **Vessel collision within Petrel permit area:** Surface release of 130 m³ Marine Diesel Oil with the vessel's tank draining out for up to 1 hour
2. **Vessel collision at WYE:** surface release of 130 m³ Marine Diesel Oil with the vessel's tank draining out for up to 1 hour
3. **Vessel collision at a mid-point between the WYE and Petrel riser platform:** surface release of 130 m³ Marine Diesel Oil with the vessel's tank draining out for up to 1 hour

Modelling outcomes assessed for distinct seasons

- Summer (Oct-Mar)
- Transitional periods (Apr & Sep)
- Winter (May-Aug)

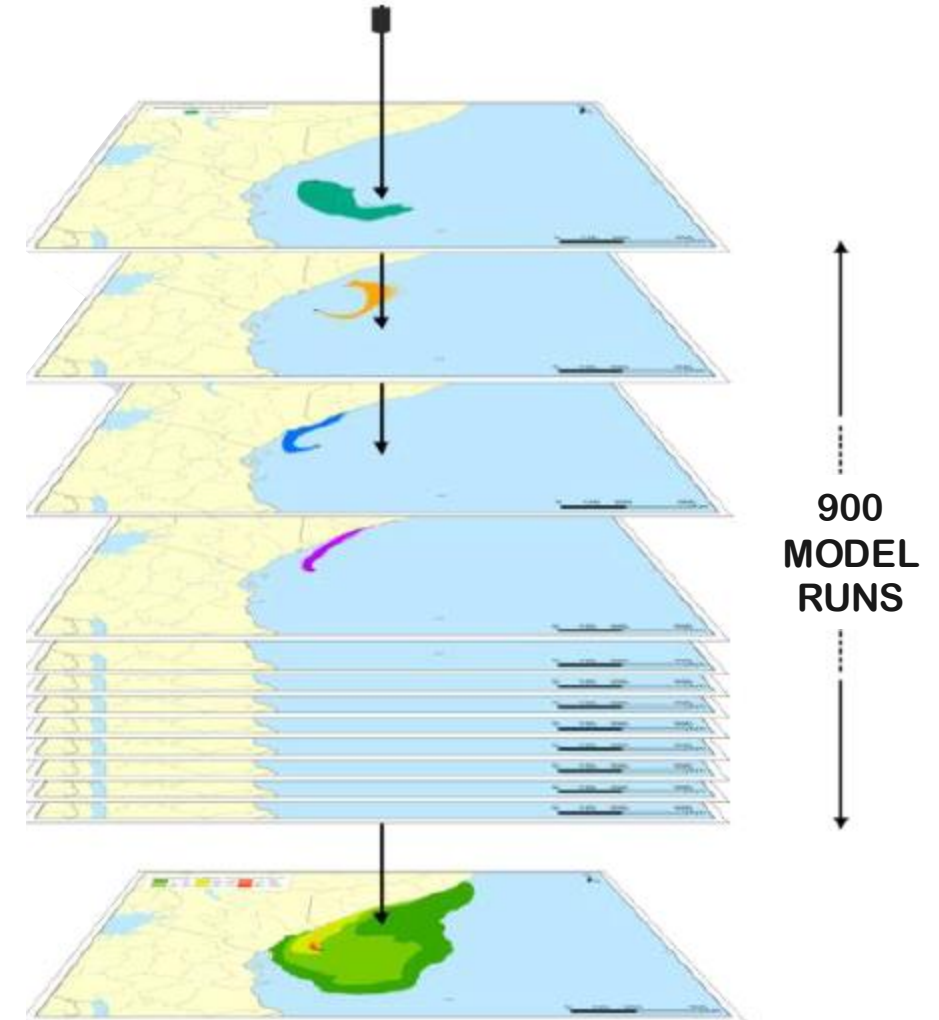


WYE:
the tie-in that links pipelines together for Petrel production to head to YGP

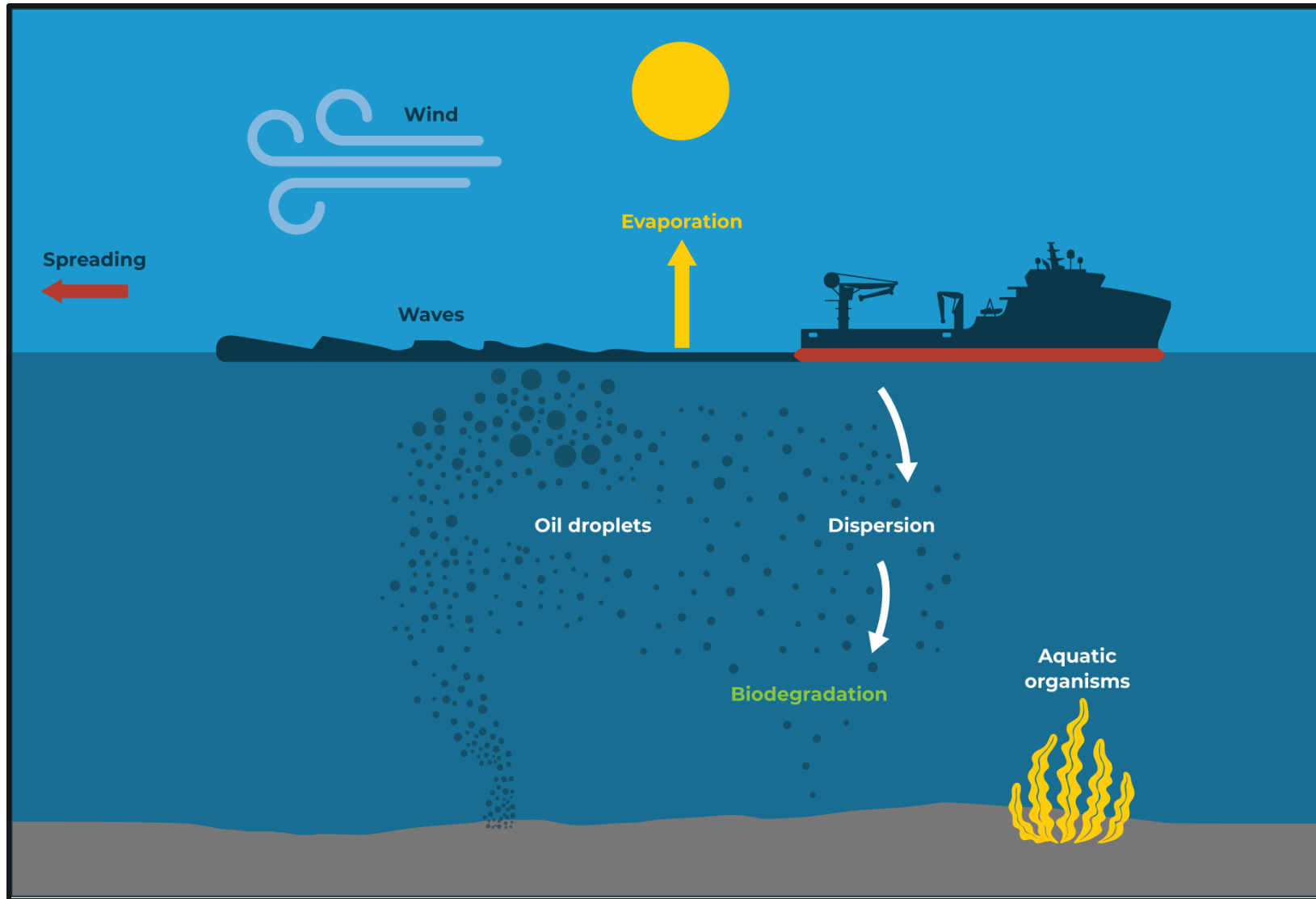
Spill Modelling - What is It?



- While a hydrocarbon oil spill is very unlikely to occur, oil spill modelling is a mandatory requirement for all hydrocarbon activities
- 100s of computer-simulated hydrocarbon spill events are created using varying environmental and seasonal inputs (currents, local winds and hydrocarbon characteristics)
- The 100s of computer-simulated spill events are then overlayed on each other to develop the final EMBA
- So, the final map does not show a final realistic spill event. Its intention is to show the maximum extent of all spill events
- This allows priorities for protection to be identified and used for response planning.



Accidental Release - Spill Modelling Aspects



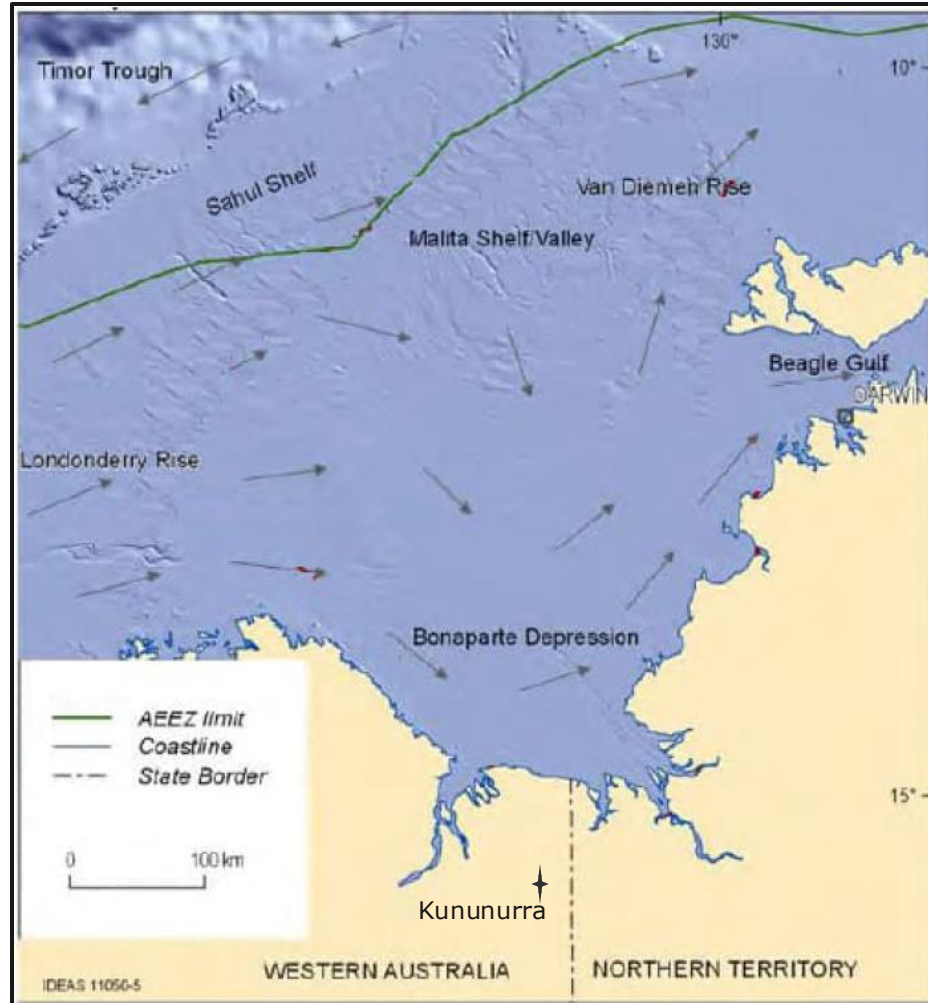
Oil Spill Modelling Considerations:

- Time of Year (Seasonality)
- Wind and Water Movement (Wind Patterns & Currents)
- Hydrocarbon properties
 - Breakdown over time (Degradation)
 - Oil mixing with water (Emulsification)
 - Sunlight changes oil (Photo-oxidation)
 - Oil sinking to sea floor (Sedimentation)
 - Oil dissolving into water (Dissolution)

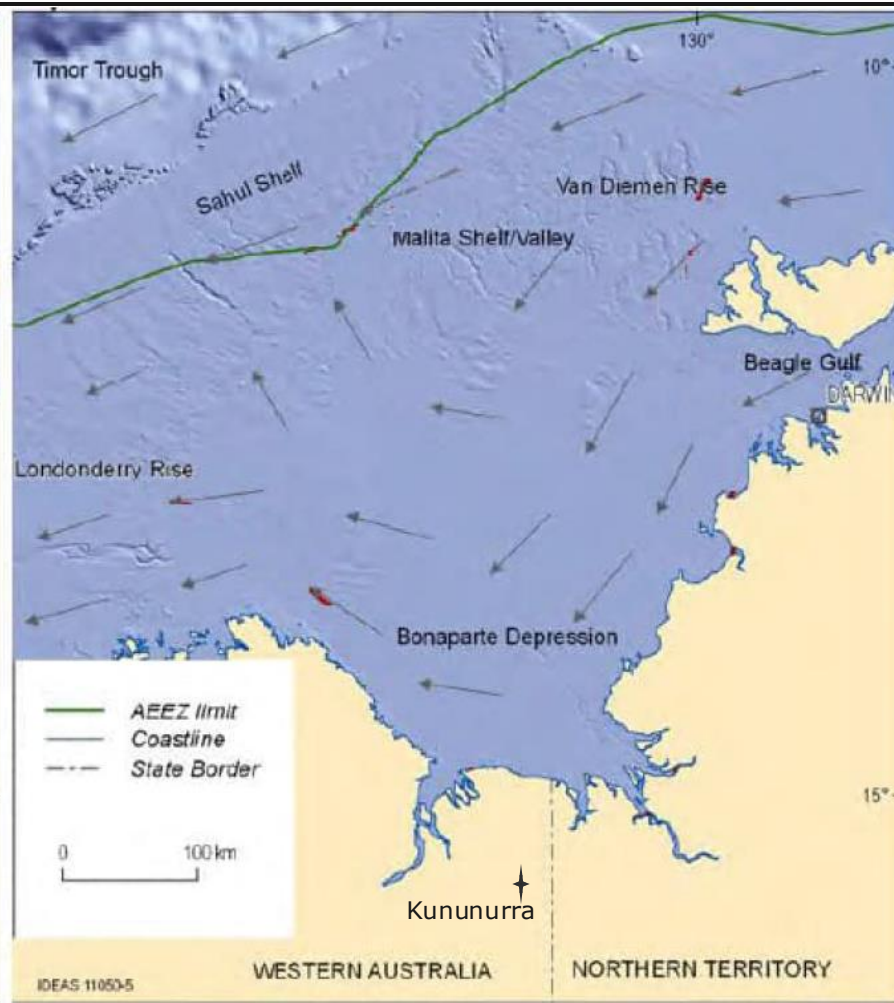
Petrel – Oceanography wind driven currents



January



July

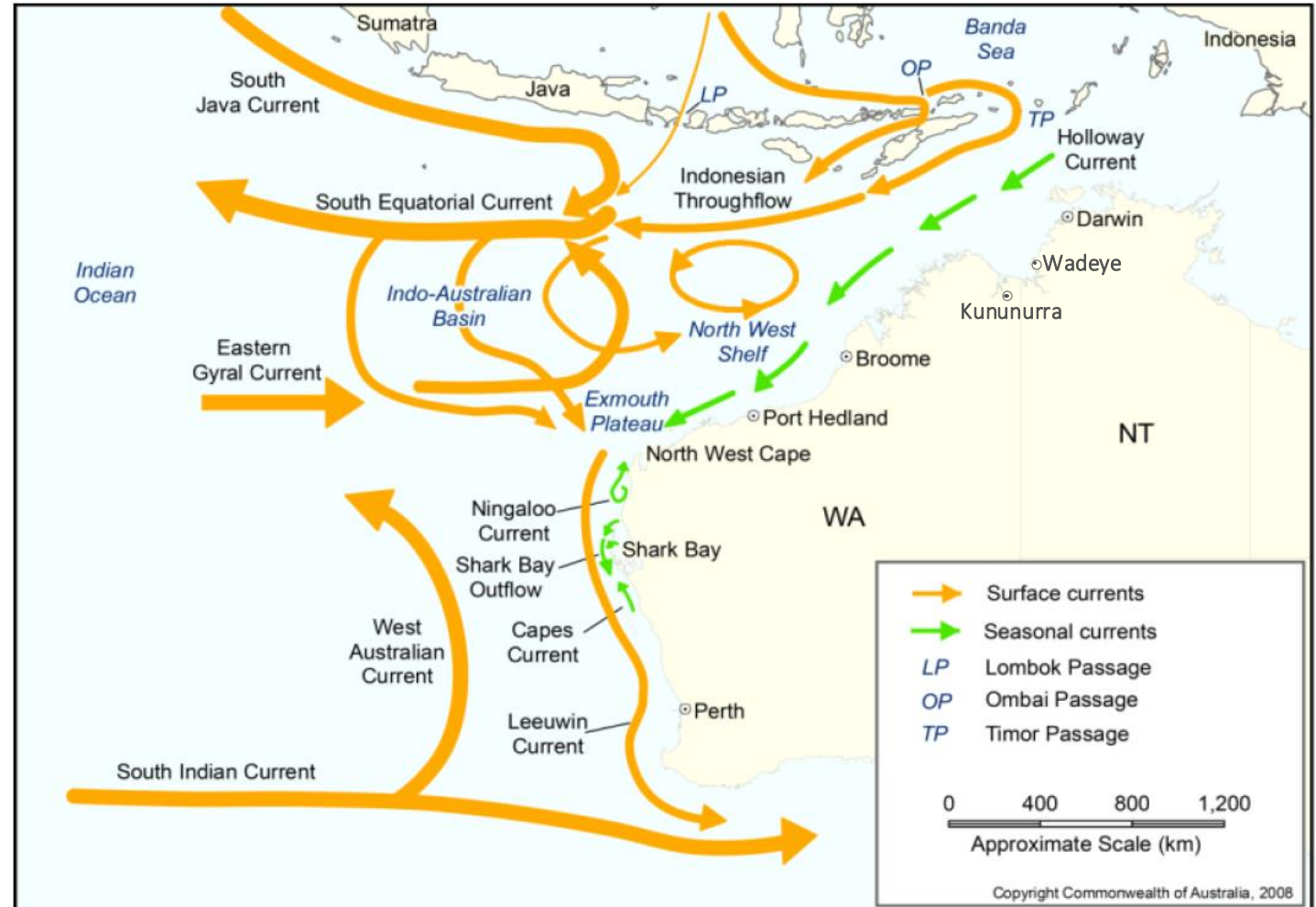


- To support spill modelling, wind data from many sources is used:
 - surface
 - air balloon
 - aircraft observations
 - satellite observations
- average and maximum wind speeds range between 9.7 knots (18 km/h) and 46.6 knots (86 km/h)
- Typically, winds blow from the west during summer, and mostly from the east-southeast during winter
- <https://www.windy.com/>

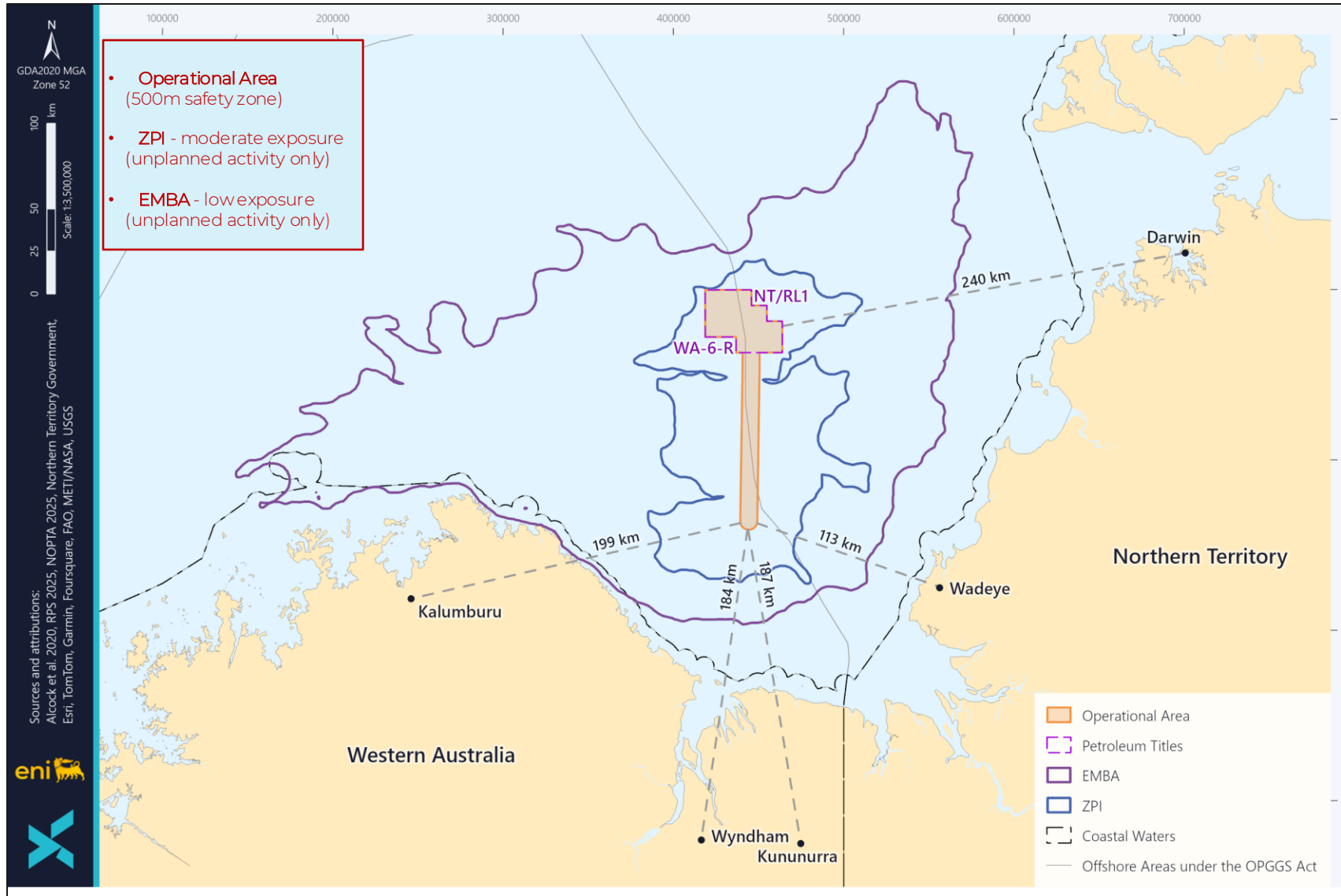
Petrel – Surface Currents



- The seafloor in the Joseph Bonaparte Gulf is complicated, and the water moves because of tides and wind
- The *Indonesian Throughflow* is a current that carries warm water from the tropics toward the southwest, and the water has less salt.
- The *Holloway Current* moves along the coast to the southwest and becomes stronger between April and July when the winds are stronger.
- Tidal currents are usually weaker in deep water, but they are much stronger near the shore, in the gulf, around coastal channels, and near islands
- Because currents change a lot, they need to be continually considered to understand how an oil spill might move.



Activity EMBA - Marine Diesel Oil



Probability

- The likelihood of a vessel collision is considered rare

Control measures

- Navigation equipment and marine assurance procedures (ship-worthiness)
- Exclusion zones
- Vessel emergency management plan
- Refueling transfer procedures
- Oil Pollution Emergency Plan
- Oil Spill Management Plan

Floating oil exposure

- 1g /m² (low)
($\frac{1}{4}$ teaspoon oil / m²)
- 10g /m² (moderate)
- 50g /m² (high)

Evaporation / decay rate

- 36.1% evaporation (constant wind)
- MDO decays at a higher rate of 3% per day

Ecological impact onshore

- No accumulation/buildup of hydrocarbons on shoreline

Operator Requirements





Where To From Here

Petrel Survey EP Consultation

Where to From Here . .

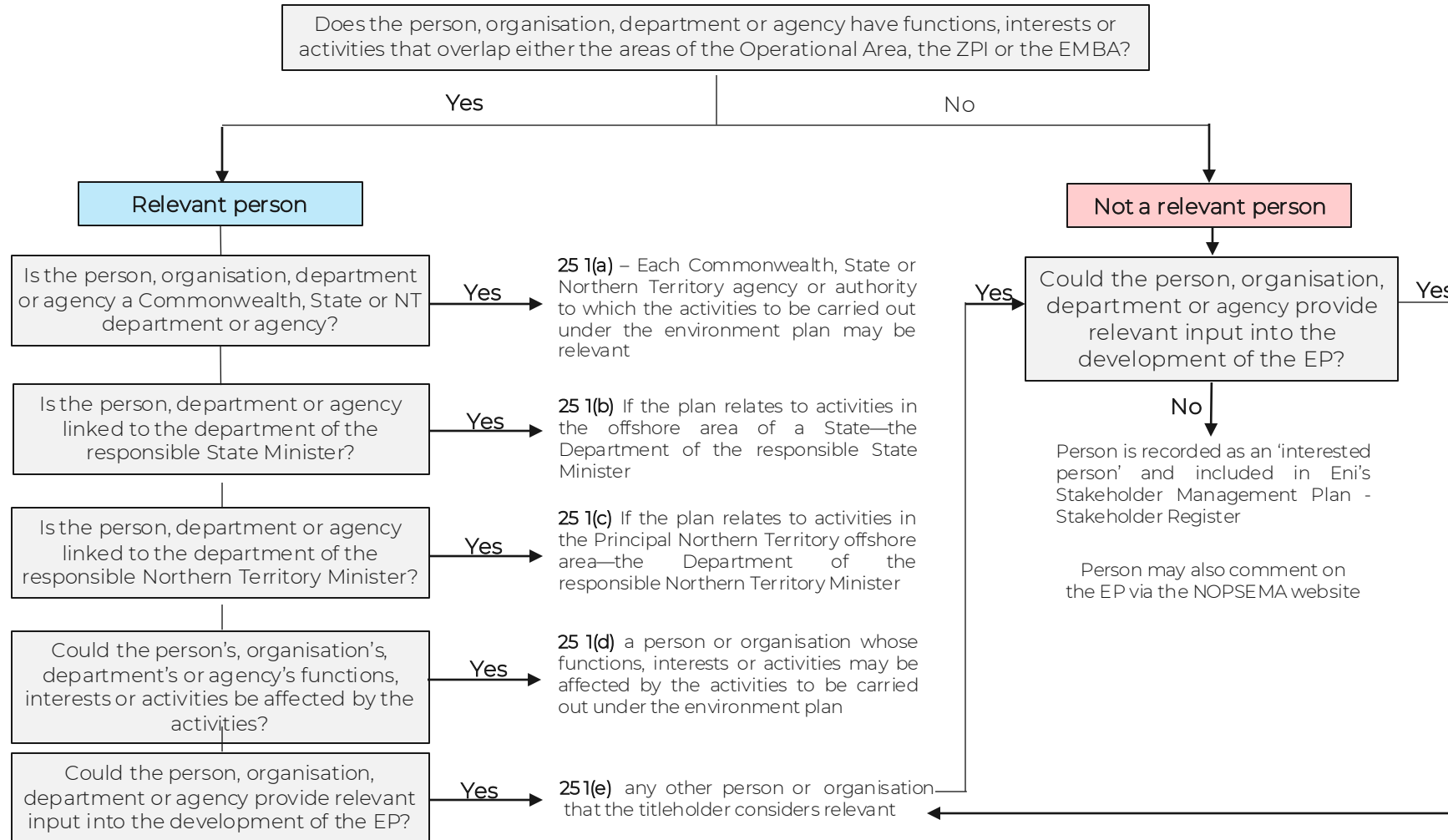


- ❑ The Petrel Survey Environment Plan consultation commenced on 27 January 2026 and, at this stage, will be continuing until end 17 March 2026.
- ❑ Any comments and feedback will be considered for assessment for inclusion and action into the Environment Plan.
- ❑ If you would like to seek more information, get further clarification, or request another meeting, please contact us through info@petreleni.com.au; phone us on 1300 155 616; or visit our website at petreleni.com.au.
- ❑ The Petrel Survey Environment Plan is expected to be submitted to NOPSEMA* by the beginning of April 2026.
- ❑ Any other Questions?



Thank you

What is a Relevant Person?



Potential Environmental Impact & Mitigation Measure



Planned Impact - Seabed disturbance

Seabed disturbance will be caused by:

- seabed sampling during the geotechnical and environmental surveys.

Potential Impact

- Seabed disturbance will cause a localised and temporary reduction in water quality, and disturbance to benthic habitat.
- There is no sensitive benthic habitat, Marine Parks or Key Ecological Features (KEFs) in the operational area.

Proposed Management/Mitigation

- All deployed equipment will be recovered.
- Post-activity ROV survey will be conducted.

Potential Environmental Impact & Mitigation Measure



Planned Impact - Physical interaction

The physical presence and movement of vessels within the operational area can interfere with other marine users by causing displacement from the area during activities.

Potential Impact

The operational area is the retention leases WA-6-R and NT/RL1 and a 5km buffer each side of the proposed GEP route; from the boundary of the retention lease to the Blacktip GEP tie-in point.

Activities in the operational area are expected to last up to 100 days.

Six active fisheries overlap the operational area; however, these commercial fisheries have recorded limited historical catch effort data within the area.

There are no tourism or recreational fishing activities expected in the operational area due to distance from shore. The Operational Area is located within a military exercise zone (Northern Australia Exercise Area) which is administered by the Australian Defence Force and includes restricted airspace.

Proposed Management/Mitigation

- Navigation equipment and procedures, in accordance with legislative requirements.
- Maritime notices will be complied with.
- All activities will occur within the operational area.
- Other relevant notifications may be made, as requested by stakeholders.
- Lighting will be used as required for safe work conditions and navigational purposes.

Potential Environmental Impact & Mitigation Measure



Planned Impact

Atmospheric emissions and greenhouse gas (GHG):

- Atmospheric and GHG emissions are generated by vessels as a result of combustion for power generation.
- Vessels may also use ozone-depleting substances (ODS) in refrigeration systems.
- Waste incineration on vessels (if any) will be in accordance with legislative requirements.

Potential Impact

- Hydrocarbon combustion may result in a temporary, localised reduction of air quality in the environment immediately surrounding the release point.
- Non-GHG emissions (such as NOx and SOx) and GHG emissions can lead to a reduction in local air quality.
- Given the short duration of the campaigns (up to 100 days) and relatively low fuel usage, the contribution of atmospheric and GHG emissions to the global carbon budget is expected to be insignificant and is not evaluated further.

Proposed Management/Mitigation

- Use low sulphur fuel on the vessels, in accordance with legislative requirements (e.g. Marine Orders).
- Ozone-depleting substances (ODS) managed in accordance with MARPOL.
- Compliance with regulatory requirements for marine air pollution and GHG missions reporting.
- Vessel Planned Maintenance System (PMS) in place to maintain DP, engines and machinery.

Potential Environmental Impact & Mitigation Measure



Planned Impact

Noise emissions - Continuous:

- Continuous noise emissions will be generated by the operation of support vessels.

Potential Impact

Underwater noise emissions can cause:

- a change in marine fauna behaviour.
- mask communication.
- temporary or permanent hearing loss.

The greatest source of noise emissions is used (from thruster noise), on vessels.

The operational area does not overlap with any biologically important areas (BIAs) for marine mammals or fish/ sharks, though it does for four species of marine turtles – any individuals present would be transitory.

Potential impacts are likely to be restricted to localised and temporary avoidance behaviour. Given the short duration of the campaigns (up to 100 days), the potential impacts are considered low.

Proposed Management/Mitigation

- Compliance with administrative controls (such as EPBC Regulations Part 8) to reduce interactions with marine fauna.
- Documented maintenance program in place for equipment on vessels that provides a status on the maintenance of equipment.
- Vessel Planned Maintenance System (PMS) in place to maintain DP, engines and machinery.

Potential Environmental Impact & Mitigation Measure



Planned Impact

Noise emissions – Impulsive:

Impulsive noise emissions generated by acoustic survey techniques during the geophysical survey – i.e. Multibeam echo sounder, side scan sonar, sub-bottom profiling, magnetometer, ultrashort baseline positioning system.

Such equipment is designed to characterise the seabed topography, bathymetry, potential geohazards, and other seafloor features.

Potential Impact

The operational area does not overlap with any biologically important areas (BIAs) for marine mammals or fish/ sharks, though it does for four species of marine turtles – any individuals present would be transitory.

The impulsive noise emissions generated by the various acoustic survey instruments may result in localised and temporary behavioural changes to marine fauna.

Proposed Management/Mitigation

Compliance with administrative controls (such as EPBC Regulations 8 (Part 8) to reduce interactions with marine fauna.

Potential Environmental Impact & Mitigation Measure



Planned Impact

Light Emissions:

Lights on the vessels will be required on a 24-hour basis during the activities for safety and navigational purposes, in accordance with navigational requirements.

There is no proposed flaring.

Potential Impact

Light emissions have the potential to result in changes to marine fauna behaviour, by acting as an attractant to light-sensitive species, leading to possible increased predation and/or disorientation.

There is no potential to impact turtle/seabird nesting females or hatchlings.

The Operational Area does not overlap any BIAs for seabirds, and is >88 km from shore, meaning there is no potential to impact fledging behaviour.

There is potential a small number of adult seabirds and migratory shorebirds may be attracted to the vessels, however given the short duration of the campaigns (up to 100 days), this is considered minor.

Proposed Management/Mitigation

Lighting will be used as required for safe work conditions and navigational purposes.

Potential Environmental Impact & Mitigation Measure



Planned Impact

Planned discharges - Routine:

Operation of vessels will routinely discharge the following to the marine environment:

- sewage
- greywater
- putrescible waste
- treated bilge
- cooling water and brine
- deck drainage.

Potential Impact

A temporary and localised impact on water quality may result in a change in water quality and changes to predator prey dynamics.

Given the relatively low volume and intermittent nature of planned vessel discharges, the short duration of the campaigns (up to 100 days), the water depth and open ocean environment of the operational area, the potential impact is expected to be localised to the immediate proximity of the release, and of short duration.

Proposed Management/Mitigation

- All routine marine discharges will be managed according to legislative requirements.
- Vessel PMS in place to maintain DP, engines and machinery.

Potential Environmental Impact & Mitigation Measure



Unplanned Impact Marine fauna interaction

There is the potential for vessels to collide with marine fauna, including marine mammals, fish, marine reptiles and seabirds.

The main collision risk is through vessel collision with large, slow-moving cetaceans, potentially resulting in severe injury or mortality.

Potential Impact

Given the short duration of the campaigns (up to 100 days), and the slow speeds at which vessels operate, collisions with marine fauna are considered highly unlikely.

Eni will apply control measures to ensure the likelihood of the event occurring is reduced to ALARP and acceptable levels.

Proposed Management/Mitigation

Compliance with administrative controls (such as EPBC Regulations Part 8) to reduce interactions with marine fauna.

- Any vessel strikes with cetaceans will be reported in the National Ship Strike Database.
- Observations of the surroundings will be undertaken from the vessel/s for marine fauna.

Potential Environmental Impact & Mitigation Measure



Unplanned Impact

Introduction of marine pest species

There is the potential for introduction and establishment of invasive marine pests to the operational area via vessels ballast water or biofouling on vessel hulls.

Potential Impact

The risk of introducing IMS is limited by the depth of the operational area (>50 m), which is not directly adjacent to any shallow shoals or banks. The substrate in the operational area does not have any hard substrate to which IMS can attach.

Eni will apply control measures to ensure the likelihood of the event occurring is reduced to ALARP and acceptable levels.

Proposed Management/Mitigation

- All vessels will be assessed and managed as appropriate to prevent the introduction of marine pests.
- Vessels will comply with biosecurity requirements for ballast water and biofouling and comply with the Maritime Arrivals Reporting System (MARS).

Potential Environmental Impact & Mitigation Measure



Unplanned Impact

Accidental release – waste and solid objects

There is the potential for the accidental disposal of hazardous wastes (e.g. hydrocarbon contaminated materials, batteries, paint cans) and nonhazardous solid wastes (e.g. paper and cardboard, wooden pallets, scrap steel, rope, glass and plastics).

Potential Impact

The accidental release of wastes can cause a temporary and localised reduction in water quality, and the potential for marine fauna to ingest or become entangled with solid waste (garbage).

If equipment is dropped, this may cause disturbance or smothering of benthic habitats.

This is a small area; and benthic habitats are known to rapidly recover. There are no KEFs or sensitive benthic habitat in the operational area.

Eni will apply control measures to ensure the likelihood of the event occurring is reduced to ALARP and acceptable levels.

Proposed Management/Mitigation

- Procedures to reduce the potential for loss of non-hazardous and hazardous waste and dropped objects to be followed.
- Dropped objects to be retrieved where possible.
- Lifting procedures will be implemented.
- For hazardous chemicals, including hydrocarbons, hazardous chemical management procedures will be in place to reduce the risk of an accidental release to sea.
- Chemical assessment procedure will be implemented.

Potential Environmental Impact & Mitigation Measure



Unplanned Impact

Accidental release – Minor loss of containment

Minor volumes of hydrocarbon or other chemicals (e.g. hydraulic fluids, deck spills) may be accidentally released to the marine environment due to:

- Loss of primary/secondary containment.
- Incorrect handling and storage.
- ROV failure.

Potential Impact

Minor accidental releases of hydrocarbons or chemicals can cause a change in water quality. Expected volumes are small (<1 m³), and there is no potential for injury or mortality to marine fauna.

Eni will apply control measures to ensure the likelihood of the event occurring is reduced to ALARP and acceptable levels.

Proposed Management/Mitigation

- Use of MDO rather than Heavy Fuel Oil (HFO) on vessels (MDO is lighter than HFO and will evaporate faster and persist less in the marine environment).
- Response plans and equipment will be in place and maintained to manage spills to the environment (e.g. oil pollution emergency plans). • Administrative control, such as bunkering / bulk refueling procedures.
- In the event of a minor loss of containment to sea, Oil Pollution Emergency Plan (OPEP) requirements will be implemented to mitigate environmental impacts.
- Chemical assessment procedure will be implemented.
- For hazardous chemicals, including hydrocarbons, hazardous chemical management procedures will be in place to reduce the risk of an accidental release to sea.
- Remotely operated vehicle (ROV) inspection and maintenance procedures.
- Procedures to reduce the potential for loss of non-hazardous and hazardous waste and dropped objects to be followed.
- Vessel PMS in place to maintain DP, engines and machinery.
- Where required, operational and scientific monitoring undertaken in accordance with Eni's Operational and Scientific Monitoring Plan.

Potential Environmental Impact & Mitigation Measure



Unplanned Impact

Accidental release – MDO (vessel collision)

A release of up to 130 m³ marine diesel oil (MDO) could occur from a collision between the activity vessels and a third-party vessel due to factors such as human error, poor navigation, vessel equipment failure or poor weather.

Potential Impact

An accidental release of MDO can cause a change in water quality, a change in fauna behaviour, injury or mortality to marine fauna and an impact to other marine users.

Potential impacts include those to plankton, fish, marine turtles, marine mammals, seabirds and migratory shorebirds, commercial fisheries, and cultural heritage.

MDO is a relatively volatile, nonpersistent nature hydrocarbon with rapid evaporation on the sea-surface (typically ~36% within the first 24 hours).

No accumulation/buildup of hydrocarbons on any shorelines

Six active fisheries overlap the operational area; however, these commercial fisheries have recorded limited historical catch effort data within the area. There are no tourism or recreational fishing activities expected. The Operational Area is located within a military exercise zone (Northern Australia Exercise Area) which is administered by the Australian Defence Force and includes restricted airspace.

Eni will apply control measures to ensure the likelihood of the event occurring is reduced to ALARP and acceptable levels.

Proposed Management/Mitigation

- Pre-start notifications will be issued.
- Regulatory requirements for the prevention of vessel collisions and safety and emergency arrangements.
- Use of MDO rather than Heavy Fuel Oil (HFO) on vessels.
- In the event of an oil spill to sea, OPEP requirements will be implemented to mitigate environmental impacts.
- Response plans and equipment will be in place and maintained to manage spills to the environment (e.g., oil pollution emergency plans).
- Vessels selected and on-boarded are operated, maintained and manned in accordance with industry standards (Marine Orders) and regulatory requirements.
- Where required, operational and scientific monitoring undertaken in accordance with Eni's Operational and Scientific Monitoring Plan.



Petrel Survey Environment Plan

Relevant Person Consultation

Dept Chief Minister and Cabinet - West Daly Region
Daniel Tedcastle Regional Director

Lot 563 Bem Street Wadeye
Wednesday 28 January 2026



Petrel Survey Environment Plan

Relevant Person Consultation

West Daly Regional Council
Perdjert St, Wadeye NT 0822

Wednesday 28 January 2026



Petrel Survey Environment Plan

Relevant Person Consultation

Thamarrurr Rangers

Thamarrurr Rangers Office, Kanarlida St, Wadeye

Thursday 29 January 2026



Petrel Survey Environment Plan

Relevant Person Consultation

Northern Territory Seafood Council (NTSC)
L1, Shipstores Building, Fisherman's Wharf, Darwin

Friday 30 January 2026



Petrel Survey Environment Plan

Relevant Person Consultation

Northern Territory Guided Fishing Industry Association (NTGFIA)

Blane Simmons– Chair

Hilton Hotel Foyer, Mitchell St Darwin

Monday 2 February 2026



Petrel Survey Environment Plan

Relevant Person Consultation

Amateur Fishing Association of NT (AFANT)

David Ciaravolo, CEO

AFANT Offices, U19 90 Frances Bay Dve, Darwin

Tuesday 3 February 2026



Petrel Survey Environment Plan

Relevant Person Consultation

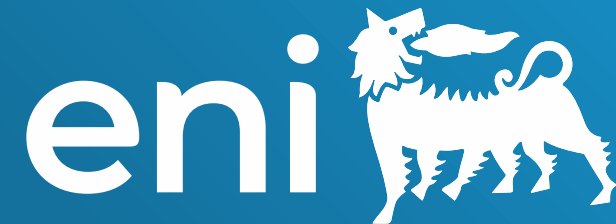
Department of Agriculture & Fisheries (NT)

Michael Usher, Chief Scientist, Fisheries

Melanie Brenton, Aquatic Resource Manager, Fisheries

Fisheries Division Offices, 33 Vaughan St, Berrimah

Tuesday 3 February 2026



Petrel Survey Environment Plan

Relevant Person Consultation

National Indigenous Australians Agency (NT)

Kate Feneck, Engagement Director, Wadeye / Daly Team

Henry Wilson & Tuila Tiaho on Teams

NIAA Offices, Jacana House, Level 6 39-41 Woods Street, Darwin

Tuesday 3 February 2026



Petrel Survey Environment Plan

Relevant Person Consultation

Northern Land Council (NLC)

Tim Burrburr, Regional Coordinator, West Daly Region

Tom Price, Operations Manager, Caring for Country

Adam Thompson, Branch Manager, Resources & Energy

NLC Office Precinct, 29 Julius Street, Berrimah

Tuesday 3 February 2026



Petrel Survey Environment Plan

Relevant Person Consultation

Department of Chief Minister and Cabinet (Darwin)

Claire George: Regional Executive Director, Top End

Spinifex Room - Floor 8, NT House, 22 Mitchell St, Darwin

Thursday 5 February 2026



Petrel Survey Environment Plan

Relevant Person Consultation

Larrakia Development Corporation

Anthony Whitfield, CEO

Hilton Hotel Foyer, Mitchell St, Darwin

Thursday 5 February 2026



Petrel Survey Environment Plan

Relevant Person Consultation

Department of Defence – Teams Meeting

Adam Murray: Assistant Director – Airspace Protection and Training Areas

Tim Hogan: Director of Land Planning and Regulation

Monday 9 February 2026



Petrel Survey Environment Plan

Relevant Person Consultation

**Presentation
Not Shared
in Meeting**

East Kimberley Chamber of Commerce and Industry

Keda Bond, CEO

EKCCI Office, Phoenix Plaza, 120 Konkerberry Dve, Kununurra

Tuesday 17 February 2026



Petrel Survey Environment Plan

Relevant Person Consultation

Wunan Foundation

Ian Trust, Chair

Prue Jenkins, CEO

Lily Lagoon Resort, 50 Casuarina Way, Kununurra

Tuesday 17 February 2026



Petrel Survey Environment Plan

Relevant Person Consultation

Balanggarra Aboriginal Corporation

Timo Trust, Deputy Chair

Five Rivers Lookout - Hugo Austla Dr, Wyndham

18 February 2026



Petrel Survey Environment Plan

Relevant Person Consultation

Cambridge Gulf Limited (CGL) – Wyndham Port

Gil Taylor, Port Manager

**Presentation
Not Shared
in Meeting**

Wyndham Port, Harbour Rd, Wyndham

Tuesday 18 February 2026



Petrel Survey Environment Plan

Relevant Person Consultation

DBCA Kununurra

Rob Warren, Joint Management Project Officer
Ewen Decamp, Senior Marine Park Ranger
George Britchford, Balangarra IPA Coordinator

DBCA Offices, Lot 248 Ivanhoe Rd, Kununurra

19 February 2026



Petrel Survey Environment Plan

Relevant Person Consultation

MG Corp

Ann Mills, Land Management Lead
Benji Curtin, Cultural Advisor
Nicole Lennon, Anthropologist

MG Corp Office, 19 Chestnut Ave, Kununurra

19 February 2026



Petrel Survey Environment Plan

Relevant Person Consultation

Shire of Wyndham & East Kimberley

Vernon Lawrence, CEO

SWEK Offices, 20 Coolibah Drive, Kununurra

19 February 2026



Petrel Survey Environment Plan

Relevant Person Consultation

Kimberley Development Commission

Michele Pucci, Director Regional Development, East Kimberley

KDC East Kimberley Office, 7 Ebony Street Kununurra

20 February 2026



Petrel Survey Environment Plan

Relevant Person Consultation

National Indigenous Australians Agency - Kununurra

Leo Nickels, Engagement Director

Maree Schneider, A/G Director East Kimberley

Chloe Hazebroek, Senior Engagement Officer

NIAA Kununurra Office, 4/16 Riverfig Ave Kununurra

20 February 2026



Petrel Survey Environment Plan

Relevant Person Consultation

Department of Mining and Energy (NT)

Louis Gomatos, Senior Director Petroleum Operations

TEAMS Meeting

25 February 2026

	eni australia	Company document identification ENI-HSE-PL-0001_01	Owner document identification	Rev. index.		Sheet of sheets 479 / 484
				Validity Status	Rev No.	
				PR-OP	1	

Appendix C4a: Consultation Efforts Log

APPENDIX 4A – CONSULTATION EFFORTS LOG

Petrel Survey EP Consultation Efforts Log

	RELEVANT PERSON	Priority	Consultation Type	Sensitive Matters Reference	Out/In	Date	Summary of correspondence	Relevant matter or claim
	Government							
	<i>Commonwealth Government</i>							
1	Australian Communications & Media Authority (ACMA) within the Department of Infrastructure, Transport, Regional Development, Communications and the Arts (DITRDC) (Cth)	3	Email	ACMA01	Outgoing	27/01/2026	Outgoing email cover correspondence introducing the activity, providing attached flyer and link to landing page with further information. Invitation to review and provide feedback.	N
			Email	ACMA02	Incoming	27/01/2026	RP confirming no input to the EP for the surveys activity. Advised Vocus (owner of NWCS and partner in Googles Bosun) has been provided activity information for consultation.	
			Email	ACMA03	Outgoing	03/02/2026	Email acknowledged confirming consultation undertaken with relevant owners responsible for the noted infrastructure.	
2	Australian Fishing Management Authority (AFMA) (Cth)	2	Email	AFMA01	Outgoing	27/01/2026	Outgoing email cover correspondence introducing the activity, providing attached flyer and link to landing page with further information. Invitation to review and provide feedback.	Y
			Email	AFMA02	Outgoing	03/02/2026	Follow up to consultation request.	
			Email	AFMA03	Incoming	03/02/2026	RP confirmed fishing activity for assessment, requested additional information and consideration of impacts from noise, provided industry contact information for additional recommended engagement.	
			Email	AFMA04	Outgoing	03/03/2026	Eni responded to RP queries confirming fishing consultation effort and assessment of impacts.	
3	Australian Hydrographic Office (AHO) (Cth) (part of Dept. of Defence)	2	Email	AHO01	Outgoing	27/01/2026	Outgoing email cover correspondence introducing the activity, providing attached flyer and link to landing page with further information. Invitation to review and provide feedback.	Y
			Email	AHO02	Incoming	28/01/2026	Automatic response with Reference Number 70851180	
			Email	AHO03	Incoming	29/01/2026	AHO confirmation of no concern regarding activities proposed. Navigational notifications will be required prior to and during activity. Going forward, updates will only be required once the activity is due to begin.	
			Email	AHO04	Outgoing	29/01/2026	Email acknowledged with commitment to circulate navigation notification requirement to the project team.	
4	Australian Maritime Safety Authority (AMSA) (Cth)	2	Email	AMSA01	Outgoing	27/01/2026	Outgoing email cover correspondence introducing the activity, providing attached flyer and link to landing page with further information. Invitation to review and provide feedback.	N
			Phone	N/A	Outgoing	11/02/2026	Call to RP to confirm receipt of information. No one has access to the email. Requested re-sending email.	
			Email	AMSA02	Outgoing	11/02/2026	Re-sent information to alternate email address.	
			Email	AMSA03	Outgoing	18/02/2026	Follow up to email with activity flyer and request for feedback.	
			Email	AMSA04	Incoming	18/02/2026	RP advised no action or input to EP.	
			Email	AMSA05	Outgoing	18/02/2026	Email acknowledged.	
5	Clean Energy Regulator (CER) (Cth)	3	Email	CER01	Outgoing	27/01/2026	Outgoing email cover correspondence introducing the activity, providing attached flyer and link to landing page with further information. Invitation to review and provide feedback.	N
			Email	CER02	Incoming	28/01/2026	RP confirmed CER does not have specific feedback at this stage of the development and included STOP in the subject line to opt out of further consultation. CER confirmed Eni Australia BV responsibility to report the emissions, energy consumption and energy production of any facilities under its operational control, including any facilities in exploration or construction phases.	
			Email	CER03	Outgoing	29/1/26	Acknowledgement of opt out decision and confirmation that reporting obligations reminder has been sent internally.	
6	Department of Agriculture, Fisheries and Forestry (DAFF)	3	Email	DAFF01	Outgoing	27/01/2026	Outgoing email cover correspondence introducing the activity, providing attached flyer and link to landing page with further information. Invitation to review and provide feedback.	Y
			Email	DAFF02	Incoming	27/01/2026	Out of office for one RP recipient. Request to forward.	
			Email	DAFF03	Outgoing	28/01/2026	Original activity email forwarded to alternate contact.	
			Email	DAFF04	Outgoing	03/02/2026	Follow up to consultation request.	
			Phone	N/A	Outgoing	11/02/2026	Called RP who had not dealt with this type of request. RP very keen to assist however recommended direct engagement with those cc'd in the email.	
			Phone	N/A	Outgoing	11/02/2026	Called RP who received information directly. Confirmed receipt but no longer handling these queries. Provided updated contact information.	
			Email	DAFF07	Outgoing	11/02/2026	Email sent to updated contact.	
			Email	DAFF08	Incoming	11/02/2026	Email confirmation of receipt and provision of generic email for future consultation.	
			Email	DAFF09	Outgoing	18/02/2026	Follow up email to consultation with conclusion date and encouraging feedback for capture.	
			Email	DAFF10	Outgoing	24/02/2026	Final email seeking feedback to consultation.	
			Email	DAFF11	Incoming	24/02/2026	RP confirmed receipt and would respond if there were queries.	
			Email	DAFF12	Outgoing	24/02/2026	Eni acknowledged email with thanks.	
			Email	DAFF13	Incoming	24/02/2026	Query from RP on Eni engagement with fishing departments and peak bodies.	
			Email	DAFF14	Outgoing	24/02/2026	Confirmation of consultation through fishing departments, peak bodies and through registered mail to individuals.	
			Email	DAFF15	Incoming	24/02/2026	RP queried if AFMA have been consulted.	
			Email	DAFF16	Outgoing	28/03/2026	Eni rep confirmed AFMA consultation.	
7	Dept. Climate Change, Energy, the Environment and Water (DCCEEW) (Cth) General Department	3	Email	DCCEEW01	Outgoing	27/01/2026	Outgoing email cover correspondence introducing the activity, providing attached flyer and link to landing page with further information. Invitation to review and provide feedback.	Y
			Email	DCCEEW02	Incoming	02/02/2026	Email with template attachments for pre-referral meeting request for activity.	
			Email	DCCEEW03	Outgoing	05/02/2026	Confirmed activity is a petroleum activity that will be submitted to the regulator under the OPGGS (Environment) Regulations for the survey activities and the streamlining provisions of the EPBC Act, Part 10, which authorises NOPSEMA to administer the EPBC Act as the sole regulator. Invited to provide any other feedback.	
			Email	DCCEEW04	Incoming	13/02/2026	RP acknowledged advice and confirmed no other input. Notified Eni of other RP's for consideration including Underwater Cultural Heritage and Sea Dumping.	
			Email	DCCEEW05	Outgoing	24/02/2026	Input and guidance acknowledged with thanks.	

Petrel Survey EP Consultation Efforts Log

	RELEVANT PERSON	Priority	Consultation Type	Sensitive Matters Reference	Out/In	Date	Summary of correspondence	Relevant matter or claim
8	DCCEEW Underwater Heritage	3	Email	DCCEEWUH01	Outgoing	24/02/2026	Forward original consultation email, flyer and DCCEEW general response to Underwater heritage for review and input.	Y
			Email	DCCEEWUH02	Incoming	24/02/2026	Automatic response acknowledging receipt of email and response forthcoming.	
			Email	DCCEEWUH03	Outgoing	03/03/2026	Follow up to consultation request.	
			Email	DCCEEWUH04	Incoming	06/03/2026	RP response noted the reporting timing (21 days) for the discovery of potential underwater cultural heritage and recommended the engagement of an underwater marine archaeologist.	
			Email	DCCEEWUH05	Outgoing	13/03/2026	Eni noted recommendation to engaged and underwater marine archaeologist and takes this recommendation under advisement. Eni confirmed the reporting requirements and timing for the discovery of suspected underwater cultural heritage.	
9	Department of Defence (DoD) (Cth)	2	Email	DOD01	Outgoing	27/01/2026	Outgoing email cover correspondence introducing the activity, providing attached flyer and link to landing page with further information. Invitation to review and provide feedback.	Y
			Email	DOD02	Incoming	03/02/2026	Email requesting shape files, information on future intent of the area and opportunity to meet online to discuss.	
			Email	DOD03	Outgoing	03/02/2026	Confirmation seeking shape files to send and Eni rep will confirm a meeting on return from consultation travel.	
			Email	DOD04	Outgoing	04/02/2026	Shape files sent to RP.	
			Email	DOD05	Outgoing	06/02/2026	Follow up to email to arrange an online meeting with RP.	
			Email	DOD06	Incoming	06/02/2026	RP confirm meeting for 9 February.	
			Meeting	DOD07	In Person	09/02/2026	Meeting Notes	
			Email	DOD08	Outgoing	10/02/2026	Summary email following meeting confirming RP notified Eni of the potential for unexploded ordnance in the area, responses to development phase queries and agreement for inclusion in future consultation as DoD contacts.	
			Email	DOD09	Outgoing	24/02/2026	Final follow up with responses to queries raised in meeting regarding unexploded ordnances, air traffic and charting of future infrastructure.	
10	Department of Industry, Science and Resources (DISR) (Cth)	3	Email	DISR01	Outgoing	27/01/2026	Outgoing email cover correspondence introducing the activity, providing attached flyer and link to landing page with further information. Invitation to review and provide feedback.	N
			Email	DISR02	Outgoing	03/02/2026	Follow up to consultation request.	
			Phone	N/A	Outgoing	11/02/2026	RP unable to determine internal contact based on emails used. Confirmed contact information. No direct internal contact. Suggested using online form on website to get query addressed.	
			Online	N/A	Outgoing	11/02/2026	Submission of query using department online form as directed. Directed to activity flyer on landing page as unable to attach to online form.	
			Email	DISR03	Incoming	11/02/2026	Automatic confirmation of submission through online form.	
			Email	DISR04	Outgoing	18/02/2026	Follow up email to consultation with conclusion date and encouraging feedback for capture.	
11	Director of National Parks, Parks Australia, part of the Department of Climate Change, Energy, the Environment and Water (DCCEEW) (Cth)	2	Email	DNP01	Outgoing	27/01/2026	Outgoing email cover correspondence introducing the activity, providing attached flyer and link to landing page with further information. Invitation to review and provide feedback.	Y
			Email	DNP02	Outgoing	03/02/2026	Follow up to consultation request.	
			Phone	N/A	Outgoing	11/02/2026	Previous phone number no longer active.	
			Phone	N/A	Outgoing	11/02/2026	Called main DCCEEW number. Confirmed email addresses used. Requested forwarding to generic email for forwarding back to the depts and advising of follow-up.	
			Email	DNP03	Outgoing	11/02/2026	Information forwarded as requested.	
			Email	DNP04	Incoming	11/02/2026	Acknowledgement of email by DCCEEW whom RP forwarded the email to.	
			Email	DNP05	Outgoing	11/02/2026	Confirmed with DCCEEW we have already engaged separately, inquiry for feedback from National Parks.	
			Email	DNP06	Incoming	12/02/2026	DCCEEW confirmed consultation material had been forwarded to the relevant area in the department for follow up.	
			Email	DNP07	Outgoing	18/02/2026	Follow up email to consultation with conclusion date and encouraging feedback for capture.	
			Email	DNP08	Incoming	18/02/2026	RP response with guideline to consultation and checklist of information. RP requires an eight week minimum turn around for consultation.	
			Email	DNP09	Outgoing	24/02/2026	Confirmation to RP of alignment of EP with Management Plan, management of impacts and risks on AMPs. Information required is available in the activity flyer. Eni Surveys consultation period exceeds industry practice of 30 days.	
			Email	DNP10	Incoming	04/03/2026	RP response requesting mapped AMPs with EMBA and OA. Requested specifics of surveys to be undertaken including any amendments to the summary of potential environmental impacts and management risks.	
			Email	DNP11	Outgoing	05/03/2026	Mapped AMPs with distances to OA and EMBA overlay provided with confirmation of EP inclusion of required content relevant to Australian Marine Parks. Invitation to call to discuss or refer to the landing page for additional information. Package for consultation provided is the same for all relevant persons and/or organisations.	
			Email	DNP12	Incoming	25/03/2026	RP confirmed no overlap of activities with AMPs. No further updates required unless the activity changes. RP confirmed process for emergency response notifications.	
12	Maritime Border Command (MBC), part of Australian Border Force (ABF), part of the Department of Home Affairs (DHA)	3	Email	MBC01	Outgoing	27/01/2026	Outgoing email cover correspondence introducing the activity, providing attached flyer and link to landing page with further information. Invitation to review and provide feedback.	N
			Email	MBC02	Incoming	27/01/2026	Auto-response that email has been received and will be actioned as appropriate.	
			Email	MBC03	Outgoing	03/02/2026	Follow up to consultation request.	
			Email	MBC04	Incoming	03/02/2026	Auto-response that email has been received and will be actioned as appropriate.	
			Phone	N/A	Outgoing	11/02/2026	Called information number - no option in auto answer that guides to offshore activities. Focussed on immigration, trade and incoming/outgoing goods/animals.	
			Email	MBC05	Outgoing	18/02/2026	Follow up email to consultation with conclusion date and encouraging feedback for capture.	
			Email	MBC06	Incoming	18/02/2026	Auto-response that email has been received and will be actioned as appropriate.	

Petrel Survey EP Consultation Efforts Log

	RELEVANT PERSON	Priority	Consultation Type	Sensitive Matters Reference	Out/In	Date	Summary of correspondence	Relevant matter or claim
13	National Indigenous Australians Agency	3	Email	NIAA01 NIAA01a NIAA01c	Outgoing	27/01/2026	Outgoing email cover correspondence introducing the activity, providing attached flyer and link to landing page with further information. Invitation to review and provide feedback.	N
			Email	NIAA02	Incoming	27/01/2026	Auto response to email with Reference Number UR0159387	
			Email	NIAA03	Incoming	27/01/2026	Auto email closing Reference UR0159387	
			Email	NIAA04	Incoming	27/01/2026	Information forwarded to NIAA Business Operations and new Reference Number RITM0383549	
			Email	NIAA05	Incoming	27/01/2026	Failed send - forwarded email did not succeed.	
			Email	NIAA06	Outgoing	27/01/2026	Email sent to alternate contact.	
			Email	NIAA07	Incoming	27/01/2026	RP advised email had been forwarded to the relevant person.	
			Email	NIAA08	Outgoing	03/02/2026	Follow up on consultation request.	
			Phone	N/A	Outgoing	11/02/2026	Main reception for Prime Minister & Cabinet, transferred to relevant department, on hold for 5 minutes before being disconnected.	
			Email	NIAA09	Outgoing	18/02/2026	Follow up email to consultation request, defined timeline and encouraging feedback to ensure capture.	
			Email	NIAA10	Incoming	18/02/2026	Automatic response with another Reference number UR0162169	
			Email	NIAA11	Incoming	20/02/2026	RP closed Reference numbers for inquiries and provided no comment or input to the EP.	
14	National Indigenous Australians Agency - NIAA (Cth) Darwin Branch	3	Email	NIAADWN01	Outgoing	15/01/2026	Email providing lead time for upcoming roadshow and opportunities to meet face to face to discuss survey activities.	N
			Email	NIAADWN02	Incoming	15/01/2026	Auto reply that RP contact is on leave.	
			Email	NIAADWN03	Outgoing	23/01/2026	Notification of confirmed dates and meeting times available for face to face meeting.	
			Email	NIAADWN04	Incoming	26/01/2026	RP response advising addressee no longer with organisation and no current representative in Wadeye. Agreed to meeting on 3 Feb in Darwin.	
			Email	NIAADWN05	Outgoing	27/01/2026	Outgoing email cover correspondence introducing the activity, providing attached flyer and link to landing page with further information. Invitation to review and provide feedback.	
			Email	NIAADWN06	Outgoing	27/01/2026	Confirmation of in person meeting on 3 February and calendar invite sent.	
			Email	NIAADWN07	Incoming	27/01/2026	Email delivery failure for single addressee no longer available. Contact information updated.	
			Email	NIAADWN08	Incoming	27/01/2026	Email delivery failure for single addressee no longer available. Contact information updated.	
			Email	NIAADWN09	Incoming	28/01/2026	RP response advising new role - contacts updated.	
			Meeting	NIAADWN10	In Person	03/02/2026	MEETING NOTES	
			Email	NIAADWN11	Outgoing	16/02/2026	Follow up to meeting with thanks for time. No concerns noted.	
15	National Indigenous Australians Agency - NIAA (Cth) Wadeye	3	Meeting	NIAADWN10	In Person	03/02/2026	Refer to Meeting Notes in the NIAA Darwin records. Representative attended the meeting.	Y
16	National Indigenous Australians Agency - NIAA (Cth) Kununurra Office (for East Kimberley)	3	Email	NIAAKNX01	Outgoing	27/01/2026	Outgoing email cover correspondence introducing the activity, providing attached flyer and link to landing page with further information. Invitation to review and provide feedback.	N
			Email	NIAAKNX02	Incoming	27/01/2026	RP response advising retirement from entity and continuing contact through alternate.	
			Email	NIAAKNX03	Outgoing	27/01/2026	Eni representative response with thanks.	
			Email	NIAAKNX04	Outgoing	27/01/2026	Eni Country Mgr email to thank RP for contribution to engagement value.	
			Email	NIAAKNX05	Outgoing	03/02/2026	Follow up on consultation request.	
			Email	NIAAKNX06	Outgoing	04/02/2026	Invitation for in person meeting and travel timing.	
			Email	NIAAKNX07	Outgoing	09/02/2026	Confirmation of available times and dates for an in person meeting.	
			Email	NIAAKNX08	Incoming	09/02/2026	RP provided updated contacts, copied into the email to respond to meeting opportunity.	
			Text	NIAAKNXTXT01	Two-Way	10/02/2026	Text exchange regarding meeting opportunity.	
			Email	NIAAKNX09	Outgoing	10/02/2026	Request for RP contacts to provide availability for in person meeting.	
			Phone	NIAAKNXTXT01	Outgoing	11/02/2026	Confirmation of meeting, invite to be sent.	
			Text	NIAAKNXTXT01	Outgoing	12/02/2026	Follow up to phone call.	
			Phone	NIAAKNXTXT01	Outgoing	12/02/2026	Change of meeting time, options provided.	
			Text	NIAAKNXTXT01	Two-Way	12/02/2026	Text exchange regarding meeting times.	
			Meeting	NIAAKNX10	In Person	20/02/2026	Refer to meeting notes.	
			Email	NIAAKNX11	Outgoing	09/03/2026	Follow up to meeting with slide pack. No matters, claims or objections raised in the meeting. Invitation to provide additional feedback by email or phone.	
17	National Offshore Petroleum Titles Administrator (NOPTA) (Cth)	2	Email	NOPTA01	Outgoing	27/01/2026	Outgoing email cover correspondence introducing the activity, providing attached flyer and link to landing page with further information. Invitation to review and provide feedback.	N
			Email	NOPTA02	Incoming	27/01/2026	Auto response noting email received.	
			Email	NOPTA03	Outgoing	03/02/2026	Follow up on consultation request.	
			Email	NOPTA04	Incoming	03/02/2026	RP responded that no input is required.	
			Email	NOPTA05	Outgoing	03/02/2026	Eni confirmed receipt of advice.	
	Northern Territory Government							
18	Aboriginal Areas Protection Authority (AAPA) (NT)	4	Email	AAPA01	Outgoing	27/01/2026	Outgoing email cover correspondence introducing the activity, providing attached flyer and link to landing page with further information. Invitation to review and provide feedback.	N
			Email	AAPA02	Incoming	02/03/2026	RP noted that potential spill impact does not reach NT waters so outside of jurisdiction. No further consultation required unless EMBA changes to impact NT waters.	
			Email	AAPA03	Outgoing	03/02/2026	Response acknowledged with thanks.	

Petrel Survey EP Consultation Efforts Log								
	RELEVANT PERSON	Priority	Consultation Type	Sensitive Matters Reference	Out/In	Date	Summary of correspondence	Relevant matter or claim
19	Dept Land, Planning & Environment Dept. Envir	4	Email	DLPE01	Outgoing	27/01/2026	Outgoing email cover correspondence introducing the activity, providing attached flyer and link to landing page with further information. Invitation to review and provide feedback.	N
			Email	DLPE02	Incoming	07/12/2026	RP thank you for information package.	
			Email	DLPE03DLPE03a	Outgoing	03/02/2026	Follow up on consultation request	
			Email	DLPE04	Incoming	03/02/2026	RP advised Environmental Regulation for DLPE not an RP in this instance.	
			Email	DLPE05	Outgoing	03/02/2026	Eni Rep acknowledge email.	
			Phone	N/A	Outgoing	10/02/2026	Confirmed department updated and correspondence to be directed through Dept Mining & Energy (sent copy via DEPWS and DMEMNT). Concluded effort with DLPE.	
20	Dept. Agriculture and Fisheries NT [prev. Dept. Industry, Tourism & Trade (DITT) - Fisheries NT] [prior to that, NT Dept. Primary Industry & Resources]	2	Email	DAFNT01	Outgoing	16/01/2026	Email providing lead time for upcoming roadshow and opportunities to meet face to face to discuss survey activities.	Y
			Email	DAFNT02	Incoming	22/01/2026	Response from RP Aquatic Resource Mgr acknowledging email.	
			Email	DAFNT03	Outgoing	23/01/2026	Notification of confirmed dates and meeting times available for face to face meeting.	
			Email	DAFNT04	Outgoing	27/01/2026	Outgoing email cover correspondence introducing the activity, providing attached flyer and link to landing page with further information. Invitation to review and provide feedback.	
			Email	DAFNT05	Outgoing	29/01/2026	Follow up to meeting availability with available dates and times.	
			Email	DAFNT06	Incoming	29/01/2026	Date confirmation for in person meeting, 3 Feb.	
			Email	DAFNT07	Outgoing	29/01/2026	In person meeting confirmed - calendar invite to be sent.	
			Meeting	DAFNT08	In Person	03/02/2026	See file note.	
			Email	DAFNT09	Outgoing	13/02/2026	Email update following meeting confirming no 3D seismic required for the field, acknowledged the suggestion for a specific description of the difference between 3D seismic and the geophysical survey and potential for inclusion in the activity Q&A. RP provided an updated licensee database, requested a copy of the environmental results, benthic data and other raw data collected for baseline survey, the observation of whale sharks travelling through the region by Thamarrurr Rangers, confirmation of Eni providing call sign, vessel name and coordinate upon commencement of activity.	
			Email	DAFNT10	Outgoing	16/03/2026	Email containing explanation of the survey activity and how it differs from seismic.	
			Email	DAFNT11	Incoming	17/03/2026	Email acknowledged by RP.	
21	Department of Chief Minister and Cabinet (NT)	2	Email	CMCNT01	Outgoing	15/01/2026	Email providing lead time for roadshow and opportunities to meet face to face to discuss survey activities.	N
			Email	CMCNT02	Incoming	16/01/2026	Response from Regional ED Top End confirming contacts for meeting arrangements and information updates.	
			Email	CMCNT03	Outgoing	16/01/2026	Eni response providing confirmed dates and meeting times available for face to face meeting.	
			Email	CMCNT04	Incoming	21/01/2026	Response from Regional Director West Daly confirming availability.	
			Email	CMCNT05	Outgoing	23/01/2026	Eni response confirming available time options for RP Regional Dirctor Top End.	
			Email	CMCNT06	Outgoing	27/01/2026	Outgoing email cover correspondence introducing the activity, providing attached flyer and link to landing page with further information. Invitation to review and provide feedback.	
			Email	CMCNT07	Incoming	27/01/2026	Out of office email for Acting Regional Director Big Rivers Region	
			Email	CMCNT08	Incoming	27/01/2026	Email from RP Regional ED - Top End confirming in person meeting in Darwin on 5 Feb.	
			Email	CMCNT09	Incoming	27/01/2026	Email from RP Regional ED West Daly confirming meeting for 28	
			Email	CMCNT10	Outgoing	27/01/2026	Confirmation of meeting TO RP ED West Daly- calendar invite sent.	
			Email	CMCNT11	Outgoing	27/01/2026	Email to RP Regional Director Top End confirming meeting and invite sent.	
			Email	CMCNT12	Incoming	27/01/2026	RP response confirming meeting accepted and activity information to be provided.	
			Email	CMCNT13	Outgoing	28/01/2026	Re-sent activity information email to the updated contact.	
			Meeting	CMCNT14	In Person	28/01/2026	Refer to meeting notes.	
			Email	CMCNT15	Outgoing	31/01/2026	Follow up email post Wadey meeting with Eni travel team with request for feedback and confirmation of RP CMC coordinating input from regional communities.	
			Email	CMCNT16	Incoming	02/02/2026	Confirmation of location for Darwin meeting.	
			Email	CMCNT17	Incoming	04/02/2026	RP acknowledgement of receipt of presentation.	
			Meeting	CMCNT18	In Person	05/02/2026	Refer to meeting notes.	
			Email	CMCNT19	Outgoing	18/02/2026	Follow up to in person meeting on 5 Feb with copy of presentation. Acknowledged future consultation request and provision of contact information for other RPs.	
			Email	CMCNT20	Incoming	19/02/2026	RP acknowledgement of presentation and additional follow up information. Confirmation of contact of DMENT and Eni already engaged.	
22	Department of Logistics and Infrastructure (DLI),(NT) [formerly Dept of Infrastructure, Planning & Logistics (DIPL)] Note NT Regional Harbourmaster (NT) is part of DLI	3	Email	DLI01	Outgoing	27/01/2026	Outgoing email cover correspondence introducing the activity, providing attached flyer and link to landing page with further information. Invitation to review and provide feedback.	N
			Email	DLI02	Incoming	27/01/2026	Email failure message.	
			Email	DLI03	Outgoing	29/01/2026	Resent outgoing email cover correspondence introducing the activity, providing attached flyer and link to landing page with further information. Invitation to review and provide feedback.	
			Email	DLI04	Outgoing	05/02/2026	Follow up to consultation request.	
			Phone	N/A	Outgoing	10/02/2026	Transferred to waste and pollution (environment). Eni hold an environment protection licence with the team. Asked to send email to alternate address.	
			Email	DLI06	Outgoing	11/02/2026	Email forwarded to provided address. This address has already been used for NTEPA.	
			Email	DLI07	Incoming	11/02/2026	Confirmation from NTEPA that Infrastructure email is correct and cc'd in to alert their team.	
			Email	DLI08	Outgoing	18/02/2026	Follow up email to consultation request, defined timeline and encouraging feedback to ensure capture.	
			Email	DLI09	Incoming	18/02/2026	RP advised no comment.	
			Email	DLI10	Outgoing	18/02/2026	Email acknowledged with thanks.	

Petrel Survey EP Consultation Efforts Log

	RELEVANT PERSON	Priority	Consultation Type	Sensitive Matters Reference	Out/In	Date	Summary of correspondence	Relevant matter or claim
23	Department of Mining and Energy - NT (DMENT)	4	Email	DMENT01	Outgoing	27/01/2026	Outgoing email cover correspondence introducing the activity, providing attached flyer and link to landing page with further information. Invitation to review and provide feedback.	N
			Email	DMENT02	Outgoing	29/01/2026	Outgoing email with available dates and times for in person meetings.	
			Phone	N/A	Outgoing	11/02/2026	Received information. Missed visiting team but happy to meet online. Eni rep to arrange.	
			Email	DMENT03	Outgoing	12/02/2026	Eni invitation to online meeting or phone call.	
			Email	DMENT04	Outgoing	13/02/2026	RP provided copy of cover email, Activity Flyer and landing page.	
			Email	DMENT05	Outgoing	13/02/2026	Follow-up email to RP with activity flyer, missing from previous email.	
			Email	DMENT06	Incoming	13/02/2026	RP confirmation of meeting online.	
			Email	DMENT07	Outgoing	13/02/2026	Confirmation of online meeting and calendar invite to be sent.	
			Email	DMENT08	Incoming	13/02/2026	RP acknowledged receipt of activity materials.	
			Meeting	DMENT09	Online	25/02/2026	Online meeting refer to meeting notes.	
			Email	DMENT10	Outgoing	25/02/2026	Follow up to online meeting with presentation attached.	
			Email	DMENT11	Incoming	25/02/2026	Email acknowledged by RP with thanks.	
24	Department of Territory Families, Housing and Communities - Heritage Branch	4	Email	NTHB01	Outgoing	27/01/2026	Outgoing email cover correspondence introducing the activity, providing attached flyer and link to landing page with further information. Invitation to review and provide feedback.	Y
			Email	NTHB02	Outgoing	03/02/2026	Follow up on consultation information and response.	
			Email	NTHB03	Incoming	05/02/2026	RP provided information on potential wrecks in the area for inclusion in EP. Recommendation for archaeological specialist for recording heritage locations discovered during exercise.	
			Email	NTHB04	Outgoing	24/02/2026	Eni confirmed knowledge and proximity of wrecks identified, advising of exclusion zone around Sedco Helen. Recommendations taken on advisement with thanks.	
			Email	NTHB05	Incoming	24/02/2026	Auto receipt email.	
25	Northern Territory Environment Protection Authority (NTEPA)	2	Email	NTEPA01	Outgoing	27/01/2026	Outgoing email cover correspondence introducing the activity, providing attached flyer and link to landing page with further information. Invitation to review and provide feedback.	N
			Email	NTEPA02	Incoming	27/01/2026	Email acknowledged by RP Director, Communications & Media	
			Email	NTEPA03	Outgoing	03/02/2026	Follow up on consultation information and response.	
			Email	NTEPA04	Incoming	03/02/2026	RP Reporting Department (DLPE, Env Reg) does not consider itself a relevant organisation for this activity and wishes to opt out of further consultation (copied to NTEPA) to include subsidiary entity.	
			Email	NTEPA05	Outgoing	03/02/2026	Confirmed receipt of email and conclusion to consultation effort at RP request (cc'd to include subsidiary entity).	
26	NT Regional Harbourmaster (NT) (part of Dept. Infrastructure, Planning and Logistics -DIPL)	4	Email	RHM01	Outgoing	27/01/2026	Outgoing email cover correspondence introducing the activity, providing attached flyer and link to landing page with further information. Invitation to review and provide feedback.	N
			Email	RHM02	Incoming	27/01/2026	Auto-response that email has been received. The Harbour Master Office will respond accordingly within 5 working days.	
			Email	RHM03	Outgoing	05/02/2026	Follow up to consultation request.	
			Email	RHM04	Incoming	05/02/2026	Auto-response that email has been received. The Harbour Master Office will respond accordingly within 5 working days.	
			Phone	N/A	Outgoing	11/02/2026	Answer service for NT Marine Safety Office. Option to speak to Harbour Master. Confirmed no comment. Eni to confirm in writing.	
			Email	RHM05	Outgoing	16/02/2026	Follow up to phone call to confirm no input from RP.	
			Email	RHM06	Incoming	16/02/2026	Auto response that email has been received.	
	West Australian Government							
27	Department of Biodiversity, Conservation and Attractions (DBCA) (WA)	2	Email	DBCAWA01	Outgoing	27/01/2026	Outgoing email cover correspondence introducing the activity, providing attached flyer and link to landing page with further information. Invitation to review and provide feedback.	Y
			Email	DBCAWA02	Incoming	27/01/2026	Auto response that email has been received.	
			Email	DBCAWA03	Outgoing	03/02/2026	Follow up to consultation request.	
			Email	DBCAWA04	Incoming	03/02/2026	Auto response that email has been received.	
			Phone	N/A	Outgoing	11/02/2026	Transferred to EMBA Admin dept. Left voicemail with phone number and reason for call.	
			Email	DBCAWA05	Outgoing	14/02/2026	Additional follow up to add original email for consultation.	
			Email	DBCAWA06	Incoming	14/02/2026	Auto response that email has been received.	
			Email	DBCAWA07	Outgoing	24/02/2026	Follow-up to consultation request.	
			Email	DBCAWA08	Incoming	24/02/2026	Auto response that email has been received.	
			Email	DBCAWA09	Outgoing	03/03/2026	Follow up to consultation request with reminder of timing.	
			Email	DBCAWA10	Incoming	03/03/2026	Auto response that email has been received.	
			Email	DBCAWA11	Incoming	10/03/2026	RP responded reiterating previous advice to Eni regarding petroleum production activities in proximity to important areas. RP noted the proximity of the North Kimberley Marine Park and biological important areas for conservation significant species which are located within the area of the environment that may be affected by the proposed activities (as identified through Eni's modelling). RP highlighted the opportunity to share survey results with relevant Commonwealth, Territory and State organisations given the remoteness of the location and lack of data. RP noted the requirements for access to reserves is managed under the CALM Act.	
			Email	DBCAWA12	Outgoing	16/03/2026	Eni acknowledged the RP input with thanks.	

Petrel Survey EP Consultation Efforts Log								
	RELEVANT PERSON	Priority	Consultation Type	Sensitive Matters Reference	Out/In	Date	Summary of correspondence	Relevant matter or claim
28	Department of Biodiversity, Conservation and Attractions (DBCA) (Parks & Wildlife Kununurra)	2	Email	DBCAKNX01	Outgoing	27/01/2026	Outgoing email cover correspondence introducing the activity, providing attached flyer and link to landing page with further information. Invitation to review and provide feedback.	Y
			Email	DBCAKNX02	Outgoing	03/02/2026	Follow up to consultation request.	
			Email	DBCAKNX03	Incoming	04/02/2026	RP Marine Park Coord requested information on Eni support of DBCA and joint management partners operationally and to equip for response activities in the event of a spill.	
			Email	DBCAKNX04	Outgoing	04/02/2026	Invitation for in person meeting and proposed timing of travel.	
			Email	DBCAKNX05	Incoming	04/02/2026	RP acknowledged invitation and advised inability to meet, provided invitation to alternative representatives for engagement.	
			Email	DBCAKNX06	Outgoing	09/02/2026	Invitation to alternate representative for face to face meetings with dates and times available.	
			Text	DBCAKNXTXT01	Outgoing	10/02/2026	Text to RP regarding meeting opportunity.	
			Phone	DBCAKNXTXT01	Outgoing	11/02/2026	Call to RP. Left voicemail.	
			Phone	DBCAKNXTXT01	Incoming	12/02/2026	Call with RP confirming receipt of updates about progress of rangers in Kalumburu. Confirming a Kwini Rangers representative can attend the meeting.	
			Email	DBCAKNX07	Incoming	12/02/2026	Confirmation of availability on 18 February.	
			Email	DBCAKNX08	Incoming	12/02/2026	Updated meeting timing from RP.	
			Email	DBCAKNX09	Incoming	12/02/2026	RP confirmed time change.	
			Email	DBCAKNX10	Outgoing	12/02/2026	Update provided to RP of travel team availability.	
			Phone	DBCAKNXTXT01	Incoming	13/02/2026	RP confirmed timing and attendees for meeting.	
			Email	DBCAKNX11	Incoming	13/02/2026	Confirmation of time and date for in person meeting.	
			Email	DBCAKNX12	Outgoing	13/02/2026	Eni Rep confirmed meeting and will send calendar invite.	
			Email	DBCAKNX13	Incoming	13/02/2026	RP acknowledged email with thanks.	
			Email	DBCAKNX14	Outgoing	13/02/2026	Eni responded to email dated 4 February advising request for information on operation support would be a discussion point in the face to face meeting next week.	
			Email	DBCAKNX15	Incoming	13/02/2026	Out of office notification for one RP recipient.	
29	Department of Mines, Petroleum and Exploration (DMPE) (WA) (prev. Dept Energy, Mines, Industry, Regs & Safety (DEMIRS))	3	Phone	DBCAKNXTXT01	Outgoing	16/02/2026	Confirmation of meeting and that Titleholder is engaging with the appropriate DBCA officers.	N
			Meeting	DBCAKNX16	In Person	19/02/2026	Refer to meeting notes	
			Email	DBCAKNX17	Outgoing	06/01/1900	Follow up to meeting noting request to continue engagement with DBCA to assist with progression of consultation with the Joint Management Board for the WA North Kimberley Marine Park.	
			Email	DMPE01	Outgoing	27/01/2026	Outgoing email cover correspondence introducing the activity, providing attached flyer and link to landing page with further information. Invitation to review and provide feedback.	
			Email	DMPE02	Outgoing	05/02/2026	Follow up to consultation request.	
			Phone	N/A	Outgoing	11/02/2026	Transferred to Dept. Disconnected.	
			Phone	N/A	Outgoing	11/02/2026	Second call, transferred, dept busy. Left call back request with details.	
30	Department of Energy and Economic Diversification	4	Email	DMPE03	Outgoing	18/02/2026	Follow up email to consultation request, defined timeline and encouraging feedback to ensure capture.	N
			Email	DMPE04	Outgoing	24/02/2026	Follow up to consultation with activity flyer.	
			Email	DEED01	Outgoing	27/01/2026	Outgoing email cover correspondence introducing the activity, providing attached flyer and link to landing page with further information. Invitation to review and provide feedback.	
			Phone	DEED01A	Incoming	27/01/2026	RP called consultation phone line requesting return call to discuss email.	
			Phone	N/A	Outgoing	27/01/2026	Eni rep returned phone call to advise on activity, reason for sending and seeking feedback from the correct entity.	
			Email	DEED02	Incoming	27/01/2026	Email forwarded to epwa-info@deed.wa.gov.au to seek guidance on direction and feedback following departmental changes following 2025 election.	
31	Dept. Planning, Lands, Heritage (DPLH) (WA)	4	Email	DEED03	Outgoing	16/02/2026	Follow up to consultation invitation.	N
			Email	DEED04	Outgoing	24/02/2026	Follow up to consultation.	
			Email	DEED05	Incoming	27/02/2026	RP responded with STOP in the subject line.	
			Email	DPLH01	Outgoing	27/01/2026	Outgoing email cover correspondence introducing the activity, providing attached flyer and link to landing page with further information. Invitation to review and provide feedback.	
			Email	DPLH02	Incoming	27/01/2026	Auto response that email has been received.	
			Email		Outgoing	05/02/2026	Follow up to consultation request.	
			Email	DPLH04	Incoming	05/02/2026	Auto response that emails has been received.	
			Phone	N/A	Outgoing	11/02/2026	Contacted, respondent spoke to management team and advised. RP requested info be resent to another email address.	
			Email	DPLH06	Outgoing	11/02/2026	Email and flyer sent to updated contact.	
			Email	DPLH07	Incoming	11/02/2026	Automatic response acknowledging receipt of email.	
			Email	DPLH08	Outgoing	18/02/2026	Follow up email to consultation request, defined timeline and encouraging feedback to ensure capture.	
			Email	DPLH09	Outgoing	24/02/2026	Follow up to consultation	
			Email	DPLH10	Incoming	24/02/2026	Auto response that email has been received.	

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	RELEVANT PERSON	Priority	Consultation Type	Sensitive Matters Reference	Out/In	Date	Summary of correspondence	Relevant matter or claim
32	Dept. Primary Industries and Regional Development (DPIRD) (WA) Perth Head Office	3	Email	DPIRD01	Outgoing	27/01/2026	Outgoing email cover correspondence introducing the activity, providing attached flyer and link to landing page with further information. Invitation to review and provide feedback.	Y
			Email	DPIRD02	Incoming	27/01/2026	Response from RP of transition and updated contact information. Original email copied to new contact.	
			Email	DPIRD03	Outgoing	05/02/2026	Follow up to consultation request with new contact.	
			Phone	N/A	Outgoing	11/02/2026	No response, left voicemail with contact and reason for call.	
			Email	DPIRD04	Outgoing	18/02/2026	Follow up email to consultation request, defined timeline and encouraging feedback to ensure capture.	
			Email	DPIRD05	Incoming	18/02/2026	Addressee on leave till 25 February. Suggested forward email for urgent queries already included in original email.	
			Email	DPIRD06	Outgoing	24/02/2026	Follow up to consultation request.	
			Email	DPIRD07 & 07A	Incoming	10/03/2026	RP restated the advice provided during the OPP consultation on fishing industry engagement and the inclusion of the stock assessment for Kimberley Demersal species (2025) identifying Red Emperor stocks as being depleted and high risk.	
			Email	DPIRD08	Outgoing	12/03/2026	Email response acknowledging previous advice and updated information on Kimberley Demersal species for consideration.	
33	Dept. Primary Industries & Regional Development (DPIRD) (WA) Fisheries and Marine Kununurra	3	Email	DPIRDKNX01	Outgoing	27/01/2026	Outgoing email cover correspondence introducing the activity, providing attached flyer and link to landing page with further information. Invitation to review and provide feedback.	N
			Email	DPIRDKNX02	Incoming	27/01/2026	Auto response that one RP rep is on leave to 23 February.	
			Email	DPIRDKNX03	Outgoing	04/02/2026	Invitation for in person meeting and timing of intended travel.	
			Text	DPIRDKNXTXT01	Outgoing	09/02/2026	Text to RP regarding availability.	
			Email	DPIRDKNX04	Outgoing	18/02/2026	Follow up to consultation request.	
			Email	DPIRDKNX05	Incoming	19/02/2026	RP response following return from leave. Unable to meet this time around but open to future availability.	
			Email	DPIRDKNX06	Outgoing	16/03/2026	Eni confirmation of duration of current consultation and provision of activity flyer in the absence of an in person meeting. Eni forecast a potential return time for the next activity in June 2026.	
34	Department of Transport (DoT) (WA) Pollution	2	Email	DOTMP01	Outgoing	27/01/2026	Outgoing email cover correspondence introducing the activity, providing attached flyer and link to landing page with further information. Invitation to review and provide feedback.	N
			Email	DOTMP02	Outgoing	03/02/2026	Follow up to consultation request.	
			Phone	N/A	Outgoing	11/02/2026	On hold for 11 minutes to speak to someone before giving up.	
			Phone	N/A	Outgoing	16/02/2026	Got through to the reception after 20 minutes on hold. Explained reason for call. Required to provide personal information to get transferred. Provided name, number, email, company and reason for call to RP contact. Transferred again. No response. Will provide message to relevant internal person for review and response.	
			Email	DOTMP03	Outgoing	19/02/2026	Follow up by email to consultation with defined dates and encouraging feedback for capture.	
			Email	DOTMP04	Incoming	19/02/2026	RP advised no issues to raise reminding Eni of jurisdiction authority and control agency requirements for marine incidents.	
			Email	DOTMP05	Outgoing	24/02/2026	Eni confirmed awareness of jurisdiction authority and control agency requirements.	
35	Kimberley Development Commission	3	Email	KDC01	Outgoing	27/01/2026	Outgoing email cover correspondence introducing the activity, providing attached flyer and link to landing page with further information. Invitation to review and provide feedback.	N
			Email	KDC02	Outgoing	04/02/2026	Invitation for in person meeting and timing of intended travel.	
			Email	KDC03	Outgoing	04/02/2026	Forwarded email to contacts provided in RP out of office.	
			Email	KDC04	Incoming	05/02/2026	Notified by RP Acting CEO of new CEO start date for engagement.	
			Email	KDC05	Outgoing	05/02/2026	Update acknowledged and follow up to new CEO scheduled.	
			Email	KDC06	Outgoing	09/02/2026	Dates and times provided for in person meetings.	
			Email	KDC07	Incoming	12/02/2026	Confirmation of availability on 17 Feb.	
			Email	KDC08	Outgoing	12/02/2026	Update to RP of travel team availability.	
			Email	KDC09	Incoming	12/02/2026	RP advice of timing availability.	
			Email	KDC10	Outgoing	12/02/2026	Eni confirmed timing and will send calendar invite.	
			Email	KDC11	Incoming	13/02/2026	Request for online link for one meeting attendee.	
			Email	KDC12	Outgoing	13/02/2026	Eni rep confirmed arrangements for an online link would be better to arrange internally by RP for connectivity.	
			Meeting	KDC13	In Person	20/02/2026	Refer to meeting notes.	
			Email	KDC14	Outgoing	09/03/2026	Follow up email to meeting with slide pack. Proponent acknowledged RP recommendation to review John Taylors 2004 report on Aboriginal Population Profiles for Development Planning in the North East Kimberley. Confirmed continued recognition of the RP as a relevant organisation for future activities.	
36	Kimberley Ports Authority (KPA)	4	Email	KPA01	Outgoing	27/01/2026	Outgoing email cover correspondence introducing the activity, providing attached flyer and link to landing page with further information. Invitation to review and provide feedback.	N
			Email	KPA02	Outgoing	05/02/2026	Follow up to consultation request.	
			Phone	N/A	Outgoing	11/02/2026	Confirmed received and left message for delegated responsible officer to respond.	
			Email	KPA03	Outgoing	18/02/2026	Follow up email to consultation request, defined timeline and encouraging feedback to ensure capture.	
			Email	KPA04	Outgoing	24/02/2026	Follow up to consultation request	
37	Western Australian Museum (WAM)	4	Email	WAM01	Outgoing	27/01/2026	Outgoing email cover correspondence introducing the activity, providing attached flyer and link to landing page with further information. Invitation to review and provide feedback.	Y
			Email	WAM02	Incoming	27/01/2026	Auto response - email received.	
			Email	WAM03	Outgoing	05/02/2026	Follow up to consultation request.	
			Phone	N/A	Outgoing	16/02/2026	Follow up to consultation request by phone. Provided internal email to follow up on request.	
			Email	WAM04	Outgoing	16/02/2026	Follow up request sent to RP CEO admin as directed.	
			Email	WAM05&05A	Incoming	19/02/2026	RP email with attached correspondence recommendations for consideration in the EP including other relevant organisations, recommendation to engage a maritime archaeologist and Traditional Owner consultation where appropriate.	
			Email	WAM06	Outgoing	24/02/2026	Eni acknowledge recommendations with thanks.	

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	RELEVANT PERSON	Priority	Consultation Type	Sensitive Matters Reference	Out/In	Date	Summary of correspondence	Relevant matter or claim
	Northern Territory Local Government							
38	Belyuen Community Government Council	4	Email	BCGC01	Outgoing	27/01/2026	Outgoing email cover correspondence introducing the activity, providing attached flyer and link to landing page with further information. Invitation to review and provide feedback.	N
			Email	BCGC02	Outgoing	05/02/2026	Follow up to consultation request.	
			Email	BGC03	Incoming	05/02/2026	RP required clarification of previous engagement.	
			Email	BCGC04	Outgoing	09/02/2026	Explanation of previous engagement with attached copy of emails.	
			Email	BCG05	Outgoing	16/02/2026	Follow up to consultation request.	
			Email	BCGC06	Outgoing	24/02/2026	Follow up to consultation request.	
39	Tiwi Islands Regional Council	4	Email	TIRC01	Outgoing	27/01/2026	Outgoing email cover correspondence introducing the activity, providing attached flyer and link to landing page with further information. Invitation to review and provide feedback.	N
			Email	TIRC02	Outgoing	03/02/2026	Follow up to consultation request.	
			Phone	N/A	Outgoing	11/02/2026	Information received. RP EA noted new CEO in place. Will confirm and advise if any input by email.	
			Email	TIRC03	Outgoing	24/02/2026	Follow up to consultation.	
40	West Daly Regional Council - Wadeye	4	Email	WDRC01	Outgoing	16/01/2026	Email providing lead time for upcoming roadshow and opportunities to meet face to face to discuss survey activities.	N
			Email	WDRC02	Incoming	18/01/2026	Email from RP Director of Service Delivery advising consideration of travel timing and arrangements.	
			Email	WDRC03	Outgoing	19/01/2026	Acknowledgement of advice and noting direct engagement with local Traditional Owners.	
			Email	WDRC04	Incoming	19/01/2026	Response from RP with contact information.	
			Email	WDRC05	Outgoing	23/01/2026	Email confirming dates and time availability for face to face meeting.	
			Email	WDRC06	Outgoing	27/01/2026	Update to RP with meeting availability dates and times.	
			Email	WDRC07	Incoming	27/01/2026	Confirmation of in person meeting on 28 January.	
			Email	WDRC08	Outgoing	27/01/2026	RP Regional Director WD confirmation of in person meeting on 28 January.	
			Email	WDRC09	Incoming	27/01/2026	Acceptance of invite by RP Regional Director WD and acknowledgement that information will arrive by email.	
			Email	WDRC10	Outgoing	27/01/2026	Outgoing email cover correspondence introducing the activity, providing attached flyer and link to landing page with further information. Invitation to review and provide feedback.	
			Meeting	WDRC11	In Person	28/01/2026	Refer to meeting notes.	
			Email	WDRC12	Outgoing	31/01/2026	Post meeting follow up with presentation and invitation to provide any feedback relevant to WDRC.	
	Western Australian Local Government							
41	Shire of Wyndham-East Kimberley	3	Email	SWEK01	Outgoing	27/01/2026	Outgoing email cover correspondence introducing the activity, providing attached flyer and link to landing page with further information. Invitation to review and provide feedback.	N
			Email	N/A	Incoming	27/01/2026	Failure notification for admin email address.	
			Email	SWEK03	Outgoing	27/01/2026	Resent Outgoing email cover correspondence introducing the activity, providing attached flyer and link to landing page with further information. Invitation to review and provide feedback.	
			Email	SWEK04	Outgoing	04/02/2026	Invitation for in person meeting and travel timing.	
			Email	SWEK05	Incoming	04/02/2026	RP CEO accepted invitation and provided availability.	
			Email	SWEK06	Outgoing	06/02/2026	Email acknowledged with calendar invite to be sent.	
			Meeting	SWEK07	In Person	19/02/2026	Refer to meeting notes.	
			Email	SWEK08	Outgoing	09/03/2026	Follow up email to meeting with attached slide pack and acknowledgement of guidance regarding community views and potential for a change of views as they learn more about a project and its impacts. Invitation for any further input by email or phone.	

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	RELEVANT PERSON	Priority	Consultation Type	Sensitive Matters Reference	Out/In	Date	Summary of correspondence	Relevant matter or claim
	Fisheries							
	National Fisheries							
42	Commonwealth Fisheries Association (CFA)	4	Email	CFA01	Outgoing	27/01/2026	Outgoing email cover correspondence introducing the activity, providing attached flyer and link to landing page with further information. Invitation to review and provide feedback.	N
			Email	CFA02	Outgoing	05/02/2026	Follow up to consultation request.	
			Phone	N/A	Outgoing	11/02/2026	No answer, left voicemail with contacts and reason for the call.	
			Phone	N/A	Outgoing	17/02/2026	New contact identified through updated website. Called and left message. Email address remains the same.	
			Email	CFA03	Outgoing	18/02/2026	Follow up email to consultation request, defined timeline and encouraging feedback to ensure capture.	
			Email	CFA04	Outgoing	24/02/2026	Follow up to consultation request.	
43	Northern Prawn Fishery (NPF) Industry Pty Ltd	1	Email	NPFI01	Outgoing	27/01/2026	Outgoing email cover correspondence introducing the activity, providing attached flyer and link to landing page with further information. Invitation to review and provide feedback.	Y
			Email	NPFI02	Outgoing	03/02/2026	Follow up to consultation request.	
			Email	NPFI03	Incoming	03/02/2026	Request for shape files to assess and advice of updated contact.	
			Email	NPFI04	Outgoing	03/02/2026	Confirmation of shape files compilation for distribution as soon as possible.	
			Email	NPFI05	Outgoing	04/02/2026	Shapefiles sent to RP.	
			Email	NPFI06	Outgoing	16/02/2026	Follow up to provision of shape files for EP input.	
			Email	NPFI07	Incoming	16/02/2026	RP does not support exploration being undertaken in any areas that may disrupt fishing operations during that time.	
			Email	NPFI08	Outgoing	24/02/2026	Confirmation to RP of activity consisting of a single vessel for a short period of time, no more than 40 days.	
			Email	NPFI09	Incoming	24/02/2026	RP follow up with refined dates for preferred activity implementation.	
			Phone	N/A	Outgoing	27/02/2026	Phone call to RP CEO to offer online meeting with Eni to provide more direct information.	
			Email	NPFI10	Outgoing	03/03/2026	Follow up email to phone message offering online meeting.	
			Phone	N/A	Outgoing	12/03/2026	Phone call to RP CEO to follow up on offer to meet online.	
44	Pearl Producers Australia (PPA) Future consultations for PPA under DPIRD.	4	Email	PPA01	Outgoing	27/01/2026	Outgoing email cover correspondence introducing the activity, providing attached flyer and link to landing page with further information. Invitation to review and provide feedback.	N
			Email	PPA02	Outgoing	05/02/2026	Follow up to consultation request.	
			Phone	N/A	Outgoing	16/02/2026	Phone call to main number. No answer,.	
			Phone	N/A	Outgoing	16/02/2026	Phone call to RP EO mobile. No longer in use. RP covered under DPIRD as outlined in out of office.	
			Email	PPA03	Outgoing	16/02/2026	Follow up on consultation request to generic email.	
			Email	PPA04	Outgoing	24/02/2026	Follow up on consultation request.	
45	Seafood Industry Australia (SIA)	4	Email	SIA01	Outgoing	27/01/2026	Outgoing email cover correspondence introducing the activity, providing attached flyer and link to landing page with further information. Invitation to review and provide feedback.	N
			Email	SIA02	Outgoing	05/02/2026	Follow up to consultation request.	
			Phone	N/A	Outgoing	16/02/2026	Call to RP Stakeholder Engagement Mgr. No answer, left message, reason for call and contact details.	
			Phone	N/A	Incoming	17/02/2026	RP returned phone call. Left message.	
			Phone	N/A	Outgoing	17/02/2026	Eni returned call. RP provided updated email address. Eni confirmed full verbal list of other fishers engaged. Information package to be sent to updated email.	
			Email	SIA03	Outgoing	17/02/2026	Email trail and activity flyer forwarded to updated RP email.	
46	Tuna Australia (Industry association)	1	Email	TA01	Outgoing	27/01/2026	Outgoing email cover correspondence introducing the activity, providing attached flyer and link to landing page with further information. Invitation to review and provide feedback.	Y
			Email	TA02	Outgoing	27/01/2026	Follow on from previous email to confirm ongoing assessment as RP and confirmation that a consulting Services Agreement would not be required.	
			Email	TA03	Incoming	27/01/2026	RP advice of update to personnel with contact information. RP have reconsidered position and do not believe operations pose a significant impact to the fishery, notwithstanding future developments may, should accidents occur. Noted area to the west in northwest Australia is very important to the tuna fishing community.	
			Email	TA04	Outgoing	28/01/2026	Noting comment "notwithstanding future developments may should accidents occur", confirmed future EP's for consultation in 2026, all based in Joseph Bonaparte Gulf. Option for retention of TA as an RP or removal at RP request.	
			Email	TA05	Incoming	28/01/2026	RP advised complexity of Western Tuna and Billfish fishery across domestic and international jurisdiction with shared stocks. Request for understanding of the planning by Eni in regards to the policies and processes in place in this regard.	
			Email	TA06	Outgoing	16/03/2026	Eni acknowledged the entities raised and confirmed internal assessment for relevance to the surveys EP for inclusion.	
			Email	TA07	Incoming	16/03/2026	RP acknowledged email and advised Eni of the increased activity in the WTBF due to the WA govt demersal ban.	
			Email	TA08	Outgoing	17/03/2026	Eni thanked RP for the information provided and confirmed consideration with the development of the EP.	

Petrel Survey EP Consultation Efforts Log								
	RELEVANT PERSON	Priority	Consultation Type	Sensitive Matters Reference	Out/In	Date	Summary of correspondence	Relevant matter or claim
	Northern Territory Fisheries							
47	The Amateur Fishermen's Association of the Northern Territory (AFANT)	4	Email	AFANT01	Outgoing	16/01/2026	Email providing lead time for upcoming roadshow and opportunities to meet face to face to discuss survey activities.	Y
			Text	AFANTTXT01	Outgoing	23/01/2026	Textto RP CEO re meeting opportunity.	
			Email	AFANT02	Outgoing	23/01/2026	Email confirming dates and time availability for face to face meeting.	
			Email	AFANT03	Outgoing	27/01/2026	Outgoing email cover correspondence introducing the activity, providing attached flyer and link to landing page with further information. Invitation to review and provide feedback.	
			Email	AFANT04	Incoming	27/01/2026	Email failure to RP CEO.	
			Email	AFANT05	Incoming	27/01/2026	Out of office notification with contact emails for forwarding.	
			Email	AFANT06 AFANT06a	Outgoing	28/01/2026	Forward original email with attached email requesting in person meeting.	
			Email	AFANT07	Incoming	28/01/2026	RP email request for in person meeting 3 Feb.	
			Email	AFANT08	Outgoing	28/01/2026	Mtg time acknowledged and calendar invite to be sent.	
			Text	AFANTTXT02	Two-Way	03/02/2026	Text exchange with RP CEO re meeting arrival.	
			Meeting	AFANT09	In Person	03/02/2026	Refer to meeting notes.	
			Email	AFANT10	Outgoing	12/02/2026	Follow up to meeting in person. No concerns regarding activity but requested notifications and timing of vessels in and out of the harbour and duration in the field.	
48	Northern Territory Guided Fishing Industry Association (NTGFIA)	3	Email	NTGFIA01	Outgoing	16/01/2026	Email providing lead time for upcoming roadshow and opportunities to meet face to face to discuss survey activities.	N
			Email	NTGFIA02	Incoming	19/01/2026	RP confirmed meeting availability when Eni representatives are in Darwin.	
			Email	NTGFIA03	Outgoing	23/01/2026	Available meeting times and dates provided.	
			Email	NTGFIA04	Outgoing	27/01/2026	Outgoing email cover correspondence introducing the activity, providing attached flyer and link to landing page with further information. Invitation to review and provide feedback.	
			Text	NTGFIA05	Two-Way	28/01/2026	Text Exchange with RP regarding meeting opportunity.	
			Email	NTGFIA06	Outgoing	29/01/2026	Current available meeting times and dates provided.	
			Email	NTGFIA07	Outgoing	30/01/2026	Calendar invite to meeting for 2 Feb.	
			Meeting	NTGFIA08	In Person	02/02/2026	Refer to meeting notes	
			Email	NTGFIA09	Outgoing	10/02/2026	Follow up to in person meeting. No concerns indicated by RP.	
			Email	NTGFIA10	Incoming	11/02/2026	Thank you from RP for briefing.	
49	Northern Territory Seafood Council (NTSC) Members include: - Aquarium Fishery - Bait Net Fishery - Offshore Net & Line Fishery - Spanish Mackerel Fishery - Coastal Line Fishery - Coastal Net Fishery - Demersal Fishery - Barramundi Fishery - Jigging Fishery - Mudcrab Fishery - Pearl Oyster Fishery - Special Permit - Timor Reef Fishery - Trepang Fishery - 67 individual license holders	1	Email	NTSC01	Outgoing	16/1/26	Email providing lead time for upcoming roadshow and opportunities to meet face to face to discuss survey activities.	Y
			Email	NTSC02	Outgoing	27/01/2026	Outgoing email cover correspondence introducing the activity, providing attached flyer and link to landing page with further information. Invitation to review and provide feedback.	
			Email	NTSC03	Incoming	28/01/2026	Email acknowledged by RP Exec Officer to confirm availability.	
			Email	NTSC04	Outgoing	28/01/2026	Email offering available dates and times for in person meeting.	
			Email	NTSC05	Incoming	29/01/2026	Email request for in person meeting 30 Jan.	
			Email	NTSC06	Outgoing	29/01/2026	Email acknowledged - calendar invite to be sent.	
			Meeting	NTSC07	In Person	30/01/2026	Refer to meeting notes	
			Email	NTSC08	Outgoing	01/02/2026	Email follow up to meeting. Request for shapefiles and coordinates for the operational area, vessel names and movement notifications. Survey information has been added to the NTSC newsletter and a copy to be provided for Eni records. A request has been made for where historical catch data has been obtained. NTSC are reviewing datasets for accuracy with other NT and statistical departments. An opportunity for Eni to meet with the NTSC board continues to be investigated for preferred timing.	
			Email	NTSC09	Outgoing	06/02/2026	Shape files sent to RP.	
			Email	NTSC10	Incoming	16/02/2026	RP requested corner coordinates for OA.	
			Email	NTSC11	Outgoing	18/02/2026	Extraction of coords from shape file provided to RP.	
			Email	NTSC12	Outgoing	18/02/2026	Request for copy of NTSC newsletter with Survey information. Provision of poster.	
			Email	NTSC13	Incoming	18/02/2026	RP provided copy of email sent to members 30 January 2026.	
			Email	NTSC14	Newsletter	18/02/2026	NTSC Newsletter email to members.	
			Email	NTSC15	Outgoing	18/02/2026	Receipt of newsletter acknowledged.	
			Email	NTSC16	Outgoing	16/03/2026	Email with information on the historical catch effort data source. Referenced the RP effort to assess credibility of datasets and requested opportunity to collectively consider the bet process to add fishing catch datasets for greater accuracy.	

Petrel Survey EP Consultation Efforts Log

	RELEVANT PERSON	Priority	Consultation Type	Sensitive Matters Reference	Out/In	Date	Summary of correspondence	Relevant matter or claim
	Western Australian Fisheries							
50	Recfishwest	3	Email	RFW01	Outgoing	27/01/2026	Outgoing email cover correspondence introducing the activity, providing attached flyer and link to landing page with further information. Invitation to review and provide feedback.	N
			Email	RFW02	Outgoing	05/02/2026	Follow up to consultation request.	
			Email	RFW03	Incoming	05/02/2026	Out of office received.	
			Email	RFW04	Outgoing	06/02/2026	Email forwarded to contact provided in RP out of office notification.	
			Phone	N/A	Outgoing	11/02/2026	On leave - left message.	
			Phone	N/A	Incoming	17/02/2026	Incoming call from RP - left voicemail.	
			Phone	N/A	Outgoing	17/02/2026	RP confirmed receipt of information and will provide a response, indicated there will be no input to the EP.	
			Email	RFW05	Incoming	17/02/2026	RP confirmed no concerns or input to the EP.	
			Email	RFW06	Outgoing	17/02/2026	Eni acknowledged RP email.	
51	Western Australia Fishing Industry Council (WAFIC) Kimberley Prawn Managed Fishery Kimberley Crab Fishery Kimberley Gillnet & Barramundi Fishery Mackerel Managed Fishery Northern Demersal Scalefish Managed Fishery Marine Aquarium Fishery Pearl Oyster Managed Fishery	1	Email	WAFIC01	Outgoing	27/01/2026	Outgoing email cover correspondence introducing the activity, providing attached flyer and link to landing page with further information. Invitation to review and provide feedback.	N
			Email	WAFIC02	Outgoing	27/01/2026	Email to RP Consultation Officer to commence discussions around the RP consultation expectations.	
			Email	WAFIC03	Incoming	27/01/2026	RP provided latest version of Fee for Service. Phone call discussion confirmed.	
			Email	WAFIC04	Outgoing	27/01/2026	Confirmation of call timing.	
			Phone	N/A	Outgoing	29/01/2026	Call to RP to discuss consultation process and meeting opportunities.	
			Email	WAFIC05	Incoming	29/01/2026	Confirmation of RP consultation process and preference.	
			Email	WAFIC06	Outgoing	30/01/2026	Discussion regarding WAFIC process, implementation for this activity and potential future engagement.	
			Email	WAFIC07	Incoming	04/02/2026	Confirmation of newsletter inclusion of engagement poster to members, consultation service fee for EP consultation and notice of departure with new contact to take over.	
			Email	WAFIC08	Outgoing	06/02/2026	Request for reconsideration of service fee per EP when consultation is being combined three into one to reduce consultation fatigue.	
			Email	WAFIC09	Incoming	06/02/2026	RP confirmed cost is per EP and newsletter inclusion only applicable to a confirmed fee for service between Eni and RP.	
			Email	WAFIC10	Outgoing	12/02/2026	Eni confirmation to call to discuss.	
			Phone	N/A	Outgoing	13/02/2026	Call to RP to discuss consultation options.	
			Email	WAFIC11	Incoming	13/02/2026	RP confirmation post phone call of Eni interest in establishing a working relationship with WAFIC. RP on last day and referred Eni to RP CEO to build relationship and potential collaborative opportunities.	
			Email	WAFIC12	Outgoing	24/02/2026	Resend consultation information for review and response.	
			Phone	N/A	Outgoing	03/03/2026	Spoke to RP EA - Liaison Officer resigned, CEO and Communications Manager both on leave. Eni Rep confirmed direct consultation with commercial fishers affected by registered post and email/phone where possible. RP EA requested email be forwarded to her after advising there is no one available within the RP that is able to address consultation requests at this time.	
			Email	WAFIC13	Outgoing	03/03/2026	Forward of consultation email to RP EA as requested.	
			Email	WAFIC14	Outgoing	16/03/2026	Follow up to consultation email sent to RP) EA in the absence of RP consultation expertise for assessment and response.	
	Commercial and Individual Fishing Licensees							
52	Fisher 1	3	Email	F101	Outgoing	27/01/2026	Outgoing email cover correspondence introducing the activity, providing attached flyer and link to landing page with further information. Invitation to review and provide feedback.	Y
			Registered Post	FISHERS 1	Outgoing	27/01/2026	Printed packed including letter, flyer and NOPSEMA consultation guide posted by registered mail.	
			Email	F103	Outgoing	05/02/2026	Follow up to consultation request.	
			Email	F104	Incoming	06/02/2026	RP requested southern end of survey be undertaken in Q4 to avoid interruption to their operations.	
			Email	F105	Outgoing	24/02/2026	Eni acknowledge RP input and committed to notifications of vessel activity.	
53	Fisher 2	4	Email	F201	Outgoing	27/01/2026	Outgoing email cover correspondence introducing the activity, providing attached flyer and link to landing page with further information. Invitation to review and provide feedback.	N
			Registered Post	FISHERS 1	Outgoing	27/01/2026	Printed pack including letter, flyer and NOPSEMA consultation guide posted by registered mail.	
			Email	F202	Outgoing	05/02/2026	Follow up to consultation request.	
			Registered Post	FISHERS 2	Outgoing	11/02/2026	Printed pack including letter, flyer and NOPSEMA consultation guide posted by registered mail.	
			Email	F203	Outgoing	24/02/2026	Follow up to consultation.	
54	Fisher 3	4	Registered Post	FISHERS 1	Outgoing	27/01/2026	Printed packed including letter, flyer and NOPSEMA consultation guide posted by registered mail.	Y
			Meeting	TDC04	In Person	29/01/2026	Refer to Meeting Notes in Thamarrurr. Attended meeting.	
			Registered Post	FISHERS 2	Outgoing	11/02/2026	Printed pack including letter, flyer and NOPSEMA consultation guide posted by registered mail.	
55	Fisher 4	4	Registered Post	FISHERS 1	Outgoing	27/01/2026	Printed packed including letter, flyer and NOPSEMA consultation guide posted by registered mail.	N
			Registered Post	FISHERS 2	Outgoing	11/02/2026	Printed pack including letter, flyer and NOPSEMA consultation guide posted by registered mail.	

Petrel Survey EP Consultation Efforts Log								
	RELEVANT PERSON	Priority	Consultation Type	Sensitive Matters Reference	Out/In	Date	Summary of correspondence	Relevant matter or claim
56	Fisher 5	4	Registered Post	FISHERS 1	Outgoing	27/01/2026	Printed packed including letter, flyer and NOPSEMA consultation guide posted by registered mail.	N
			Registered Post	FISHERS 2	Outgoing	11/02/2026	Printed pack including letter, flyer and NOPSEMA consultation guide posted by registered mail.	
57	Fisher 6	4	Registered Post	FISHERS 1	Outgoing	27/01/2026	Printed packed including letter, flyer and NOPSEMA consultation guide posted by registered mail.	N
			Registered Post	FISHERS 2	Outgoing	11/02/2026	Printed pack including letter, flyer and NOPSEMA consultation guide posted by registered mail.	
58	Fisher 7	3	Registered Post	FISHERS 1	Outgoing	27/01/2026	Printed packed including letter, flyer and NOPSEMA consultation guide posted by registered mail.	N
			Registered Post	FISHERS 2	Outgoing	11/02/2026	Printed pack including letter, flyer and NOPSEMA consultation guide posted by registered mail.	
59	Fisher 8	1	Email	F801	Outgoing	27/01/2026	Outgoing email cover correspondence introducing the activity, providing attached flyer and link to landing page with further information. Invitation to review and provide feedback.	Y
			Registered Post	FISHERS 1	Outgoing	27/01/2026	Printed packed including letter, flyer and NOPSEMA consultation guide posted by registered mail.	
			Email	F803	Incoming	28/01/2026	RP responded with notification of interest in the general area, deferring specific responses to the NPF Industry for consultation. Expressed concerns regarding seismic following experience with another industry proponent for that type of activity.	
			Email	F804	Outgoing	25/02/2026	Eni response to RP providing explanation of survey activity and the difference to 3D seismic which is not part of the activity with thanks for the input to the EP.	
60	Fisher 9	3	Registered Post	FISHERS 1	Outgoing	27/01/2026	Printed packed including letter, flyer and NOPSEMA consultation guide posted by registered mail.	N
	Fisher 10		Registered Post	FISHERS 2	Outgoing	11/02/2026	Printed pack including letter, flyer and NOPSEMA consultation guide posted by registered mail.	
61	Fisher 11	4	Registered Post	FISHERS 1	Outgoing	27/01/2026	Printed packed including letter, flyer and NOPSEMA consultation guide posted by registered mail.	N
			Registered Post	FISHERS 2	Outgoing	11/02/2026	Printed pack including letter, flyer and NOPSEMA consultation guide posted by registered mail.	
62	Fisher 12	4	Registered Post	FISHERS 1	Outgoing	27/01/2026	Printed packed including letter, flyer and NOPSEMA consultation guide posted by registered mail.	N
			Registered Post	FISHERS 2	Outgoing	11/02/2026	Printed pack including letter, flyer and NOPSEMA consultation guide posted by registered mail.	
63	Fisher 13	4	Registered Post	FISHERS 1	Outgoing	27/01/2026	Printed packed including letter, flyer and NOPSEMA consultation guide posted by registered mail.	N
			Registered Post	FISHERS 2	Outgoing	11/02/2026	Printed pack including letter, flyer and NOPSEMA consultation guide posted by registered mail.	
64	Fisher 14	4	Registered Post	FISHERS 1	Outgoing	27/01/2026	Printed packed including letter, flyer and NOPSEMA consultation guide posted by registered mail.	N
			Registered Post	FISHERS 2	Outgoing	11/02/2026	Printed pack including letter, flyer and NOPSEMA consultation guide posted by registered mail.	
65	Fisher 15	3	Registered Post	FISHERS 1	Outgoing	27/01/2026	Printed packed including letter, flyer and NOPSEMA consultation guide posted by registered mail.	N
			Registered Post	FISHERS 2	Outgoing	11/02/2026	Printed pack including letter, flyer and NOPSEMA consultation guide posted by registered mail.	
66	Fisher 16	3	Registered Post	FISHERS 1	Outgoing	27/01/2026	Printed packed including letter, flyer and NOPSEMA consultation guide posted by registered mail.	N
			Registered Post	FISHERS 2	Outgoing	11/02/2026	Printed pack including letter, flyer and NOPSEMA consultation guide posted by registered mail.	
67	Fisher 17	3	Registered Post	FISHERS 1	Outgoing	27/01/2026	Printed packed including letter, flyer and NOPSEMA consultation guide posted by registered mail.	N
			Registered Post	FISHERS 2	Outgoing	11/02/2026	Printed pack including letter, flyer and NOPSEMA consultation guide posted by registered mail.	
68	Fisher 18	4	Registered Post	FISHERS 1	Outgoing	27/01/2026	Printed packed including letter, flyer and NOPSEMA consultation guide posted by registered mail.	N
			Registered Post	FISHERS 2	Outgoing	11/02/2026	Printed pack including letter, flyer and NOPSEMA consultation guide posted by registered mail.	
69	Fisher 19	3	Registered Post	FISHERS 1	Outgoing	27/01/2026	Printed packed including letter, flyer and NOPSEMA consultation guide posted by registered mail.	N
			Registered Post	FISHERS 2	Outgoing	11/02/2026	Printed pack including letter, flyer and NOPSEMA consultation guide posted by registered mail.	

Petrel Survey EP Consultation Efforts Log								
	RELEVANT PERSON	Priority	Consultation Type	Sensitive Matters Reference	Out/In	Date	Summary of correspondence	Relevant matter or claim
70	Fisher 20	4	Registered Post	FISHERS 1	Outgoing	27/01/2026	Printed packed including letter, flyer and NOPSEMA consultation guide posted by registered mail.	N
			Registered Post	FISHERS 2	Outgoing	11/02/2026	Printed pack including letter, flyer and NOPSEMA consultation guide posted by registered mail.	
71	Fisher 21	4	Registered Post	FISHERS 1	Outgoing	27/01/2026	Printed packed including letter, flyer and NOPSEMA consultation guide posted by registered mail.	N
	MAIL RETURNED		Registered Post	FISHERS 2	Outgoing	11/02/2026	Printed pack including letter, flyer and NOPSEMA consultation guide posted by registered mail.	
72	Fisher 22	4	Registered Post	FISHERS 1	Outgoing	27/01/2026	Printed packed including letter, flyer and NOPSEMA consultation guide posted by registered mail.	N
			Registered Post	FISHERS 2	Outgoing	11/02/2026	Printed pack including letter, flyer and NOPSEMA consultation guide posted by registered mail.	
73	Fisher 23	4	Registered Post	FISHERS 1	Outgoing	27/01/2026	Printed packed including letter, flyer and NOPSEMA consultation guide posted by registered mail.	N
			Registered Post	FISHERS 2	Outgoing	11/02/2026	Printed pack including letter, flyer and NOPSEMA consultation guide posted by registered mail.	
74	Fisher 24	4	Registered Post	FISHERS 1	Outgoing	27/01/2026	Printed packed including letter, flyer and NOPSEMA consultation guide posted by registered mail.	N
			Registered Post	FISHERS 2	Outgoing	11/02/2026	Printed pack including letter, flyer and NOPSEMA consultation guide posted by registered mail.	
75	Fisher 25	4	Registered Post	FISHERS 1	Outgoing	27/01/2026	Printed packed including letter, flyer and NOPSEMA consultation guide posted by registered mail.	N
			Registered Post	FISHERS 2	Outgoing	11/02/2026	Printed pack including letter, flyer and NOPSEMA consultation guide posted by registered mail.	
76	Fisher 26	4	Registered Post	FISHERS 1	Outgoing	27/01/2026	Printed packed including letter, flyer and NOPSEMA consultation guide posted by registered mail.	N
			Text	F2601	Outgoing	28/01/2026	Text to RP Land Claimant (and Aboriginal Coastal Fisher) regarding meeting opportunity.	
			Phone	N/A	Incoming	29/01/2026	Call from RP Land Claimant regarding meeting opportunity, position as Wadeye TDC rep, RP Land Claimant and Aboriginal Coast Fisher. Agreement to catch up when Titleholder next in Wadeye.	
			Registered Post	FISHERS 2	Outgoing	11/02/2026	Printed pack including letter, flyer and NOPSEMA consultation guide posted by registered mail.	
77	Fisher 27	4	Registered Post	FISHERS 1	Outgoing	27/01/2026	Printed packed including letter, flyer and NOPSEMA consultation guide posted by registered mail.	N
			Registered Post	FISHERS 2	Outgoing	11/02/2026	Printed pack including letter, flyer and NOPSEMA consultation guide posted by registered mail.	
78	Fisher 28	3	Registered Post	FISHERS 1	Outgoing	27/01/2026	Printed packed including letter, flyer and NOPSEMA consultation guide posted by registered mail.	N
	MAIL RETURNED		Registered Post	FISHERS 2	Outgoing	11/02/2026	Printed pack including letter, flyer and NOPSEMA consultation guide posted by registered mail.	
79	Fisher 29	4	Registered Post	FISHERS 1	Outgoing	27/01/2026	Printed packed including letter, flyer and NOPSEMA consultation guide posted by registered mail.	N
			Registered Post	FISHERS 2	Outgoing	11/02/2026	Printed pack including letter, flyer and NOPSEMA consultation guide posted by registered mail.	
80	Fisher 30	4	Registered Post	FISHERS 1	Outgoing	27/01/2026	Printed packed including letter, flyer and NOPSEMA consultation guide posted by registered mail.	N
			Registered Post	FISHERS 2	Outgoing	11/02/2026	Printed pack including letter, flyer and NOPSEMA consultation guide posted by registered mail.	
81	Fisher 31	4	Registered Post	FISHERS 1	Outgoing	27/01/2026	Printed packed including letter, flyer and NOPSEMA consultation guide posted by registered mail.	N
			Registered Post	FISHERS 2	Outgoing	11/02/2026	Printed pack including letter, flyer and NOPSEMA consultation guide posted by registered mail.	
82	Fisher 32	4	Registered Post	FISHERS 1	Outgoing	27/01/2026	Printed packed including letter, flyer and NOPSEMA consultation guide posted by registered mail.	N
	Fisher 33		Registered Post	FISHERS 2	Outgoing	11/02/2026	Printed pack including letter, flyer and NOPSEMA consultation guide posted by registered mail.	
83	Fisher 34	3	Registered Post	FISHERS 1	Outgoing	27/01/2026	Printed packed including letter, flyer and NOPSEMA consultation guide posted by registered mail.	N
			Registered Post	FISHERS 2	Outgoing	11/02/2026	Printed pack including letter, flyer and NOPSEMA consultation guide posted by registered mail.	
84	Fisher 35	4	Registered Post	FISHERS 1	Outgoing	27/01/2026	Printed packed including letter, flyer and NOPSEMA consultation guide posted by registered mail.	N
			Registered Post	FISHERS 2	Outgoing	11/02/2026	Printed pack including letter, flyer and NOPSEMA consultation guide posted by registered mail.	

Petrel Survey EP Consultation Efforts Log								
	RELEVANT PERSON	Priority	Consultation Type	Sensitive Matters Reference	Out/In	Date	Summary of correspondence	Relevant matter or claim
85	Fisher 36	4	Registered Post	FISHERS 1	Outgoing	27/01/2026	Printed packed including letter, flyer and NOPSEMA consultation guide posted by registered mail.	N
			Registered Post	FISHERS 2	Outgoing	11/02/2026	Printed pack including letter, flyer and NOPSEMA consultation guide posted by registered mail.	
86	Fisher 37	4	Registered Post	FISHERS 1	Outgoing	27/01/2026	Printed packed including letter, flyer and NOPSEMA consultation guide posted by registered mail.	N
			Registered Post	FISHERS 2	Outgoing	11/02/2026	Printed pack including letter, flyer and NOPSEMA consultation guide posted by registered mail.	
87	Fisher 38	4	Registered Post	FISHERS 1	Outgoing	27/01/2026	Printed packed including letter, flyer and NOPSEMA consultation guide posted by registered mail.	N
	MAIL RETURNED		Registered Post	FISHERS 2	Outgoing	11/02/2026	Printed pack including letter, flyer and NOPSEMA consultation guide posted by registered mail.	
88	Fisher 39	3	Email	F3901	Outgoing	27/01/2026	Outgoing email cover correspondence introducing the activity, providing attached flyer and link to landing page with further information. Invitation to review and provide feedback.	N
			Registered Post	FISHERS 1	Outgoing	27/01/2026	Printed packed including letter, flyer and NOPSEMA consultation guide posted by registered mail.	
			Email	F3903	Outgoing	05/02/2026	Follow up to consultation request.	
			Registered Post	FISHERS 2	Outgoing	11/02/2026	Printed pack including letter, flyer and NOPSEMA consultation guide posted by registered mail.	
			Email	F3905	Outgoing	24/02/2026	Follow up to consultation request.	
89	Fisher 40	3	Email	F4001	Outgoing	27/01/2026	Outgoing email cover correspondence introducing the activity, providing attached flyer and link to landing page with further information. Invitation to review and provide feedback.	N
			Registered Post	FISHERS 1	Outgoing	27/01/2026	Printed packed including letter, flyer and NOPSEMA consultation guide posted by registered mail.	
			Email	F4002	Outgoing	05/02/2026	Follow up to consultation request.	
			Registered Post	FISHERS 2	Outgoing	11/02/2026	Printed pack including letter, flyer and NOPSEMA consultation guide posted by registered mail.	
			Phone	N/A	Outgoing	12/02/2026	Left voicemail with reason for call and contact details.	
90	Fisher 41	4	Email	F4003	Outgoing	24/02/2026	Follow up to consultation request.	N
			Registered Post	FISHERS 1	Outgoing	27/01/2026	Printed packed including letter, flyer and NOPSEMA consultation guide posted by registered mail.	
91	Fisher 42	4	Registered Post	FISHERS 2	Outgoing	11/02/2026	Printed pack including letter, flyer and NOPSEMA consultation guide posted by registered mail.	N
			Registered Post	FISHERS 1	Outgoing	27/01/2026	Printed packed including letter, flyer and NOPSEMA consultation guide posted by registered mail.	
92	Fisher 43	4	Registered Post	FISHERS 1	Outgoing	27/01/2026	Printed packed including letter, flyer and NOPSEMA consultation guide posted by registered mail.	N
			Registered Post	FISHERS 2	Outgoing	11/02/2026	Printed pack including letter, flyer and NOPSEMA consultation guide posted by registered mail.	
93	Fisher 44	4	Registered Post	FISHERS 1	Outgoing	27/01/2026	Printed packed including letter, flyer and NOPSEMA consultation guide posted by registered mail.	N
			Registered Post	FISHERS 2	Outgoing	11/02/2026	Printed pack including letter, flyer and NOPSEMA consultation guide posted by registered mail.	
94	Fisher 45	4	Registered Post	FISHERS 1	Outgoing	27/01/2026	Printed packed including letter, flyer and NOPSEMA consultation guide posted by registered mail.	N
	REMOVE FROM FUTURE CONSULTATION		Email	F4502	Incoming	06/02/2026	Email request to be removed from all Petrel consultation.	
			Email	F4503	Outgoing	09/02/2026	Request acknowledged with thanks.	
95	Fisher 46	4	Registered Post	FISHERS 1	Outgoing	27/01/2026	Printed packed including letter, flyer and NOPSEMA consultation guide posted by registered mail.	N
	MAIL RETURNED		Registered Post	FISHERS 2	Outgoing	11/02/2026	Printed pack including letter, flyer and NOPSEMA consultation guide posted by registered mail.	
96	Fisher 47	3	Registered Post	FISHERS 1	Outgoing	27/01/2026	Printed packed including letter, flyer and NOPSEMA consultation guide posted by registered mail.	N
			Registered Post	FISHERS 2	Outgoing	11/02/2026	Printed pack including letter, flyer and NOPSEMA consultation guide posted by registered mail.	
97	Fisher 48	4	Registered Post	FISHERS 1	Outgoing	27/01/2026	Printed packed including letter, flyer and NOPSEMA consultation guide posted by registered mail.	N
			Registered Post	FISHERS 2	Outgoing	11/02/2026	Printed pack including letter, flyer and NOPSEMA consultation guide posted by registered mail.	

Petrel Survey EP Consultation Efforts Log								
	RELEVANT PERSON	Priority	Consultation Type	Sensitive Matters Reference	Out/In	Date	Summary of correspondence	Relevant matter or claim
98	Fisher 49	4	Registered Post	FISHERS 1	Outgoing	27/01/2026	Printed packed including letter, flyer and NOPSEMA consultation guide posted by registered mail.	N
			Registered Post	FISHERS 2	Outgoing	11/02/2026	Printed pack including letter, flyer and NOPSEMA consultation guide posted by registered mail.	
99	Fisher 50	4	Registered Post	FISHERS 1	Outgoing	27/01/2026	Printed packed including letter, flyer and NOPSEMA consultation guide posted by registered mail.	N
	MAIL RETURNED		Registered Post	FISHERS 2	Outgoing	11/02/2026	Printed pack including letter, flyer and NOPSEMA consultation guide posted by registered mail.	
100	Fisher 51	4	Registered Post	FISHERS 1	Outgoing	27/01/2026	Printed packed including letter, flyer and NOPSEMA consultation guide posted by registered mail.	Y
			Meeting	TDC04	In Person	29/01/2026	Refer to Meeting Notes in Thamarrurr. Attended meeting.	
			Registered Post	FISHERS 2	Outgoing	11/02/2026	Printed pack including letter, flyer and NOPSEMA consultation guide posted by registered mail.	
101	Fisher 52	4	Registered Post	FISHERS 1	Outgoing	27/01/2026	Printed packed including letter, flyer and NOPSEMA consultation guide posted by registered mail.	N
	MAIL RETURNED		Registered Post	FISHERS 2	Outgoing	11/02/2026	Printed pack including letter, flyer and NOPSEMA consultation guide posted by registered mail.	
102	Fisher 53	3	Registered Post	FISHERS 1	Outgoing	27/01/2026	Printed packed including letter, flyer and NOPSEMA consultation guide posted by registered mail.	N
			Registered Post	FISHERS 2	Outgoing	11/02/2026	Printed pack including letter, flyer and NOPSEMA consultation guide posted by registered mail.	
103	Fisher 54	3	Registered Post	FISHERS 1	Outgoing	27/01/2026	Printed packed including letter, flyer and NOPSEMA consultation guide posted by registered mail.	N
			Registered Post	FISHERS 2	Outgoing	11/02/2026	Printed pack including letter, flyer and NOPSEMA consultation guide posted by registered mail.	
104	Fisher 55	3	Registered Post	FISHERS 1	Outgoing	27/01/2026	Printed packed including letter, flyer and NOPSEMA consultation guide posted by registered mail.	N
			Registered Post	FISHERS 2	Outgoing	11/02/2026	Printed pack including letter, flyer and NOPSEMA consultation guide posted by registered mail.	
105	Fisher 56	4	Email	F5601	Outgoing	27/01/2026	Outgoing email cover correspondence introducing the activity, providing attached flyer and link to landing page with further information. Invitation to review and provide feedback.	N
			Registered Post	FISHERS 1	Outgoing	27/01/2026	Printed packed including letter, flyer and NOPSEMA consultation guide posted by registered mail.	
			Email	F5603	Outgoing	05/02/2026	Follow up to consultation request.	
			Registered Post	FISHERS 2	Outgoing	11/02/2026	Printed pack including letter, flyer and NOPSEMA consultation guide posted by registered mail.	
			Email	F5605	Outgoing	24/02/2026	Follow up to consultation request.	
106	Fisher 57	4	Registered Post	FISHERS 1	Outgoing	27/01/2026	Printed packed including letter, flyer and NOPSEMA consultation guide posted by registered mail.	N
			Registered Post	FISHERS 2	Outgoing	11/02/2026	Printed pack including letter, flyer and NOPSEMA consultation guide posted by registered mail.	

Petrel Survey EP Consultation Efforts Log								
	RELEVANT PERSON	Priority	Consultation Type	Sensitive Matters Reference	Out/In	Date	Summary of correspondence	Relevant matter or claim
	TOURISM FISHERS							
	Tourism Fishers - Northern Territory							
107	Anglers Choice Fishing Safaris	4	Email	AC01	Outgoing	27/01/2026	Outgoing email cover correspondence introducing the activity, providing attached flyer and link to landing page with further information. Invitation to review and provide feedback.	N
			Email	AC02	Outgoing	05/02/2026	Follow up to consultation request.	
			Phone	N/A	Outgoing	16/02/2026	No answer. Left message with reason for call and contact information.	
			Email	AC03	Outgoing	24/02/2026	Follow up to consultation request.	
108	Arafura Bluewater Charters	4	Email	ABC01	Outgoing	27/01/2026	Outgoing email cover correspondence introducing the activity, providing attached flyer and link to landing page with further information. Invitation to review and provide feedback.	N
	REMOVE FROM RP LIST - NO LONGER OPERATING		Email	ABC02	Incoming	27/01/2026	Auto email advising that entity is no longer in business.	
109	Dundee Beach Fishing Charters	4	Email	DBFC01	Outgoing	27/01/2026	Outgoing email cover correspondence introducing the activity, providing attached flyer and link to landing page with further information. Invitation to review and provide feedback.	N
			Email	DBFC02	Outgoing	05/02/2026	Follow up to consultation request.	
			Phone	N/A	Outgoing	16/02/2026	No answer. Left message with reason for call and contact information.	
			Email	DBFC03	Outgoing	24/02/2026	Follow up to consultation request.	
110	Equinox Fishing Charters	4	Email	EC01	Outgoing	27/01/2026	Outgoing email cover correspondence introducing the activity, providing attached flyer and link to landing page with further information. Invitation to review and provide feedback.	N
			Email	EC02	Outgoing	05/02/2026	Follow up to consultation request.	
			Phone	N/A	Outgoing	16/02/2026	Voicemail. No charters over Jan/Feb. Left voicemail with reason for call and contact details.	
			Email	EC03	Outgoing	24/02/2026	Follow up to consultation request.	
111	Yknot Fishing Charters	4	Email	YFC01	Outgoing	27/01/2026	Outgoing email cover correspondence introducing the activity, providing attached flyer and link to landing page with further information. Invitation to review and provide feedback.	N
			Email	YFC02	Outgoing	05/02/2026	Follow up to consultation request.	
			Phone	N/A	Outgoing	16/02/2026	RP advised no concerns with proposed activity.	
			Email	YFC03	Outgoing	16/02/2026	Confirmation of receipt of advice from RP.	
	Tourism Fishers - Western Australia							
112	Cannon Charters	4	Email	CC01	Outgoing	27/01/2026	Outgoing email cover correspondence introducing the activity, providing attached flyer and link to landing page with further information. Invitation to review and provide feedback.	N
			Email	CC02	Outgoing	05/02/2026	Follow up to consultation request.	
			Phone	N/A	Outgoing	16/02/2026	No answer. Left voice message with reason for call and contact info.	
			Email	CC03	Outgoing	24/02/2026	Follow up to consultation request.	
113	Unreel Adventure Safaris (Derby)	4	Email		Outgoing	27/01/2026	Outgoing email cover correspondence introducing the activity, providing attached flyer and link to landing page with further information. Invitation to review and provide feedback.	N
			Email	UAS02	Incoming	27/01/2026	RP advised no input, vessel does not operate in the area.	
			Email	UAS03	Outgoing	28/01/2026	Email acknowledged with thanks.	
	Aboriginal and Torres Strait Islander/ First Nations Community							
	National							
114	Indigenous Land and Sea Corporation (ILSC)	4	Email	ILSC01	Outgoing	27/01/2026	Outgoing email cover correspondence introducing the activity, providing attached flyer and link to landing page with further information. Invitation to review and provide feedback.	N
			Email	ILSC02	Outgoing	05/02/2026	Follow up to consultation request.	
			Email	ILSC03	Incoming	06/02/2026	RP CEO confirmed no feedback for this activity.	
			Email	ILSC04	Outgoing	09/02/2026	Email acknowledged with thanks	
115	Northern Australia Indigenous Land & Sea Management Alliance (NAILSMA)	4	Email	NAILSMA01	Outgoing	27/01/2026	Outgoing email cover correspondence introducing the activity, providing attached flyer and link to landing page with further information. Invitation to review and provide feedback.	N
			Email	NAILSMA02	Outgoing	05/02/2026	Follow up to consultation request.	
			Phone	N/A	Outgoing	12/02/2026	RP Reception requested email sent to alternate address.	
			Email	NAILSMA03	Outgoing	12/02/2026	Consultation email forwarded as requested.	
			Email	NAILSMA06	Outgoing	25/02/2026	Follow up to consultation request.	

Petrel Survey EP Consultation Efforts Log

	RELEVANT PERSON	Priority	Consultation Type	Sensitive Matters Reference	Out/In	Date	Summary of correspondence	Relevant matter or claim
	Northern Territory							
116	Kardu Diminin Corporation	4	Email	KARDU01	Outgoing	16/01/2026	Email providing lead time for upcoming roadshow and opportunities to meet face to face to discuss survey activities.	N
			Email	KARDU02	Outgoing	23/01/2026	Email confirming dates and time availability for face to face meeting.	
			Email	KARDU03	Outgoing	27/01/2026	Outgoing email cover correspondence introducing the activity, providing attached flyer and link to landing page with further information. Invitation to review and provide feedback.	
			Email	KARDU04	Outgoing	27/01/2026	Follow up email to invitation to meet in person offering date/time options.	
			Phone	N/A	Outgoing	12/02/2026	No answer. Left voice message with reason for call and contact info.	
			Email	KARDU06	Outgoing	19/02/2026	Follow up email to consultation invitation.	
			Email	KARDU07	Outgoing	24/02/2026	Follow up email to consultation.	
117	Kenbi Land Trust TOs	4	Text	KLT01	Two-Way	16 to 18/1/2026	Text exchange with RP Land Claimant.	N
			Phone	N/A	Outgoing	16/01/2026	Discussion with RP member with contact information received for other RP members.	
			Text	KLT01A	Two-Way	19/01/2026	Text exchange with RP Land Claimant regarding RP contacts.	
			Email	KLT02	Outgoing	19/01/2026	Follow up email to phone call to provide potential dates for in person meeting.	
			Email	KLT03	Outgoing	27/01/2026	Outgoing email cover correspondence introducing the activity, providing attached flyer and link to landing page with further information. Invitation to review and provide feedback.	
			Text	KLTTXT01	Outgoing	28/01/2026	Text to RP Land Claimant (and Aboriginal Coastal Fisher) regarding meeting opportunity.	
			Phone	KLTTST01	Incoming	29/01/2026	Call from RP Land Claimant regarding meeting opportunity, position as Wadeye TDC rep, RP Land Claimant and Aboriginal Coast Fisher. Agreement to catch up when Titleholder next in Wadeye.	
			Email	KLT04	Outgoing	29/01/2026	Available dates and times for in person meeting provided to RP Secretary.	
			Email	KLT05	Outgoing	29/01/2026	Available dates and times provided to RP member. Option request for meeting with Rangers on the same day.	
			Email	KLT06	Incoming	29/01/2026	Meeting confirmation for 4 Feb.	
			Email	KLT07	Outgoing	29/01/2026	Email acknowledged - calendar invite to be sent.	
			Text	KLT08	Two-Way	04/02/2026	Feedback from RP advising Kenbi Land Claimant appreciates consideration of her views and learning knowledge and that Eni will forward any information relevant to the claimant.	
			Email	KLT09	Outgoing	03/03/2026	Follow up to attempts to find a date for meeting that aligns with RP. Acknowledgement of advice by email with appreciation and invitation to provide further input if required.	
			Email	KLT10	Outgoing	03/03/2026	Email to separate Kenbi Land Claimant following up post text to arrange meeting. Invitation to send any input by return email and indication of future consultation and meeting opportunity.	
			Email	KLT11	Incoming	04/03/2026	RP query on individual contact with Kenbi claimant.	
			Email	KLT12	Outgoing	05/03/2026	Confirmation of Eni attempt to engage by phone with individual Kenbi claimant without success.	
			Email	KLT13	Incoming	05/03/2026	RP acknowledged effort with thanks.	
118	Larrakia Development Corporation	3	Email	LDC01	Outgoing	16/1/26	Email providing lead time for upcoming roadshow and opportunities to meet face to face to discuss survey activities.	N
			Email	LDC02	Incoming	17/01/2026	Email acknowledged by RP and awaiting dates.	
			Email	LDC03	Outgoing	27/01/2026	Outgoing email cover correspondence introducing the activity, providing attached flyer and link to landing page with further information. Invitation to review and provide feedback.	
			Email	LDC04	Outgoing	29/01/2026	Available dates and times provided for in person meeting.	
			Email	LDC05	Outgoing	02/02/2026	Follow up on available dates for in person meeting.	
			Phone	N/A	Outgoing	02/02/2026	Call to RP to discuss meeting opportunities.	
			Email	LDC06	Outgoing	02/02/2026	Confirmation for meeting availability on 5 Feb.	
			Email	LDC07	Incoming	02/02/2026	Confirmation of RP Chairman availability and location.	
			Email	LDC08	Outgoing	02/02/2026	Meeting availability discussion.	
			Email	LDC09	Incoming	02/02/2026	Confirmation of meeting with RP CEO, Chairman unable to attend.	
			Email	LDC10	Outgoing	02/03/2026	Meeting confirmed.	
			Meeting	LDC11	In Person	05/02/2026	Refer to meeting notes.	
			Email	LDC12	Outgoing	19/02/2026	Follow up email to meeting with attached slide pack. RP expressed interest in contract work when it is planned for. Invitation to provide further individual responses that arise.	
119	Larrakia Nation Aboriginal Corporation	4	Email	LNAC01	Outgoing	27/01/2026	Outgoing email cover correspondence introducing the activity, providing attached flyer and link to landing page with further information. Invitation to review and provide feedback.	N
			Email	LNAC02	Outgoing	05/02/2026	Follow up to consultation request.	
			Phone	N/A	Outgoing	12/02/2026	RP EA confirmed receipt. CEO away and will address on return next week.	
			Email	LNAC03	Outgoing	24/02/2026	Follow up to consultation request.	

Petrel Survey EP Consultation Efforts Log

	RELEVANT PERSON	Priority	Consultation Type	Sensitive Matters Reference	Out/In	Date	Summary of correspondence	Relevant matter or claim
120	Northern Land Council	2	Email	NLC01	Outgoing	16/01/2026	Email providing lead time for upcoming roadshow and opportunities to meet face to face to discuss survey activities.	Y
			Email	NLC02	Outgoing	23/01/2026	Email confirming dates and time availability for face to face meeting.	
			Email	NLC03	Outgoing	27/01/2026	Outgoing email cover correspondence introducing the activity, providing attached flyer and link to landing page with further information. Invitation to review and provide feedback.	
			Text	NLCTXT01	Two-Way	29/01/2026	Text exchange with RP re meeting arrangements.	
			Text	NLCTXT0a	Outgoing	29/01/2026	Text to RP re meeting arrangements.	
			Email	NLC04	Outgoing	29/01/2026	Follow up with available dates and times for in person meeting.	
			Text	NLCTXT02	Two-Way	02/02/2026	Text exchange with RP regarding meeting opportunity.	
			Meeting	NLC05	In Person	03/02/2026	In person meeting including presentation. Refer to file note.	
121	Thamarrurr Development Corporation (TDC) Representing the following TO family groups: - Rak Wudipuli - Rak Thinti - Rak Perrederr - Rak Nganthawudi - Rak Nuthunthu - Rak Namarluk - Rak Nadirri - Rak Merrepen - Rak Kulingmirr - Rak Kuy - Rak Kubiyr - Rak Kungarlbarl - Rak Kimmu - Rak Angileni - Yek Diminin - Yek Maninh - Yek Nangu - Yek Ngudanimarn - Yek Wunh - Yek Yederr	2	Email	TDC01	Outgoing	16/01/2026	Email providing lead time for upcoming roadshow and opportunities to meet face to face to discuss survey activities.	N
			Text	TDCTXT01	Two-Way	21/01/2026	Text exchange with RP CEO regarding meeting and local environment.	
			Email	TDC02	Outgoing	27/01/2026	Outgoing email cover correspondence introducing the activity, providing attached flyer and link to landing page with further information. Invitation to review and provide feedback.	
			Email	TDC03	Incoming	27/01/2026	Auto response confirming receipt of email.	
			Text	TDCTXT02	Two-Way	27/01/2026	Text exchange with RP CEO re meeting .	
			Text	TDCTXT03	Two-Way	29/01/2026	Text exchange with RP EA re meeting timing.	
			Meeting	TDC04	In Person	29/01/2026	Refer to meeting notes.	
			Email	TDC05	Outgoing	31/01/2026	Follow up to in person meeting providing copy of presentation with thanks for time and inviting any additional input.	
			Email	TDC06	Incoming	01/02/2026	Updated copy of TDC newsletter featuring article on Eni consultation.	
			Email	TDC07	Outgoing	01/02/2026	Email thanking RP for inclusion in newsletter.	
124	Thamarrurr Rangers	2	Email	TR01	Outgoing	23/01/2026	Provision of confirmed dates and availability for face to face meeting.	N
			Email	TR02	Outgoing	27/01/2026	Outgoing email cover correspondence introducing the activity, providing attached flyer and link to landing page with further information. Invitation to review and provide feedback.	
			Email	TR03	Incoming	27/01/2026	Confirmation of in person meeting on 29/1/26.	
			Email	TR04	Outgoing	27/01/2026	Confirmation of in person meeting and calendar invite sent.	
			Meeting	TR05	In Person	29/01/2026	Refer to meeting notes.	
			Email	TR06	Outgoing	01/02/2026	Post meeting follow-up with presentation attached. Invitation to provide any further input.	
122	Yek Diminin - only available face to face, no direct email/phone contacts.	4	In person request		In person request		Eni team visited Wadeye and sought out RP, advised not to speak to them due to local requirements.	N
123	Yek Maninh - only available face to face, no direct email/phone contacts.	4	Email	YM01	Outgoing	27/01/2026	Outgoing email cover correspondence introducing the activity, providing attached flyer and link to landing page with further information. Invitation to review and provide feedback.	N
			Email	YM02	Outgoing	05/02/2026	Follow up on consultation.	
			Email	YM03	Outgoing	11/02/2026	Inquiry to recipient of emails if appropriate to reach out to RP through them or should consultation be undertaken during travel events when RP may be available in person.	
			Phone	N/A	Outgoing	19/02/2026	Call to RP EA for TDC (contact for RP). No answer and voicemail full, no message left.	
			Email	YM04	Outgoing	19/02/2026	Follow up to RP EA in writing regarding Yek Maninh engagement	
			Email	YM05	Incoming	19/02/2026	RP EA responded that RP is not currently in Wadeye, currently located in Darwin and unavailable.	
125	Tiwi Land Council (TLC) Representing the following TO family groups: - Jikilaruwu - Malawu - Mantiyupwi - Marrikawuyanga - Munupi - Yimpinari - Wurankuwu - Wulirankuwu	2	Email	TLC01	Outgoing	27/01/2026	Outgoing email cover correspondence introducing the activity, providing attached flyer and link to landing page with further information. Invitation to review and provide feedback.	N
			Email	TLC02	Outgoing	12/02/2026	Follow up on consultation.	
			Phone	N/A	Outgoing	12/02/2026	Mgr Resources will have received through generic email. Requested resent to direct email.	
			Email	TLC03	Outgoing	12/02/2026	Consultation email forwarded to direct email address.	
			Email	TLC04	Outgoing	19/02/2026	Follow up email with defined consultation dates and encouraging feedback for capture.	
			Email	TLC05	Outgoing	24/02/2026	Follow up on consultation.	
			Email	TLC06	Outgoing	03/03/2026	Follow up to consultation with confirmation of timeline and option to opt out.	
126	Top End (Default PBC/CLA) Aboriginal Corporation RNTBC	4	Email	TEAC01	Outgoing	27/01/2026	Outgoing email cover correspondence introducing the activity, providing attached flyer and link to landing page with further information. Invitation to review and provide feedback.	N
			Email	TEAC02	Outgoing	05/02/2026	Follow up on consultation request.	
			Phone	N/A	Outgoing	16/02/2026	No answer. Left voicemail with contact and reason for the call.	
			Email	TEAC03	Outgoing	24/02/2026	Follow up to consultation request.	
			Email	TEAC04	Incoming	24/02/2026	RP sent email with STOP in the subject line.	

Petrel Survey EP Consultation Efforts Log

	RELEVANT PERSON	Priority	Consultation Type	Sensitive Matters Reference	Out/In	Date	Summary of correspondence	Relevant matter or claim
	Western Australia							
127	Balanggarra Aboriginal Corporation	1	Email	BAC01	Outgoing	27/01/2026	Outgoing email cover correspondence introducing the activity, providing attached flyer and link to landing page with further information. Invitation to review and provide feedback.	N
			Email	BAC02	Outgoing	03/02/2026	Follow up on consultation.	
			Email	BAC03	Outgoing	04/02/2026	Invitation for in person meeting and timing of planned travel.	
			Text	BACTXT01	Two-Way	09/02/2026	Text exchange with RP regarding meeting arrangements.	
			Phone	BACTXT01	Outgoing	09/02/2026	Eni Rep call to RP re meeting and attendees.	
			Phone	BACTXT01	Outgoing	09/02/2026	Eni Rep call to RP, new Chair re meeting in the future.	
			Text	BACTXT01	Two-Way	09/02/2026	Text exchange with RP re contact information.	
			Text	BACTXT02	Outgoing	10/02/2026	Text to RP regarding meeting opportunity.	
			Phone	BACTXT02	Outgoing	10/02/2026	Eni Rep call to RP for introduction and email to follow.	
			Email	BAC04	Outgoing	10/02/2026	Post call confirmation of in person meeting 18 Feb.	
			Text	BACTXT02	Two-Way	10/02/2026	Text exchange regarding meeting attendance.	
			Text	BACTXT03	Outgoing	17/02/2026	Text re meeting opportunity.	
			Phone	BACTXT03	Incoming	17/02/2026	Call with RP on availability and location.	
			Text	BACTXT04	Incoming	18/02/2026	Confirmaton of RP availability for meeting.	
			Meeting	BAC05	In Person	18/02/2026	Refer to meeting notes.	
			Email	BAC06	Outgoing	26/02/2026	Follow up to meeting with attached presentation. RP extended invitation for presentation to the board in the future.	
128	Balanggarra Rangers (Area 3 & 4)	3	Email	BR01	Outgoing	27/01/2026	Outgoing email cover correspondence introducing the activity, providing attached flyer and link to landing page with further information. Invitation to review and provide feedback.	N
			Email	BR02	Outgoing	05/02/2026	Follow up to consultation request.	
			Email	BR03	Incoming	05/02/2026	Out of office notification for one RP recipient.	
			Email	BR04	Outgoing	09/02/2026	Invitation for in person meeting and available dates and times.	
			Meeting	BR05	In Person	18/02/2026	Refer to meeting notes with Balanggarra AC.	
129	Balanggarra Kwini Rangers (Areas 1 & 2)	3	Email	BKR01	Outgoing	27/01/2026	Outgoing email cover correspondence introducing the activity, providing attached flyer and link to landing page with further information. Invitation to review and provide feedback.	N
			Email	BKR02	Outgoing	03/02/2026	Follow up on consultation.	
			Email	BKR03	Outgoing	09/02/2026	Invitation to in person meeting with available dates and times.	
			Meeting	BKR04	In Person	18/02/2026	Refer to meeting notes with Balanggarra AC.	
130	Dambimangari Aboriginal Corporation	2	Email	DAC01	Outgoing	27/01/2026	Outgoing email cover correspondence introducing the activity, providing attached flyer and link to landing page with further information. Invitation to review and provide feedback.	N
			Email	DAC02	Outgoing	03/02/2026	Follow up on consultation.	
			Phone	N/A	Outgoing	16/02/2026	Voicemail with no option to leave a message.	
			Phone	N/A	Outgoing	16/02/2026	Spoke to RP EA - new person in position. Found emails and will follow up internally for a response.	
			Email	DAC03	Outgoing	24/02/2026	Follow up to consultation request.	
			Email	DAC04	Outgoing	03/03/2026	Follow up to consultation request with timing and opt out option.	
131	Kalumburu Aboriginal Corporation	3	Email	KAC01	Outgoing	27/01/2026	Outgoing email cover correspondence introducing the activity, providing attached flyer and link to landing page with further information. Invitation to review and provide feedback.	N
			Email	KAC02	Outgoing	05/02/2026	Follow up to consultation request.	
			Phone	N/A	Outgoing	16/02/2026	Change of CEO and office staff. Requested email be forwarded to new RP CEO directly.	
			Email	KAC03	Outgoing	16/02/2026	Forward information pack and previous emails to CEO email.	
			Email	KAC04	Incoming	16/02/2026	CEO email address rejected.	
			Email	KAC05	Outgoing	16/02/2026	Email resent to the corporate email.	
			Email	KAC06	Outgoing	24/02/2026	Follow up to consultation request.	
			Email	KAC07	Incoming	24/02/2026	RP advised information had been provided to Chair for Director input to response.	
132	Kimberley Land Council	2	Email	KLC01	Outgoing	27/01/2026	Outgoing email cover correspondence introducing the activity, providing attached flyer and link to landing page with further information. Invitation to review and provide feedback.	N
			Email	KLC02	Outgoing	03/02/2026	Follow up to consultation request.	
			Email	KLC03	Outgoing	18/02/2026	Follow up email, defined consultation period and encouraging feedback for capture.	
			Phone	N/A	Outgoing	19/02/2026	Phone call to main number and left message with details for call and contact information.	
			Email	KLC04	Outgoing	24/02/2026	Follow up to consultation invitation.	
			Email	KLC05	Outgoing	03/03/2026	Follow up to consultation request with timing and opt out option.	
			Email	KLC06	Incoming	06/03/2026	RP response agreeing to meeting and provision of information regarding the surveys. RP noted that meeting is in good faith and does not constitute consultation.	

Petrel Survey EP Consultation Efforts Log

	RELEVANT PERSON	Priority	Consultation Type	Sensitive Matters Reference	Out/In	Date	Summary of correspondence	Relevant matter or claim
133	MG Corporation (Yawoorroong Miriuwung Gajerrong Yirrgeb Noong Dawang Aboriginal Corporation)	2	Email	MGC01	Outgoing	04/02/2026	Invitation to in person meeting with introduction email to activities attached.	N
			Email	MGC02	Outgoing	05/02/2026	Flyer sent to RP after omission from intro email.	
			Text	MGCTXT01	Outgoing	09/02/2026	Text to RP regarding meeting opportunity.	
			Text	MGCTXT01	Outgoing	09/02/2026	Text to second RP regarding meeting opportunity.	
			Phone	MGCTXT01	Incoming	10/02/2026	Update on internal contacts.	
			Phone	MGCTXT01	Outgoing	10/02/2026	Confirmation of attendees and meeting time. Calendar invite to be sent.	
			Email	MGC03	Outgoing	09/02/2026	Confirmation of times and dates available for in person meetings.	
			Phone	N/A	Incoming	10/02/2026	RP phone call with Eni Rep.	
			Email	MGC04	Incoming	10/02/2026	Contact for ongoing consultation provided.	
			Email	MGC05	Outgoing	10/02/2026	Email request for new contact to call Eni Rep to arrange a time to meet.	
			Phone	N/A	Incoming	10/02/2026	RP called Eni Rep.	
			Email	MGC06	Incoming	10/02/2026	Confirmation of invite to be sent for meeting. Added contact who will attend the meeting.	
			Meeting	MGC07	In Person	19/02/2026	Refer to meeting notes.	
			Email	MGC08	Outgoing	04/03/2026	Follow up to meeting to note discussions, provision of consultation advice from RP for future engagements and potential opportunity to meet MG Corp's Daewang Council.	
			Email	MGC09	Outgoing	04/03/2026	Correction to one recipients email with copy of previous correspondence.	
			Email	MGC10	Incoming	05/03/2026	RP EA acknowledged receipt of email and confirmed future opportunity for consultation in Kununurra.	
134	Wunambal Gaambera Aboriginal Corporation	1	Email	WGAC01	Outgoing	27/01/2026	Outgoing email cover correspondence introducing the activity, providing attached flyer and link to landing page with further information. Invitation to review and provide feedback.	N
			Email	WGAC02	Outgoing	10/02/2026	Follow up to consultation invitation.	
			Phone	N/A	Outgoing	12/02/2026	Message bank is full.	
			Email	WGAC03	Outgoing	16/02/2026	Re-sent email to follow up on consultation.	
			Phone	N/A	Outgoing	19/02/2026	Call to RP, Health Country, left full message and will forward email.	
			Email	WGAC04	Outgoing	19/02/2026	Re-send email as follow up to phone call.	
			Email	WGAC05	Outgoing	24/02/2026	Follow up to consultation invitation.	
			Email	WGAC06	Outgoing	03/03/1936	Follow up to consultation request with timeline and opt out option.	
135	Wunan Foundation	2	Email	WF01	Outgoing	04/02/2026	Congratulations on achievement as an Eni Implementing Partner. Responsibility for sustainability initiatives identifies Wunan as an RP. Invitation to meet to discuss Petrel activities.	N
			Email	WF02	Incoming	04/02/2026	RP CEO provided availability for meeting.	
			Email	WF03	Outgoing	09/02/2026	Confirmation of times available on dates provided by RP CEO.	
			Email	WF04	Incoming	09/02/2026	RP confirmed time availability.	
			Email	WF05	Outgoing	09/02/2026	Availability acknowledged and calendar invite to be sent.	
			Email	WF06	Incoming	09/02/2026	Location and facilities confirmation for in person meeting.	
			Meeting	WF07	In Person	17/02/2026	Refer to meeting notes.	
			Email	WF08	Outgoing	24/02/2026	Follow up to meeting with slide pack. Original information pack to be provided.	
			Email	WF09	Outgoing	25/02/2026	Information pack provided to RP by email.	
			Email	WF10	Incoming	25/02/2026	Out of office for RP on leave, notes account is closely monitored and will be responded to if necessary.	
			Email	WF11	Incoming	25/02/2026	RP acknowledged information receipt and consultation effort with thanks.	

Petrel Survey EP Consultation Efforts Log								
	RELEVANT PERSON	Priority	Consultation Type	Sensitive Matters Reference	Out/In	Date	Summary of correspondence	Relevant matter or claim
	Business							
	National Business							
136	Australian Marine Oil Spill Centre (AMOSC)	2	Email	AMOSC01	Outgoing	27/01/2026	Outgoing email cover correspondence introducing the activity, providing attached flyer and link to landing page with further information. Invitation to review and provide feedback.	Y
			Email	AMOSC02	Incoming	29/01/2026	Email requesting a copy of the EP with time for a two week review for feedback.	
			Email	AMOSC03	Outgoing	06/02/2026	Explanation to RP on availability of information for EP feedback and request for input as part of EP development. Provision of full EP & OPEP documentation to be made available prior to the activity.	
			Email	AMOSC04	Incoming	13/02/2026	RP did not consider itself appropriately consulted without a copy of the EP for review. Advised Eni may choose to undertake engagement with AMOSC through its formal relevant person consultation framework or independently.	
			Email	AMOSC05	Outgoing	13/02/2026	Email acknowledged response and confirmed it would be considered within development of the EP. Eni Rep also confirmed Eni HSEQ would contact AMOSC independently as outlined in the RP's email.	
			Meeting		In Person	18/02/2026	Eni meeting with RP.	
			Email	AMOSC07	Outgoing	24/02/2026	Email follow up to meeting confirming consultation is part of the preparation for the EP and final EP and OPEP can not be made available within the consultation timing. RP attendees undertook to provide this agreement to internal team. RP invited to provide input based on the materials available.	
			Email	AMOSC08	Incoming	05/03/2026	RP acknowledged email and confirmed no further information required at this time. Copy of the OPEP to be provided when completed for assessment in response management capability.	
			Email	AMOSC09	Outgoing	05/03/2026	Eni confirmed receipt and formal consultation letter not required. Feedback received meets the two way conversation for the EP. Eni to engage with AMOSC in the future with the provision of documents requested.	
137	Inligo Networks	4	Phone	IN01	Outgoing	27/01/2026	Call to RP to obtain contact email for information package to be sent. RP confirmed no concerns verbally and committed to responding same by email.	Y
			Text	IN02	Incoming	27/01/2026	Phone number and contact email for RP. Advised of subsea cables planned for the region for future communication connectivity opportunities.	
			Email	IN03	Outgoing	27/01/2025	Outgoing email cover correspondence introducing the activity, providing attached flyer and link to landing page with further information. Invitation to review and provide feedback.	
			Text	IN04	Incoming	27/01/2026	Notification to Eni of SubSea Cable activity to Darwin that may provide proponent with communications connectivity in the future.	
			Email	IN05	Incoming	02/02/2026	Email confirming no input at this stage however RP is actively engaged in the installation of a cable in the area and seeking internal Eni contact to coordinate activities.	
			Email	IN06	Outgoing	10/02/2026	Contact details provided. Included link to contract tenders for future reference. Concluded consultation effort.	
138	Moonson Aquatics	4	Email	MA01	Outgoing	27/01/2026	Outgoing email cover correspondence introducing the activity, providing attached flyer and link to landing page with further information. Invitation to review and provide feedback.	N
			Email	MA02	Outgoing	05/02/2026	Follow up to consultation invitation.	
			Phone	N/A	Outgoing	16/02/2026	Confirmed receipt of information and RP has no comment/input. Eni to confirm in email and conclude consultation.	
			Email	MA03	Outgoing	16/02/2026	Confirmation by email of no concerns for RP.	
			Email	MA04	Incoming	16/02/2026	RP acknowledged email.	
139	Vocus	4	Email	VOCUS01	Outgoing	27/01/2026	Outgoing email cover correspondence introducing the activity, providing attached flyer and link to landing page with further information. Invitation to review and provide feedback.	N
			Email	VOCUS02	Outgoing	05/02/2026	Follow up to consultation invitation.	
			Email	VOCUS03	Incoming	05/02/2026	RP requested coordinates for northern area to assess proximity to assets.	
			Email	VOCUS04	Outgoing	09/02/2026	Eni rep sent shapefiles for OA to RP.	
			Email	VOCUS05	Outgoing	16/02/2026	Follow up email to provision of shapefiles.	
			Email	VOCUS06	Incoming	17/02/2026	Request for coordinates as could not access shape files.	
			Email	VOCUS07	Outgoing	20/02/2026	Spreadsheet with northings/eastings extracted from shape files sent to RP.	
	Northern Territory Businesses							
140	Chamber of Commerce Northern Territory	4	Email	CCNT01	Outgoing	27/01/2026	Outgoing email cover correspondence introducing the activity, providing attached flyer and link to landing page with further information. Invitation to review and provide feedback.	N
			Email	CCNT02	Outgoing	05/02/2026	Follow up to consultation invitation.	
			Phone	N/A	Outgoing	12/02/2026	Spoke to RP reception. Requested resending information via email for follow up.	
			Email	CCNT03	Outgoing	12/02/2026	Resent information to email as requested.	
			Email	CCNT04	Outgoing	16/02/2026	Follow up to consultation request.	
			Email	CCNT05	Incoming	16/02/2026	RP out of office notification returning 19 Feb.	
			Email	CCNT06	Outgoing	24/02/2026	Follow up to consultation request.	
141	Darwin Port Operations Pty Ltd	4	Email	DPO01	Outgoing	27/01/2026	Outgoing email cover correspondence introducing the activity, providing attached flyer and link to landing page with further information. Invitation to review and provide feedback.	N
			Email	DPO02	Outgoing	05/02/2026	Follow up to consultation request.	
			Phone	N/A	Outgoing	12/02/2026	Confirmed receipt with reception and internal RP. Left message.	
			Email	DPO03	Incoming	13/02/2026	RP advised no concerns or feedback and continue as an RP for future activities.	
			Email	DPO04	Outgoing	13/02/2026	Eni acknowledged advice from RP.	

Petrel Survey EP Consultation Efforts Log

	RELEVANT PERSON	Priority	Consultation Type	Sensitive Matters Reference	Out/In	Date	Summary of correspondence	Relevant matter or claim
142	NT Port and Marine	4	Email	NTPM01	Outgoing	27/01/2026	Outgoing email cover correspondence introducing the activity, providing attached flyer and link to landing page with further information. Invitation to review and provide feedback.	N
			Email	NTPM02	Outgoing	05/02/2026	Follow up to consultation request.	
			Phone	N/A	Outgoing	12/02/2026	Left voicemail with reason for call and contact information	
			Phone	N/A	Incoming	12/02/2026	RP returned call confirming receipt of information. Advised preference to opt out in this instance. Eni Rep confirmed keeping on as an RP for future consultations. RP committed to confirming opt out in return email.	
			Email	NTPM03	Incoming	12/02/2026	RP sent email with Opt Out in subject line.	
			Email	NTPM04	Outgoing	12/02/2026	Email acknowledged with thanks.	
	Western Australian Businesses							
143	Berkeley River Lodge	4	Email	BRL01	Outgoing	27/01/2026	Outgoing email cover correspondence introducing the activity, providing attached flyer and link to landing page with further information. Invitation to review and provide feedback.	N
			Email	BRL02	Outgoing	05/02/2026	Follow up to consultation request.	
			Phone	N/A	Outgoing	16/02/2026	No answer, left message and contact information.	
			Email	BRL03	Outgoing	24/02/2026	Follow up to consultation request.	
144	Cambridge Gulf Limited (CGL) Wyndham Port	3	Email	CGL01	Outgoing	27/01/2026	Outgoing email cover correspondence introducing the activity, providing attached flyer and link to landing page with further information. Invitation to review and provide feedback.	N
			Email	CGL02	Outgoing	04/02/2026	Invitation to in person meeting and timing for intended travel.	
			Email	CGL03	Incoming	04/02/2026	Confirmation of availability for in person meeting.	
			Email	CGL04	Incoming	05/02/2026	CEO confirmation of availability to meet.	
			Email	CGL05	Outgoing	09/02/2026	RP provided with meeting dates and times for in person meeting.	
			Phone	CGLTXT01	Outgoing	10/02/2026	Call to RP re meeting. Left voicemail.	
			Text	CGLTXT01	Outgoing	10/02/2026	Text follow up to voicemail.	
			Phone	CGLTXT01	Outgoing	12/02/2026	Call to RP to discuss alternative dates for meeting and opportunities to meet the Port crew.	
			Text	CGLTXT01	Two-Way	16/02/2026	Text exxchange to dcuss meeting availability.	
			Meeting	CGL06	In Person	18/02/2026	Refer to meeting notes.	
145	East Kimberley Chamber of Commerce and Industry	3	Email	EKCCI01	Outgoing	27/01/2026	Outgoing email cover correspondence introducing the activity, providing attached flyer and link to landing page with further information. Invitation to review and provide feedback.	N
			Email	EKCCI02	Outgoing	04/02/2026	Invitation to in person meeting.	
			Email	EKCCI03	Outgoing	09/02/2026	Dates and times provided for in person meeting.	
			Text	EKCCITXT01	Two-way	10/02/2026	Text exchange regarding meeting opportunity.	
			Text	EKCCITXT01	Two-way	17/02/2026	Text exchange regarding change in meeting time.	
			Email	EKCCI04	Incoming	17/02/2026	RP inquiry for Eni plans to present at a community meeting, update on community initiatives and intention for the meeting.	
			Email	EKCCI05	Outgoing	17/02/2026	Eni confirmed items noted would be discussed in the meeting later same day.	
			Email	EKCCI06	Incoming	17/02/2026	RP acknowledged email.	
			Meeting	EKCCI07	In Person	17/02/2026	Refer to meeting notes.	
			Email	EKCCI08	Outgoing	18/02/2026	Provision of poster for survey information with post-meeting email to follow.	
146	Faraway Bay Outback Retreat	4	Email	FB01	Outgoing	27/01/2026	Outgoing email cover correspondence introducing the activity, providing attached flyer and link to landing page with further information. Invitation to review and provide feedback.	N
			Email	FB02	Outgoing	05/02/2026	Follow up to consultation request.	
			Phone	N/A	Outgoing	16/02/2026	Landline no longer connected.	
			Phone	N/A	Outgoing	16/02/2026	Confirmed receipt. Won't impact their location. Only concern would be impact to barges departing Wyndham with supplies to Faraway Bay.	
			Email	FB03	Outgoing	16/02/2026	Confirmation to RP of phone call noting no environmental concerns and confirming engagement with Wyndham Port, departure point for RP supplies.	
147	Honeymoon Bay	4	Email	HB01	Outgoing	27/01/2026	Outgoing email cover correspondence introducing the activity, providing attached flyer and link to landing page with further information. Invitation to review and provide feedback.	Y
			Email	HB02	Outgoing	05/02/2026	Follow up to consultation request.	
			Phone	N/A	Outgoing	16/02/2026	RP confirmed receipt of information and noted main concern to RP is impact on the fishing industry and stocks which direct affects their business.	
			Email	HB03	Outgoing	16/02/2026	Email confirmation of Eni engagement with fishing authorities and industry representatives.	
			Meeting	HB04	In Person	16/02/2026	Refer to Meeting Notes	
			Email	HB05	Outgoing	20/02/2026	Email to RP following travel team impromptu catch up with RP partner. Confirmation of provision of engagement material, queries for follow up. Future in person opportunities flagged.	
148	Kimberley Marine Tourism Association	3	Email	KMTA01	Outgoing	27/01/2026	Outgoing email cover correspondence introducing the activity, providing attached flyer and link to landing page with further information. Invitation to review and provide feedback.	N
			Email	KMTA03	Outgoing	12/02/2026	Follow up to consultation request.	
			Email	KMTA04	Outgoing	19/02/2026	Follow up to consultation request by email.	
			Phone	N/A	Outgoing	24/02/2026	Phone call to Chair, voicemail, left message with reason for call and number.	

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	RELEVANT PERSON	Priority	Consultation Type	Sensitive Matters Reference	Out/In	Date	Summary of correspondence	Relevant matter or claim
	Oil & Gas							
149	Australian Energy Producers (AEP)	3	Email	AEP01	Outgoing	27/01/2026	Outgoing email cover correspondence introducing the activity, providing attached flyer and link to landing page with further information. Invitation to review and provide feedback.	N
			Email	AEP02	Outgoing	05/02/2026	Follow up to consultation request.	
			Phone	N/A	Outgoing	12/02/2026	RP requested email be resent to same address and it would be progressed.	
			Email	AEP03	Outgoing	12/02/2025	Eni rep re-sent email as requested.	
			Email	AEP04	Outgoing	19/02/2026	Follow up to consultation request.	
			Email	AEP05	Outgoing	24/02/2026	Follow up to consultation request.	
150	EOG Resources Australia	3	Email	EOG01	Outgoing	27/01/2026	Outgoing email cover correspondence introducing the activity, providing attached flyer and link to landing page with further information. Invitation to review and provide feedback.	N
			Email	EOG01A	Incoming	27/01/2026	Email failure for the direct RP contact. Assume no longer with company. Generic emails maintained.	
			Email	EOG02	Outgoing	12/02/2026	Follow up to consultation.	
			Phone	N/A	Outgoing	19/02/2026	Called consultation mobile number - forwarded to voicemail. Left full message with explanation for call.	
			Phone	N/A	Outgoing	19/02/2026	Call to RP mobile, preivous consultation consultant for RP (two years prior), no contact since.	
			Phone	N/A	Outgoing	20/02/2026	Phone call to Melbana Energy seeking contact information for EOG.	
			Email	EOG03	Incoming	20/02/2026	Melbana Energy confirmed the email Eni are using for EOG.	
			Email	EOG04	Outgoing	20/02/2026	Coonfirmation both companies have the same contact informtion for EOG.	
151	INPEX (Inpex Browse E&P)	2	Email	INPEX01	Outgoing	27/01/2026	Outgoing email cover correspondence introducing the activity, providing attached flyer and link to landing page with further information. Invitation to review and provide feedback.	N
			Email	INPEX02	Outgoing	03/02/2026	Follow up to consulation request.	
			Phone	N/A	Outgoing	12/02/2026	RP unavailable. Left reason for call and contact information with reception.	
			Email	INPEX03	Incoming	12/02/2026	RP advised information not recieved, similar to past email issues.	
			Email	INPEX04	Outgoing	12/02/2026	Eni provided activity sheet.	
			Email	INPEX05	Outgoing	13/02/2026	Eni provided original email trail and activity sheet to determine corrections to contact information if required.	
			Email	INPEX06	Incoming	18/02/2026	RP acknowledged email and confirmed receipt, and internal distribution of, activity information.	
			Email	INPEX07	Outgoing	18/02/2026	Eni confirmed receipt of RP email.	
152	Melbana Energy (MEO International)	3	Email	ME01	Outgoing	27/01/2026	Outgoing email cover correspondence introducing the activity, providing attached flyer and link to landing page with further information. Invitation to review and provide feedback.	N
			Email	ME02	Outgoing	10/02/2026	Follow up to consultation request.	
			Phone	N/A	Outgoing	12/02/2026	Left voicemail with reason for call and contact information	
			Phone	N/A	Incoming	12/02/2026	RP Admin called, requested email sent to admin email for assessment.	
			Email	ME03	Outgoing	12/02/2026	Consultation email forwarded as requested.	
			Email	ME04	Incoming	17/02/2026	Confirmation RP has no feedback to EP for surveys. Provided concurrent plans by EOG fo drilling Q3 2026 which were forwarded to the internal SIMOPS team for Eni.	
			Email	ME05	Outgoing	17/02/2026	Email and information acknowledged with thanks.	
			Phone	N/A	Outgoing	20/02/2026	Phone call to RP seeking contact information for EOG Resources.	
153	SANTOS (Bonaparte Gas & Oil) (Santos Offshore)	2	Email	SANTOS01	Outgoing	27/01/2026	Outgoing email cover correspondence introducing the activity, providing attached flyer and link to landing page with further information. Invitation to review and provide feedback.	Y
			Email	SANTOS02	Outgoing	03/02/2026	Follow up to consultation request.	
			Email	SANTOS03	Incoming	11/02/2026	Confirmation of ongoing consultion with internal Eni team with RP CCS team regarding RP's activities. Invitation for further information or contact details.	
			Email	SANTOS04	Incoming	12/02/2026	Additional request for SIMOPS communication and shape files for survey activity.	
			Email	SANTOS05	Outgoing	24/02/2026	Response to queries from RP confirming notifications and SIMOPS and shapefiles attached.	
			Email	SANTOS06	Incoming	25/02/2026	RP confirmed receipt and internal distribution of information provided.	

Petrel Survey EP Consultation Efforts Log								
	RELEVANT PERSON	Priority	Consultation Type	Sensitive Matters Reference	Out/In	Date	Summary of correspondence	Relevant matter or claim
	NGO's							
154	Australian Marine Conservation Society NT	3	Email	AMCSNT01	Outgoing	27/01/2026	Outgoing email cover correspondence introducing the activity, providing attached flyer and link to landing page with further information. Invitation to review and provide feedback.	Y
			Email	AMCSNT02	Outgoing	10/02/2026	Follow up to consultation request.	
			Phone	N/A	Outgoing	12/02/2026	RP reception confirmed receipt of email and forwarded to appropriate team member. RP advised that a response would be provided if determined by the assessor.	
			Email	AMCSNT03	Incoming	16/02/2026	RP responded with queries regarding whole of development cumulative impacts, queries if any seismic surveys planned, Sea Country, cultural heritage and greenhouse gas emissions controls and any proposed CCS plans.	
			Email	AMCSNT04	Outgoing	25/02/2026	Email follow up to clarify feedback responses for OPP vs proposed survey activity under consultation. Confirmed current EP includes impacts/mitigations for a worst case hydrocarbon spill, proposed greenhouse gas emissions control measures, potential impacts/risks to First Nations Sea Country and other areas of heritage. Confirmed no 3D seismic testing will occur for the geophysical and geotechnical survey activities.	
155	Environment Centre NT (ECNT)	3	Email		Outgoing	16/01/2026	Email providing lead time for upcoming roadshow and opportunities to meet face to face to discuss survey activities.	
			Email	ECNT02	Outgoing	27/01/2026	Outgoing email cover correspondence introducing the activity, providing attached flyer and link to landing page with further information. Invitation to review and provide feedback.	
			Email	ECNT03	Outgoing	29/01/2026	Follow up for meeting availability with available times and dates.	
			Email	ECNT04	Outgoing	02/02/2026	Follow up to email for meeting availability.	
			Email	ECNT05	Incoming	03/02/2026	Confirmation of availability on 4 Feb.	
			Email	ECNT06	Outgoing	03/02/2026	Meeting confirmed.	
			Meeting	ECNT07	In Person	04/02/2026	Refer to meeting notes	
			Email	ECNT08	Outgoing	17/02/2026	Eni confirmed marine data would be shared with NT Dpt. Agriculture and Fisheries, the project is not LNG export but for domestic gas only, noted cumulative impact concerns on marine fauna and capture within EP, confirmed gas CO2 content. Invitation for further comment by email.	
			Email	ECNT09	Incoming	17/03/2026	RP responded to email to confirms points raised in the consultation discussion. These included the duration and size of the proposed surveys to adequately assess the area and the species that migrate there. A query was raised on Eni's process for recording instances of abandoned infrastructure being identified and plans for reporting on removal where required.	
			Email	ECNT10	Outgoing	17/03/2026	Eni acknowledged receipt of the email and attached correspondence, confirming internal assessment will be undertaken and responded to.	
156	Environs Kimberley	3	Email	EK01	Outgoing	27/01/2026	Outgoing email cover correspondence introducing the activity, providing attached flyer and link to landing page with further information. Invitation to review and provide feedback.	N
			Email	EK02	Outgoing	10/02/2026	Followup to consultation invitation.	
			Phone	N/A	Outgoing	12/02/2026	RP confirmed receipt of the information, noting resourcing is overwhelmed with a focus on fracking and would respond if time allowed.	
			Email	EK03	Outgoing	24/02/2026	Follow up to consultation request.	
157	Greenpeace Australia Pacific	4	Email	GPA01	Outgoing	10/02/2026	Outgoing email cover correspondence introducing the activity, providing attached flyer and link to landing page with further information. Invitation to review and provide feedback.	N
			Email	GPA02	Incoming	10/02/2026	Auto-response confirmation of receipt.	
			Email	GPA02	Outgoing	16/02/2026	Follow up to consultation invitation.	
			Email	GPA03	Outgoing	24/02/2026	Follow up to consultation invitation.	
158	Sea Turtle Foundation	3	Email	STF01	Outgoing	27/01/2026	Outgoing email cover correspondence introducing the activity, providing attached flyer and link to landing page with further information. Invitation to review and provide feedback.	N
			Email	STF02	Outgoing	10/02/2026	Follow up to consultation request.	
			Phone	N/A	Outgoing	12/02/2026	Office unattended. Left voicemail with reason for call and contact information.	
			Email	STF03	Outgoing	24/02/2026	Follow up to consultation request.	
159	Wilderness Society	1	Email	N/A	Outgoing	27/01/2026	Email failure to Wilderness Society of outgoing email cover correspondence introducing the activity, providing attached flyer and link to landing page with further information. Invitation to review and provide feedback.	Y
			Email	N/A	Outgoing	03/02/2026	Repeat email failure.	
			Email	WS03	Outgoing	03/02/2026	Email to existing contact to confirm if getting through.	
			Phone	N/A	Outgoing	03/02/2026	Call to RP front office with confirmation of emails used and request to try again.	
			Email	WS05	Incoming	03/02/2026	RP confirming receipt today of email but no others.	
			Email	WS06	Outgoing	03/02/2026	Acknowledged and advised will try again.	
			Email	WS07	Outgoing	03/02/2026	Resent information package requesting feedback on activity.	
			Email	WS08	Incoming	03/02/2026	Confirmation from direct RP contact of receipt of information.	
			Email	WS09	Incoming	03/02/2026	Confirmaton RP received information package through generic info email.	
			Email	WS10	Outgoing	03/02/2026	Eni Rep acknowledged email from direct contact.	
			Email	WS11	Outgoing	03/02/2026	Eni Rep acknowledged email from generic contact.	
			Email	WS12	Outgoing	16/02/2026	Follow up to consultation email.	
			Email	WS13	Incoming	18/02/2026	RP opposes activities that could result in future fossil fuel expansion, that in turn contributes to climate change. The Wilderness Society also provides the feedback that, should activities proceed, any planned infrastructure installations should be accompanied by plans for their complete removal during decommissioning.	
			Email	WS14	Outgoing	24/02/2026	Eni acknowledged RP objection and request that decommissioning (with full removal) of future infrastructure be included.	
160	World Wildlife Fund (WWF)	1	Email	WWF01	Outgoing	27/01/2026	Outgoing email cover correspondence introducing the activity, providing attached flyer and link to landing page with further information. Invitation to review and provide feedback.	N

Petrel Survey EP Consultation Efforts Log								
	RELEVANT PERSON	Priority	Consultation Type	Sensitive Matters Reference	Out/In	Date	Summary of correspondence	Relevant matter or claim
160	World Wildlife Fund (WWF)	4	Email	WWF02	Incoming	27/01/2026	Auto-response acknowledging email with Reference Number 256322	N
			Email	WWF03	Incoming	28/01/2026	Email advising closure of enquire with online link to WWF online record of the engagement marked as solved.	
	Research							
161	Australian Marine Sciences Association (WA Branch)	4	Email	AMSAWA01	Outgoing	27/01/2026	Outgoing email cover correspondence introducing the activity, providing attached flyer and link to landing page with further information. Invitation to review and provide feedback.	N
			Email	AMSAWA02	Outgoing	10/02/2026	Follow up to consultation invitation.	
			Email	AMSAWA03	Outgoing	16/02/2026	Follow up to consultation invitation.	
			Email	AMSAWA04	Outgonig	24/02/2026	Follow up to consultation invitation.	
162	Commonwealth Scientific and Industrial Research Organisation (CSIRO)	4	Email	CSIRO01	Outgoing	27/01/2026	Outgoing email cover correspondence introducing the activity, providing attached flyer and link to landing page with further information. Invitation to review and provide feedback.	N
			Email	CSIRO02	Outgoing	10/02/2026	Follow up to consultation invitation.	
			Phone	N/A	Outgoing	12/02/2026	RP advised email no longer in use and requested information be sent via online form.	
			Online Form	N/A	Outgoing	12/02/2026	Online form submission with email correspondence and guide to landing page for additional information.	
			Email	CSIRO04	Incoming	12/02/2026	Automatic response acknowledging receipt of email, Reference CAS-116852-F9X0D3 . Notes two to five days for response.	
			Email	CSIRO05	Incoming	12/02/2026	RP confirmed information had been forwarded to the Environmental business partnership team for review.	
163	Charles Darwin University (CDU)	4	Email	CDU01	Outgoing	27/01/2026	Outgoing email cover correspondence introducing the activity, providing attached flyer and link to landing page with further information. Invitation to review and provide feedback.	N
				CDU02	Incoming	27/01/2026	Auto response email acknowledgement with reference number: 260127-000553	
			Email	CDU03	Outgoing	10/02/2026	Follow up to consultation request.	
			Email	CDU04	Incoming	10/02/2026	Automatic response acknowledging receipt with reference number #260210-000597	
			Email	CDU05	Incoming	10/02/2026	Second automatic response reference number #260210-000680	
			Email	CDU06	Incoming	11/02/2026	RP responded with OPT OUT in the subject line to opt out of consultation.	
164	University of Tasmania - Marine Biodiversity Hub (UTAS)	4	Email	UTAS01	Outgoing	27/01/2026	Outgoing email cover correspondence introducing the activity, providing attached flyer and link to landing page with further information. Invitation to review and provide feedback.	N
			Email	UTAS02	Incoming	28/01/2026	RP responded with STOP in the subject line to opt out of consultation.	
			Email	UTAS03	Outgoing	28/01/2026	Opt out acknowledged with thanks.	
165	University of Western Australia (UWA)	4	Email	UWA01	Outgoing	27/01/2026	Outgoing email cover correspondence introducing the activity, providing attached flyer and link to landing page with further information. Invitation to review and provide feedback.	N
			Email	UWA02	Outgoing	10/02/2026	Follow up to consultation invitation.	
			Phone	N/A	Outgoing	12/02/2026	Emails received and forwarded to appropriate responders. RP confirmed a response would only be provided if the internal RP felt it necessary. RP advised no further follow up.	

	eni australia	Company document identification ENI-HSE-PL-0001_01	Owner document identification	Rev. index.		Sheet of sheets 480 / 484
				Validity Status	Rev No.	
				PR-OP	1	

Appendix C4b: Assessment of Merits

Commonwealth Government 25(1)(a)
Australian Fishing Management Authority (AFMA) (Cth)
Commonwealth Government 25(1)(a)
Summary of consultation effort and relevant person responses

Email	AFMA01	Outgoing	27/01/2026	Outgoing email cover correspondence introducing the activity, providing attached flyer and link to landing page with further information. Invitation to review and provide feedback.
Email	AFMA02	Outgoing	03/02/2026	Follow up to consultation request.
Email	AFMA03	Incoming	03/02/2026	RP confirmed fishing activity for assessment, requested additional information and consideration of impacts from noise, provided industry contact information for additional recommended engagement.
Email	AFMA04	Outgoing	03/03/2026	Eni responded to RP queries confirming fishing consultation effort and assessment of impacts.

Relevant person objections, claims or other feedback	Titleholder assessment of the merits	Titleholder statement of response	Details of the measures adopted
1. The Relevant Person confirmed fishing activity for assessment 2. Relevant Person requested additional information and consideration of impacts from noise and seabed disturbance. 3. The Relevant Person provided industry contact information for additional recommended engagement.	1. The matter is relevant. 2. The claim has merit. Risk & Mitigations Summary must include assessment of the impact of noise and seabed disturbance as outlined in the EP. 3. The matter is relevant.	1. No response required. 2. The Titleholder advised the Relevant Person that the modelled sound levels did not reach any established thresholds for physiological damage, behavioural disturbance, or impairment. As none of these marine invertebrate-specific criteria were triggered, underwater noise from the vessel or geophysical equipment is not expected to adversely affect prawn or crustacean populations, including those targeted by the Northern Prawn Fishery. In addition, seabed disturbance associated with geotechnical activities is extremely limited in area and results in only very small, discrete sampling footprints that are negligible relative to the scale of benthic habitats and fishing grounds. When considered together, the low predicted noise exposure and minimal, highly localised seabed disturbance indicate that material impacts to marine invertebrates of commercial interest are not expected. 3. The Titleholder confirmed the list of fishing industry bodies, commercial and recreational entities consulted for this activity EP.	1. No change necessary to the EP. 2. For noise impact, please refer to the EP, Section 7.4. For seabed disturbance, please refer to Section 7.1 in the EP. 3. No change necessary to the EP.

Consultation demonstration statement

Consultation for the proposed ENI Geophysical and Geotechnical Surveys commenced on 27 January 2026 through the distribution of an activity flyer and overview of the proposed activity with links to the activity landing page for further information. This included a live link to the NOPSEMA May 2023 "Consultation on offshore petroleum environment plans; Information for the Community".

The consultation process concluded on 17 March 2026, providing a full 34 business days for review and response.

Consultation effort continued throughout the consultation period using a variety of contact methods including email, phone, text and online contact forms to ensure receipt of the information provided and encourage feedback.

Commonwealth Government 25(1)(a)					
Australian Hydrographic Office				Commonwealth Government 25(1)(a)	
Summary of consultation effort and relevant person responses					
Email	AHO01	Outgoing	27/01/2026	Outgoing email cover correspondence introducing the activity, providing attached flyer and link to landing page with further information. Invitation to review and provide feedback.	
Email	AHO02	Incoming	28/01/2026	Automatic response with Reference Number 70851180	
Email	AHO03	Incoming	29/01/2026	AHO confirmation of no concern regarding activities proposed. Navigational notifications will be required prior to and during activity. Going forward, updates will only be required once the activity is due to begin.	
Email	AHO04	Outgoing	29/01/2026	Email acknowledged with commitment to circulate navigation notification requirement to the project team.	
Relevant person objections, claims or other feedback			Titleholder assessment of the merits	Titleholder statement of response	Details of the measures adopted
Relevant Person requested notification of activity timing as it becomes available.			The claim has merit. The Titleholder has a responsibility to notify the Relevant Person of vessel movements in their area of interest and operation.	The Titleholder confirmed the provision of activity timing to the Relevant Person as it becomes available.	

Consultation demonstration statement
<i>Consultation for the proposed ENI Geophysical and Geotechnical Surveys commenced on 27 January 2026 through the distribution of an activity flyer and overview of the proposed activity with links to the activity landing page for further information. This included a live link to the NOPSEMA May 2023 “Consultation on offshore petroleum environment plans; Information for the Community”.</i>
<i>The consultation process concluded on 17 March 2026, providing a full 34 business days for review and response.</i>
<i>Consultation effort continued throughout the consultation period using a variety of contact methods including email, phone, text and online contact forms to ensure receipt of the information provided and encourage feedback.</i>

Commonwealth Government 25(1)(a)
Department of Agriculture, Fisheries and Forestry (DAFF)
Commonwealth Government 25(1)(a)
Summary of consultation effort and relevant person responses

Email	DAFF01	Outgoing	27/01/2026	Outgoing email cover correspondence introducing the activity, providing attached flyer and link to landing page with further information. Invitation to review and provide feedback.
Email	DAFF02	Incoming	27/01/2026	Out of office for one RP recipient. Request to forward.
Email	DAFF03	Outgoing	28/01/2026	Original activity email forwarded to alternate contact.
Email	DAFF04	Outgoing	03/02/2026	Follow up to consultation request.
Phone	N/A	Outgoing	11/02/2026	Called RP who had not dealt with this type of request. RP very keen to assist however recommended direct engagement with those cc'd in the email.
Phone	N/A	Outgoing	11/02/2026	Called RP who received information directly. Confirmed receipt but no longer handling these queries. Provided updated contact information.
Email	DAFF07	Outgoing	11/02/2026	Email sent to updated contact.
Email	DAFF08	Incoming	11/02/2026	Email confirmation of receipt and provision of generic email for future consultation.
Email	DAFF09	Outgoing	18/02/2026	Follow up email to consultation with conclusion date and encouraging feedback for capture.
Email	DAFF10	Outgoing	24/02/2026	Final email seeking feedback to consultation.
Email	DAFF11	Incoming	24/02/2026	RP confirmed receipt and would respond if there were queries.
Email	DAFF12	Outgoing	24/02/2026	Eni acknowledged email with thanks.
Email	DAFF13	Incoming	24/02/2026	Query from RP on Eni engagement with fishing departments and peak bodies.
Email	DAFF14	Outgoing	24/02/2026	Confirmation of consultation through fishing departments, peak bodies and through registered mail to individuals.
Email	DAFF15	Incoming	24/02/2026	RP queried if AFMA have been consulted.
Email	DAFF16	Outgoing	28/03/2026	Eni rep confirmed AFMA consultation.

Relevant person objections, claims or other feedback	Titleholder assessment of the merits	Titleholder statement of response	Details of the measures adopted
Relevant Person queried if the fishing departments, peak bodies and AFMA had been consulted.	The matter is relevant.	The Titleholder confirmed the consultation process included Commonwealth, Territory and State fishing departments and peak fishing bodies along with individual licencees.	1. No change implemented in the EP.

Consultation demonstration statement

Consultation for the proposed ENI Geophysical and Geotechnical Surveys commenced on 27 January 2026 through the distribution of an activity flyer and overview of the proposed activity with links to the activity landing page for further information. This included a live link to the NOPSEMA May 2023 "Consultation on offshore petroleum environment plans; Information for the Community".

The consultation process concluded on 17 March 2026, providing a full 34 business days for review and response.

Consultation effort continued throughout the consultation period using a variety of contact methods including email, phone, text and online contact forms to ensure receipt of the information provided and encourage feedback.

Commonwealth Government 25(1)(a)

Dept. Climate Change, Energy, the Environment and Water (DCCEEW) (Cth)
General Department

Commonwealth Government 25(1)(a)

Summary of consultation effort and relevant person responses

Email	DCCEEW01	Outgoing	27/01/2026	Outgoing email cover correspondence introducing the activity, providing attached flyer and link to landing page with further information. Invitation to review and provide feedback.
Email	DCCEEW02	Incoming	02/02/2026	Email with template attachments for pre-referral meeting request for activity.
Email	DCCEEW03	Outgoing	05/02/2026	Confirmed activity is a petroleum activity that will be submitted to the regulator under the OPGGS (Environment) Regulations for the survey activities and the streamlining provisions of the EPBC Act, Part 10, which authorises NOPSEMA to administer the EPBC Act as the sole regulator. Invited to provide any other feedback.
Email	DCCEEW04	Incoming	13/02/2026	RP acknowledged advice and confirmed no other input. Notified Eni of other RP's for consideration including Underwater Cultural Heritage and Sea Dumping.
Email	DCCEEW05	Outgoing	24/02/2026	Input and guidance acknowledged with thanks.

Relevant person objections, claims or other feedback	Titleholder assessment of the merits	Titleholder statement of response	Details of the measures adopted
1. Relevant Person provided templates for submission to request a pre-referral meeting regarding the activity. The focus of this pre-referral meeting should be on how the proposed action will impact matters of national environmental significance under the Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act) 2. Relevant Person recommended consultation be undertaken with the Underwater Heritage department within the DCCEEW.	1.The claim does not have merit. The EP assessment does not fall under the jurisdiction of the Relevant Person. 2. The claim has merit. Consultation with the identified entity may inform the EP of the presence of existing underwater heritage.	1. Titleholder advised the Relevant Person the survey is classified as a petroleum activity. Accordingly, the Titleholder will submit an EP under the OPGGS (Environment) Regulations for the survey activities. The activity will be assessed by NOPSEMA under the streamlining provisions of the EPBC Act, Part 10, which NOPSEMA to administer the EPBC Act as the sole regulator. 2. Titleholder confirmed consultation would be immediately undertaken with the Underwater Heritage department within DCCEEW.	

Consultation demonstration statement

Consultation for the proposed ENI Geophysical and Geotechnical Surveys commenced on 27 January 2026 through the distribution of an activity flyer and overview of the proposed activity with links to the activity landing page for further information. This included a live link to the NOPSEMA May 2023 "Consultation on offshore petroleum environment plans; Information for the Community".

The consultation process concluded on 17 March 2026, providing a full 34 business days for review and response.

Consultation effort continued throughout the consultation period using a variety of contact methods including email, phone, text and online contact forms to ensure receipt of the information provided and encourage feedback.

Commonwealth Government 25(1)(a)

Dept. Climate Change, Energy, the Environment and Water (DCCEEW) (Cth)
Underwater Heritage

Commonwealth Government 25(1)(a)

Summary of consultation effort and relevant person responses

Email	DCCEEWUH01	Outgoing	24/02/2026	Forward original consultation email, flyer and DCCEEW general response to Underwater heritage for review and input.
Email	DCCEEWUH02	Incoming	24/02/2026	Automatic response acknowledging receipt of email and response forthcoming.
Email	DCCEEWUH03	Outgoing	03/03/2026	Follow up to consultation request.
Email	DCCEEWUH04	Incoming	06/03/2026	RP response noted the reporting timing (21 days) for the discovery of potential underwater cultural heritage and recommended the engagement of an underwater marine archaeologist.
Email	DCCEEWUH05	Outgoing	13/03/2026	Eni noted recommendation to engaged and underwater marine archaeologist and takes this recommendation under advisement. Eni confirmed the reporting requirements and timing for the discovery of suspected underwater cultural heritage.

Relevant person objections, claims or other feedback	Titleholder assessment of the merits	Titleholder statement of response	Details of the measures adopted
1. Relevant Person confirmed the reporting obligation and timing for the discovery of potential underwater cultural heritage to the proponent. 2. Relevant Person recommended the engagement of an underwater archaeologist.	1. The matter is relevant. The Relevant Person has an interest and legislative requirement for the reporting of suspected underwater heritage discoveries during the activity. 2. The claim has merit. The Titleholder will consider the recommendation to engage a qualified underwater archaeologist.	1. The Titleholder confirmed awareness of the 21 day reporting obligation for the discovery of suspected underwater cultural heritage (UCH) in accordance with Section 40 of the Underwater Cultural Heritage Act 2018 (UCH Act). 2. The Titleholder advised the Relevant Person that the recommendation to engage a qualified underwater archaeologist has been taken under advisement. Titleholder acknowledged anomalies on the seabed floor may arise during the survey that could trigger the requirement for further investigation.	

Consultation demonstration statement

Consultation for the proposed ENI Geophysical and Geotechnical Surveys commenced on 27 January 2026 through the distribution of an activity flyer and overview of the proposed activity with links to the activity landing page for further information. This included a live link to the NOPSEMA May 2023 "Consultation on offshore petroleum environment plans; Information for the Community".

The consultation process concluded on 17 March 2026, providing a full 34 business days for review and response.

Consultation effort continued throughout the consultation period using a variety of contact methods including email, phone, text and online contact forms to ensure receipt of the information provided and encourage feedback.

Commonwealth Government 25(1)(a)
Department of Defence (DoD) (Cth)
Commonwealth Government 25(1)(a)
Summary of consultation effort and relevant person responses

Email	DOD01	Outgoing	27/01/2026	Outgoing email cover correspondence introducing the activity, providing attached flyer and link to landing page with further information. Invitation to review and provide feedback.
Email	DOD02	Incoming	03/02/2026	Email requesting shape files, information on future intent of the area and opportunity to meet online to discuss.
Email	DOD03	Outgoing	03/02/2026	Confirmation seeking shape files to send and Eni rep will confirm a meeting on return from consultation travel.
Email	DOD04	Outgoing	04/02/2026	Shape files sent to RP.
Email	DOD05	Outgoing	06/02/2026	Follow up to email to arrange an online meeting with RP.
Email	DOD06	Incoming	06/02/2026	RP confirm meeting for 9 February.
Meeting	DOD07	In Person	09/02/2026	Meeting Notes
Email	DOD08	Outgoing	10/02/2026	Summary email following meeting confirming RP notified Eni of the potential for unexploded ordnance in the area, responses to development phase queries and agreement for inclusion in future consultation as DoD contacts.
Email	DOD09	Outgoing	24/02/2026	Final follow up with responses to queries raised in meeting regarding unexploded ordnances, air traffic and charting of future infrastructure.

Relevant person objections, claims or other feedback	Titleholder assessment of the merits	Titleholder statement of response	Details of the measures adopted
1. Relevant Person identified recommendation for survey for Unexploded Ordinance (UXO) process to be addressed in ENVID. 2. Relevant Person requested the shapefiles for the activity.	1. The claim has merit. The survey may identify UXO's during the activity and the Relevant Person would need to be informed. 2. The matter is relevant. The Relevant Person has planned and unplanned activities that may occur in the area of the proposed survey activity .	1. The Titleholder acknowledged the Relevant Persons advice of the high likelihood of historical unexploded ordnance (UXO) in the Petrel survey area. The Titleholder confirmed the survey vessel will include a magnetometer at the rear which may identify metal anomalies on the seafloor for assessment. In the event of a metal anomaly being identified as a potential UXO, the Titleholder will advise the Relevant Person accordingly. 2. The Titleholder provided the requested shapefiles.	1. EP Reference 2. No change implemented to the EP.

Consultation demonstration statement

Consultation for the proposed ENI Geophysical and Geotechnical Surveys commenced on 27 January 2026 through the distribution of an activity flyer and overview of the proposed activity with links to the activity landing page for further information. This included a live link to the NOPSEMA May 2023 "Consultation on offshore petroleum environment plans; Information for the Community".

The consultation process concluded on 17 March 2026, providing a full 34 business days for review and response.

Consultation effort continued throughout the consultation period using a variety of contact methods including email, phone, text and online contact forms to ensure receipt of the information provided and encourage feedback.

Commonwealth Government 25(1)(a)
Director of National Parks
Commonwealth Government 25(1)(a)
Summary of consultation effort and relevant person responses

Email	DNP01	Outgoing	27/01/2026	Outgoing email cover correspondence introducing the activity, providing attached flyer and link to landing page with further information. Invitation to review and provide feedback.
Email	DNP02	Outgoing	03/02/2026	Follow up to consultation request.
Phone	N/A	Outgoing	11/02/2026	Previous phone number no longer active.
Phone	N/A	Outgoing	11/02/2026	Called main DCCEEW number. Confirmed email addresses used. Requested forwarding to generic email for forwarding back to the depts and advising of follow-up.
Email	DNP03	Outgoing	11/02/2026	Information forwarded as requested.
Email	DNP04	Incoming	11/02/2026	Acknowledgement of email by DCCEEW whom RP forwarded the email to.
Email	DNP05	Outgoing	11/02/2026	Confirmed with DCCEEW we have already engaged separately, inquiry for feedback from National Parks.
Email	DNP06	Incoming	12/02/2026	DCCEEW confirmed consultation material had been forwarded to the relevant area in the department for follow up.
Email	DNP07	Outgoing	18/02/2026	Follow up email to consultation with conclusion date and encouraging feedback for capture.
Email	DNP08	Incoming	18/02/2026	RP response with guideline to consultation and checklist of information. RP requires an eight week minimum turn around for consultation.
Email	DNP09	Outgoing	24/02/2026	Confirmation to RP of alignment of EP with Management Plan, management of impacts and risks on AMPs. Information required is available in the activity flyer. Eni Surveys consultation period exceeds industry practice of 30 days.
Email	DNP10	Incoming	04/03/2026	RP response requesting mapped AMPs with EMBA and OA. Requested specifics of surveys to be undertaken including any amendments to the summary of potential environmental impacts and management risks.
Email	DNP11	Outgoing	05/03/2026	Mapped AMPs with distances to OA and EMBA overlay provided with confirmation of EP inclusion of required content relevant to Australian Marine Parks. Invitation to call to discuss or refer to the landing page for additional information. Package for consultation provided is the same for all relevant persons and/or organisations.
Email	DNP12	Incoming	25/03/2026	RP confirmed no overlap of activities with AMPs. No further updates required unless the activity changes. RP confirmed process for emergency response notifications.

Relevant person objections, claims or other feedback	Titleholder assessment of the merits	Titleholder statement of response	Details of the measures adopted
1. Relevant person provided consultation guidelines. 2. Relevant Person recommended engagement of a qualified underwater archaeologist to help manage the project risk to protected underwater heritage places. The consultant will help inform the geophysical and geotechnical survey parameters to ensure suitable data is collected and will review the collected data to inform risk management. 3. Relevant Person requested mapped Australian Marine Parks (AMPs) overlay on Operational Area and EMBA. 4. Relevant Person requested specifics on the activities without detailing the items required.	1. The matter is relevant. The Titleholder considered the consultation guideline provided by the Relevant Person. 2. The claim has merit. The Titleholder will consider the recommendation to engage a qualified underwater archaeologist. 3. The matter is relevant. The Titleholder provided the Relevant Person with a map of the Australian Marine Parks that may intersect with the Operational Area and EMBA. 4. The matter is not relevant. The Titleholder clarified the information provided.	1. The Titleholder confirmed receipt of the consultation guidelines for consideration. 2. The Titleholder confirmed the recommendation for engagement of an underwater archaeologist is taken under advisement. 3. The Titleholder provided a map of the proposed surveys operational area and EMBA overlaid with a layer identifying AMPs in the region. 4. The Titleholder confirmed all required activity information was supplied in accordance with the Relevant Person's guidelines for consultation.	1. No change to the EP. 2. Elaine 3. Elaine - reference to map with AMPs 4. No change to the EP.

Consultation demonstration statement

Consultation for the proposed ENI Geophysical and Geotechnical Surveys commenced on 27 January 2026 through the distribution of an activity flyer and overview of the proposed activity with links to the activity landing page for further information. This included a live link to the NOPSEMA May 2023 "Consultation on offshore petroleum environment plans; Information for the Community".

The consultation process concluded on 17 March 2026, providing a full 34 business days for review and response.

Consultation effort continued throughout the consultation period using a variety of contact methods including email, phone, text and online contact forms to ensure receipt of the information provided and encourage feedback.

Northern Territory Government 25(1)(a)

Dept. Agriculture and Fisheries NT

Northern Territory Government 25(1)(a)

Summary of consultation effort and relevant person responses

Email	DAFNT01	Outgoing	16/01/2026	Email providing lead time for upcoming roadshow and opportunities to meet face to face to discuss survey activities.
Email	DAFNT02	Incoming	22/01/2026	Response from RP Aquatic Resource Mgr acknowledging email.
Email	DAFNT03	Outgoing	23/01/2026	Notification of confirmed dates and meeting times available for face to face meeting.
Email	DAFNT04	Outgoing	27/01/2026	Outgoing email cover correspondence introducing the activity, providing attached flyer and link to landing page with further information. Invitation to review and provide feedback.
Email	DAFNT05	Outgoing	29/01/2026	Follow up to meeting availability with available dates and times.
Email	DAFNT06	Incoming	29/01/2026	Date confirmation for in person meeting, 3 Feb.
Email	DAFNT07	Outgoing	29/01/2026	In person meeting confirmed - calendar invite to be sent.
Meeting	DAFNT08	In Person	03/02/2026	See file note.
Email	DAFNT09	Outgoing	13/02/2026	Email update following meeting confirming no 3D seismic required for the field, acknowledged the suggestion for a specific description of the difference between 3D seismic and the geophysical survey and potential for inclusion in the activity Q&A. RP provided an updated licensee database, requested a copy of the environmental results, benthic data and other raw data collected for baseline survey, the observation of whale sharks travelling through the region by Thamarrurr Rangers, confirmation of Eni providing call sign, vessel name and coordinate upon commencement of activity.
Email	DAFNT10	Outgoing	16/03/2026	Email containing explanation of the survey activity and how it differs from seismic.
Email	DAFNT11	Incoming	17/03/2026	Email acknowledged by RP.

Relevant person objections, claims or other feedback	Titleholder assessment of the merits	Titleholder statement of response	Details of the measures adopted
1. Relevant Person requested a specific description of difference between 3D seismic and the geophysical survey and inclusion in the activity flyer and online Q&A. 2. Relevant Person requested a copy of the environmental results, benthic data and other raw data collected for baseline survey. 3. Relevant Person requested confirmation of Eni providing call sign, vessel name and coordinate upon commencement of activity. 4. Relevant Person confirmed whale shark sightings in the region by Thamarrurr Rangers.	1. The matter is relevant. The Relevant Person has interests in ensuring the fishing industry's understands the impacts to their industry and are provided a clear explanation of the differences between the proposed surveys and seismic acquisition. 2. The matter is relevant. The Relevant Person is seeking to expand it repository of information in the area of activity. 3. The claim has merit. The Relevant Person has direct communication with other marine users in the region of activity. 4. The claim has merit. The Relevant Person has an interest in the protection of migrating species in the region of activity.	1. The Titleholder provided a clear explanation of the difference between the proposed survey activities and seismic acquisition. The Titleholder confirmed the addition of this information to the FAQ's provided on the activity landing page. 2. The Titleholder acknowledged the request for survey results and data and would seek internal permissions to share the information with the Relevant Person. 3. The Titleholder acknowledged the whale sighting by Thamarrurr Rangers and confirmed this information would be reflected and considered in the EP. 4. The Titleholder confirmed the provision of call sign, vessel name and coordinates upon commencement of the activity.	1. No change implemented to the EP. 2. No change implemented to the EP. 3. EP Reference. 4. EP Reference

Consultation demonstration statement

Consultation for the proposed ENI Geophysical and Geotechnical Surveys commenced on 27 January 2026 through the distribution of an activity flyer and overview of the proposed activity with links to the activity landing page for further information. This included a live link to the NOPSEMA May 2023 "Consultation on offshore petroleum environment plans; Information for the Community".

The consultation process concluded on 17 March 2026, providing a full 34 business days for review and response.

Consultation effort continued throughout the consultation period using a variety of contact methods including email, phone, text and online contact forms to ensure receipt of the information provided and encourage feedback.

Northern Territory Government 25(1)(a)**Dept Territory Families, Housing and Communities - Heritage Branch****Northern Territory Government 25(1)(a)****Summary of consultation effort and relevant person responses**

Email	NTHB01	Outgoing	27/01/2026	Outgoing email cover correspondence introducing the activity, providing attached flyer and link to landing page with further information. Invitation to review and provide feedback.
Email	NTHB02	Outgoing	03/02/2026	Follow up on consultation information and response.
Email	NTHB03	Incoming	05/02/2026	RP provided information on potential wrecks in the area for inclusion in EP. Recommendation for archaeological specialist for recording heritage locations discovered during exercise.
Email	NTHB04	Outgoing	24/02/2026	Eni confirmed knowledge and proximity of wrecks identified, advising of exclusion zone around Sedco Helen. Recommendations taken on advisement with thanks.
Email	NTHB05	Incoming	24/02/2026	Auto receipt email.

Relevant person objections, claims or other feedback	Titleholder assessment of the merits	Titleholder statement of response	Details of the measures adopted
1. The Relevant Person advised the Titleholder of known wrecks in the region for inclusion in the EP. 2. Requested consideration of engagement of qualified underwater archaeologist for surveys.	1. The claim has merit. The Relevant person has an interest in the protection of historical wrecks within the Operational Area. 2. The claim has merit. The Titleholder will consider the recommendation to engage a qualified underwater archaeologist.	1. The Titleholder mapped and assessed the identified shipwrecks and advised Relevant Person of the continuance of an existing exclusion zone around one wreck within the Operational Area and noted the second wreck is well outside of the Operational Area and not impacted. 2. The recommendation for the engagement of an underwater archaeologist is taken under advisement.	1. Elaine - reference to wrecks and exclusion zones 2. No change implemented to the EP.

Consultation demonstration statement

Consultation for the proposed ENI Geophysical and Geotechnical Surveys commenced on 27 January 2026 through the distribution of an activity flyer and overview of the proposed activity with links to the activity landing page for further information. This included a live link to the NOPSEMA May 2023 "Consultation on offshore petroleum environment plans; Information for the Community".

The consultation process concluded on 17 March 2026, providing a full 34 business days for review and response.

Consultation effort continued throughout the consultation period using a variety of contact methods including email, phone, text and online contact forms to ensure receipt of the information provided and encourage feedback.

West Australian Government 25(1)(a)
DBCA Kununurra
West Australian Government 25(1)(a)
Summary of consultation effort and relevant person responses

Email	DBCAKNX01	Outgoing	27/01/2026	Outgoing email cover correspondence introducing the activity, providing attached flyer and link to landing page with further information. Invitation to review and provide feedback.
Email	DBCAKNX02	Outgoing	03/02/2026	Follow up to consultation request.
Email	DBCAKNX03	Incoming	04/02/2026	RP Marine Park Coord requested information on Eni support of DBCA and joint management partners operationally and to equip for response activities in the event of a spill.
Email	DBCAKNX04	Outgoing	04/02/2026	Invitation for in person meeting and proposed timing of travel.
Email	DBCAKNX05	Incoming	04/02/2026	RP acknowledged invitation and advised inability to meet, provided invitation to alternative representatives for engagement.
Email	DBCAKNX06	Outgoing	09/02/2026	Invitation to alternate representative for face to face meetings with dates and times available.
Text	DBCAKNXTXT01	Outgoing	10/02/2026	Text to RP regarding meeting opportunity.
Phone	DBCAKNXTXT01	Outgoing	11/02/2026	Call to RP. Left voicemail.
Phone	DBCAKNXTXT01	Incoming	12/02/2026	Call with RP confirming receipt of updates about progress of rangers in Kalumburu. Confirming a Kwini Rangers representative can attend the meeting.
Email	DBCAKNX07	Incoming	12/02/2026	Confirmation of availability on 18 February.
Email	DBCAKNX08	Incoming	12/02/2026	Updated meeting timing from RP.
Email	DBCAKNX09	Incoming	12/02/2026	RP confirmed time change.
Email	DBCAKNX10	Outgoing	12/02/2026	Update provided to RP of travel team availability.
Phone	DBCAKNXTXT01	Incoming	13/02/2026	RP confirmed timing and attendees for meeting.
Email	DBCAKNX11	Incoming	13/02/2026	Confirmation of time and date for in person meeting.
Email	DBCAKNX12	Outgoing	13/02/2026	Eni Rep confirmed meeting and will send calendar invite.
Email	DBCAKNX13	Incoming	13/02/2026	RP acknowledged email with thanks.
Email	DBCAKNX14	Outgoing	13/02/2026	Eni responded to email dated 4 February advising request for information on operation support would be a discussion point in the face to face meeting next week.
Email	DBCAKNX15	Incoming	13/02/2026	Out of office notification for one RP recipient.
Phone	DBCAKNXTXT01	Outgoing	16/02/2026	Confirmation of meeting and that Titleholder is engaging with the appropriate DBCA officers.
Meeting	DBCAKNX16	In Person	19/02/2026	Refer to meeting notes
Email	DBCAKNX17	Outgoing	06/01/1900	Follow up to meeting noting request to continue engagement with DBCA to assist with progression of consultation with the Joint Management Board for the WA North Kimberley Marine Park.

Relevant person objections, claims or other feedback	Titleholder assessment of the merits	Titleholder statement of response	Details of the measures adopted
1. The Relevant Person the consideration of training and equipment to assist with response management in the event of a spill.	1. The matter is relevant. The Relevant Person has an interest in the responsibilities of preparedness for potential impacts to the WA coastline	1. The Titleholder noted the Relevant Person's interest in possible opportunities for oil spill response training.	1. No change implemented to the EP.

Consultation demonstration statement

Consultation for the proposed ENI Geophysical and Geotechnical Surveys commenced on 27 January 2026 through the distribution of an activity flyer and overview of the proposed activity with links to the activity landing page for further information. This included a live link to the NOPSEMA May 2023 "Consultation on offshore petroleum environment plans; Information for the Community".

The consultation process concluded on 17 March 2026, providing a full 34 business days for review and response.

Consultation effort continued throughout the consultation period using a variety of contact methods including email, phone, text and online contact forms to ensure receipt of the information provided and encourage feedback.

West Australian Government 25(1)(a)
Department of Biodiversity, Conservation and Attractions (DBCA) (WA)
West Australian Government 25(1)(a)
Summary of consultation effort and relevant person responses

Email	DBCAWA01	Outgoing	27/01/2026	Outgoing email cover correspondence introducing the activity, providing attached flyer and link to landing page with further information. Invitation to review and provide feedback.
Email	DBCAWA02	Incoming	27/01/2026	Auto response that email has been received.
Email	DBCAWA03	Outgoing	03/02/2026	Follow up to consultation request.
Email	DBCAWA04	Incoming	03/02/2026	Auto response that email has been received.
Phone	N/A	Outgoing	11/02/2026	Transferred to EMBA Admin dept. Left voicemail with phone number and reason for call.
Email	DBCAWA05	Outgoing	14/02/2026	Additional follow up to add original email for consultation.
Email	DBCAWA06	Incoming	14/02/2026	Auto response that email has been received.
Email	DBCAWA07	Outgoing	24/02/2026	Follow-up to consultation request.
Email	DBCAWA08	Incoming	24/02/2026	Auto response that email has been received.
Email	DBCAWA09	Outgoing	03/03/2026	Follow up to consultation request with reminder of timing.
Email	DBCAWA10	Incoming	03/03/2026	Auto response that email has been received.
Email	DBCAWA11	Incoming	10/03/2026	RP responded reiterating previous advice to Eni regarding petroleum production activities in proximity to important areas. RP noted the proximity of the North Kimberley Marine Park and biological important areas for conservation significant species which are located within the area of the environment that may be affected by the proposed activities (as identified through Eni's modelling). RP highlighted the opportunity to share survey results with relevant Commonwealth, Territory and State organisations given the remoteness of the location and lack of data. RP noted the requirements for access to reserves is managed under the CALM Act.
Email	DBCAWA12	Outgoing	16/03/2026	Eni acknowledged the RP input with thanks.

Relevant person objections, claims or other feedback	Titleholder assessment of the merits	Titleholder statement of response	Details of the measures adopted
1. The Relevant Person reiterated previous advice to the titleholder's OPP regarding potential impact on the North Kimberley Marine Park (reserve no. M20) and biologically important areas for Chelonia mydas (green turtle; ranked vulnerable), Natator depressus (flatback turtle; ranked vulnerable), Caretta caretta (loggerhead turtle; ranked endangered), Lepidochelys olivacea (olive ridley turtle; ranked endangered) and the Priority 4 Orcaella heinsohni (snubfin dolphin; listed migratory). Given the importance of areas potentially affected by a hydrocarbon release from the proposed activities, it is considered essential that the baseline values and state of the potentially affected environment are appropriately understood and documented prior to any operations commencing that have the potential to lead to hydrocarbon releases. 2. The Relevant Person noted the remoteness of the areas to be surveyed and the opportunity to provide relevant information to State, Northern Territory, and Commonwealth agencies, such as underwater video, photographs, or bathymetry, would further enhance an understanding of the area's biology and ecology. 3. The Relevant Person manages access to reserves under the CALM Act and early consultation with DBCA is recommended where activities have the potential to disturb or remove threatened fauna and require additional approvals under this legislation.	1. The claim has merit. The Relevant Person has an interest in the protection and preservation of biologically important areas in the region of the activity operational area and EMBA. 2. The matter is relevant. The Relevant Person is seeking to expand the repository of information held by State, Territory and Commonwealth for area of activity. 3. The claim has merit. For consideration by the Titleholder.	1. The Titleholder noted the information provided for consideration in the development of the EP. 2. The Titleholder noted the information provided for consideration in the development of the EP. 3. The Titleholder noted the information provided for consideration in the development of the EP.	1. No change implemented to the EP. 2. No change implemented to the EP. 3. No change implemented to the EP.

Consultation demonstration statement

Consultation for the proposed ENI Geophysical and Geotechnical Surveys commenced on 27 January 2026 through the distribution of an activity flyer and overview of the proposed activity with links to the activity landing page for further information. This included a live link to the NOPSEMA May 2023 "Consultation on offshore petroleum environment plans; Information for the Community".

The consultation process concluded on 17 March 2026, providing a full 34 business days for review and response.

Consultation effort continued throughout the consultation period using a variety of contact methods including email, phone, text and online contact forms to ensure receipt of the information provided and encourage feedback.

West Australian Government 25(1)(a)

Dept. Primary Industries and Regional Development (DPIRD) (WA)
Perth Head Office

West Australian Government 25(1)(a)

Summary of consultation effort and relevant person responses

Email	DPIRD01	Outgoing	27/01/2026	Outgoing email cover correspondence introducing the activity, providing attached flyer and link to landing page with further information. Invitation to review and provide feedback.
Email	DPIRD02	Incoming	27/01/2026	Response from RP of transition and updated contact information. Original email copied to new contact.
Email	DPIRD03	Outgoing	05/02/2026	Follow up to consultation request with new contact.
Phone	N/A	Outgoing	11/02/2026	No response, left voicemail with contact and reason for call.
Email	DPIRD04	Outgoing	18/02/2026	Follow up email to consultation request, defined timeline and encouraging feedback to ensure capture.
Email	DPIRD05	Incoming	18/02/2026	Addressee on leave till 25 February. Suggested forward email for urgent queries already included in original email.
Email	DPIRD06	Outgoing	24/02/2026	Follow up to consultation request.
Email	DPIRD07 & 07A	Incoming	10/03/2026	RP restated the advice provided during the OPP consultation on fishing industry engagement and the inclusion of the stock assessment for Kimberley Demersal species (2025) identifying Red Emperor stocks as being depleted and high risk.
Email	DPIRD08	Outgoing	12/03/2026	Email response acknowledging previous advice and updated information on Kimberley Demersal species for consideration.

Relevant person objections, claims or other feedback	Titleholder assessment of the merits	Titleholder statement of response	Details of the measures adopted
1. Relevant Person provided a copy of previous OPP advice as an attachment. 2. Relevant Person provided information on the Kimberley Demersal stock assessment (2025) for consideration within the EP.	1. The claim has merit The Relevant Person has an interest in the management and protection of fishing stocks in the region. 2. The claim has merit. The Relevant Person has an interest in the management and protection of fishing stocks in the region.	1. The Titleholder acknowledged the receipt of the previous advice and the request for consideration within the EP. 2. Titleholder confirmed the Kimberley Demersal Stock Assessment (2025) would be considered within the EP.	

Consultation demonstration statement

Consultation for the proposed ENI Geophysical and Geotechnical Surveys commenced on 27 January 2026 through the distribution of an activity flyer and overview of the proposed activity with links to the activity landing page for further information. This included a live link to the NOPSEMA May 2023 "Consultation on offshore petroleum environment plans; Information for the Community".

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Consultation effort continued throughout the consultation period using a variety of contact methods including email, phone, text and online contact forms to ensure receipt of the information provided and encourage feedback.

West Australian Government 25(1)(a)

WA Museum	West Australian Government 25(1)(a)
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Summary of consultation effort and relevant person responses

Email	WAM01	Outgoing	27/01/2026	Outgoing email cover correspondence introducing the activity, providing attached flyer and link to landing page with further information. Invitation to review and provide feedback.
Email	WAM02	Incoming	27/01/2026	Auto response - email received.
Email	WAM03	Outgoing	05/02/2026	Follow up to consultation request.
Phone	N/A	Outgoing	16/02/2026	Follow up to consultation request by phone. Provided internal email to follow up on request.
Email	WAM04	Outgoing	16/02/2026	Follow up request sent to RP CEO admin as directed.
Email	WAM05&05A	Incoming	19/02/2026	RP email with attached correspondence recommendations for consideration in the EP including other relevant organisations, recommendation to engage a maritime archaeologist and Traditional Owner consultation where appropriate.
Email	WAM06	Outgoing	24/02/2026	Eni acknowledge recommendations with thanks.

Relevant person objections, claims or other feedback	Titleholder assessment of the merits	Titleholder statement of response	Details of the measures adopted
1. Relevant Person referred the Titleholder to Commonwealth Government's Guidelines for Assessing and Managing Impacts to Underwater Cultural Heritage (UCH) in Australian Waters. 2. The Relevant Organisation recommended consulting with DCCEEW Underwater Heritage. 3. Relevant Person recommended the engagement of an underwater archaeologist. 4. The Relevant Person recommended engagement with Traditional Owners as appropriate should Underwater Cultural Heritage be identified. 5. The Relevant Person provided the guidelines to consultation with Aboriginal Cultural Heritage services from the Department of Planning, Lands and Heritage at: https://www.wa.gov.au/government/document-collections/aboriginal-cultural-heritageguidelines and from the Department of Climate Change, Energy, the Environment and Water https://www.dcceew.gov.au/environment/epbc/publications/engage-early	1. The matter is relevant. The Titleholder will consider the consultation guideline provided by the Relevant Person. 2. The claim has merit. The Titleholder will consult with the Underwater Heritage department within the DCCEEW. 3. The claim has merit. The Titleholder will consider the recommendation to engage a qualified underwater archaeologist. 4. The claim has merit. The Titleholder will engage with Traditional Owners. 5. The matter is relevant. The Titleholder will consider the consultation guideline provided by the Relevant Person.	The Titleholder confirmed receipt of the recommendations by the Relevant Person and consideration within the development of the EP.	

Consultation demonstration statement

Consultation for the proposed ENI Geophysical and Geotechnical Surveys commenced on 27 January 2026 through the distribution of an activity flyer and overview of the proposed activity with links to the activity landing page for further information. This included a live link to the NOPSEMA May 2023 "Consultation on offshore petroleum environment plans; Information for the Community".

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Consultation effort continued throughout the consultation period using a variety of contact methods including email, phone, text and online contact forms to ensure receipt of the information provided and encourage feedback.

National Fisheries 25(1)(d)				
Northern Prawn Fishing Industry				National Fisheries 25(1)(d)
Summary of consultation effort and relevant person responses				
Email	NPFI01	Outgoing	27/01/2026	Outgoing email cover correspondence introducing the activity, providing attached flyer and link to landing page with further information. Invitation to review and provide feedback.
Email	NPFI02	Outgoing	03/02/2026	Follow up to consultation request.
Email	NPFI03	Incoming	03/02/2026	Request for shape files to assess and advice of updated contact.
Email	NPFI04	Outgoing	03/02/2026	Confirmation of shape files compilation for distribution as soon as possible.
Email	NPFI05	Outgoing	04/02/2026	Shapefiles sent to RP.
Email	NPFI06	Outgoing	16/02/2026	Follow up to provision of shape files for EP input.
Email	NPFI07	Incoming	16/02/2026	RP does not support exploration being undertaken in any areas that may disrupt fishing operations during that time.
Email	NPFI08	Outgoing	24/02/2026	Confirmation to RP of activity consisting of a single vessel for a short period of time, no more than 40 days.
Email	NPFI09	Incoming	24/02/2026	RP follow up with refined dates for preferred activity implementation.
Phone	N/A	Outgoing	27/02/2026	Phone call to RP CEO to offer online meeting with Eni to provide more direct information.
Email	NPFI10	Outgoing	03/03/2026	Follow up email to phone message offering online meeting.
Phone	N/A	Outgoing	12/03/2026	Phone call to RP CEO to follow up on offer to meet online.
Relevant person objections, claims or other feedback		Titleholder assessment of the merits		Titleholder statement of response
1. Relevant Person's members operate trawlers between 1 August and 20 November each year. Relevant Person does not support any exploration being undertaken in any areas that may disrupt fishing operations during that time. Relevant Person amended the preferred timing for the activity to after 15 October. 2. Relevant Person reserved the right to seek compensation from ENI on behalf of the NPF Statutory Fishing Rights holders should there be any disruption to, or displacement of, NPF commercial fishing activities, and/ or loss of fishery productivity, and/or threat to the NPF's Marine Stewardship Council certification from the proposed geophysical and geotechnical surveys activities.		1. The objection is noted, however the activity involves one vessel and risk is minimal in the context of all marine activity in the region. 2. The matter is not relevant. Any claims of compensation fall outside the parameters of the EP.		1. The Titleholder confirmed the survey activities would be undertaken from a single vessel for a very short period, anticipated to be no more than 40 days. A face to face meeting was offered to the Relevant Person to provide further insight, this opportunity was not taken up by the Relevant Person. 2. The Titleholder offered an opportunity to meet.
				1. No change implemented to the EP. 2. No change implemented to the EP.

Consultation demonstration statement
<i>Consultation for the proposed ENI Geophysical and Geotechnical Surveys commenced on 27 January 2026 through the distribution of an activity flyer and overview of the proposed activity with links to the activity landing page for further information. This included a live link to the NOPSEMA May 2023 "Consultation on offshore petroleum environment plans; Information for the Community".</i> <i>The consultation process concluded on 17 March 2026, providing a full 34 business days for review and response.</i> <i>Consultation effort continued throughout the consultation period using a variety of contact methods including email, phone, text and online contact forms to ensure receipt of the information provided and encourage feedback.</i>

National Fisheries 25(1)(d)

Tuna Australia

National Fisheries 25(1)(d)

Summary of consultation effort and relevant person responses

Email	TA01	Outgoing	27/01/2026	Outgoing email cover correspondence introducing the activity, providing attached flyer and link to landing page with further information. Invitation to review and provide feedback.
Email	TA02	Outgoing	27/01/2026	Follow on from previous email to confirm ongoing assessment as RP and confirmation that a consulting Services Agreement would not be required.
Email	TA03	Incoming	27/01/2026	RP advice of update to personnel with contact information. RP have reconsidered position and do not believe operations pose a significant impact to the fishery, notwithstanding future developments may, should accidents occur. Noted area to the west in northwest Australia is very important to the tuna fishing community.
Email	TA04	Outgoing	28/01/2026	Noting comment "notwithstanding future developments may should accidents occur", confirmed future EP's for consultation in 2026, all based in Joseph Bonaparte Gulf. Option for retention of TA as an RP or removal at RP request.
Email	TA05	Incoming	28/01/2026	RP advised complexity of Western Tuna and Billfish fishery across domestic and international jurisdiction with shared stocks. Request for understanding of the planning by Eni in regards to the policies and processes in place in this regard.
Email	TA06	Outgoing	16/03/2026	Eni acknowledged the entities raised and confirmed internal assessment for relevance to the surveys EP for inclusion.
Email	TA07	Incoming	16/03/2026	RP acknowledged email and advised Eni of the increased activity in the WTBF due to the WA govt demersal ban.
Email	TA08	Outgoing	17/03/2026	Eni thanked RP for the information provided and confirmed consideration with the development of the EP.

Relevant person objections, claims or other feedback	Titleholder assessment of the merits	Titleholder statement of response	Details of the measures adopted
1. Relevant Person confirmed that after Titleholder had reviewed all historical Tuna catch data in the region of the activity, that a Consulting Services Agreement is not required. 2. Relevant Person advised the Western Tuna and Billfish Fishery in the area of operation also falls within international jurisdiction covered by the WCPFC and IOTC. 3. Relevant Person advised of the increased interest in access to the Western Tuna & Billfish Fishery following the State Government Demersal Ban.	1. The matter is relevant. The Relevant Person confirmed an updated assessment that the activities do not pose a significant impact to the fishery. 2. The claim has merit. The Titleholder will consider the need for assessment of international fishers into the EP. 3. The matter is relevant. The Titleholder will consider inclusion of the increased interest in the Western Tuna and Billfish Fishery.	1. No response required. 2. The Titleholder confirmed assessment of fishing activity in the region of the activity and associated EMBA. The consideration of international fishing stocks will be assessed internally and reflected in the EP if required noting the approved EP will be available on the regulator's website. Any compensation discussions would be undertaken on a case by case basis upon relevance and need. 2. The Titleholder provided the information on increased access to the WTBF to the internal EP team for consideration.	1. No change implemented in the EP. 2. Xodus 3. Xodus

Consultation demonstration statement

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Consultation effort continued throughout the consultation period using a variety of contact methods including email, phone, text and online contact forms to ensure receipt of the information provided and encourage feedback.

Northern Territory Fisheries 25(1)(d)				
The Amateur Fishermen's Association of the Northern Territory (AFANT)				Northern Territory Fisheries 25(1)(d)
Summary of consultation effort and relevant person responses				
Email	AFANT01	Outgoing	16/01/2026	Email providing lead time for upcoming roadshow and opportunities to meet face to face to discuss survey activities.
Text	AFANTTXT01	Outgoing	23/01/2026	Textto RP CEO re meeting opportunity.
Email	AFANT02	Outgoing	23/01/2026	Email confirming dates and time availability for face to face meeting.
Email	AFANT03	Outgoing	27/01/2026	Outgoing email cover correspondence introducing the activity, providing attached flyer and link to landing page with further information. Invitation to review and provide feedback.
Email	AFANT04	Incoming	27/01/2026	Email failure to RP CEO.
Email	AFANT05	Incoming	27/01/2026	Out of office notification with contact emails for forwarding.
Email	AFANT06 AFANT06a	Outgoing	28/01/2026	Forward original email with attached email requesting in person meeting.
Email	AFANT07	Incoming	28/01/2026	RP email request for in person meeting 3 Feb.
Email	AFANT08	Outgoing	28/01/2026	Mtg time acknowledged and calendar invite to be sent.
Text	AFANTTXT02	Two-Way	03/02/2026	Text exchange with RP CEO re meeting arrival.
Meeting	AFANT09	In Person	03/02/2026	Refer to meeting notes.
Email	AFANT10	Outgoing	12/02/2026	Follow up to meeting in person. No concerns regarding activity but requested notifications and timing of vessels in and out of the harbour and duration in the field.
Relevant person objections, claims or other feedback		Titleholder assessment of the merits		Titleholder statement of response
Relevant Person requested activity timing and vessel movement notifications.		The matter is relevant. The Titleholder agrees to notify other marine users of activities in their area of interest and operation on request.		The Titleholder confirmed acitivity notifications and vessel movements in the Darwin Harbour would be provided when available.

Consultation demonstration statement
<i>Consultation for the proposed ENI Geophysical and Geotechnical Surveys commenced on 27 January 2026 through the distribution of an activity flyer and overview of the proposed activity with links to the activity landing page for further information. This included a live link to the NOPSEMA May 2023 “Consultation on offshore petroleum environment plans; Information for the Community”.</i> <i>The consultation process concluded on 17 March 2026, providing a full 34 business days for review and response.</i> <i>Consultation effort continued throughout the consultation period using a variety of contact methods including email, phone, text and online contact forms to ensure receipt of the information provided and encourage feedback.</i>

Northern Territory Fisheries 25(1)(d)

Northern Territory Seafood Council				Northern Territory Fisheries 25(1)(d)	
Summary of consultation effort and relevant person responses					
Email	NTSC01	Outgoing	16/1/26	Email providing lead time for upcoming roadshow and opportunities to meet face to face to discuss survey activities.	
Email	NTSC02	Outgoing	27/01/2026	Outgoing email cover correspondence introducing the activity, providing attached flyer and link to landing page with further information. Invitation to review and provide feedback.	
Email	NTSC03	Incoming	28/01/2026	Email acknowledged by RP Exec Officer to confirm availability.	
Email	NTSC04	Outgoing	28/01/2026	Email offering available dates and times for in person meeting.	
Email	NTSC05	Incoming	29/01/2026	Email request for in person meeting 30 Jan.	
Email	NTSC06	Outgoing	29/01/2026	Email acknowledged - calendar invite to be sent.	
Meeting	NTSC07	In Person	30/01/2026	Refer to meeting notes	
Email	NTSC08	Outgoing	01/02/2026	Email follow up to meeting. Request for shapefiles and coordinates for the operational area, vessel names and movement notifications. Survey information has been added to the NTSC newsletter and a copy to be provided for Eni records. A request has been made for where historical catch data has been obtained. NTSC are reviewing datasets for accuracy with other NT and statistical departments. An opportunity for Eni to meet with the NTSC board continues to be investigated for preferred timing.	
Email	NTSC09	Outgoing	06/02/2026	Shape files sent to RP.	
Email	NTSC10	Incoming	16/02/2026	RP requested corner coordinates for OA.	
Email	NTSC11	Outgoing	18/02/2026	Extraction of coords from shape file provided to RP.	
Email	NTSC12	Outgoing	18/02/2026	Request for copy of NTSC newsletter with Survey information. Provision of poster.	
Email	NTSC13	Incoming	18/02/2026	RP provided copy of email sent to members 30 January 2026.	
Email	NTSC14	Newsletter	18/02/2026	NTSC Newsletter email to members.	
Email	NTSC15	Outgoing	18/02/2026	Receipt of newsletter acknowledged.	
Email	NTSC16	Outgoing	16/03/2026	Email with information on the historical catch effort data source. Referenced the RP effort to assess credibility of datasets and requested opportunity to collectively consider the bet process to add fishing catch datasets for greater accuracy.	
Relevant person objections, claims or other feedback			Titleholder assessment of the merits	Titleholder statement of response	Details of the measures adopted
1. The Relevant Person requested the activity shapefiles. 2. The Relevant Person requested information on the source data used to support historical catch assessment.			1. The matter is relevant. The shape files will allow the Relevant Person to assess the activity against industry activity in the region.	1. The Titleholder provided the activity shapefiles to the Relevant Person.	
			2. The matter is relevant. The Relevant Person is undertaking an assessment of available historical catch data in the region.	2. The Titleholder confirmed the data sources used for historical catch (NT Dept Agriculture and Fisheries) and provided the associated maps of fishing activity intersections with the Operational Area and EMBA, confirming inclusion in the EP.	

Consultation demonstration statement

Consultation for the proposed ENI Geophysical and Geotechnical Surveys commenced on 27 January 2026 through the distribution of an activity flyer and overview of the proposed activity with links to the activity landing page for further information. This included a live link to the NOPSEMA May 2023 "Consultation on offshore petroleum environment plans; Information for the Community".

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Consultation effort continued throughout the consultation period using a variety of contact methods including email, phone, text and online contact forms to ensure receipt of the information provided and encourage feedback.

Commercial Fishing Licensees 25(1)(d)
Austral Fisheries Pty Ltd
Commercial Fishing Licensees 25(1)(d)
Summary of consultation effort and relevant person responses

Email	AF01	Outgoing	27/01/2026	Outgoing email cover correspondence introducing the activity, providing attached flyer and link to landing page with further information. Invitation to review and provide feedback.	
Registered Post	FISHERS 1	Outgoing	27/01/2026	Printed packed including letter, flyer and NOPSEMA consultation guide posted by registered mail.	
Email	AF03	Incoming	28/01/2026	RP responded with notification of interest in the general area, deferring specific responses to the NPF Industry for consultation. Expressed concerns regarding seismic following experience with another industry proponent for that type of activity.	
Email	AF04	Outgoing	25/02/2026	Eni response to RP providing explanation of survey activity and the difference to 3D seismic which is not part of the activity with thanks for the input to the EP.	
Relevant person objections, claims or other feedback			Titleholder assessment of the merits	Titleholder statement of response	Details of the measures adopted
1. The Relevant Person confirmed an industry body response to the activity impact on snapper and prawns would be provided by the NPFI. 2. The Relevant Person expressed concern regarding the survey activity type and potential impact to assorted snapper species. The Relevant Person noted the NT Demersal Snapper fishery east of the proposed survey area, while not within the survey area, has past experience with seismic surveys.			1. The matter is relevant. The industry body is responsible for the overall fishery impact of the survey activities and the consultation response. 2. The claim does not have merit. The fishery is not within the area of activity and the activity is not conventional seismic acquisition.	1. The Titleholder confirmed consultation with the industry body, Northern Prawn Fishing Industry. 2. The Titleholder provided the Relevant Person with a clear explanation of the geophysical and geotechnical survey activities and how they differ from a conventional offshore seismic acquisition with a much lower environmental impact.	1. No change to the EP. 2. No change to the EP.

Consultation demonstration statement

Consultation for the proposed ENI Geophysical and Geotechnical Surveys commenced on 27 January 2026 through the distribution of an activity flyer and overview of the proposed activity with links to the activity landing page for further information. This included a live link to the NOPSEMA May 2023 "Consultation on offshore petroleum environment plans; Information for the Community".

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Commercial Fishing Licensees 25(1)(d)					
Raptis & Sons				Commercial Fishing Licensees 25(1)(d)	
Summary of consultation effort and relevant person responses					
Email	RS01	Outgoing	27/01/2026	Outgoing email cover correspondence introducing the activity, providing attached flyer and link to landing page with further information. Invitation to review and provide feedback.	
Registered Post	FISHERS 1	Outgoing	27/01/2026	Printed packed including letter, flyer and NOPSEMA consultation guide posted by registered mail.	
Email	RS03	Outgoing	05/02/2026	Follow up to consultation request.	
Email	RS04	Incoming	06/02/2026	RP requested southern end of survey be undertaken in Q4 to avoid interruption to their operations.	
Email	RS05	Outgoing	24/02/2026	Eni acknowledge RP input and committed to notifications of vessel activity.	
Relevant person objections, claims or other feedback			Titleholder assessment of the merits	Titleholder statement of response	Details of the measures adopted
Relevant Person requested the southern range of the surveys to take place in Q4 to reduce impact on fishing operations.			The claim does not have merit. The activity involves one vessel and risk is minimal in the context of all marine activity in the region.	The Titleholder acknowledged the Relevant Person preference for activity timing and committed to providing notification of activity timing to the Relevant Person.	

Consultation demonstration statement
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The consultation process concluded on 17 March 2026, providing a full 34 business days for review and response.
Consultation effort continued throughout the consultation period using a variety of contact methods including email, phone, text and online contact forms to ensure receipt of the information provided and encourage feedback.

Traditional Owners 25(1)(d)

Northern Land Council				Traditional Owners 25(1)(d)
Summary of consultation effort and relevant person responses				
Email	NLC01	Outgoing	16/01/2026	Email providing lead time for upcoming roadshow and opportunities to meet face to face to discuss survey activities.
Email	NLC02	Outgoing	23/01/2026	Email confirming dates and time availability for face to face meeting.
Email	NLC03	Outgoing	27/01/2026	Outgoing email cover correspondence introducing the activity, providing attached flyer and link to landing page with further information. Invitation to review and provide feedback.
Text	NLCTXT01	Two-Way	29/01/2026	Text exchange with RP re meeting arrangements.
Text	NLCTXT0a	Outgoing	29/01/2026	Text to RP re meeting arrangements.
Email	NLC04	Outgoing	29/01/2026	Follow up with available dates and times for in person meeting.
Text	NLCTXT02	Two-Way	02/02/2026	Text exchange with RP regarding meeting opportunity.
Meeting	NLC05	In Person	03/02/2026	In person meeting including presentation. Refer to file note.
Email	NLC06	Outgoing	11/02/2026	Follow up to in person meeting. Future development guidance for additional RPs provided though not required for current EP consultation. Notification from RP of the protected Channel Point Coastal Reserve and confirmation from Eni it will be reflected in current and future EPs. RP to consider potential future meetings opportunities.
Relevant person objections, claims or other feedback		Titleholder assessment of the merits		Titleholder statement of response
Relevant Person notified the Titleholder of the protection status of the Channel Point Coastal Reserve, ~250 hectares of shoreline and coastal habitat between the Daly River mouth and Channel point.		The matter is relevant. The Channel Point Coastal Reserve, while not impacted by the activity EMBA, is an environmentally important landside location.		The Titleholder confirmed inclusion of the Channel Point Coastal Reserve in this EP and future EPs.

Consultation demonstration statement
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National Businesses 25(1)(d)

Australian Marine Oil Spill Centre (AMOSC)

National Businesses 25(1)(d)

Summary of consultation effort and relevant person responses

Email	AMOSC01	Outgoing	27/01/2026	Outgoing email cover correspondence introducing the activity, providing attached flyer and link to landing page with further information. Invitation to review and provide feedback.
Email	AMOSC02	Incoming	29/01/2026	Email requesting a copy of the EP with time for a two week review for feedback.
Email	AMOSC03	Outgoing	06/02/2026	Explanation to RP on availability of information for EP feedback and request for input as part of EP development. Provision of full EP & OPEP documentation to be made available prior to the activity.
Email	AMOSC04	Incoming	13/02/2026	RP did not consider itself appropriately consulted without a copy of the EP for review. Advised Eni may choose to undertake engagement with AMOSC through its formal relevant person consultation framework or independently.
Email	AMOSC05	Outgoing	13/02/2026	Email acknowledged response and confirmed it would be considered within development of the EP. Eni Rep also confirmed Eni HSEQ would contact AMOSC independently as outlined in the RP's email.
Meeting		In Person	18/02/2026	Eni meeting with RP.
Email	AMOSC07	Outgoing	24/02/2026	Email follow up to meeting confirming consultation is part of the preparation for the EP and final EP and OPEP can not be made available within the consultation timing. RP attendees undertook to provide this agreement to internal team. RP invited to provide input based on the materials available.
Email	AMOSC08	Incoming	05/03/2026	RP acknowledged email and confirmed no further information required at this time. Copy of the OPEP to be provided when completed for assessment in response management capability.
Email	AMOSC09	Outgoing	05/03/2026	Eni confirmed receipt and formal consultation letter not required. Feedback received meets the two way conversation for the EP. Eni to engage with AMOSC in the future with the provision of documents requested.

Relevant person objections, claims or other feedback	Titleholder assessment of the merits	Titleholder statement of response	Details of the measures adopted
The Relevant Person requested a copy of the Environment Plan and Oil Pollution Emergency Plan to review to assess and determine if there is any relevant feedback.	The matter does not have merit. Following clarification by the Titleholder, the Relevant Person agreed that any documentation needed by the Relevant Person, as a service provider, would be provided prior to the activity.	Titleholder confirmed with Relevant Person that the consultation period is for input to the EP and separate to the engagement of the Relevant Person as a service provider to the Titleholder.	No change implemented to the EP.

Consultation demonstration statement

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Consultation effort continued throughout the consultation period using a variety of contact methods including email, phone, text and online contact forms to ensure receipt of the information provided and encourage feedback.

National Businesses 25(1)(d)

Inligo Networks				National Businesses 25(1)(d)
Summary of consultation effort and relevant person responses				
Phone	IN01	Outgoing	27/01/2026	Call to RP to obtain contact email for information package to be sent. RP confirmed no concerns verbally and committed to responding same by email.
Text	IN02	Incoming	27/01/2026	Phone number and contact email for RP. Advised of subsea cables planned for the region for future communication connectivity opportunities.
Email	IN03	Outgoing	27/01/2025	Outgoing email cover correspondence introducing the activity, providing attached flyer and link to landing page with further information. Invitation to review and provide feedback.
Text	IN04	Incoming	27/01/2026	Notification to Eni of SubSea Cable activity to Darwin that may provide proponent with communications connectivity in the future.
Email	IN05	Incoming	02/02/2026	Email confirming no input at this stage however RP is actively engaged in the installation of a cable in the area and seeking internal Eni contact to coordinate activities.
Email	IN06	Outgoing	10/02/2026	Contact details provided. Included link to contract tenders for future reference. Concluded consultation effort.
Relevant person objections, claims or other feedback		Titleholder assessment of the merits		Titleholder statement of response
Relevant Person requested contact information within Eni to coordinate future activities in the region.		The matter is relevant. The Relevant Person has potential activity within the region and may require simultaneous operations communication facilitation.		The Titleholder provided the Relevant Person with contact information for coordination of simultaneous or concurrent activities.

Consultation demonstration statement
<i>Consultation for the proposed ENI Geophysical and Geotechnical Surveys commenced on 27 January 2026 through the distribution of an activity flyer and overview of the proposed activity with links to the activity landing page for further information. This included a live link to the NOPSEMA May 2023 “Consultation on offshore petroleum environment plans; Information for the Community”.</i> <i>The consultation process concluded on 17 March 2026, providing a full 34 business days for review and response.</i> <i>Consultation effort continued throughout the consultation period using a variety of contact methods including email, phone, text and online contact forms to ensure receipt of the information provided and encourage feedback.</i>

West Australian Businesses 25(1)(d)					
Honeymoon Bay				West Australian Businesses 25(1)(d)	
Summary of consultation effort and relevant person responses					
Email	HB01	Outgoing	27/01/2026	Outgoing email cover correspondence introducing the activity, providing attached flyer and link to landing page with further information. Invitation to review and provide feedback.	
Email	HB02	Outgoing	05/02/2026	Follow up to consultation request.	
Phone	N/A	Outgoing	16/02/2026	RP confirmed receipt of information and noted main concern to RP is impact on the fishing industry and stocks which direct affects their business.	
Email	HB03	Outgoing	16/02/2026	Email confirmation of Eni engagement with fishing authorities and industry representatives.	
Meeting	HB04	In Person	16/02/2026	Refer to Meeting Notes	
Email	HB05	Outgoing	20/02/2026	Email to RP following travel team impromptu catch up with RP partner. Confirmation of provision of engagement material, queries for follow up. Future in person opportunities flagged.	
Relevant person objections, claims or other feedback			Titleholder assessment of the merits	Titleholder statement of response	Details of the measures adopted
Relevant Person queried the potential impact of the activity on the fishing industry and stocks which directly impacts their business.			The matter is relevant. The Relevant Person relies on the continued management and protection of local fishing stocks and access to existing fishing locations for the business.	The Titleholder provided the Relevant Person with confirmed consultation effort across commercial and recreational fisheries via commonwealth, state and industry organisations.	No change implemented to the EP. Fishing industry consultation already covered in Chapter 5 of the EP.

Consultation demonstration statement

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Consultation effort continued throughout the consultation period using a variety of contact methods including email, phone, text and online contact forms to ensure receipt of the information provided and encourage feedback.

Oil & Gas 25(1)(e)

Santos (Bonaparte Gas & Oil) (Santos Offshore)				Oil & Gas 25(1)(e)
Summary of consultation effort and relevant person responses				
Email	SANTOS01	Outgoing	27/01/2026	Outgoing email cover correspondence introducing the activity, providing attached flyer and link to landing page with further information. Invitation to review and provide feedback.
Email	SANTOS02	Outgoing	03/02/2026	Follow up to consultation request.
Email	SANTOS03	Incoming	11/02/2026	Confirmation of ongoing consultation with internal Eni team with RP CCS team regarding RP's activities. Invitation for further information or contact details.
Email	SANTOS04	Incoming	12/02/2026	Additional request for SIMOPS communication and shape files for survey activity.
Email	SANTOS05	Outgoing	24/02/2026	Response to queries from RP confirming notifications and SIMOPS and shapefiles attached.
Email	SANTOS06	Incoming	25/02/2026	RP confirmed receipt and internal distribution of information provided.
Relevant person objections, claims or other feedback		Titleholder assessment of the merits		Titleholder statement of response
1. Relevant Person requested internal contact information for coordination of neighbouring and potentially consecutive or parallel operations. 2. The Relevant Person requested the activity shapefiles.		1. The matter is relevant. The Relevant Person has potential activity within the region and may require simultaneous operations communication facilitation. 2. The matter is relevant. The shape files will allow the Relevant Person to assess the activity against their own planned activities.		1. The Titleholder provided the Relevant Person with contact information for coordination of simultaneous or concurrent activities. 2. The Titleholder provided the shapefiles to the Relevant Person.
				Details of the measures adopted
				1. Xodus 2. No change implemented to the EP.

Consultation demonstration statement

Consultation for the proposed ENI Geophysical and Geotechnical Surveys commenced on 27 January 2026 through the distribution of an activity flyer and overview of the proposed activity with links to the activity landing page for further information. This included a live link to the NOPSEMA May 2023 “Consultation on offshore petroleum environment plans; Information for the Community”.

The consultation process concluded on 17 March 2026, providing a full 34 business days for review and response.

Consultation effort continued throughout the consultation period using a variety of contact methods including email, phone, text and online contact forms to ensure receipt of the information provided and encourage feedback.

Non-Government Organisations 25(1)(e)

Australian Marine Conservation Society

Non-Government Organisations 25(1)(e)

Summary of consultation effort and relevant person responses

AMCSNT01	Outgoing	27/01/2026	Outgoing email cover correspondence introducing the activity, providing attached flyer and link to landing page with further information. Invitation to review and provide feedback.
AMCSNT02	Outgoing	10/02/2026	Follow up to consultation request.
N/A	Outgoing	12/02/2026	RP reception confirmed receipt of email and forwarded to appropriate team member. RP advised that a response would be provided if determined by the assessor.
AMCSNT03	Incoming	16/02/2026	RP responded with queries regarding whole of development cumulative impacts, queries if any seismic surveys planned, Sea Country, cultural heritage and greenhouse gas emissions controls and any proposed CCS plans.
AMCSNT04	Outgoing	25/02/2026	Email follow up to clarify feedback responses for OPP vs proposed survey activity under consultation. Confirmed current EP includes impacts/mitigations for a worst case hydrocarbon spill, proposed greenhouse gas emissions control measures, potential impacts/risks to First Nations Sea Country and other areas of heritage. Confirmed no 3D seismic testing will occur for the geophysical and geotechnical survey activities.

Relevant person objections, claims or other feedback	Titleholder assessment of the merits	Titleholder statement of response	Details of the measures adopted
1. The Relevant Person requested the potential cumulative impacts from activities by the Titleholder and potential simultaneous operations and activities by bordering Titleholders. 2. The Relevant Person requested the potential cumulative impacts of upstream and downstream activities associated with the Project as a whole including transport via undersea pipeline and onshore processing of gas. 3. The Relevant Person requested details of the geophysical surveys planned as well as their potential impacts and risks on species listed in the EPBC Act 1999 (Cth). 4. The Relevant Person requested information on the potential impacts and risks in relation to Sea Country and other areas of marine or terrestrial Aboriginal cultural significance and/or heritage. 5. The Relevant Person requested the proposed greenhouse gas emissions control measures, including details of any proposed offsets and any proposal for carbon capture and storage.	1. The matter is not relevant. The matter refers to the OPP and is outside the parameters of this EP. 2. The matter is not relevant. The matter refers to the OPP and is outside the parameters of this EP. 3. The matter is relevant. The Titleholder referred to the activity flyer, cover email, landing page, FAQs and Risk and Mitigations Table which provides adequate detail for the process of consultation for the proposed surveys. 4. The matter is relevant. The Titleholder will assess the impact on potential Sea Country and other areas of marine or terrestrial Aboriginal cultural significant and/or heritage within the development of the EP. 5. The matter is relevant. Greenhouse gas emission control measures must be considered in activities where emissions may occur.	The Titleholder confirmed the consultation is for the proposed survey activity and comments provided related predominantly to the Offshore Project Proposal. The Titleholder confirmed the proposed surveys EP includes: 1. Internal consideration of the cumulative impacts of concurrent and timeline adjacent activities in the region within the development of the EP. 2. Cumulative impacts/mitigations for consideration within the OPP activities will be considered in the development of activity associated EPs. 3. The communications materials supplied for the proposed surveys EP consultation provide adequate detail of the impacts, risks and mitigations for assessment by the Relevant Person. 4. The proposed surveys EP development includes consideration of the potential risks/impacts in relation to Traditional Owner Sea Country and other areas of heritage. 5. The proposed surveys EP development includes consideration of any potential greenhouse gas emissions control measures.	1. EP Cumulative Impacts reference. 2. No change implemented to the EP. 3. No change implemented to the EP. 4. EP Reference 5. EP Reference

Consultation demonstration statement

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Consultation effort continued throughout the consultation period using a variety of contact methods including email, phone, text and online contact forms to ensure receipt of the information provided and encourage feedback.

Non-Government Organisations 25(1)(e)

Environment Centre NT (ECNT)

Non-Government Organisations 25(1)(e)

Summary of consultation effort and relevant person responses

Email		Outgoing	16/01/2026	Email providing lead time for upcoming roadshow and opportunities to meet face to face to discuss survey activities.
Email	ECNT02	Outgoing	27/01/2026	Outgoing email cover correspondence introducing the activity, providing attached flyer and link to landing page with further information. Invitation to review and provide feedback.
Email	ECNT03	Outgoing	29/01/2026	Follow up for meeting availability with available times and dates.
Email	ECNT04	Outgoing	02/02/2026	Follow up to email for meeting availability.
Email	ECNT05	Incoming	03/02/2026	Confirmation of availability on 4 Feb.
Email	ECNT06	Outgoing	03/02/2026	Meeting confirmed.
Meeting	ECNT07	In Person	04/02/2026	Refer to meeting notes
Email	ECNT08	Outgoing	17/02/2026	Eni confirmed marine data would be shared with NT Dpt. Agriculture and Fisheries, the project is not LNG export but for domestic gas only, noted cumulative impact concerns on marine fauna and capture within EP, confirmed gas CO2 content. Invitation for further comment by email.
Email	ECNT09	Incoming	17/03/2026	RP responded to email to confirms points raised in the consultation discussion. These included the duration and size of the proposed surveys to adequately assess the area and the species that migrate there. A query was raised on Eni's process for recording instances of abandoned infrastructure being identified and plans for reporting on removal where required.
Email	ECNT10	Outgoing	17/03/2026	Eni acknowledged receipt of the email and attached correspondence, confirming internal assessment will be undertaken and responded to.
Email	ECNT11	Outgoing	27/03/2026	Eni provided responses to each of the RP's points including adequacy of proposed fauna surveys (term and fauna identification) and decommissioning liability (outside of the scope of this consultation).

Relevant person objections, claims or other feedback	Titleholder assessment of the merits	Titleholder statement of response	Details of the measures adopted
1. Relevant Person noted the lack of marine fauna baseline data for the region. 2. Relevant Person queried the use of produced gas as domestic or potential export. 3. Relevant Person advised of overlapping Titleholder activities and the compound effect on marine fauna. 4. Relevant Person requested the CO2 content in the Petrel gas. 5. Relevant Person expressed concern regarding the lack of pre-existing survey data and recommended the expansion of the survey periods to better represent the seasonal changes in species occurrence in the activity area, and subsequent application of the precautionary principle in relation to likelihood of occurrence assessments and activity risks and impacts, in forthcoming related EPs.	1. The matter is relevant. The Titleholder will share survey results with appropriate government entities. 2. The matter is not relevant for this EP. The end use of gas produced from activities falls under the OPP. 3. The claim has merit. The Titleholder is consulting with neighbouring titleholders and acting where appropriate. 4. The matter is relevant. The Titleholder provided a response.. 5. The claim does not have merit. The Titleholder has historical data from numerous surveys since prior to 2009. 6. The matter is not relevant. The information requested falls outside the parameters of this EP.	1. Titleholder confirmed marine data would be shared with NT Dpt. Agriculture and Fisheries where possible. 2. The Titleholder confirmed there is no current structural or reservoir capacity for gas export as LNG. 3. The Titleholder confirmed the potential compound effect on marine fauna would be considered within the proposed surveys EP. 4. The Titleholder provided a response. 5. The Titleholder has historical survey data since prior to 2009, noting more recent activities record all marine fauna observations, additional industry data and long term relationships with local Rangers who collaborate with AIMS in consideration of marine species.	1. No change implemented to the EP. 2. No change implemented to the EP. 3. No change implemented to the EP. 4. No change implemented to the EP. 5. No change implemented to the EP.

Consultation demonstration statement

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Non-Government Organisations 25(1)(e)

The Wilderness Society

Non-Government Organisations 25(1)(e)

Summary of consultation effort and relevant person responses

Email	N/A	Outgoing	27/01/2026	Email failure to Wilderness Society of outgoing email cover correspondence introducing the activity, providing attached flyer and link to landing page with further information. Invitation to review and provide feedback.
Email	N/A	Outgoing	03/02/2026	Repeat email failure.
Email	WS03	Outgoing	03/02/2026	Email to existing contact to confirm if getting through.
Phone	N/A	Outgoing	03/02/2026	Call to RP front office with confirmation of emails used and request to try again.
Email	WS05	Incoming	03/02/2026	RP confirming receipt today of email but no others.
Email	WS06	Outgoing	03/02/2026	Acknowledged and advised will try again.
Email	WS07	Outgoing	03/02/2026	Resent information package requesting feedback on activity.
Email	WS08	Incoming	03/02/2026	Confirmation from direct RP contact of receipt of information.
Email	WS09	Incoming	03/02/2026	Confirmaton RP received information package through generic info email.
Email	WS10	Outgoing	03/02/2026	Eni Rep acknowledged email from direct contact.
Email	WS11	Outgoing	03/02/2026	Eni Rep acknowledged email from generic contact.
Email	WS12	Outgoing	16/02/2026	Follow up to consultation email.
Email	WS13	Incoming	18/02/2026	RP opposes activities that could result in future fossil fuel expansion, that in turn contributes to climate change. The Wilderness Society also provides the feedback that, should activities proceed, any planned infrastructure installations should be accompanied by plans for their complete removal during decommissioning.
Email	WS14	Outgoing	24/02/2026	Eni acknowledged RP objection and request that decommissioning (with full removal) of future infrastructure be included.

Relevant person objections, claims or other feedback	Titleholder assessment of the merits	Titleholder statement of response	Details of the measures adopted
1. Relevant Person opposes activities that could result in future fossil fuel expansion, that in turn contributes to climate change. 2. The Relevant Person noted the requirement for any planned infrastructure installations should be accompanied by plans for their complete removal during decommissioning.	1. The objection is noted, however it is a broad industry wide objection rather than specific input to the proposed surveys EP. 2. The claim does not have meirt. The decommissioning of infrastructure falls outside the parameters of this EP.	1. The Titleholder noted the Relevant Person's general objection. 2. The Titleholder confirmed the consideration of decommissioning and associated infrastructure removal in future EPs.	1. No change implemented to the EP. 2. No change implemented to the EP.

Consultation demonstration statement

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APPENDIX D PETREL PRELIMINARY BENTHIC HABITAT SURVEY

Preliminary Benthic Habitat Investigation

Technical Report



CLIENT: ENI Australia

STATUS: Rev 0

REPORT NUMBER: R250448

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Acknowledgement Of Country

O2 Marine acknowledges Aboriginal and Torres Strait Islander people as this land's first storytellers and holders of scientific knowledge through their ongoing and continued connection to land, sea and community. We pay our respect to Elders past and present for their custodianship of the land and sea over millennia, which inspires us daily in our collective responsibility to sustain the land and sea country which we live by, work in and dream about.

WA Marine Pty Ltd t/as O2 Marine

ACN 168 014 819

Originating Office – Western Australia

13 Mews Road FREMANTLE WA 6160

T 1300 219 801 | info@o2marine.com.au



Version Register

Version	Status	Author	Reviewer	Comment	Authorised for Release (signed and dated)
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Rev 0	Final	B Jones	S Huxtable	Address client comments	 17/12/2025

Transmission Register

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Name	Email Address
Samir Wasim	samir.wasim@eni.com
Diego Lima	diego.lima@versalis.eni.com

Acronyms and Abbreviations

Term	Full term
BCH	Benthic Communities and Habitat
CATAMI	Collaborative and Automated Tools for Analysis of Marine Imagery
GEP	Gas Export Pipeline
JBG	Joseph Bonaparte Gulf
NT	Northern Territory
QAQC	Quality Assurance Quality Control
WA	Western Australia
WHP	Wellhead Platform
YGP	Yelcherr Gas Plant

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1. Introduction

1.1. Project background

ENI operates the Blacktip facilities in Lease Area WA-33-L, located in the Commonwealth waters of the Joseph Bonaparte Gulf (JBG), approximately 300 km west-south-west of Darwin. Within the same region lies the Petrel field, an undeveloped gas resource discovered in 1969 and situated across adjacent offshore retention leases NT/RL1 and WA-6-R. The Petrel field is located approximately 250 km west of Darwin, in water depths between 90–105 m, and lies about 136 km from the Northern Territory (NT) coastline near Wadeye and 145 km from the Western Australian (WA) coastline (Figure 1).

ENI is currently evaluating the development of the Petrel field to support long-term gas production, which would involve the construction of an offshore gas pipeline connecting to the existing Blacktip Gas Export Pipeline (GEP), enabling Petrel gas to be transported onshore for processing at the Yelcherr Gas Plant (YGP).

1.2. Objectives

The intent of this investigation was to collect baseline benthic community and habitat (BCH) data to support early-stage decision-making for the proposed Petrel–Blacktip pipeline tie-in development and guide the design of future, more comprehensive BCH investigations. The survey was designed to provide insight into seabed characteristics within the Petrel Operational Area, including the indicative GEP corridor and retention lease areas. The specific objectives of the survey were to:

- Undertake a preliminary investigative field program to collect quantitative BCH data along targeted transects, providing descriptions of substrate type, benthic cover and visible community composition.
- Generate spatially explicit data outputs that will be suitable for use as ground-truthing inputs for future, more comprehensive seabed mapping programs.
- Produce a scientific report and associated processed data package that characterises BCH conditions at surveyed locations and contributes to forthcoming environmental assessments and approval processes required under the Commonwealth offshore regulatory framework for the proposed development.

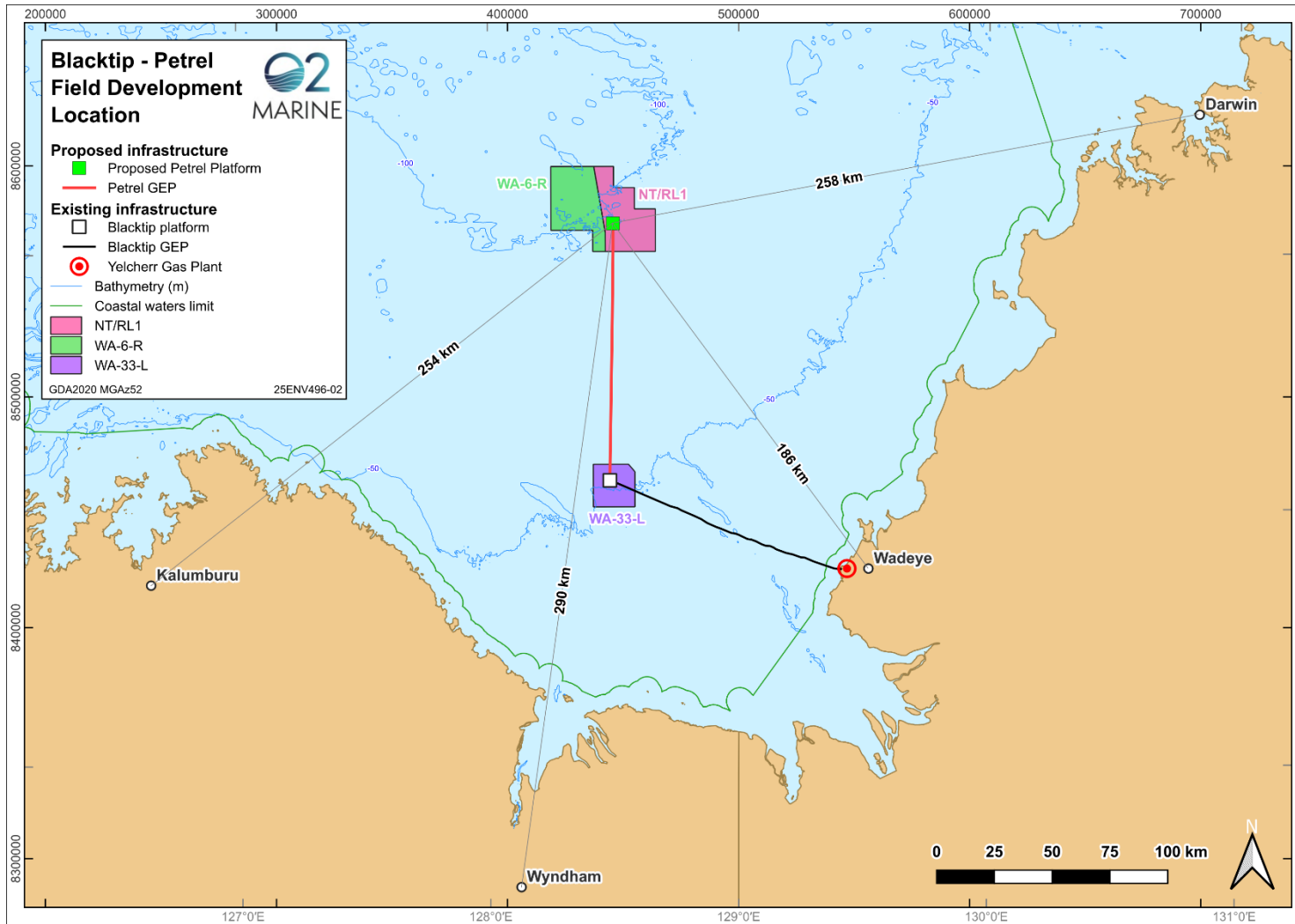


Figure 1: Regional setting of the survey location

2. Existing Environment

The proposed Petrel GEP corridor is located on the outer shelf of the JBG, a broad sedimentary basin which supports only very limited benthic ecological complexity relative to many other parts of the Kimberley and NT. It is characterised by gently sloping seabed plains, low-relief geomorphology and what are understood to be extensive areas of soft-sediment habitats. Water depths along the proposed pipeline corridor range from ~90–105 m. Previous studies (e.g. Przeslawski et al. 2011; Przeslawski and Nichol 2012; Fugro 2017) consistently describe the offshore JBG as a low-complexity soft-sediment environment dominated by unconsolidated, muddy sands, with minimal natural hard substrate, low rugosity, minor bedforms, and bioturbation (e.g. burrows and depressions). Assemblages of benthic primary producers in the region are sparsely distributed and structurally simple, typically comprising isolated soft corals, sponges, hydroids, crinoids, tube-building polychaetes and infaunal burrow systems, generally occurring at <5–10% cover due to limited hard substrate and low-light conditions (Przeslawski et al. 2011). Furthermore, there are no marine parks, key ecological features or conservation listed benthic ecological communities (State or Federal) within the offshore JBG near the proposed development area.

3. Approach and Methods

The design of the sampling program set out to collect ground truth data at discrete locations across a broad area relevant to the indicative GEP corridor and Petrel field area, to establish a BCH evidence base within this area.

The method prioritised:

- Extensive spatial coverage to ensure all major sections of the GEP corridor were visually assessed.
- Adaptive sampling to allow additional sites to be added where seabed features or changes in substrate were detected during survey implementation.
- High-quality outputs suitable for future integration with detailed mapping programs such as multibeam or side-scan sonar.

3.1. Project execution

3.1.1. Survey design

The survey design combined ten initially planned sites (Category A), with an additional ten pre-survey locations proposed during planning (Category B and C), and a further 19 sites opportunistically selected during the field survey.

Survey site categories were intended to capture the following design concepts:

- **Category A:** Primary site locations positioned along the indicative GEP corridor and within the Petrel field area. These included seven sites along the GEP corridor, three within the Petrel field area, and two which were selected to investigate bathymetric variation.
- **Category B:** Secondary corridor sites positioned adjacent to A-sites to provide cross-corridor replication. These locations helped confirm whether seabed characteristics were consistent laterally across the corridor.
- **Category C:** Broader context sites placed further from the GEP corridor to capture wider habitat variability and provide confidence that the GEP corridor represented the broader offshore environment.
- **Category D:** Additional drop-camera sites selected opportunistically offshore. Monitoring at these sites involved rapid deployments intended to inform spatial gaps in the map, target areas of interest identified from the vessel's side-scan and drift behaviour, and investigate any minor seabed relief visible on the sounder. Category D sites allowed the field team to strengthen overall coverage and help verify that no significant or structured habitats were present along the development footprint.

Transects along Category A, B and C sites were typically between 200-400 m, while transects along Category D sites were generally shorter (100-200 m). Transect length was dependent on sea state, vessel speed, current direction, and seafloor visibility. The location description of each site, priority status, and coordinates are presented in Table 1, with overall survey coverage illustrated in Figure 2.

Table 1: The priority status, location description, and coordinates for each site where benthic imagery was collected during the field survey

Site	Priority	Location	Easting	Northing
A01	Category A	Along the GEP corridor	444326.0	8464577.5
A02	Category A	Along the GEP corridor	444597.3	8485127.8
A03	Category A	Along the GEP corridor	444883.4	8504395.8
A04	Category A	Along the GEP corridor	445393.8	8528936.3
A05	Category A	Along the GEP corridor	445399.0	8534604.8
A06	Category A	Along the GEP corridor	445659.4	8564980.9
A07	Category A	Along the GEP corridor	445651.2	8574775.1
A08	Category A	At potential Well location	435900.4	8583660.1

Site	Priority	Location	Easting	Northing
A09	Category A	At potential Well location	452650.5	8574298.0
A10	Category A	At the boundary of the Petrel Field	443984.4	8589867.1
AG1	Category A	Within 4 km buffer of the GEP corridor over bathymetric variation	449493.3	8562569.2
AG2	Category A	Within 4 km buffer of the GEP corridor over bathymetric variation	448818.4	8562934.2
BA	Category B	Within 4 km buffer of the GEP corridor	446830.1	8470044.6
BB	Category B	Within 2 km buffer of the GEP corridor	446290.8	8496321.2
BE	Category B	Within 4 km buffer of the GEP corridor	447565.3	8523411.3
BI	Category B	Within 2 km buffer of the GEP corridor	447120.5	8575637.9
CC	Category C	Within 2 km buffer of the GEP corridor	446892.6	8510977.6
CD	Category C	Within 2 km buffer of the GEP corridor	444064.0	8517339.1
CF	Category C	Within 4 km buffer of the GEP corridor	442636.1	8546920.5
CH	Category C	Within 4 km buffer of the GEP corridor	442539.4	8575484.9
D1	Category D	Opportunistic	443460.9	8518878.1
D2	Category D	Opportunistic	447873.0	8531007.0
D3	Category D	Opportunistic	442855.3	8508359.2
D4	Category D	Opportunistic	441065.7	8500351.0
D5	Category D	Opportunistic	441604.6	8490667.0
D6	Category D	Opportunistic	439973.6	8479224.0
D7	Category D	Opportunistic	442194.5	8473183.4
D8	Category D	Opportunistic	442108.8	8523787.5
D9	Category D	Opportunistic	446782.6	8525715.9
D10	Category D	Opportunistic	447873.0	8531006.6
D11	Category D	Opportunistic	446560.0	8540659.4
D12	Category D	Opportunistic	448249.0	8547984.0
D13	Category D	Opportunistic	445750.4	8556082.8
D14	Category D	Opportunistic	450865.1	8567482.0
D15	Category D	Opportunistic	449568.0	8572416.2
D16	Category D	Opportunistic	452004.3	8577367.8
D17	Category D	Opportunistic	449223.1	8585557.5
D18	Category D	Opportunistic	441465.4	8584974.9
D19	Category D	Opportunistic	436491.0	8578089.0

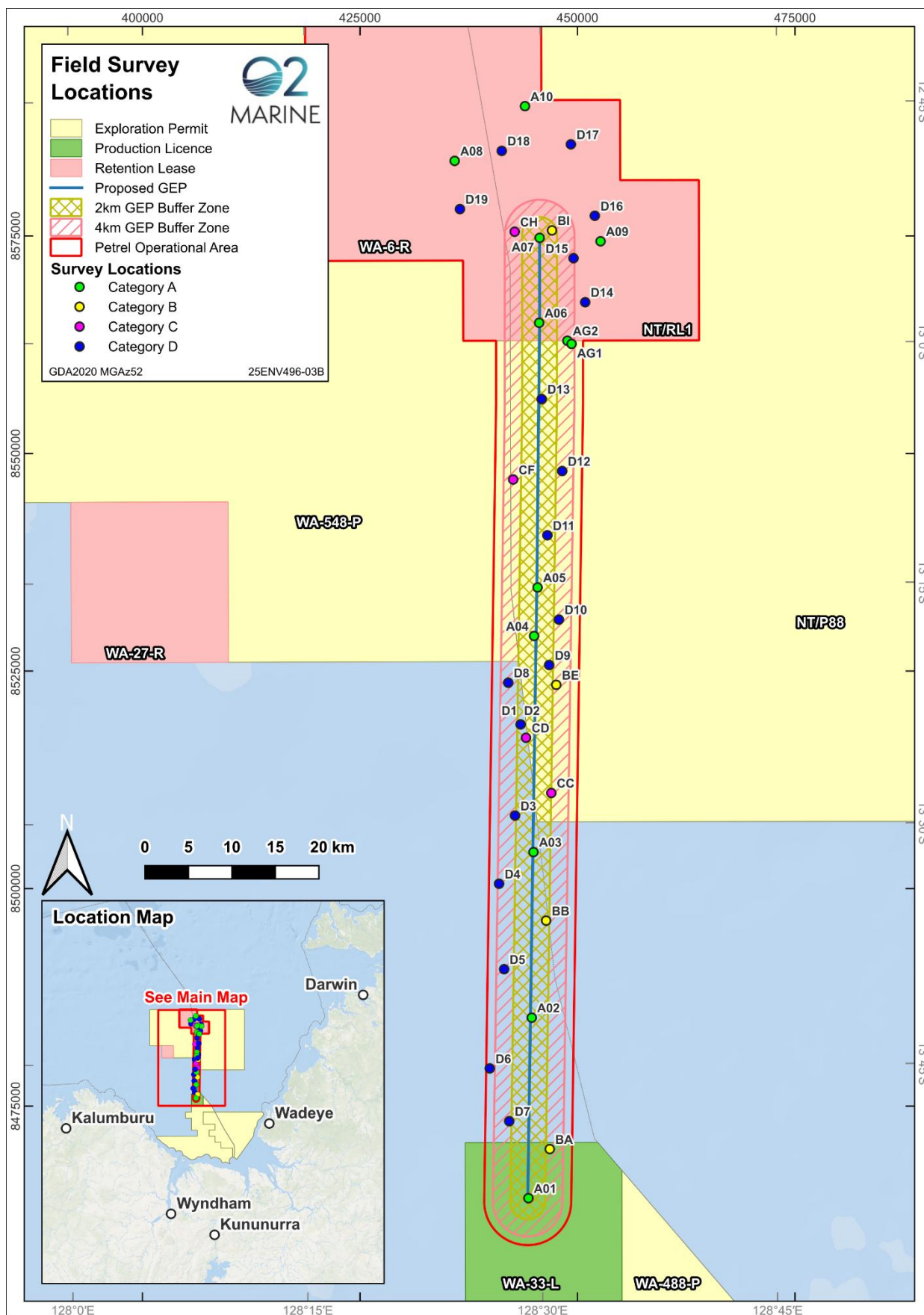


Figure 2: Location of the 39 sites across the Petrel operational area

3.1.2. Acquisition of benthic imagery

A summary of the equipment used, how benthic imagery was collected, and how data was managed is described below. Additional information relating to the field survey operations can be found in the Preliminary Field Report (Appendix C).

Camera system

Benthic imagery was acquired using a vessel-deployed drop camera system (STR SeaSpyder; Figure 3), that provided a live video feed and was controlled via a topside unit. The STR SeaSpyder deep-sea camera system consisted of a downward-facing high-definition video camera, an integrated LED lighting array suitable for low-light offshore environments, a rugged stainless-steel frame with flexible tow point, an onboard pressure housing and data transfer interface, and a topside control and recording unit with live image display.

The SeaSpyder was tethered with a steel cable supplied through the STR SeaTow 500 electric winch (Figure 3). The system was deployed using the STR SeaTow 500 electric winch to provide controlled lowering and retrieval, and the STR SeaCount cable counter which enabled continuous monitoring of cable out and assisted with estimating camera altitude. The vessel's crane was used to facilitate deployment and retrieval of the camera system (Figure 4).

During camera deployment, an operator viewing the live video feed would adjust cable length via topside controls to maintain a suitable altitude of the camera above the seabed to optimise the quality of benthic imagery. Additionally, vessel speed and heading were adjusted (where necessary) to maintain a stable drift and minimise excessive cable angle.

Further information regarding camera equipment operation is provided within Appendix C.



Figure 3: STR SeaSpyder (left) and STR SeaTow 500 electric winch (right)



Figure 4: Overview of the set up for lifting operations (left) and during camera deployment (right)

Navigation and positioning

A GPS receiver connected directly through the topside unit logged vessel position throughout each transect to support accurate geospatial alignment of imagery and drift paths. The vessel's electronic navigational systems were used to maintain appropriate vessel speed and heading during each drift. A handheld GPS unit (Garmin 79sc) was used to independently record the start and end waypoints of each transect to provide redundancy and ensure traceability between video files and spatial positions. These positional records were cross-referenced during post-processing and integrated into the geospatial dataset used for classification and mapping.

Data management

Imagery was recorded directly onto solid-state storage linked to the topside console. At the completion of each transect, files were checked for completeness and backed up to two independent external hard drives. Daily data storage verification was undertaken as part of the end-of-day review.

3.1.3. Survey effort

Benthic imagery was collected along 52 transects across the 39 sites, with transects undertaken at all pre-planned sites (Categories A, B and C) as well as 19 opportunistic sites (Category D).

The pre-planned transect orientations could not always be achieved due to prevailing environmental conditions. Where this occurred, sampling was conducted along the dominant drift direction, or subdivided into multiple shorter segments to ensure representative coverage of the intended alignment. This adaptive approach did not affect the ability to characterise substrate or benthic cover and ensured broad spatial coverage of the survey area, while also allowing refinement of coverage based on real-time seabed observations.

The 52 transects covered a total area of 11,634 m² of seafloor (based on the assumption of a field of view of 1 m²), providing extensive visual coverage of the BCH within the Petrel Operational Area. A summary of daily survey effort is provided in Table 2. A more detailed daily survey effort table is presented in the Preliminary Field Report (Appendix C, Table 2), which presents site identifiers, acquisition dates, start coordinates and transect lengths.

Table 2: Daily survey effort summarising number of transects completed and distance covered (m)

Date	No. of transects completed	Total transect distance (m)	Total seafloor coverage (m ²)
18 October 2025	11	3,489	3,489
19 October 2025	18	4,617	4,617
20 October 2025	12	2,211	2,211
21 October 2025	11	1,317	1,317
Total	52	11,634	11,634

3.1.4. Survey QA/QC

All imagery, metadata and navigation records were subject to quality assurance and quality control (QA/QC) procedures at the completion of each transect. Once the camera was recovered, the topside operator confirmed that recording had been continuous and that time, date and positional metadata were correctly logged. Video files were immediately saved to the field laptop and duplicated to an external hard drive to ensure redundancy.

Imagery from each transect was then reviewed by O2 Marine personnel to confirm that image clarity, lighting, camera altitude and cable angle were suitable for classification. Any qualitative observations that assisted in interpreting substrate type or benthic features were recorded on the field sheets. Drift paths, transect start and end points, and vessel tracks were cross checked against waypoints that had been logged during deployment.

At the completion of each field day, all files were verified against the daily log to ensure that every transect had a complete and accurate dataset. Following demobilisation, all imagery, GPS logs, field notes and metadata were transferred to the O2 Marine project database for processing, long term storage, and inclusion in the BCH classification workflow.

3.2. Analysis of benthic imagery

3.2.1. Video quality assessment

Video from each transect was assessed for quality, where any imagery that was distorted by poor visibility, excessive turbidity, or any condition that prevented reliable identification of biota or substrate, was excluded from further assessment. All remaining video footage was further trimmed to retain the stable seabed segment of each drift.

Video files for a number of transects (CD-1, CD-2, BE-1, BE-2, BE-3, AG2-1, AG2-2, AG2-3, AG1-2, and AG1-3) were found to be corrupted and could not be processed through the standard imagery analysis

workflow. For these transects, benthic habitat interpretation was undertaken using a combination of still images captured by the secondary camera system incorporated into the SeaSpyder, contemporaneous field notes recorded by the observer, and live observations made during deployment and recovery of the drop camera. Habitat assignments were supported by real-time video monitoring at the time of acquisition, including direct observation of substrate type, relief and benthic assemblages. Video files for D12 were also found to be corrupted, however this transect had to be excluded from analysis due to insufficient imagery collected.

3.2.2. Benthic habitat classification

Video imagery was analysed using TransectMeasure, a program designed for benthic habitat analysis (SeaGIS 2025). Benthic imagery was classified by an experienced marine scientist using a customised (to location) attribute table developed in accordance with the Collaborative and Automated Tools for Analysis of Marine Imagery (CATAMI) classification system (Althaus et al. 2015).

Benthic habitat information was classified based on the following attributes:

- Physical nature of habitat (consolidated, unconsolidated or veneer)
- Substrate type, relief and bedform
- Total biota cover (percent cover)
- Dominant biota and percent cover
- Subdominant biota and percent cover.

Biota were grouped into ecologically relevant classes with biota composition further classified within dominant and subdominant classifications. The percent cover of each biota attribute (total, dominant, and subdominant) was also recorded. The attribute table used for benthic habitat classification is shown in Table 3, which consolidates substrate categories, biota groups, and biota percent cover classes into a single reference structure.

To analyse the video transects, the imagery analyst marked frames along the video transect where the habitat changed in composition or cover utilising the classification system described above (Table 3). This process utilises the full field of view of the camera to capture sparse BCH coverage, rather than a predefined quadrat or point grid. All subsequent frames are then allocated the same classification, until the imagery analyst marks a new change in habitat characteristics.

Table 3: Attribute table used for the classification of benthic imagery

Substrate	Biota Class	Dominant / Subdominant Biota ²	Biota Cover (Total / Sub / Dominant)
Hard Substrate Cobbles / Boulders (>64mm) Rock Rock - Low (<1m) Rock - Moderate (1-3m) Rock - High (>3m) Infrastructure Soft Substrate Sand – Flat Sand – Bedforms Mud / Silt – Flat Mud / Silt – Bioturbated Pebble / Gravel - Rubble (<64mm) Pebble / Gravel – Biogenic Veneer	None / Unknown	None / Unknown	None Recorded
	Filter Feeders	Ascidians	
		Mixed	
		Other	
		Sponges	
		Octocoral - Other	
		Soft Corals	
		Octocoral - Branching (3D)	
		Octocoral - Fan (2D)	
		Octocoral - Whips	
		Octocoral – Sea Pens	
		Hydroids	
	Macroalgae	Brown (<i>Ecklonia</i>)	0-1%
		Brown (Other)	
		Brown (<i>Sargassum</i>)	
		Epiphytic	
		Filamentous	
		Green Macroalgae	
		Mixed	
		Other Macroalgae	
		Red Macroalgae	1-10%
	Hard Coral	Attached	
		Free-Living	20-50%
	Seagrass	<i>Halophila</i> spp.	
		Ephemeral	50-75%
		Perennial	
		Mixed	
		Other	
		Unconfirmed	
	Other	Bryozoa	75-100%
		Bacterial	
		Crustacea	
		Drift Algae / Wrack	
		Echinoderms	
		Bioturbation	
		Molluscs	
		Other	
		Rhodoliths	
		Worms	
	Mixed Assemblage ¹	See table note 1	

Note:

1. A Biota Class of Mixed Assemblage may have a Dominant and Subdominant Biota classification of any combination of the biota listed
2. Dominant Biota and Subdominant Biota were classified as separate attributes, as were Total Biota Cover, Dominant Biota Cover, and Subdominant Biota Cover, but were combined in the above table to minimise repetition
3. A classification of 'Unscorable' was also an available classification for all attributes but was excluded from the table above to minimise space and repetition

3.2.3. Spatial integration and data output

On completion of video analysis, the TransectMeasure data output was synced with the GPS track log, as well as the corresponding auxiliary information (time, depth). Each second of the tracklog was attributed the appropriate BCH characteristics derived from the corresponding frame, resulting in a string of classified points along the transects track log. GPS offsets and cable lengths, recorded during the field survey were applied to the transects to obtain the most accurate positioning of data. Navigation from each transect was checked for quality control using QGIS software (version 3.40.10). All benthic habitat imagery collected and analysed was processed by a spatial analyst in QGIS.

Due to the spatial extent of the sites across the survey area, it was deemed appropriate to present each site separately, with the corresponding substrate, biota, and biota cover for each site presented. The biota attribute presented within data outputs focuses on the dominant biota classification, however the uncomplex nature of the biota community allows for simple interpretation of biota attributes.

4. Results and Discussion

Due to the spatial extent between sites, the classified tracks for each site are presented individually in Appendix A, with Category A to Category D figures presented within Appendix A.1 to Appendix A.4, respectively. A summary of the figure results are discussed within the following paragraphs of Section 4. To provide a simple, visual comparison between sites, the proportion of BCH classifications at each site are presented in stacked plots below (Figure 7, Figure 8, and Figure 9).

4.1. General seabed characteristics (substrate)

Substrate across the survey area was consistently characterised by soft-sediment substrates dominated by sand, with no evidence of consolidated reef, ledges or other high-relief hard substrates. Minor seabed features such as ripple fields and scattered coarse material (i.e. shell debris, gravel) were present, but spatially restricted. The seabed comprised predominantly flat, fine-grained sediments (Figure 5) with only isolated occurrences of pebbles, gravel and shell debris (Figure 6), none of which formed continuous or structurally complex units. These sporadic coarser elements did not indicate distinct habitat boundaries, supporting the interpretation of a largely homogeneous sedimentary environment across all surveyed transects.

The spatial distribution of substrate types are shown in Appendix A, which illustrates a high level of consistency across the survey area, with flat sand accounting for the large majority of classified points. Bedforms and bioturbation across the survey area were minimal and did not dominate the substrate within any video frame. Consolidated substrates, defined as pavement, rock or reef-like material, were not observed along any transect. Where minor irregularities in seabed texture were visible on vessel echosounder data, targeted investigative transects confirmed these features to be low-relief sedimentary variations rather than distinct geological or biological structures.

The observed substrate conditions are consistent with regional descriptions of the JBG seabed, which is widely reported to comprise extensive soft-sediment plains shaped by strong tidal regimes and sediment transport processes (Przeslawski et al. 2011; Przeslawski and Nichol 2012; Fugro 2017). Similar substrate dominance by flat sand has been reported along the existing Blacktip GEP corridor and within the broader Petrel field area, where previous surveys identified largely featureless sedimentary seabeds with limited hard substrate availability (Fugro 2017; Przeslawski et al. 2011).

Overall, the substrate classification derived from benthic imagery supports the interpretation that the survey area comprises a laterally extensive, low-relief soft-sediment environment. No substrate features indicative of sensitive benthic habitats, such as reefal structures, consolidated pavements, or coarse sediment ridges, were identified during this preliminary investigation. These findings provide a consistent and coherent baseline framework for subsequent benthic habitat interpretation and for guiding future higher-resolution seabed mapping programs.

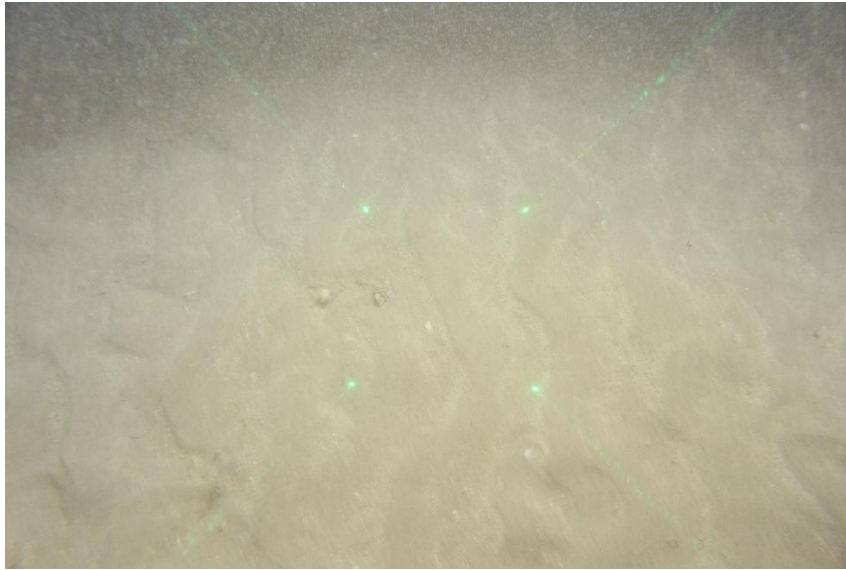


Figure 5: Flat sandy substrate at site D11



Figure 6: Pebble / Gravel with shell debris at site A09

4.2. Habitat classes observed and benthic cover summary (biota)

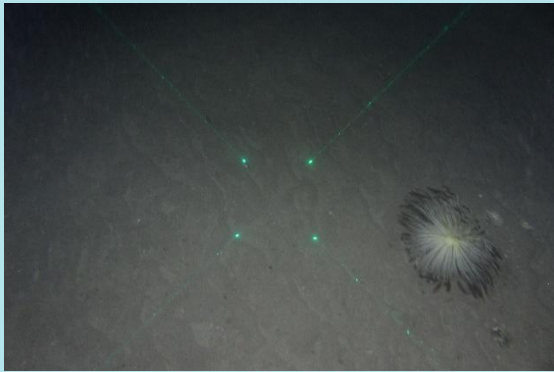
The composition and cover of biota was relatively low across all sites, with majority of sites dominated by sediment with no biota. Where biota was recorded, observations included scattered ascidians, sponges, hydroids, soft corals, and occasional octocorals, with a cover between the 0–1% and 1–10% cover ranges. These organisms were generally present as individual colonies or small, discontinuous clusters and did not form reefal, framework-building, or habitat-forming structures.

Each classified point was assigned a BCH classification which integrated substrate type, benthic biota category, and proportional cover classes, allowing consistent interpretation of benthic conditions across all surveyed transects. A summary of the three BCH classifications are presented in Table 4.

Macroalgae and seagrass were effectively absent from the seabed. Occasional occurrences of drift algae or wrack were recorded resting on the sediment surface however, these were unattached, transient in nature, and did not represent persistent benthic habitat features.

The proportion of BCH classes at each site are visually represented in Figure 7 (Category A), Figure 8 (Category B and Category C), and Figure 9 (Category D), with the number and proportion of classified points for these figures given in Table 5 (Appendix B).

Table 4: BCH classifications assigned from ground-truthing with example images

BCH Classification	Description	Example Images From Ground-truth Video
Bare Substrate	Bare sediment with flat relief or exhibiting 2D/3D ripple patterns, no visible biota.	
Bare Filter Feeders	Typically coarse sand with shell grit, with sometimes finer sediment areas, which support bare (0-1%) filter feeders.	
Sparse Filter Feeders	Typically coarse sand with shell grit, with sometimes finer sediment areas, which support sparse (1-10%) filter feeders.	

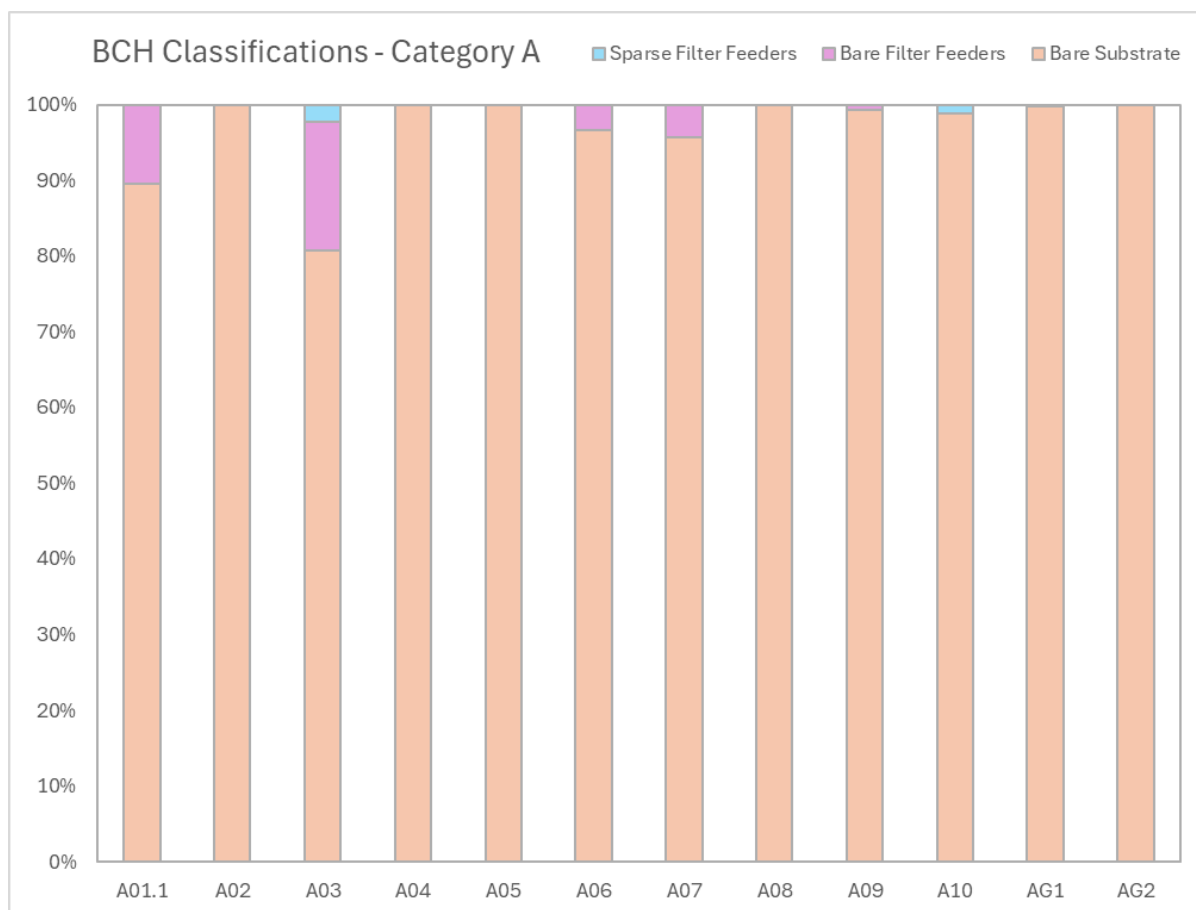


Figure 7: The proportion of BCH classifications assigned at Category A sites

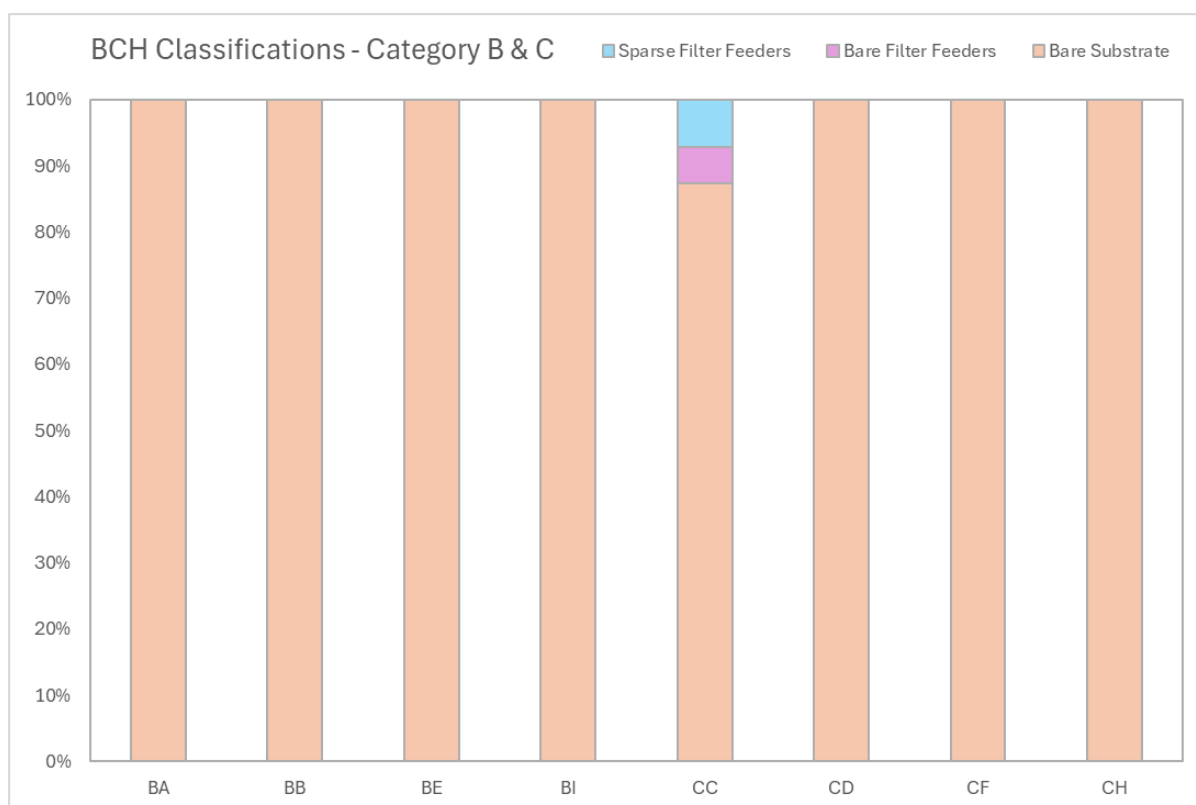


Figure 8: The proportion of BCH classifications assigned at Category B and Category C sites

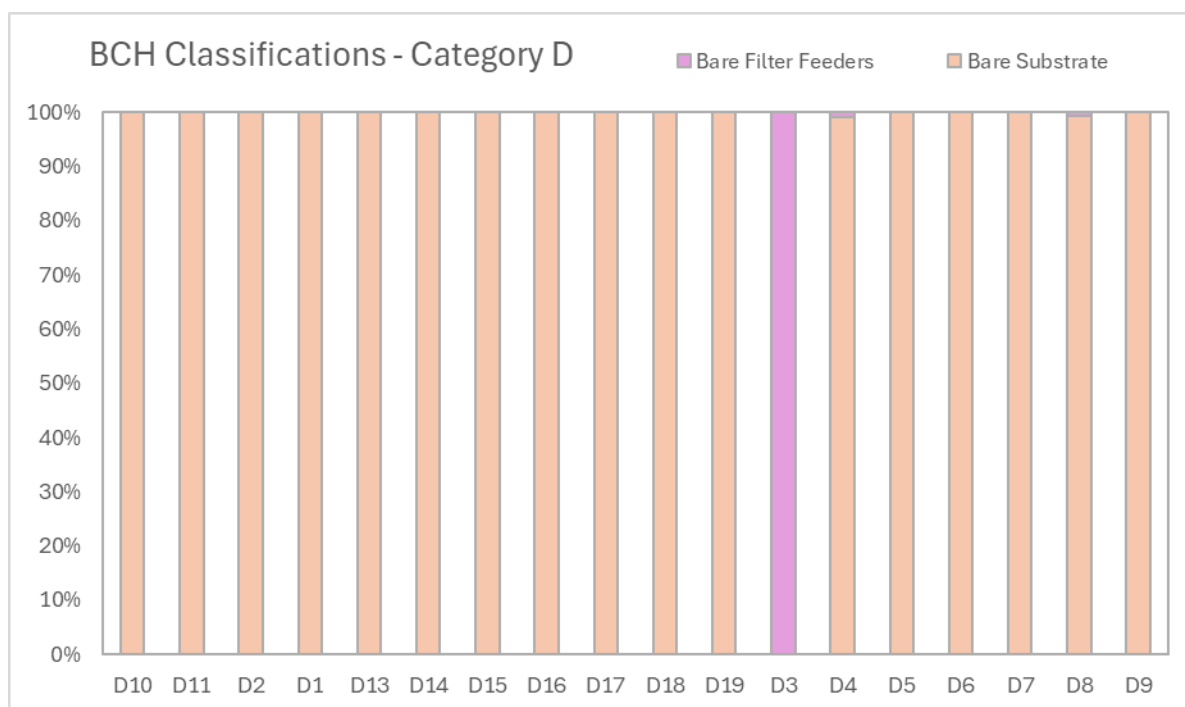


Figure 9: The proportion of BCH classifications assigned at Category D sites

4.3. Spatial consistency across sites

Benthic conditions were spatially consistent across the survey area, with no discernible differences between transects along the indicative GEP corridor, within the retention lease areas, or those positioned elsewhere within the Petrel Operational Area. Substrate type, benthic cover, and biota composition showed minimal variability, and no spatial patterns indicative of discrete habitat zones or environmental gradients were identified. Epifaunal occurrences were patchy and localised, typically comprising isolated filter-feeding organisms rather than persistent assemblages. This lateral homogeneity aligns with findings from previous offshore investigations in the JBG and adjacent Timor Sea, which similarly describe widespread soft-sediment habitats with low biological structure and limited mesoscale variability (e.g. Fugro 2017; Inpex 2019; Chevron 2011; Santos 2020). Collectively, the observed patterns indicate that benthic habitats within the survey area are representative of the broader regional seabed environment; laterally extensive but biologically sparse, consistent with conditions documented elsewhere across the JBG.

5. Conclusion

This Preliminary Benthic Habitat Investigation provides a clear and consistent characterisation of BCH across the survey area, which included the indicative GEP corridor and Petrel field area. Across approximately 11.6 km² of surveyed seabed, no spatially discrete, structurally complex, or habitat-forming features were identified. The area is dominated by laterally extensive, unconsolidated soft-sediment substrates with only minor, small-scale heterogeneity such as isolated shell material, low-relief ripples, or sparse, patchy epifauna. Epibenthic organisms, where present, occurred as isolated filter feeders and did not form persistent assemblages or geomorphic structures, reflecting regional expectations for offshore soft-sediment environments of the JBG and wider Timor Sea. The high spatial consistency observed across transects supported by both planned and adaptive coverage indicates that benthic habitats within the corridor are biologically simple, ecologically low-relief, and representative of the broader regional benthic environment. The resulting imagery and interpreted datasets offer a reliable baseline for early-stage project planning and environmental assessment and can be integrated with future high-resolution acoustic mapping should later project phases require more detailed habitat delineation.

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Appendix A. BCH Characteristics

Appendix A.1. Category A

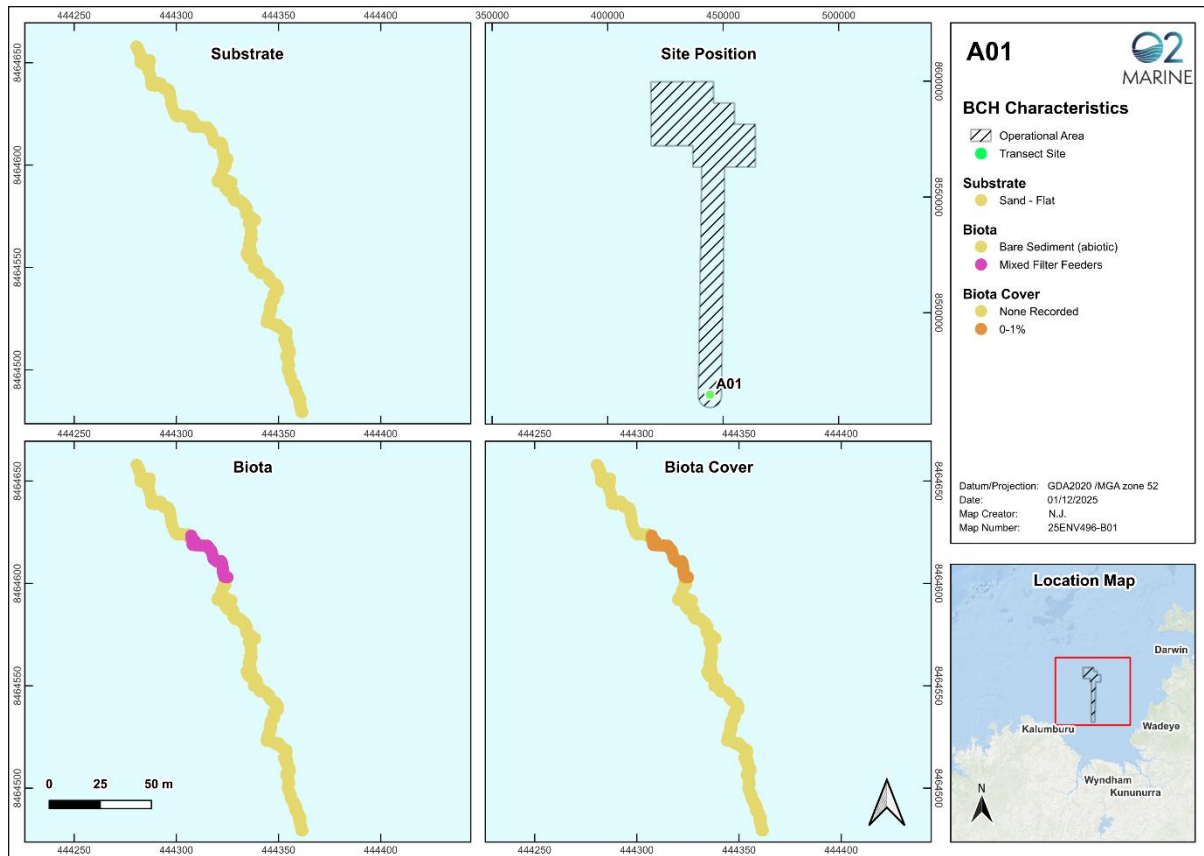


Figure 10: Assigned substrate, biota, and cover classifications at A01

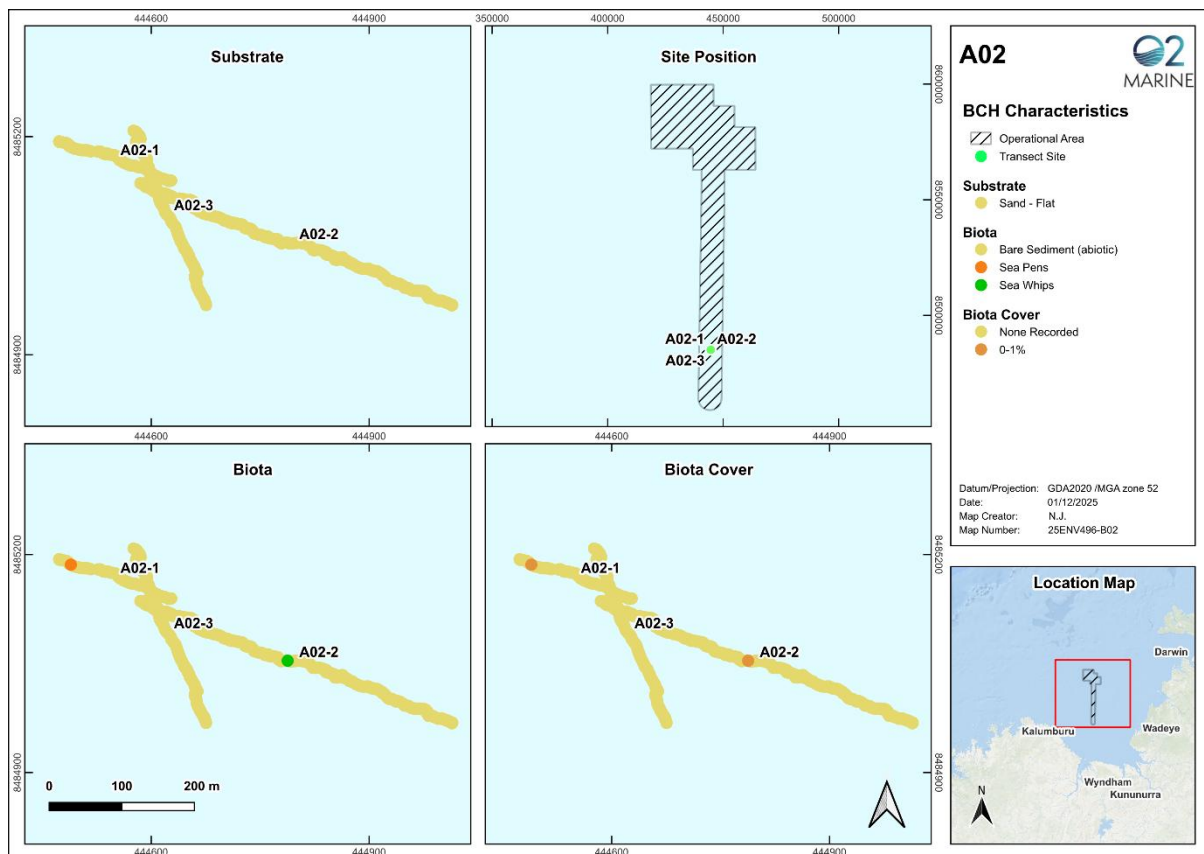


Figure 11: Assigned substrate, biota, and cover classifications at A02

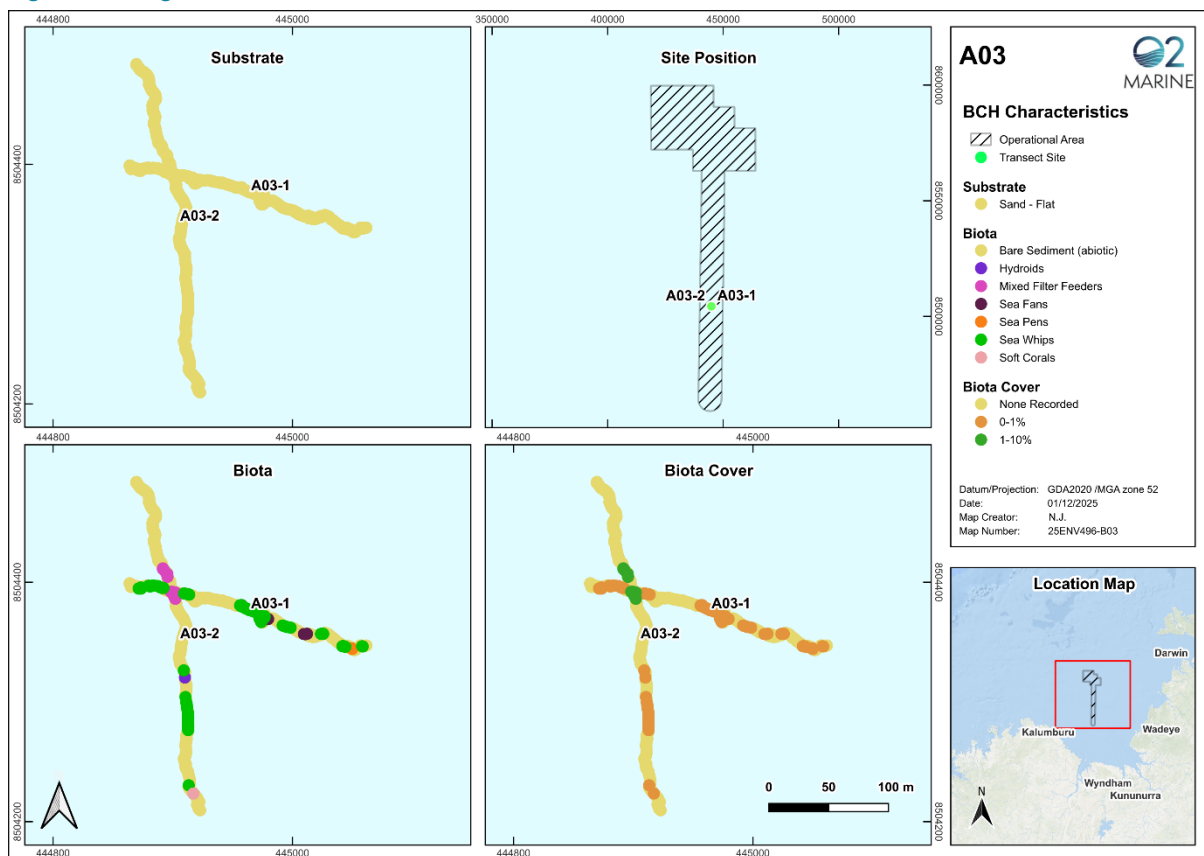


Figure 12: Assigned substrate, biota, and cover classifications at A03

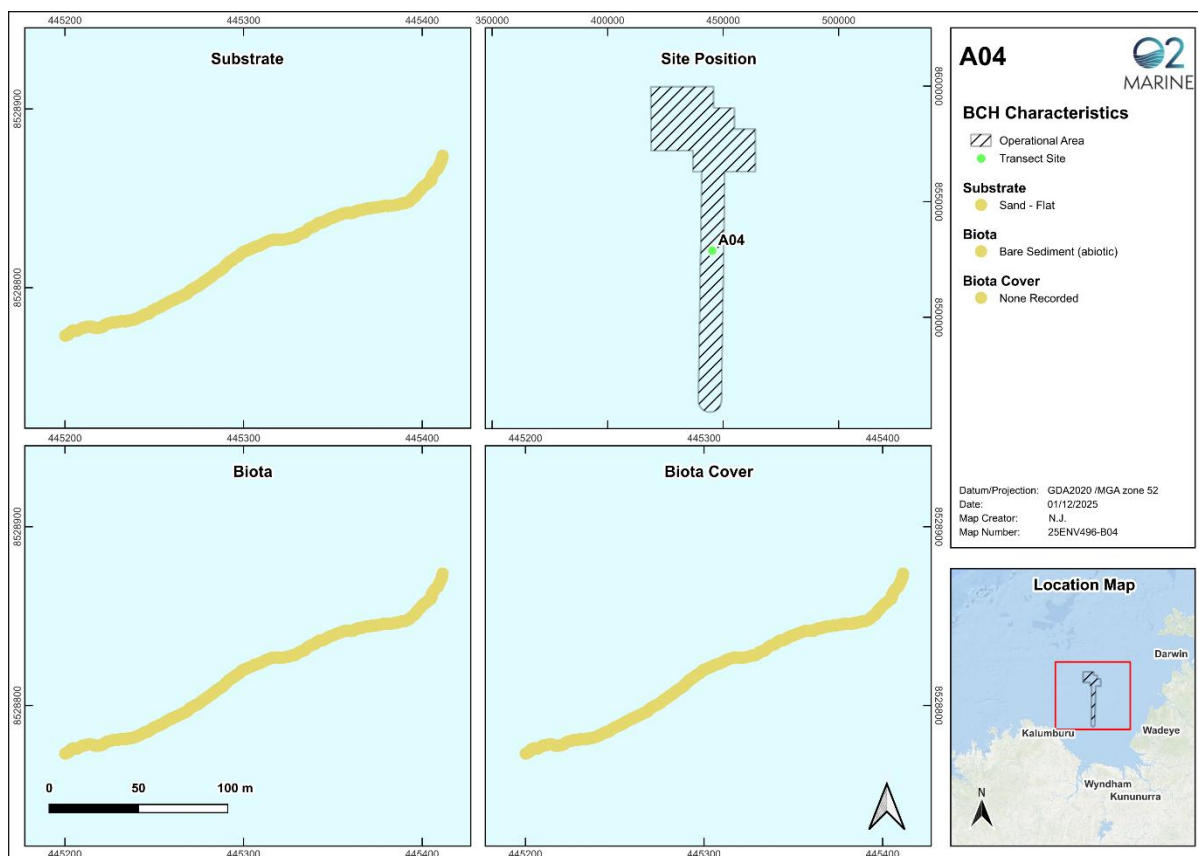


Figure 13: Assigned substrate, biota, and cover classifications at A04

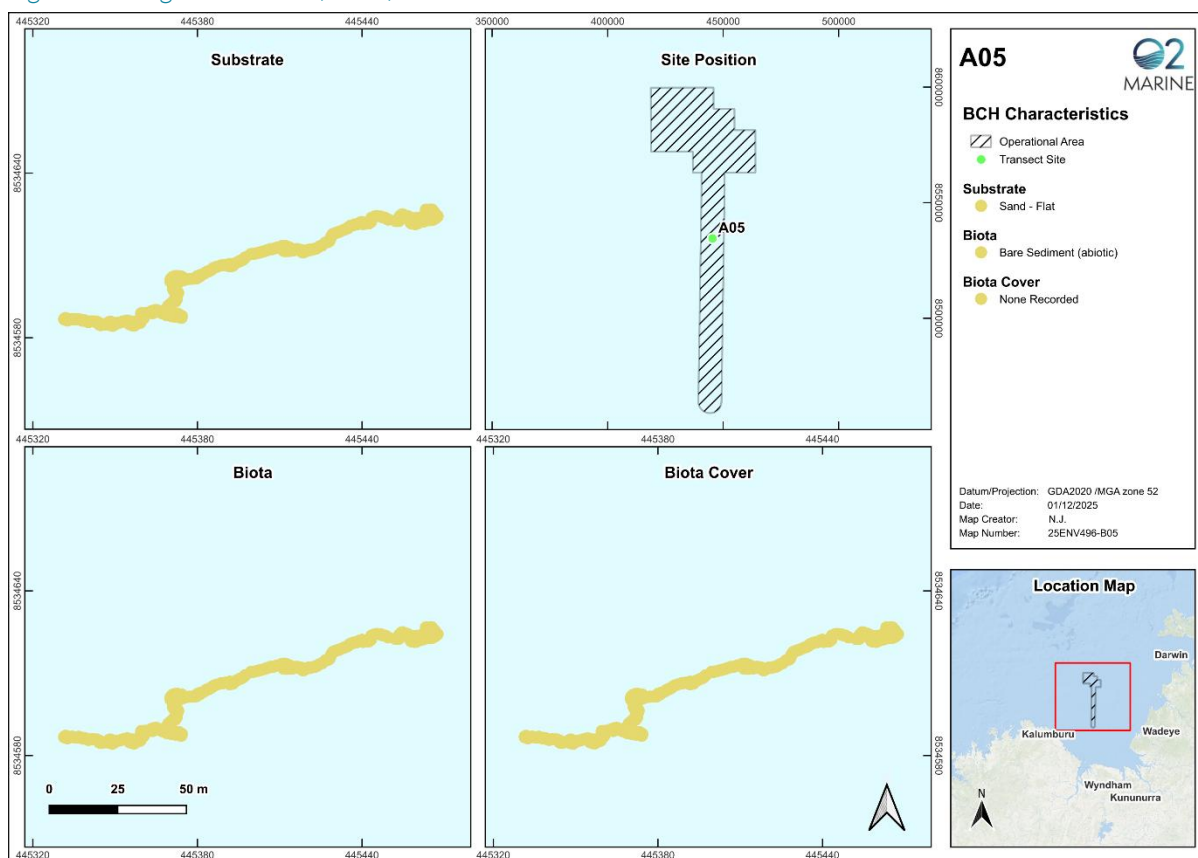


Figure 14: Assigned substrate, biota, and cover classifications at A05

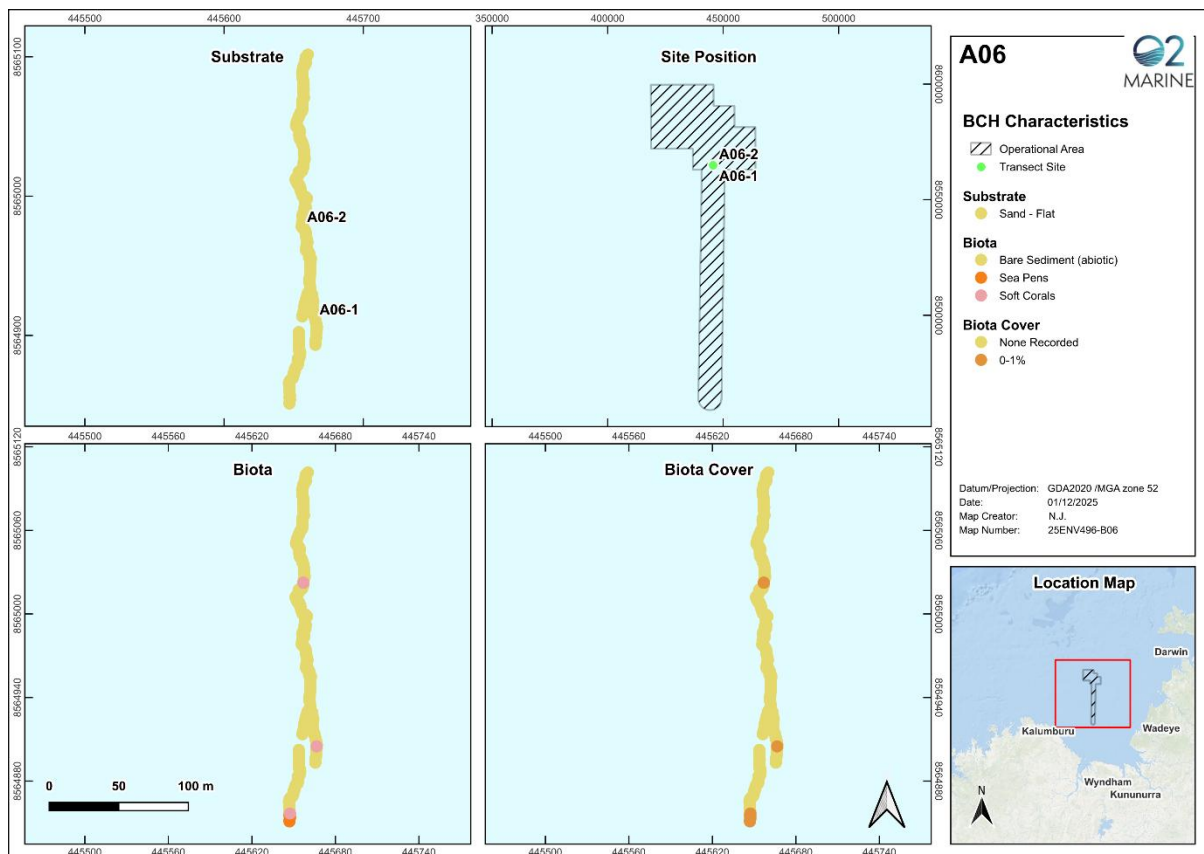


Figure 15: Assigned substrate, biota, and cover classifications at A06

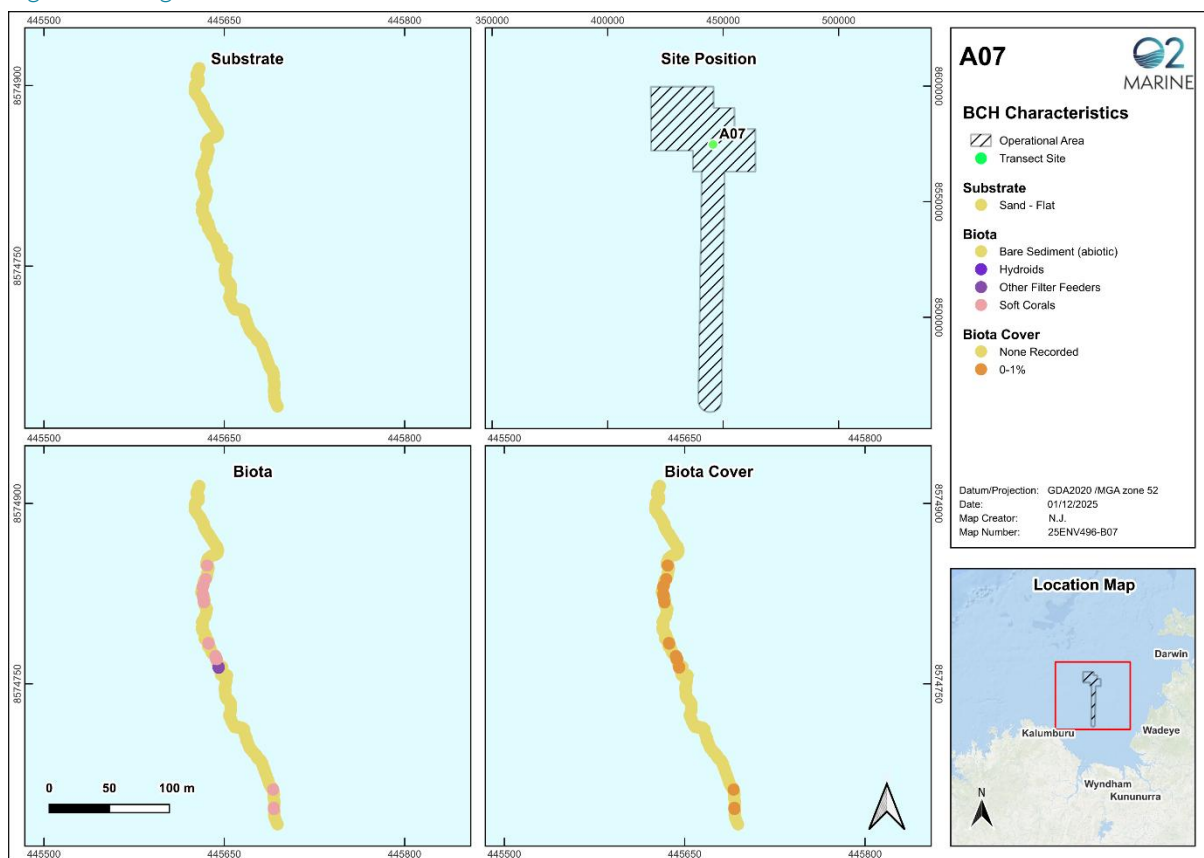


Figure 16: Assigned substrate, biota, and cover classifications at A07

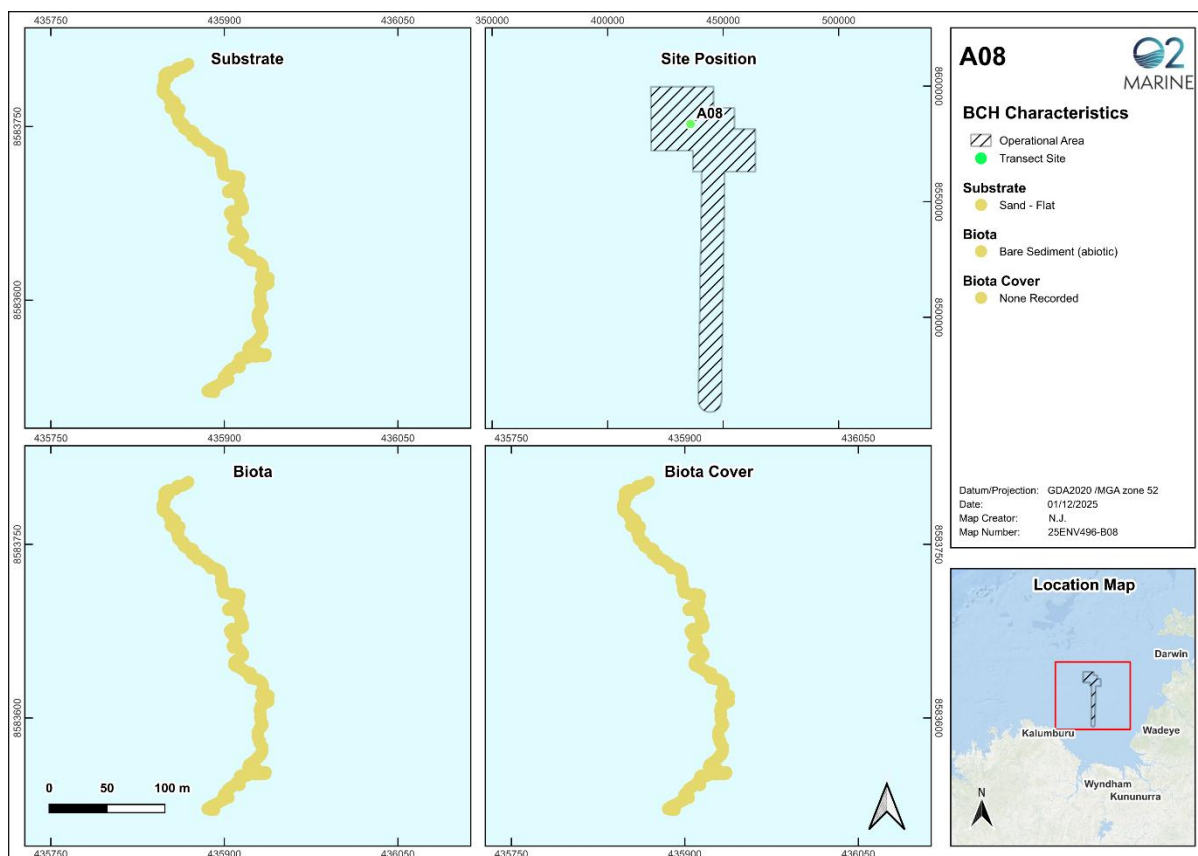


Figure 17: Assigned substrate, biota, and cover classifications at A08

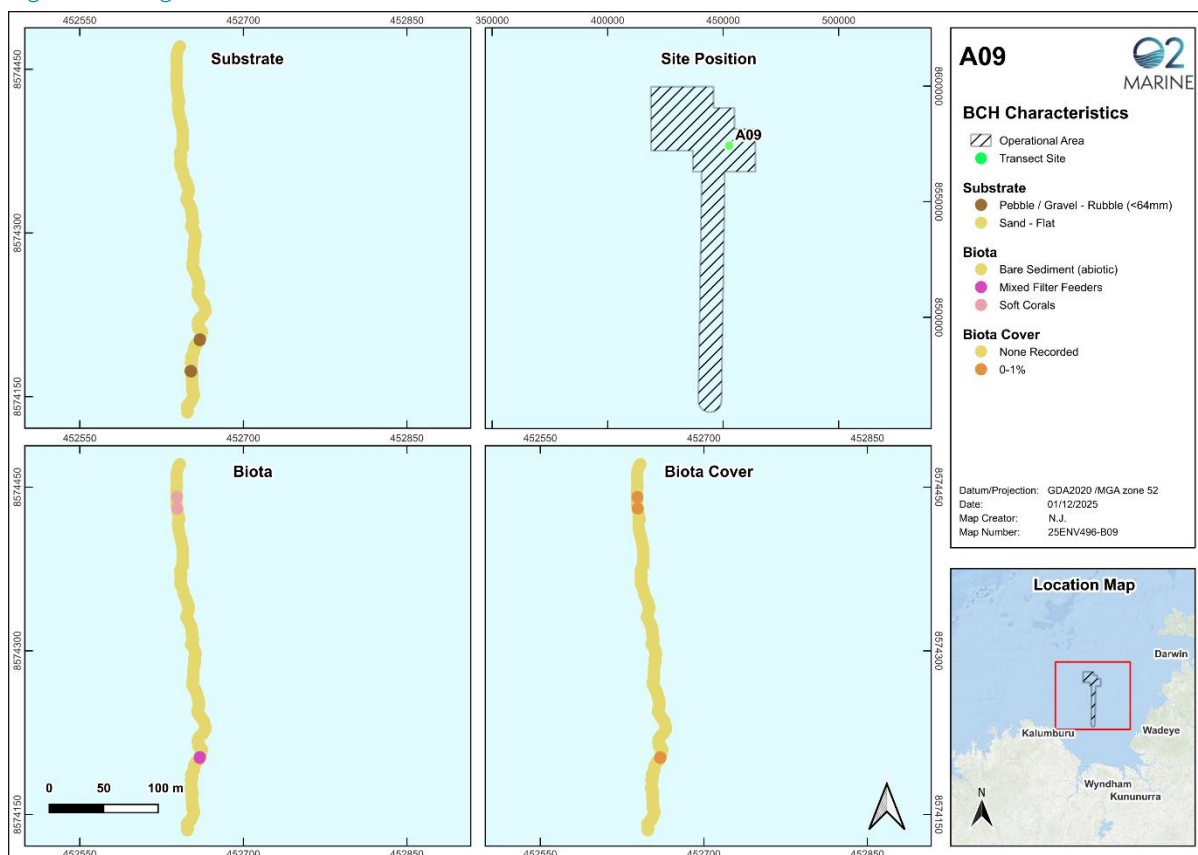


Figure 18: Assigned substrate, biota, and cover classifications at A09

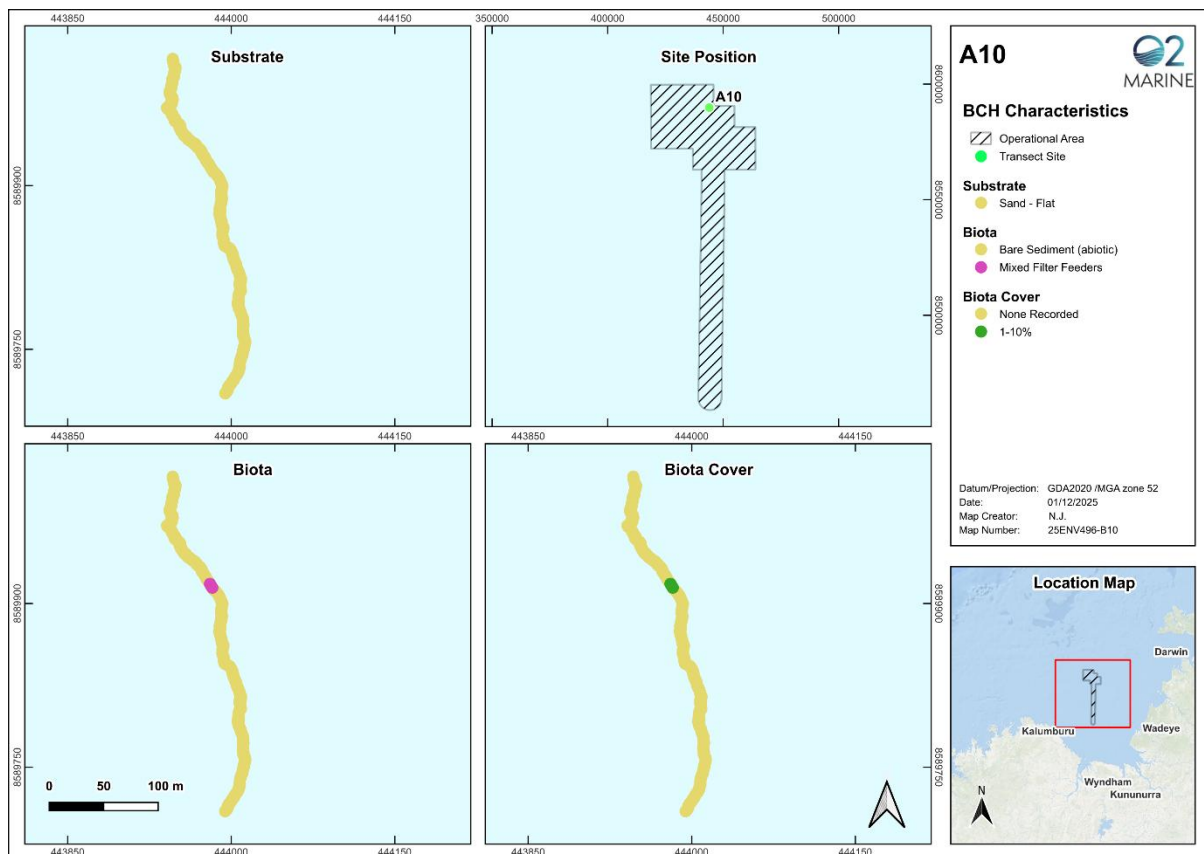


Figure 19: Assigned substrate, biota, and cover classifications at A10

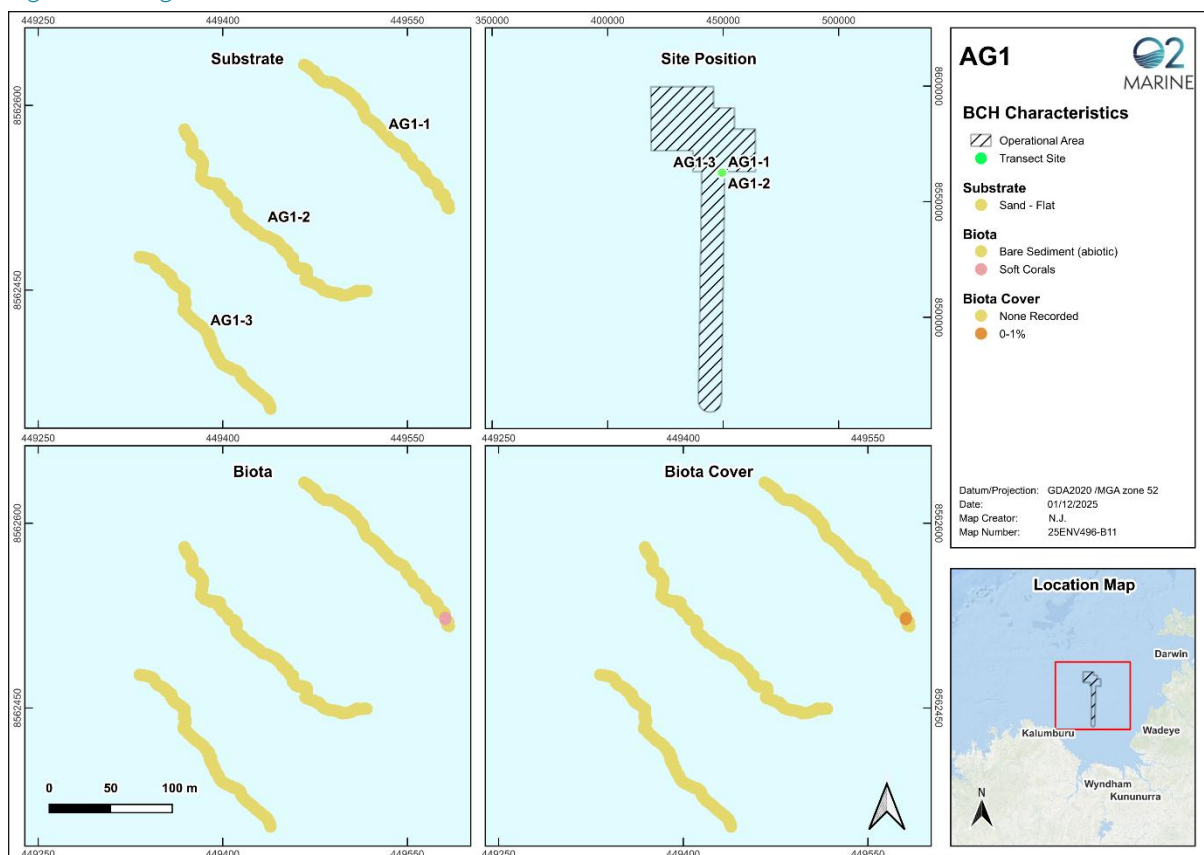


Figure 20: Assigned substrate, biota, and cover classifications at AG1

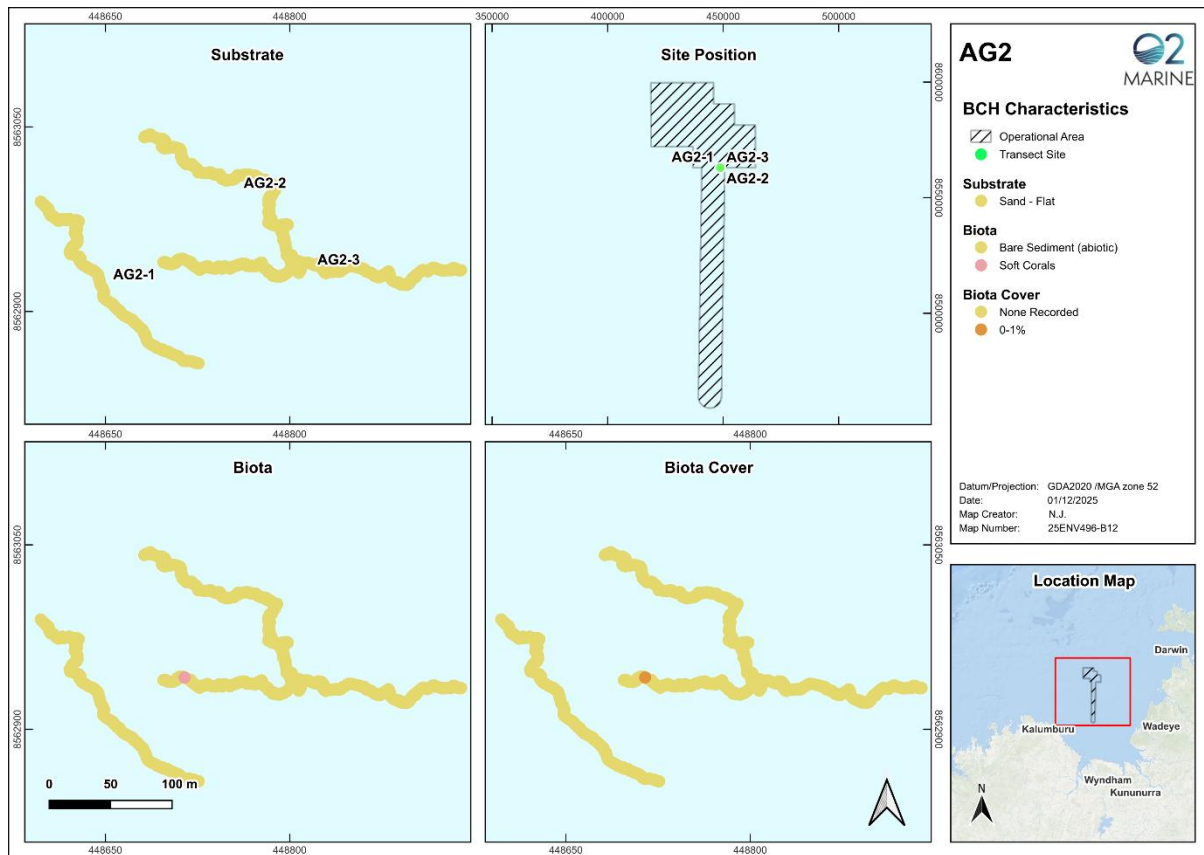


Figure 21: Assigned substrate, biota, and cover classifications at AG2

Appendix A.2. Category B

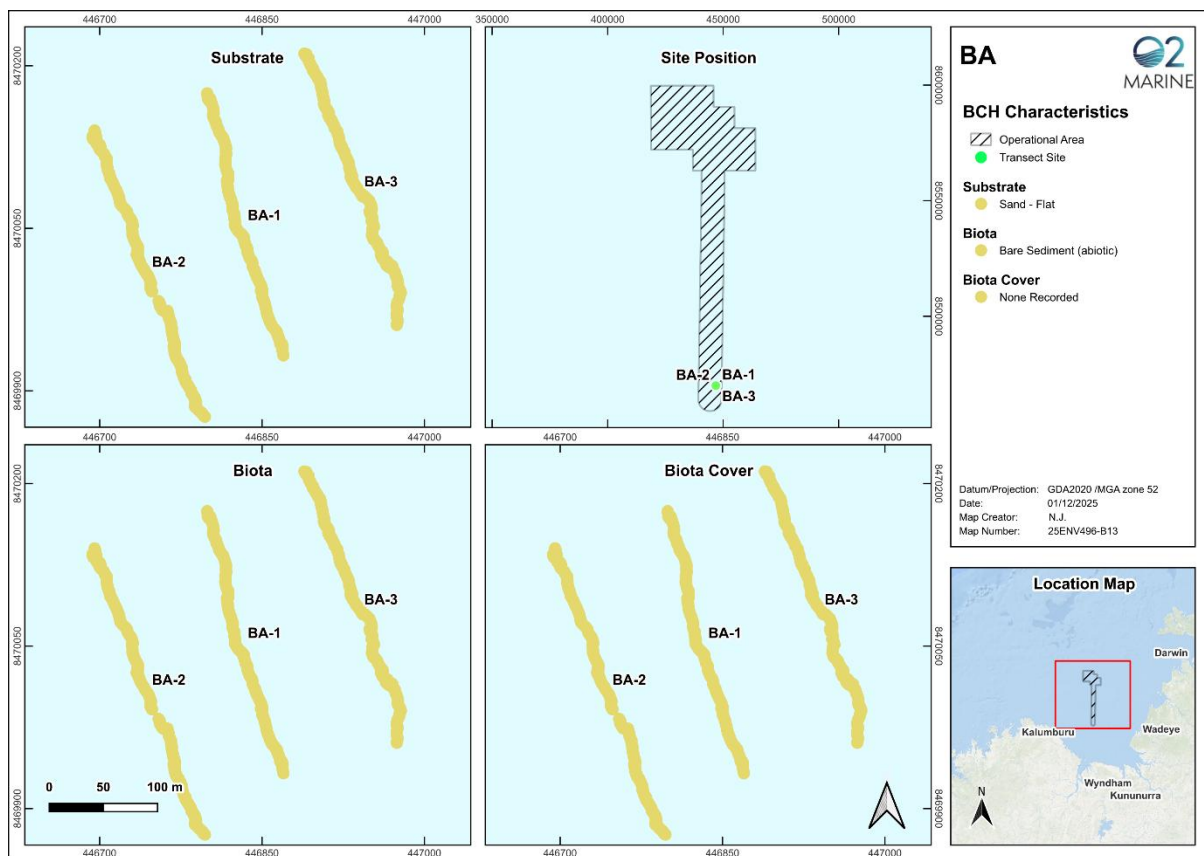


Figure 22: Assigned substrate, biota, and cover classifications at BA

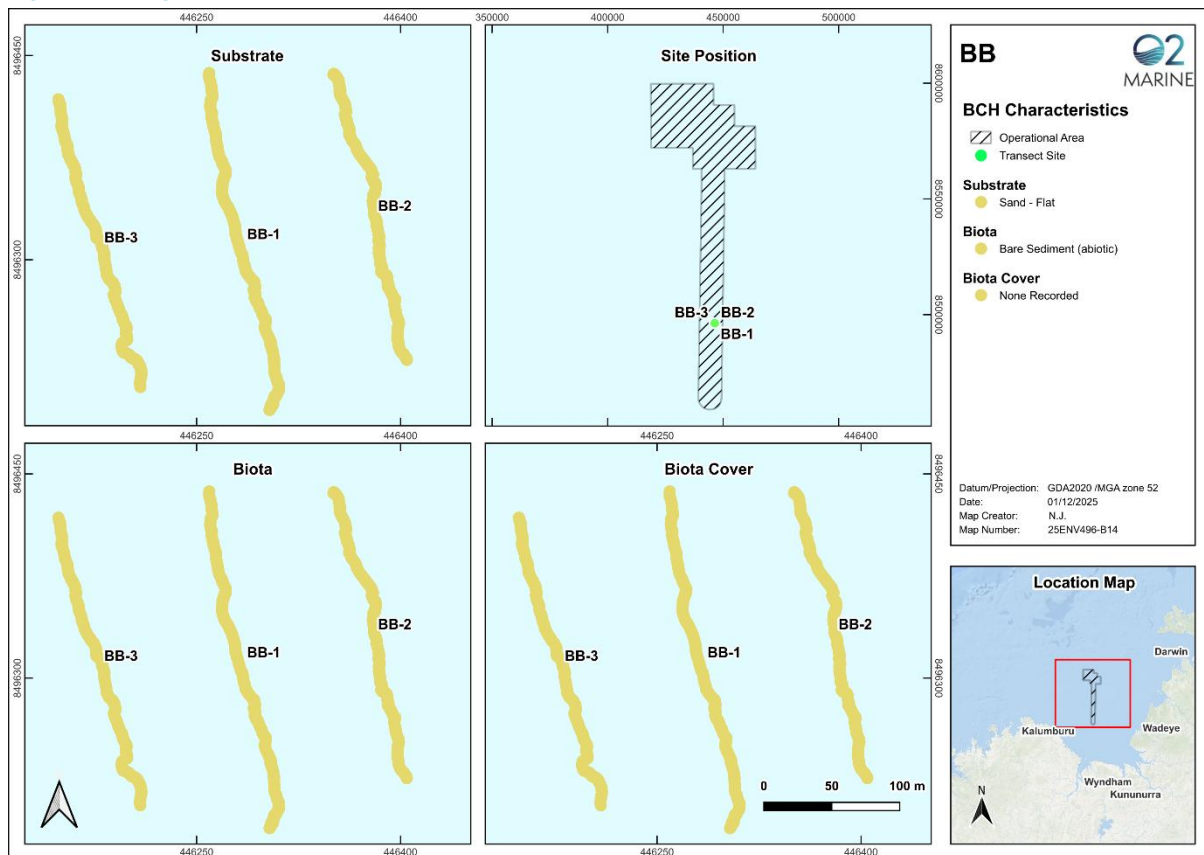


Figure 23: Assigned substrate, biota, and cover classifications at BB

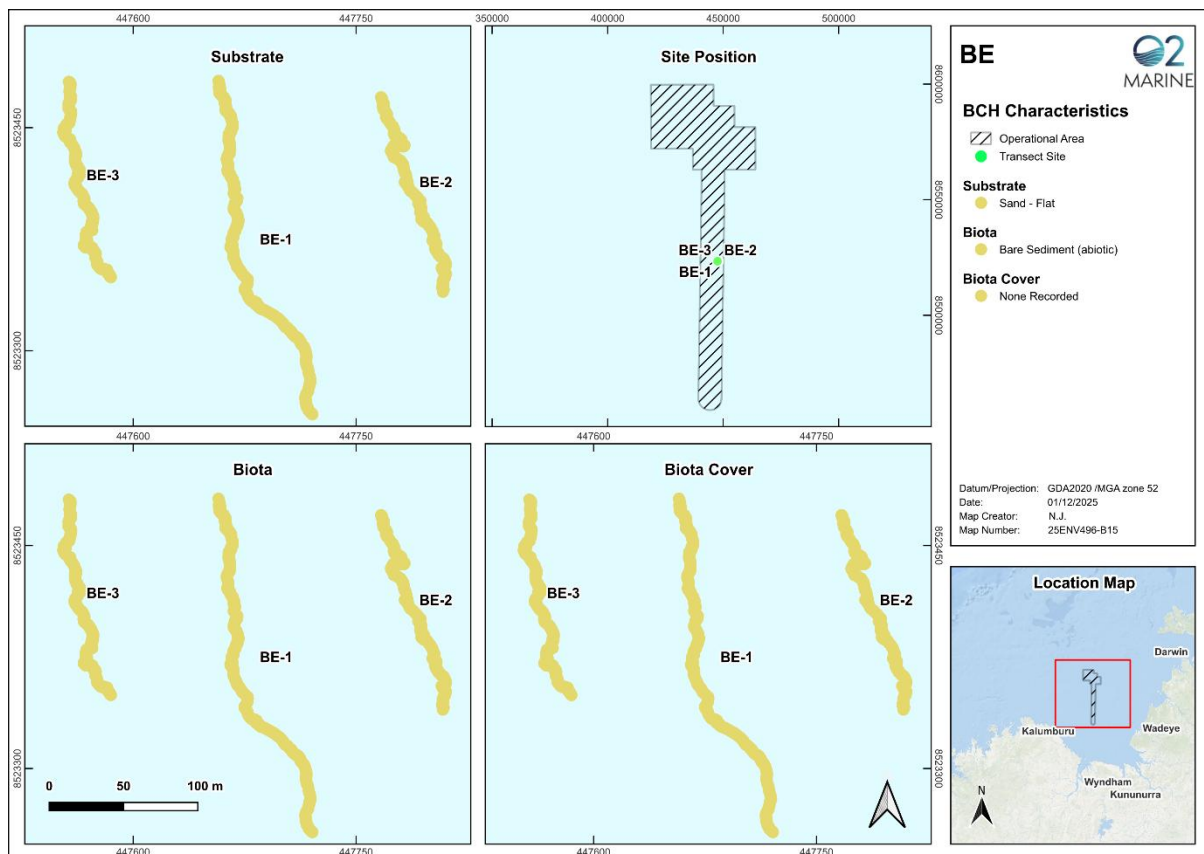


Figure 24: Assigned substrate, biota, and cover classifications at BE

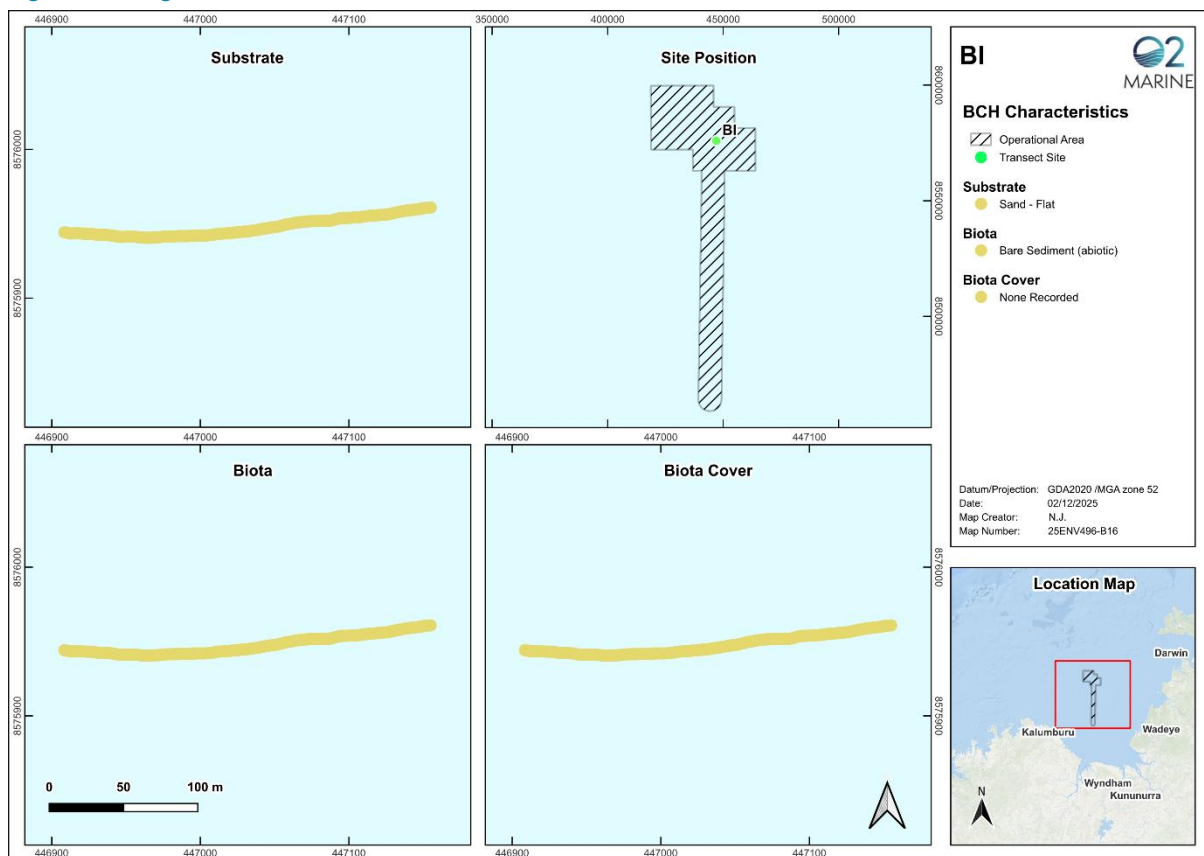


Figure 25: Assigned substrate, biota, and cover classifications at BI

Appendix A.3. Category C

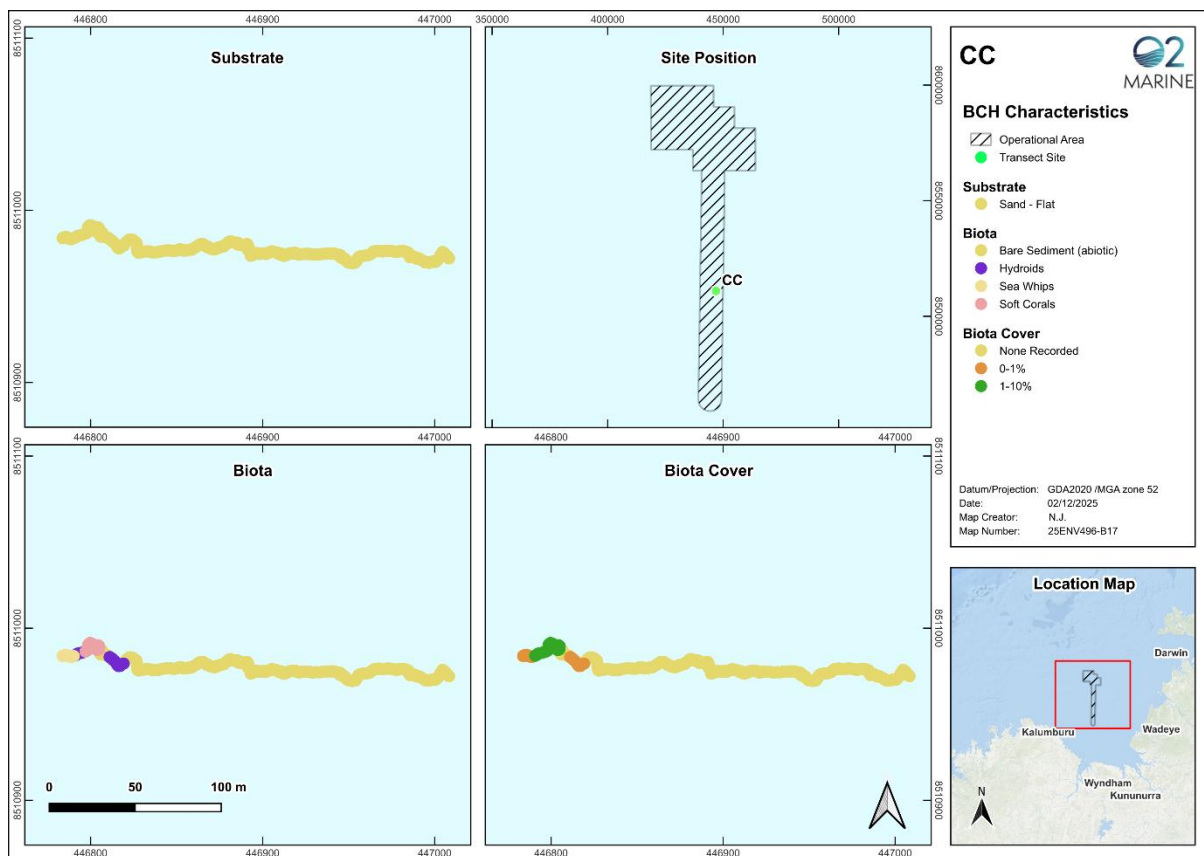


Figure 26: Assigned substrate, biota, and cover classifications at CC

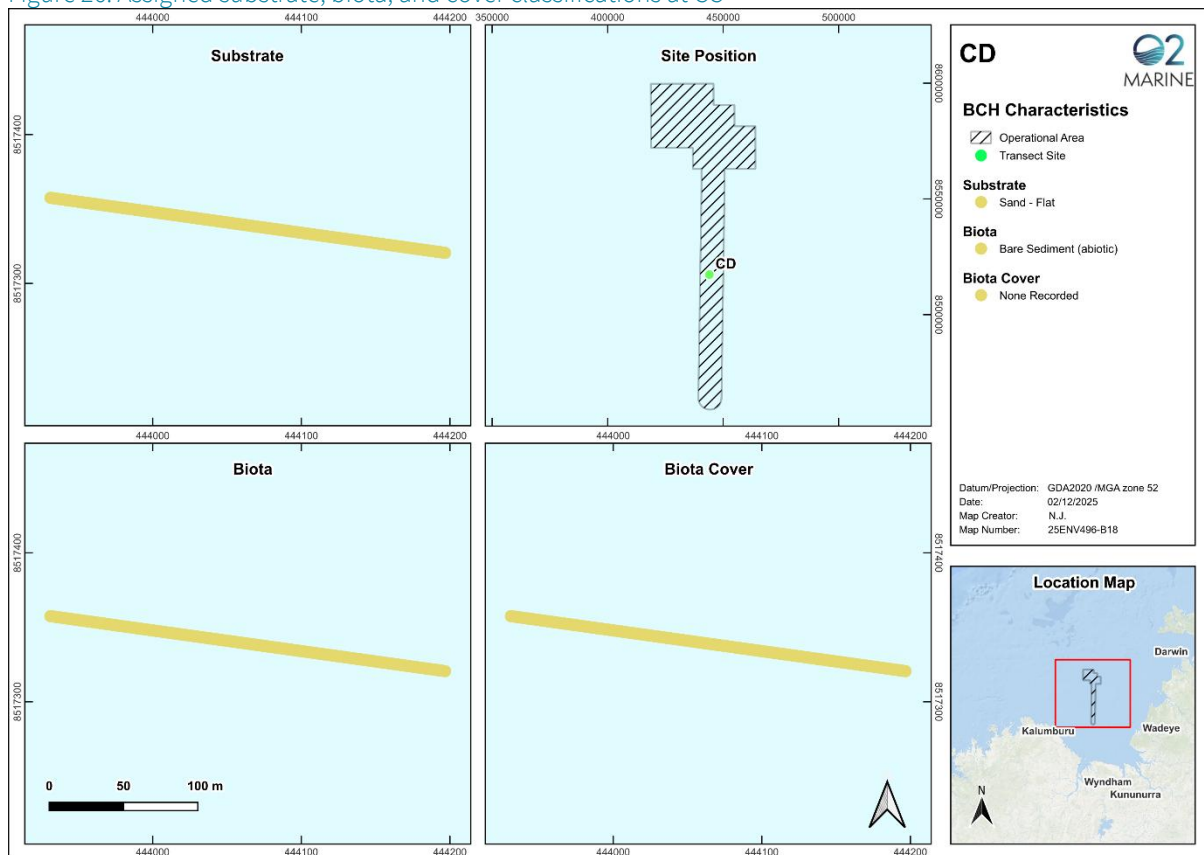


Figure 27: Assigned substrate, biota, and cover classifications at CD

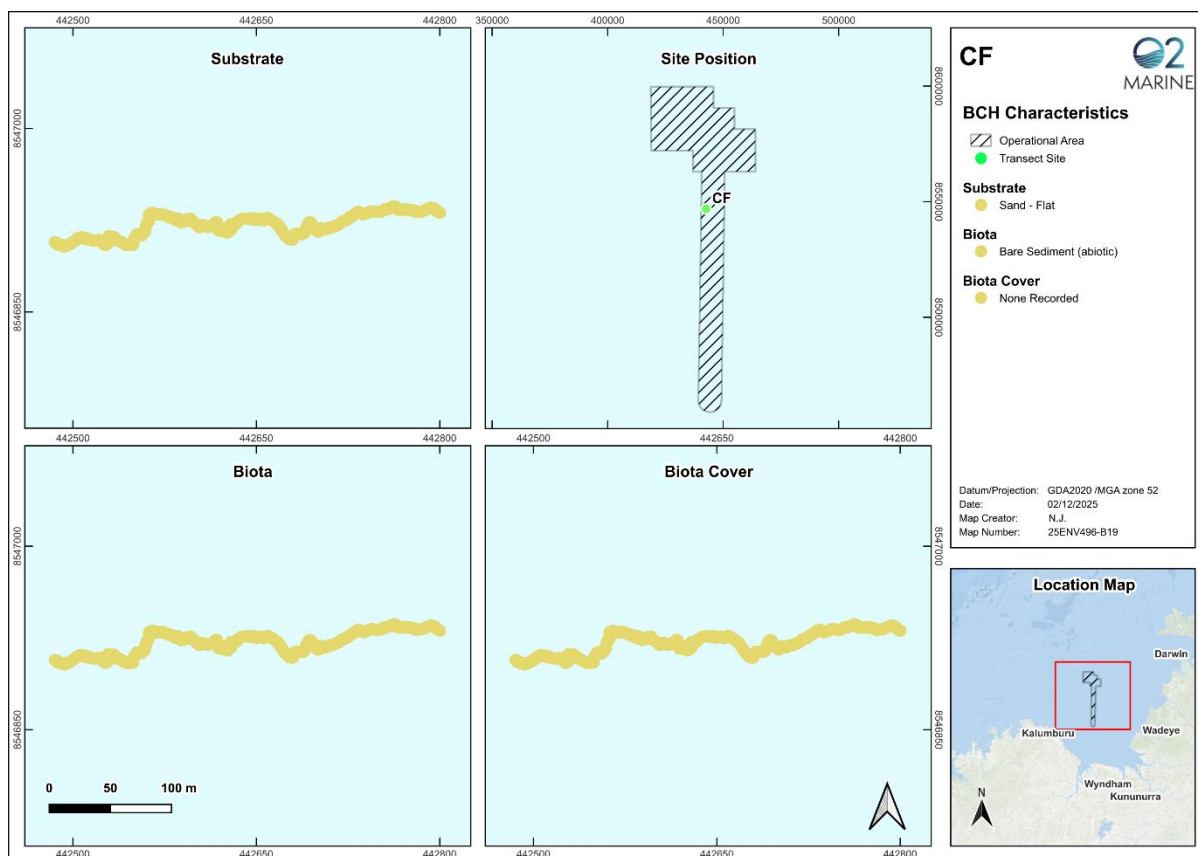


Figure 28: Assigned substrate, biota, and cover classifications at CF

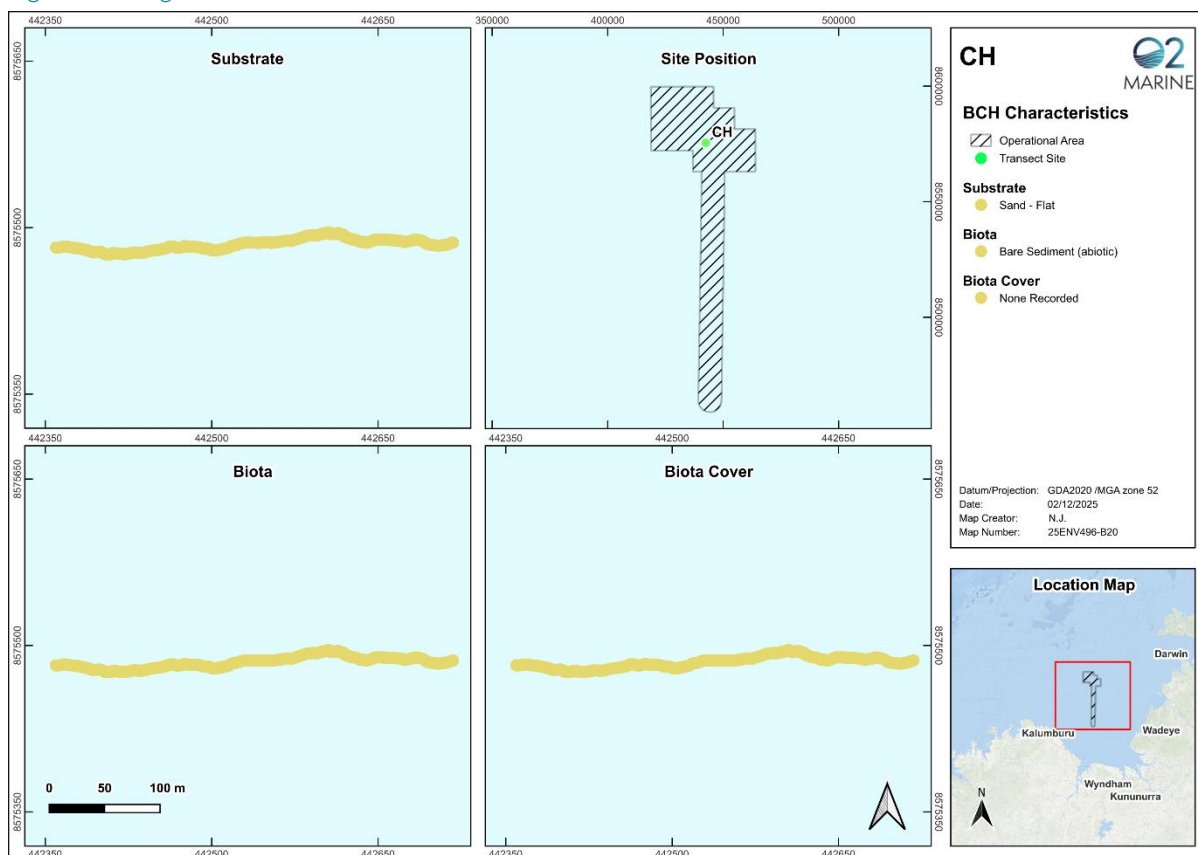


Figure 29: Assigned substrate, biota, and cover classifications at CH

Appendix A.4. Category D

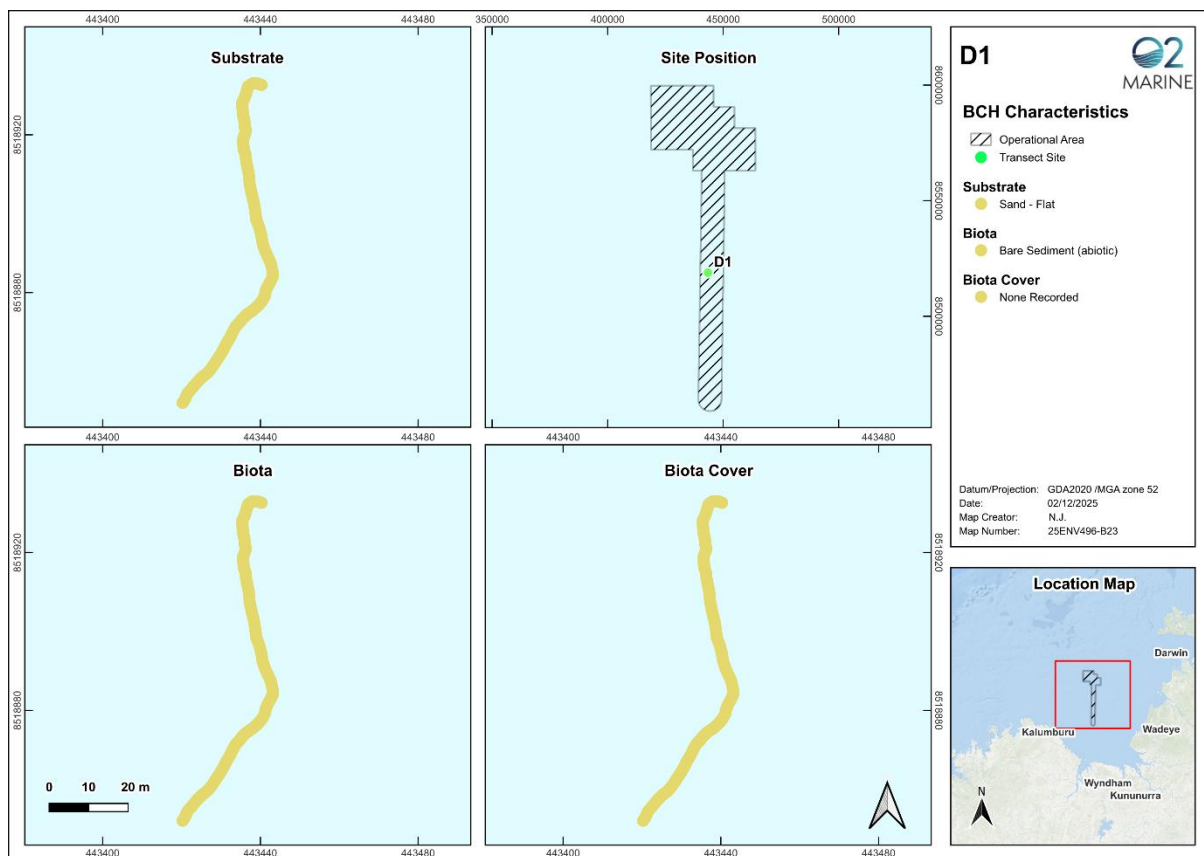


Figure 30: Assigned substrate, biota, and cover classifications at D1

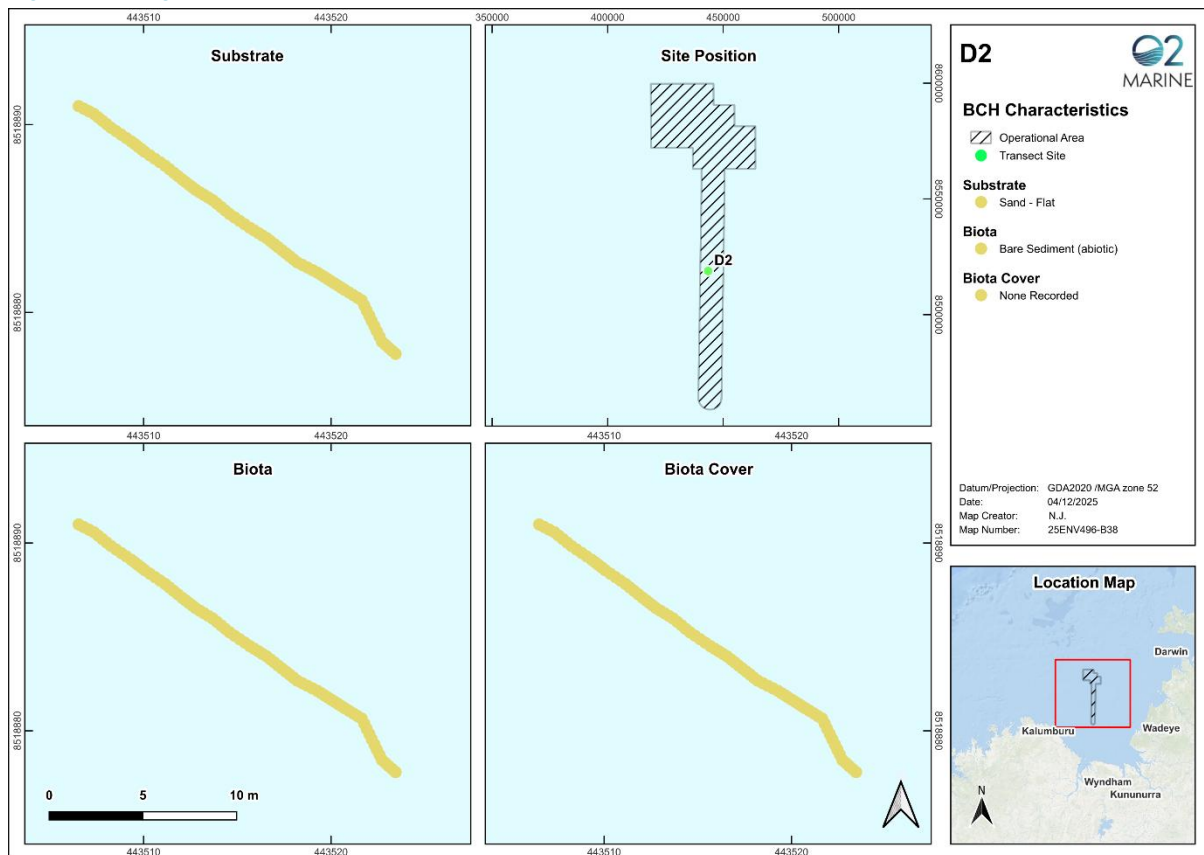


Figure 31: Assigned substrate, biota, and cover classifications at D2

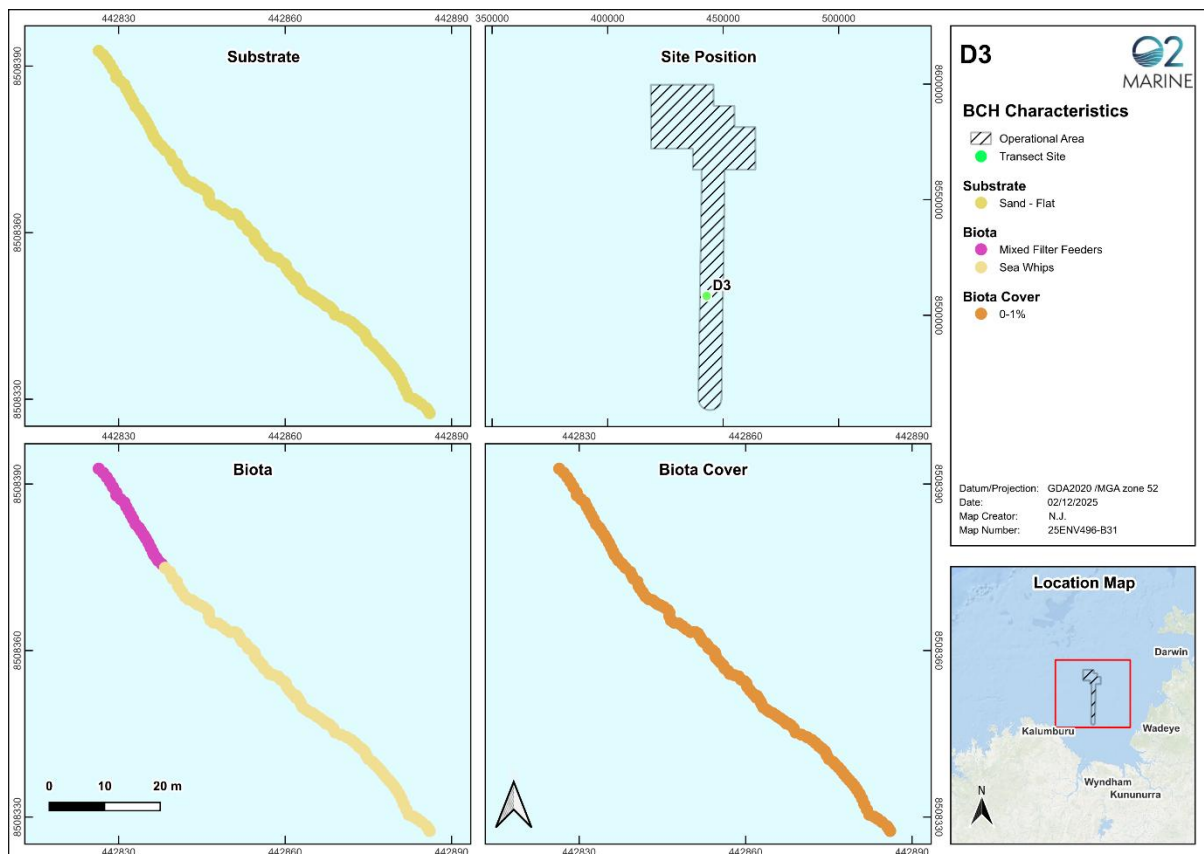


Figure 32: Assigned substrate, biota, and cover classifications at D3

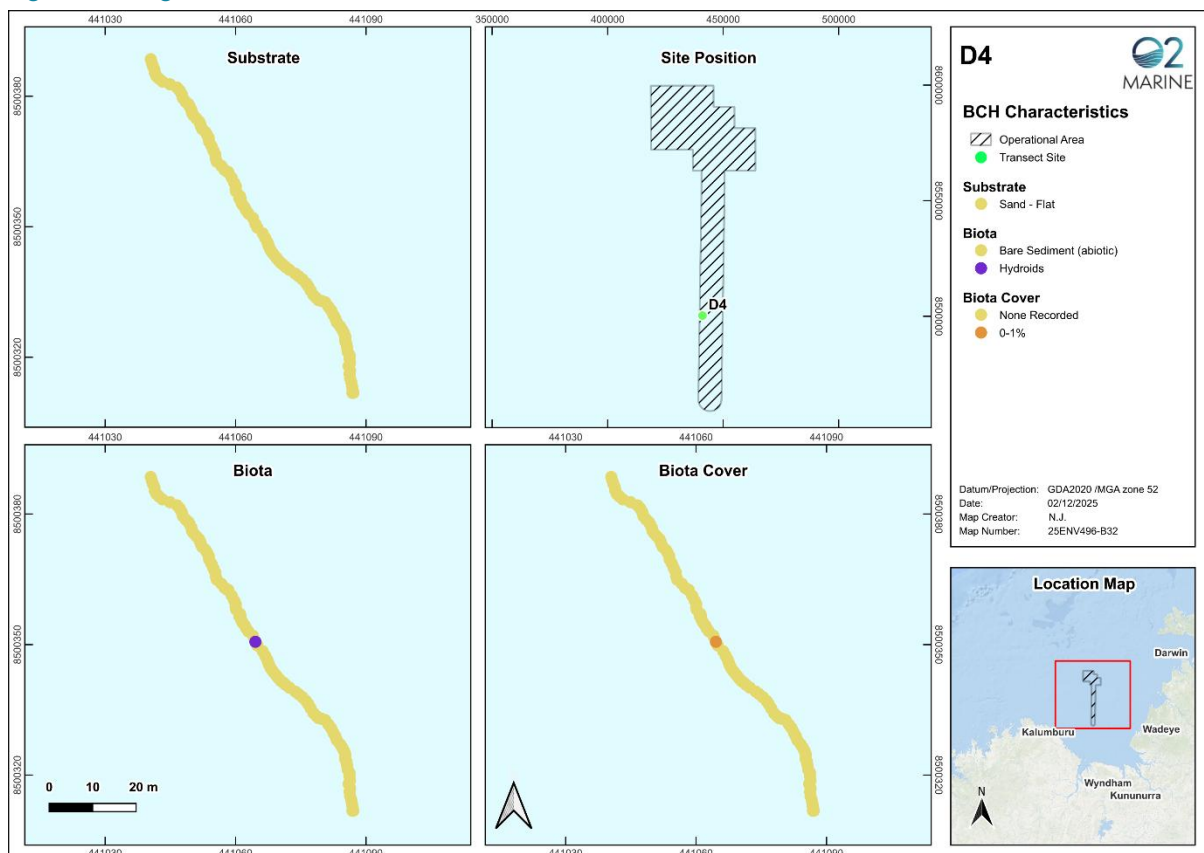


Figure 33: Assigned substrate, biota, and cover classifications at D4

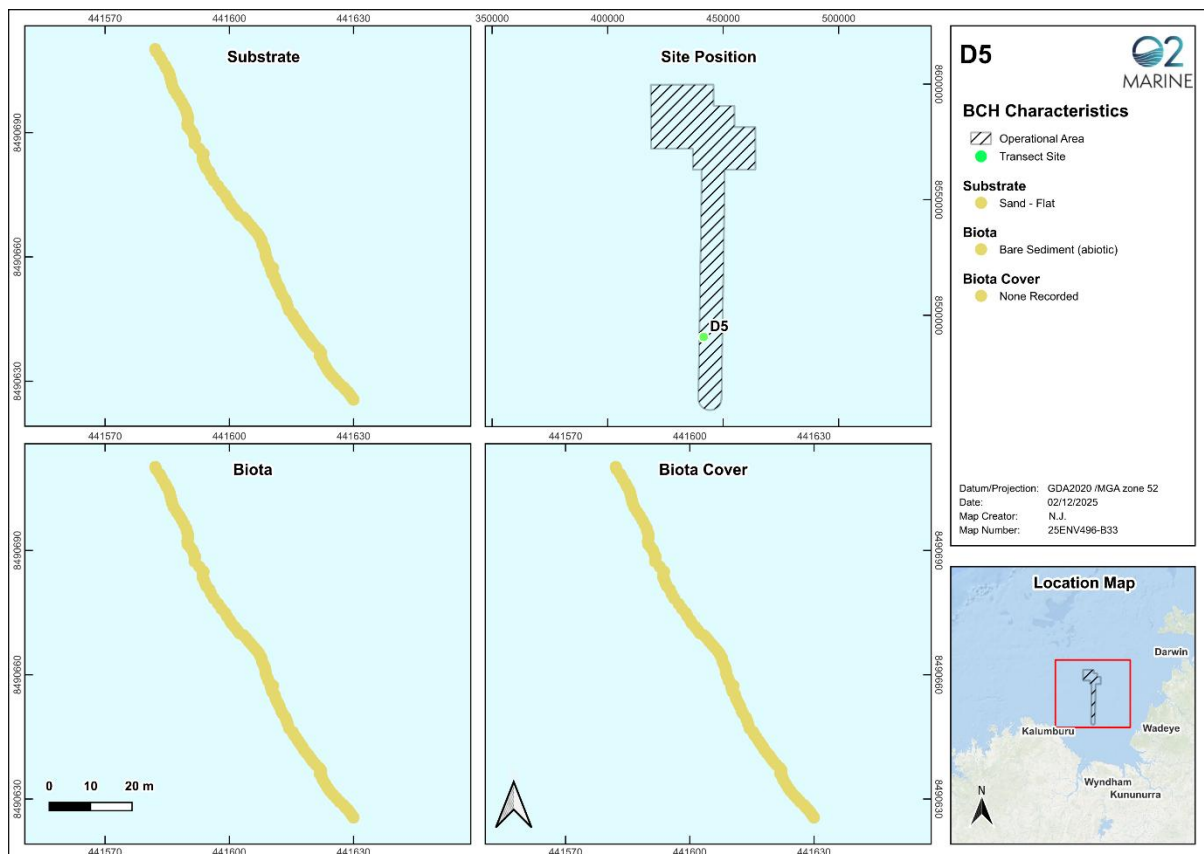


Figure 34: Assigned substrate, biota, and cover classifications at D5

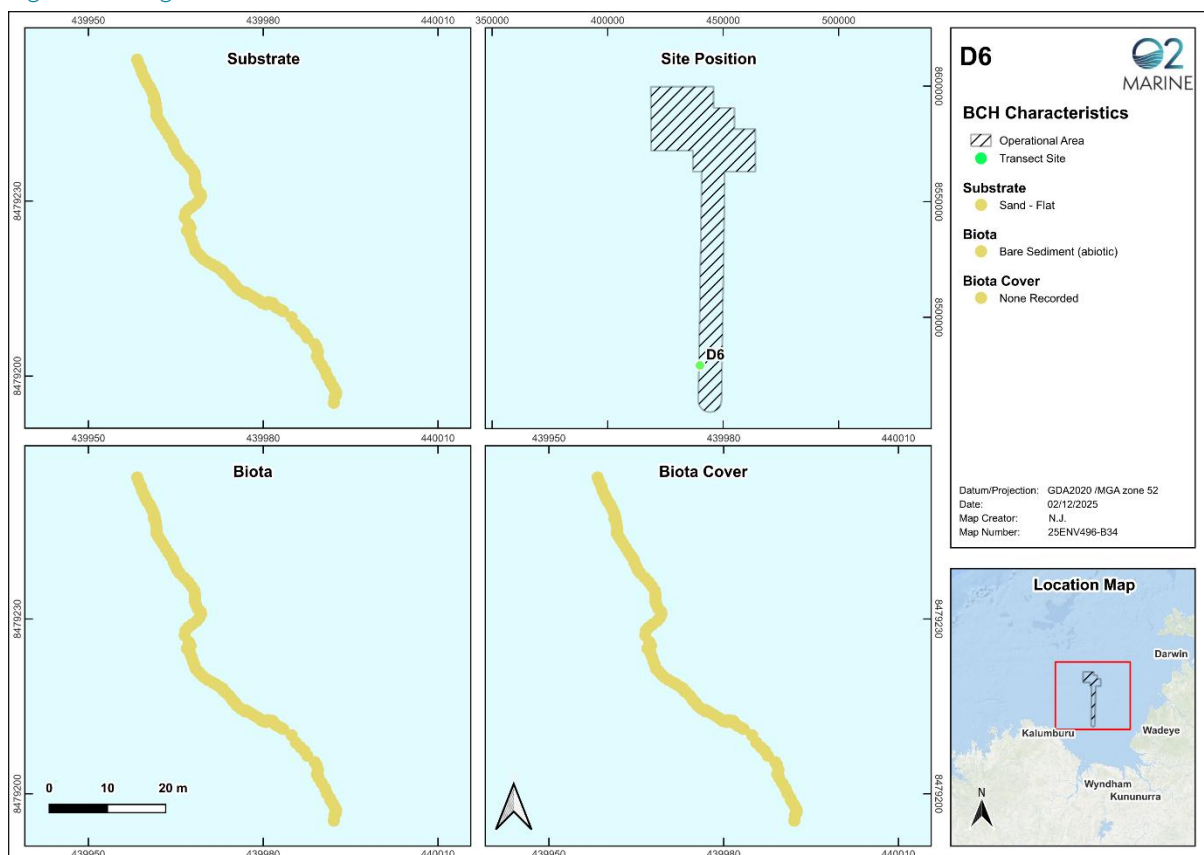


Figure 35: Assigned substrate, biota, and cover classifications at D6

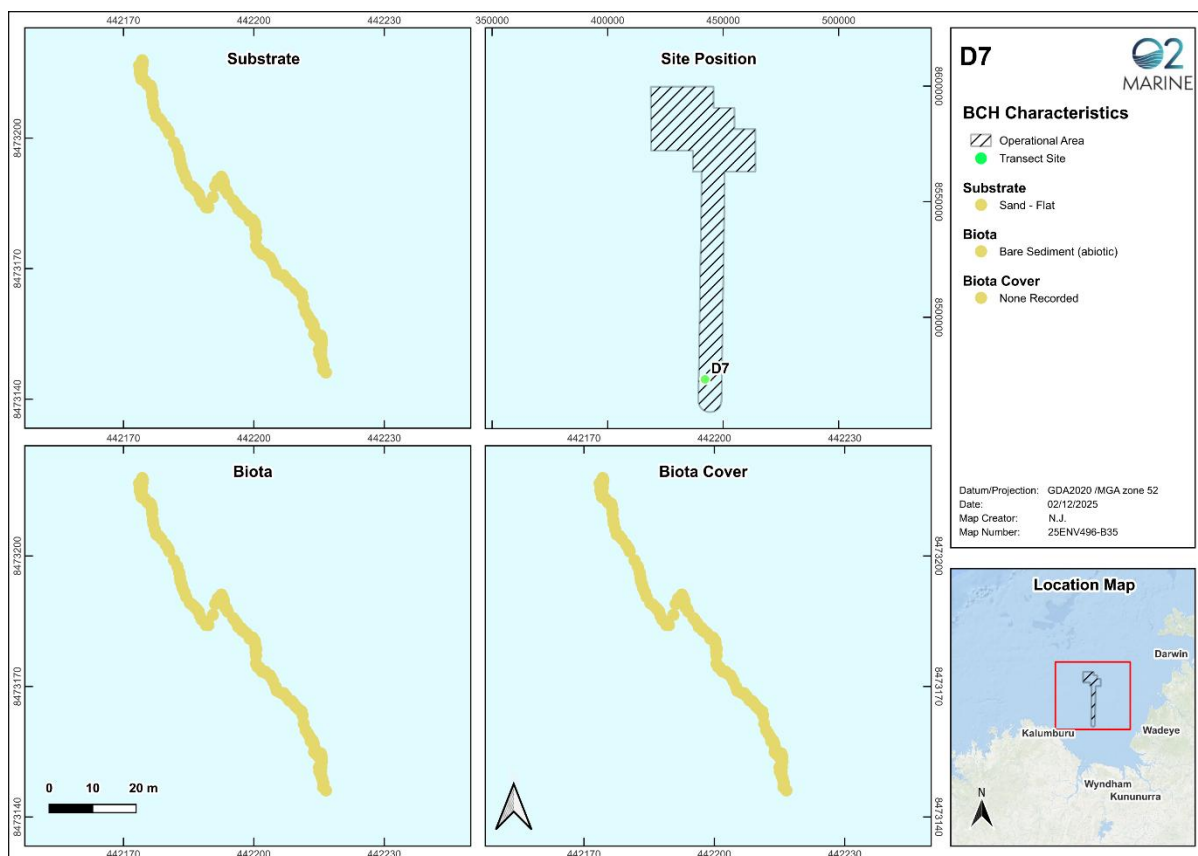


Figure 36: Assigned substrate, biota, and cover classifications at D7

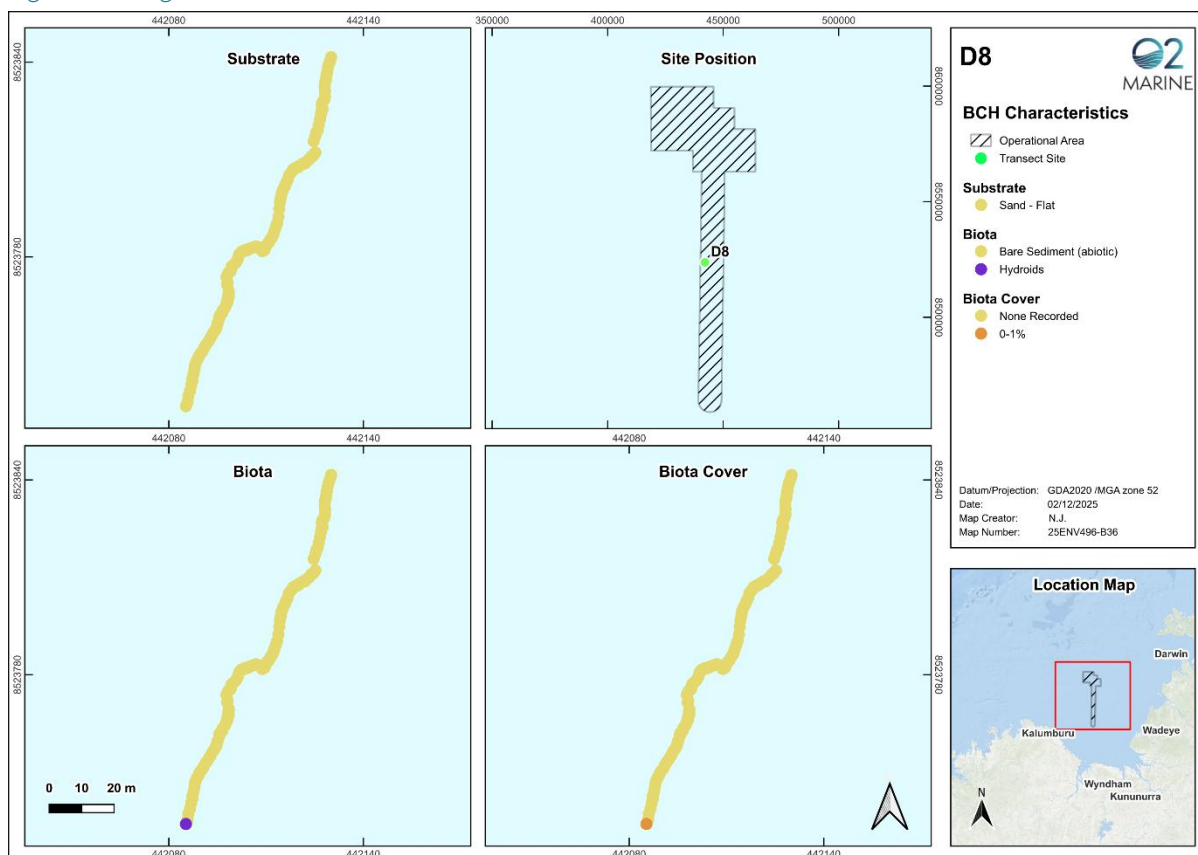


Figure 37: Assigned substrate, biota, and cover classifications at D8

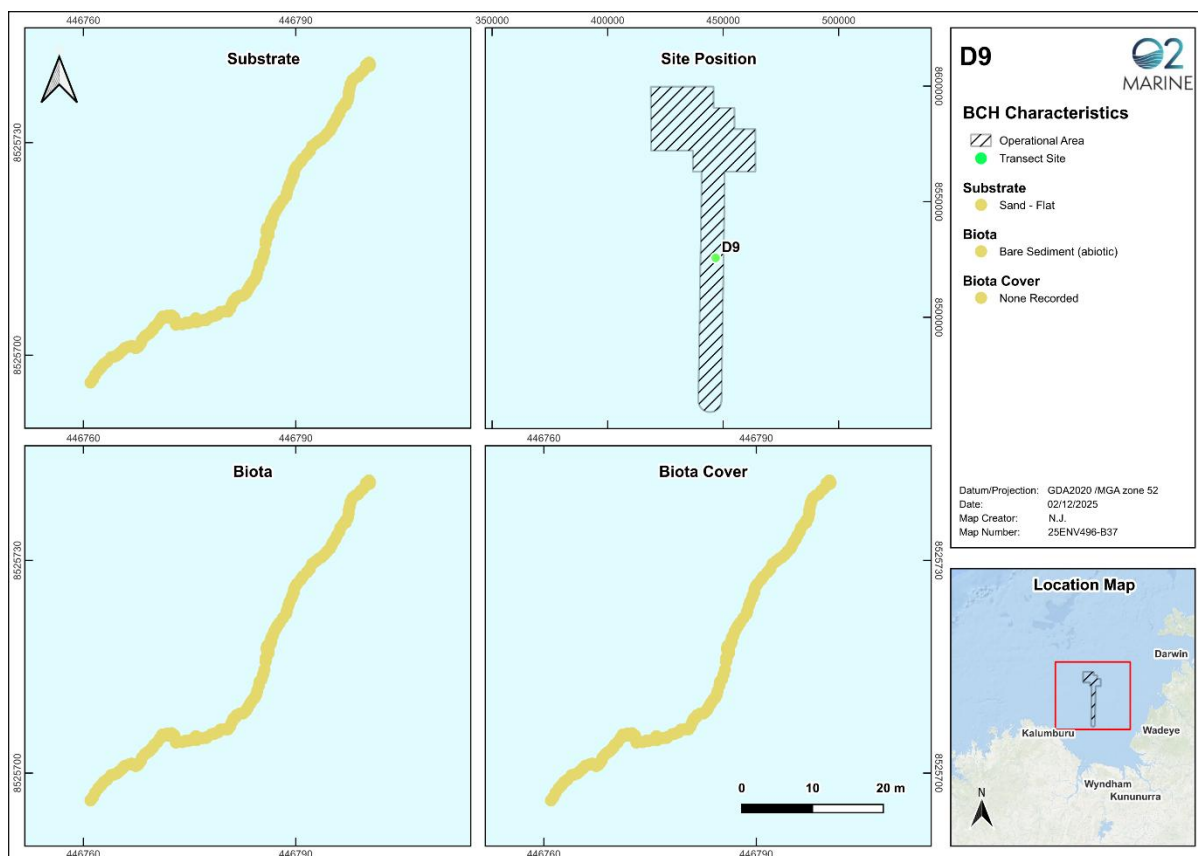


Figure 38: Assigned substrate, biota, and cover classifications at D9

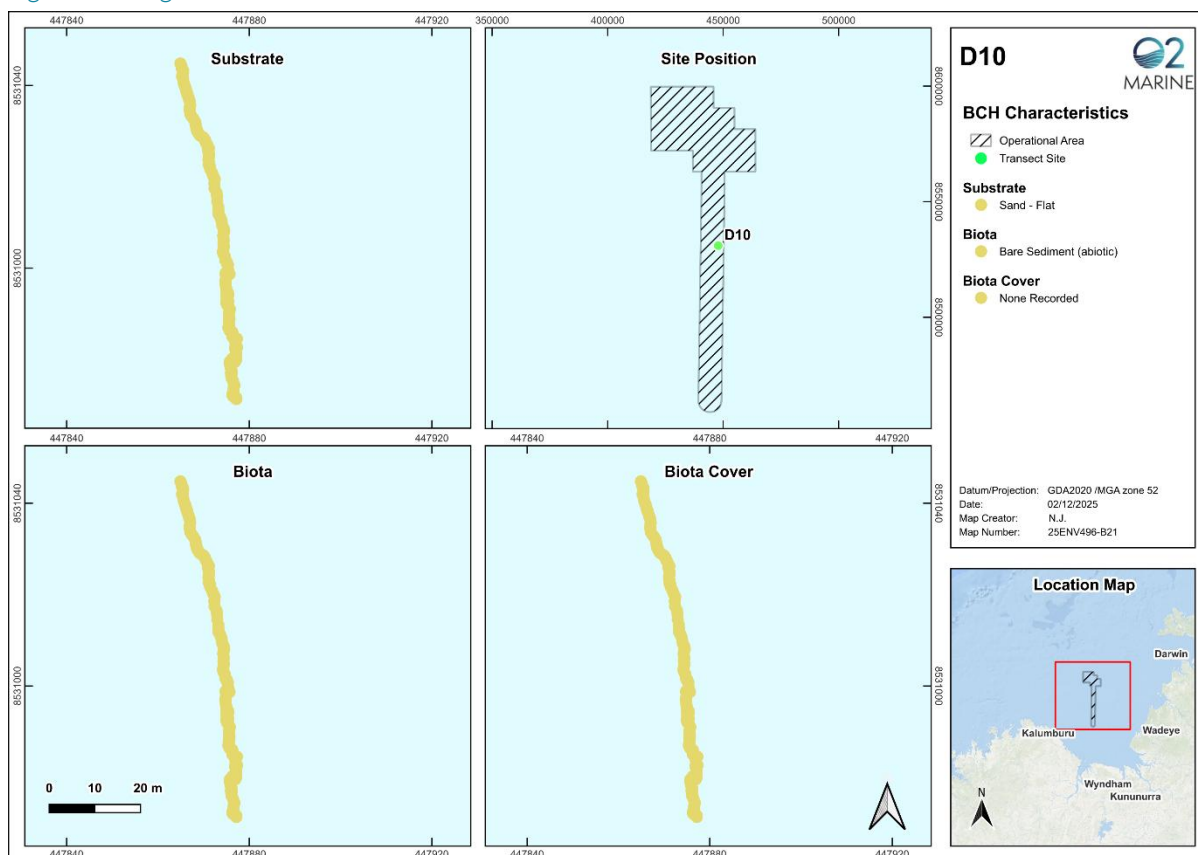


Figure 39: Assigned substrate, biota, and cover classifications at D10

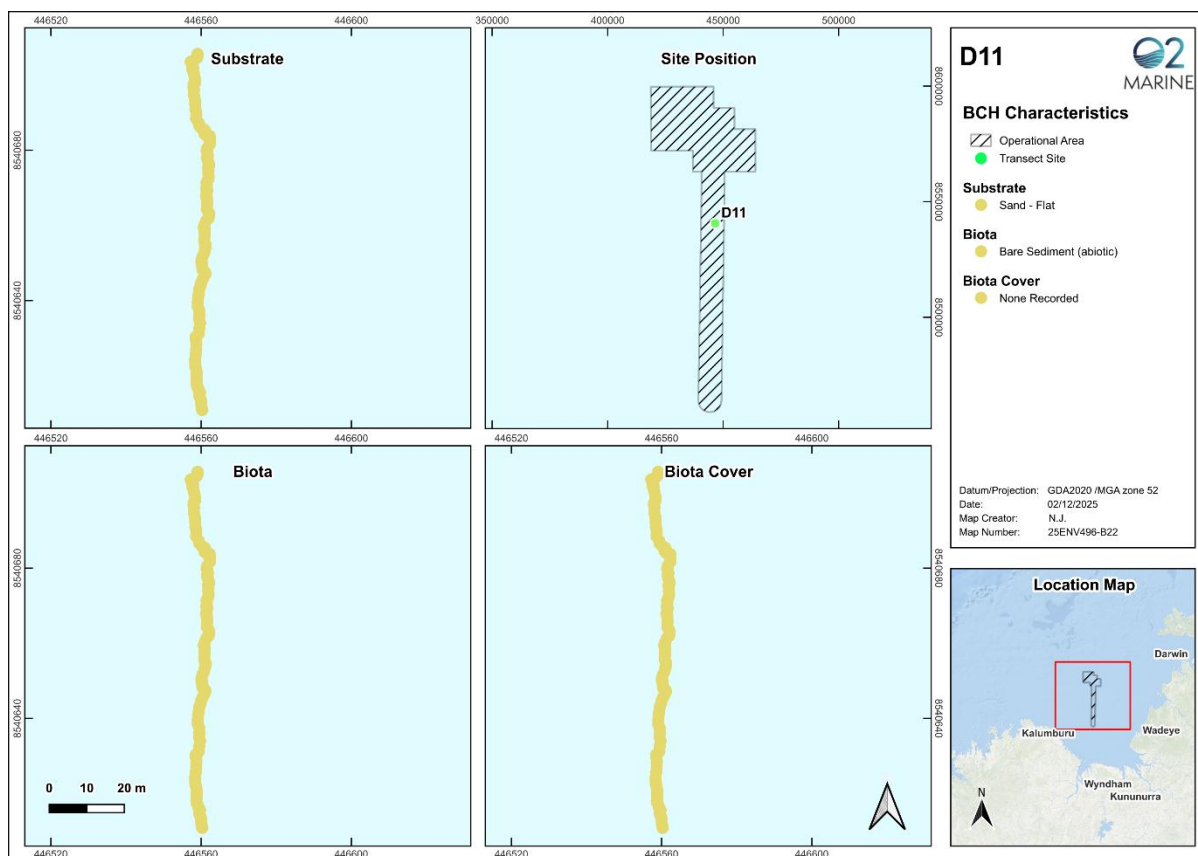


Figure 40: Assigned substrate, biota, and cover classifications at D11

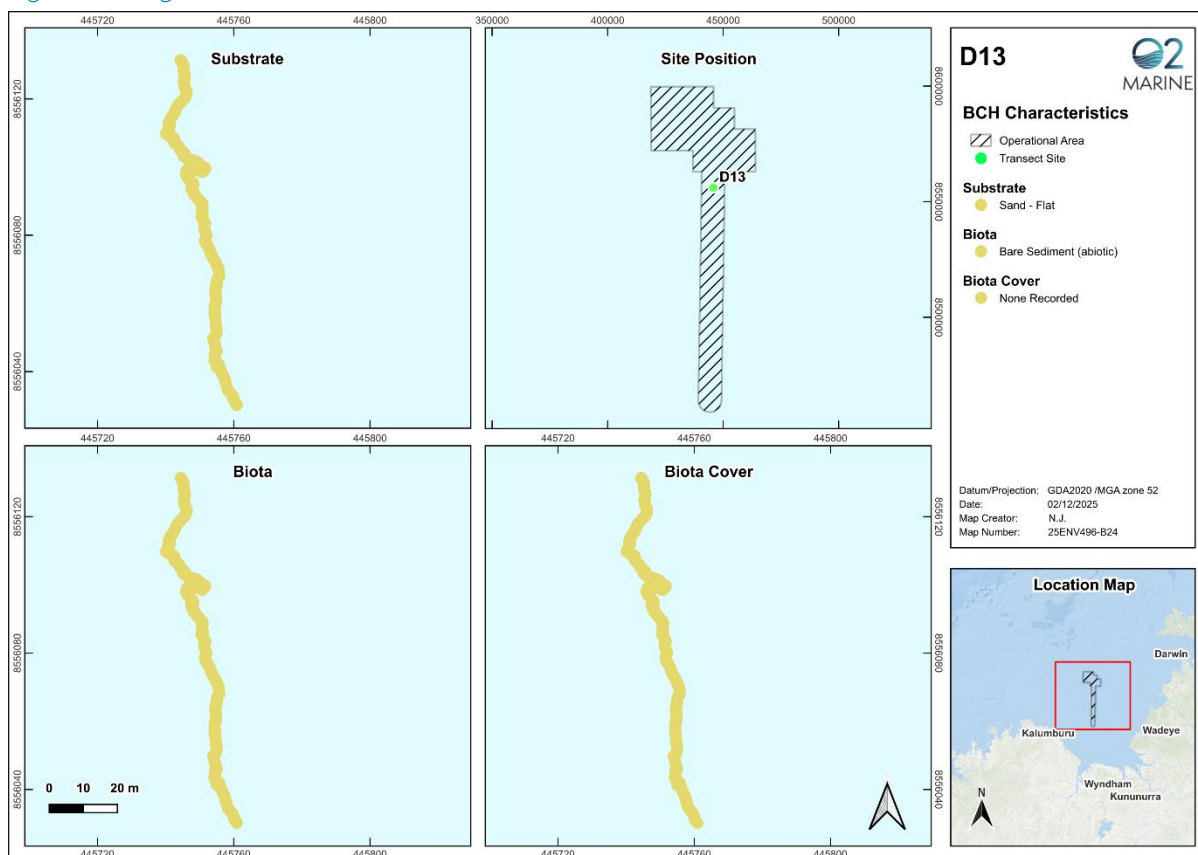


Figure 41: Assigned substrate, biota, and cover classifications at D13

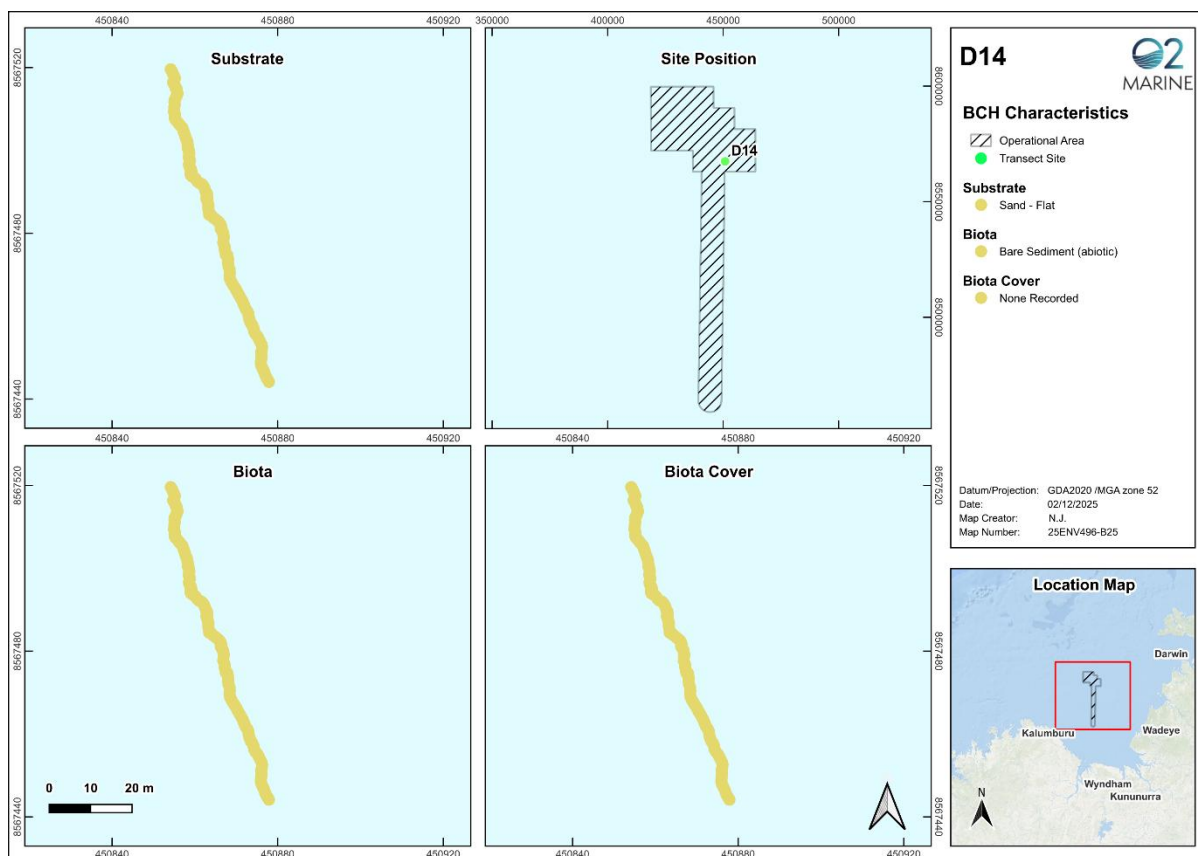


Figure 42: Assigned substrate, biota, and cover classifications at D14

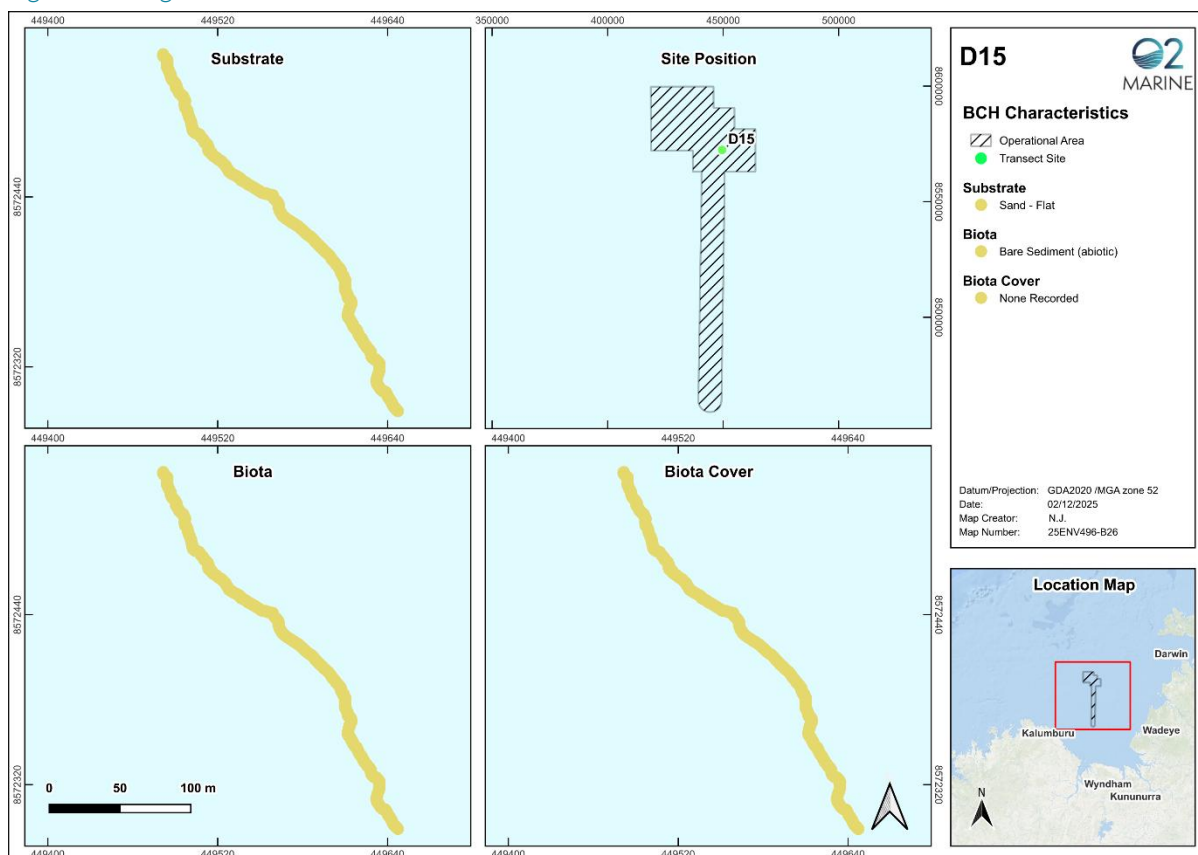


Figure 43: Assigned substrate, biota, and cover classifications at D15

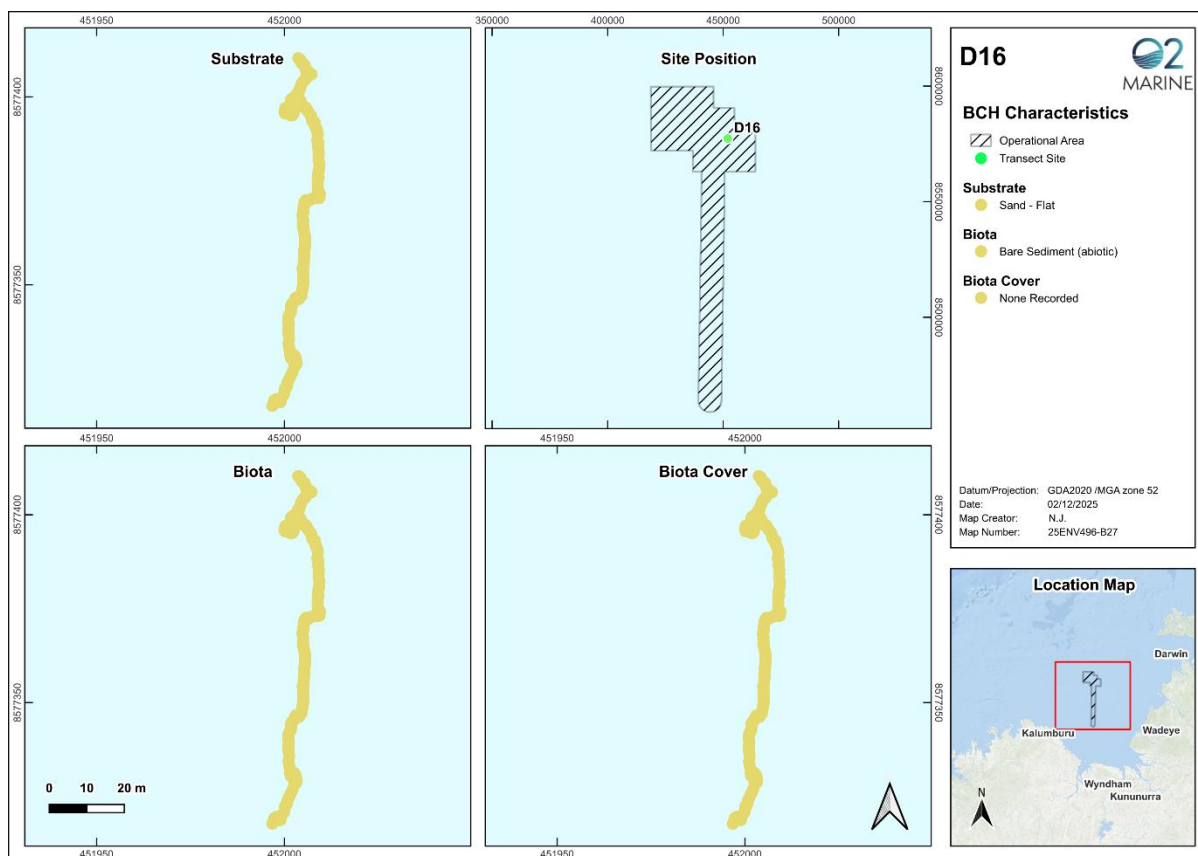


Figure 44: Assigned substrate, biota, and cover classifications at D16

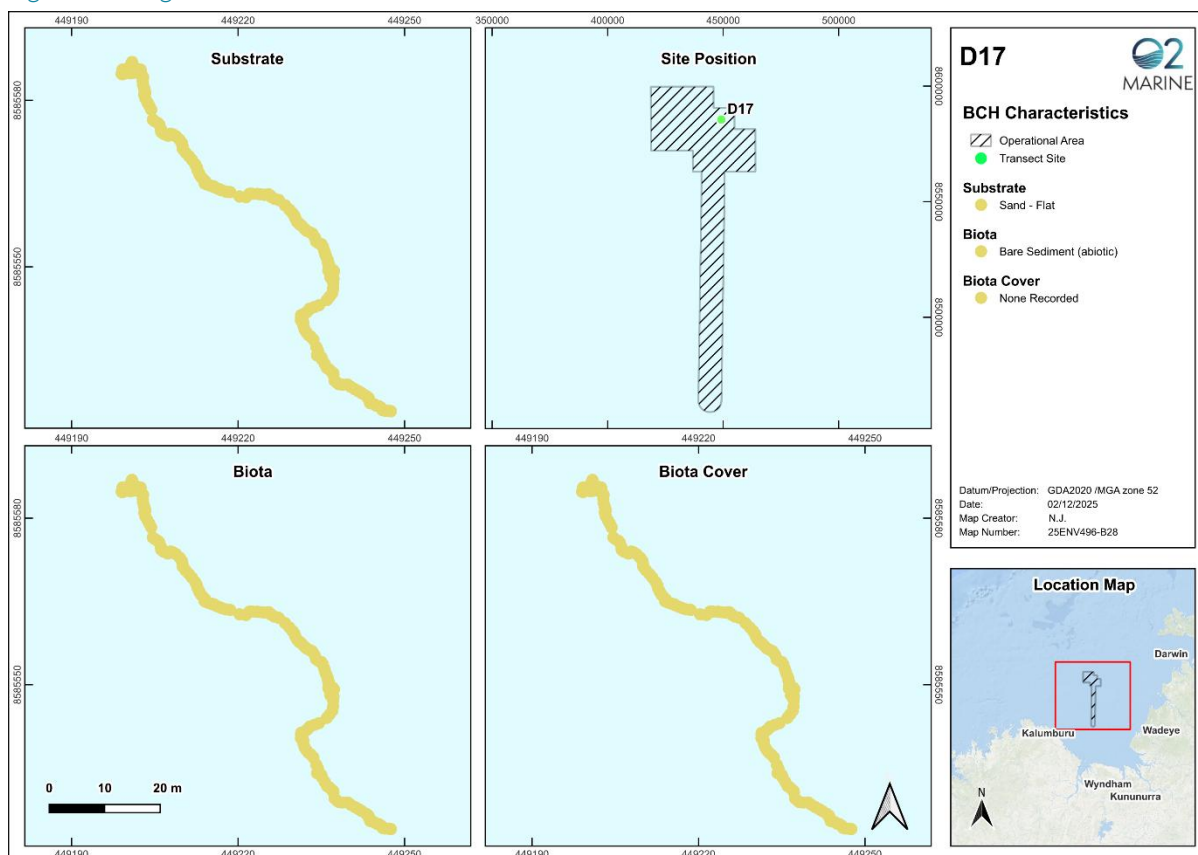


Figure 45: Assigned substrate, biota, and cover classifications at D17

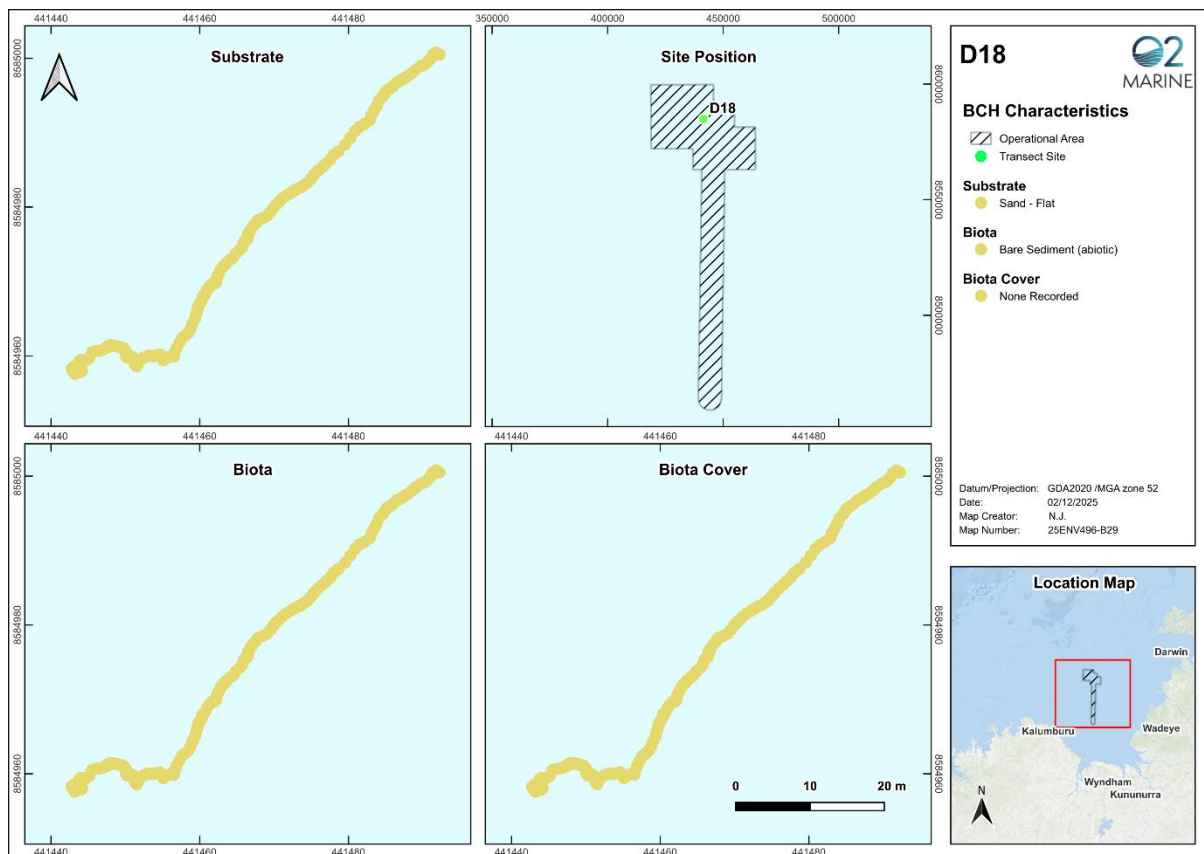


Figure 46: Assigned substrate, biota, and cover classifications at D18

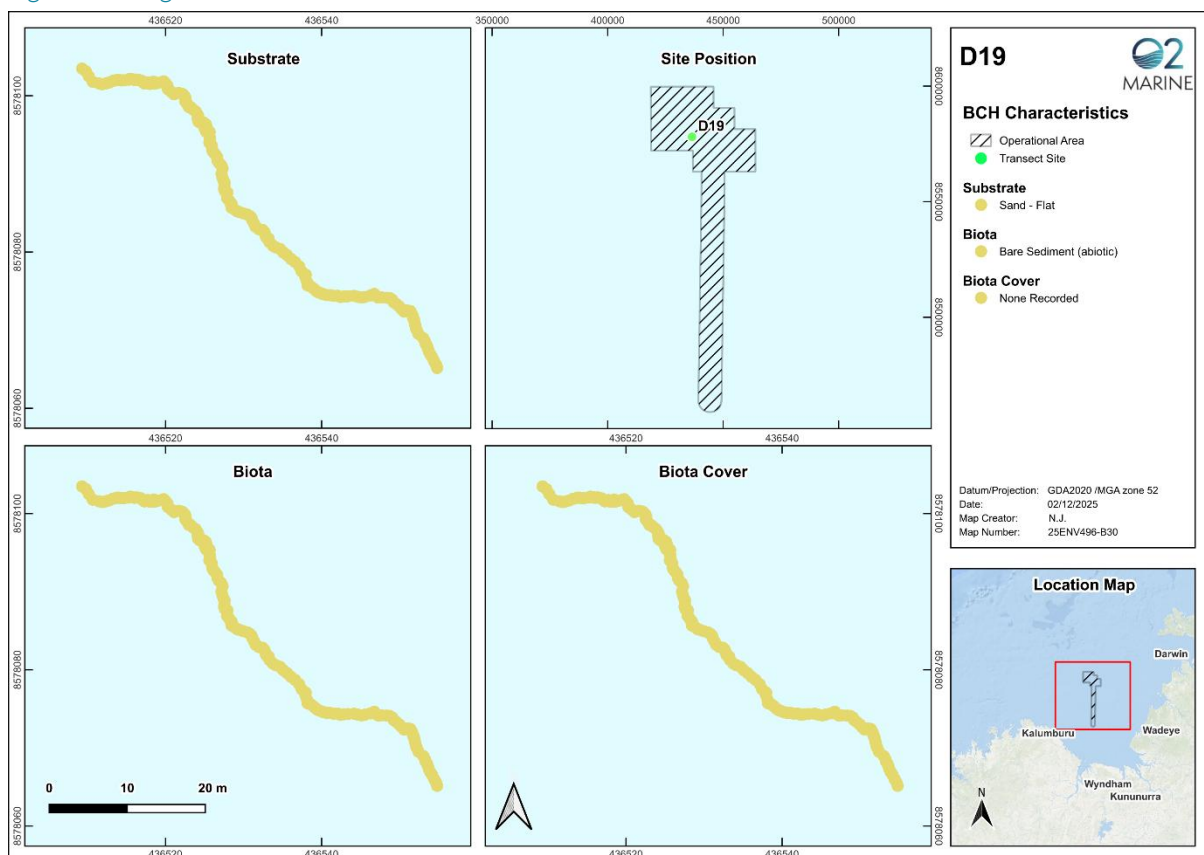


Figure 47: Assigned substrate, biota, and cover classifications at D19

Appendix B. Proportion of Classified Points Per Transect

Table 5: Number of ground-truth points classified per major biota and cover class

Transect	Bare substrate (no biota)		Filter Feeders (0-1%)		Filter Feeders (1-10%)	
	# of points	% of points	# of points	% of points	# of points	% of points
A01	401	89.51%	47	10.49%	0	0.00%
A02-1	301	99.67%	1	0.33%	0	0.00%
A02-2	1072	99.91%	1	0.09%	0	0.00%
A02-3	456	100.00%	0	0.00%	0	0.00%
A03-1	351	73.13%	124	25.83%	5	1.04%
A03-2	382	89.25%	31	7.24%	15	3.50%
A04	1008	100.00%	0	0.00%	0	0.00%
A05	529	100.00%	0	0.00%	0	0.00%
A06-1	68	98.55%	1	1.45%	0	0.00%
A06-2	410	96.24%	16	3.76%	0	0.00%
A07	579	95.70%	26	4.30%	0	0.00%
A08	609	100.00%	0	0.00%	0	0.00%
A09	540	99.26%	4	0.74%	0	0.00%
A10	530	98.88%	0	0.00%	6	1.12%
AG1-1	290	99.32%	2	0.68%	0	0.00%
AG1-2	348	100.00%	0	0.00%	0	0.00%
AG1-3	234	100.00%	0	0.00%	0	0.00%
AG2-1	258	100.00%	0	0.00%	0	0.00%
AG2-2	345	100.00%	0	0.00%	0	0.00%
AG2-3	413	99.76%	1	0.24%	0	0.00%
BA-1	360	100.00%	0	0.00%	0	0.00%
BA-2	396	100.00%	0	0.00%	0	0.00%
BA-3	390	100.00%	0	0.00%	0	0.00%
BB-1	348	100.00%	0	0.00%	0	0.00%
BB-2	319	100.00%	0	0.00%	0	0.00%
BB-3	294	100.00%	0	0.00%	0	0.00%
BE-1	474	100.00%	0	0.00%	0	0.00%
BE-2	294	100.00%	0	0.00%	0	0.00%
BE-3	340	100.00%	0	0.00%	0	0.00%
BI	351	100.00%	0	0.00%	0	0.00%
CC	453	87.28%	29	5.59%	37	7.13%
CD	456	100.00%	0	0.00%	0	0.00%
CF	635	100.00%	0	0.00%	0	0.00%
CH	379	100.00%	0	0.00%	0	0.00%
D10	169	100.00%	0	0.00%	0	0.00%
D11	146	100.00%	0	0.00%	0	0.00%
D2	80	100.00%	0	0.00%	0	0.00%
D1	293	100.00%	0	0.00%	0	0.00%

Transect	Bare substrate (no biota)		Filter Feeders (0-1%)		Filter Feeders (1-10%)	
	# of points	% of points	# of points	% of points	# of points	% of points
D13	205	100.00%	0	0.00%	0	0.00%
D14	153	100.00%	0	0.00%	0	0.00%
D15	506	100.00%	0	0.00%	0	0.00%
D16	242	100.00%	0	0.00%	0	0.00%
D17	217	100.00%	0	0.00%	0	0.00%
D18	211	100.00%	0	0.00%	0	0.00%
D19	184	100.00%	0	0.00%	0	0.00%
D3	0	0.00%	127	100.00%	0	0.00%
D4	105	99.06%	1	0.94%	0	0.00%
D5	117	100.00%	0	0.00%	0	0.00%
D6	108	100.00%	0	0.00%	0	0.00%
D7	137	100.00%	0	0.00%	0	0.00%
D8	136	99.27%	1	0.73%	0	0.00%
D9	168	100.00%	0	0.00%	0	0.00%

Appendix C. Preliminary Field Report

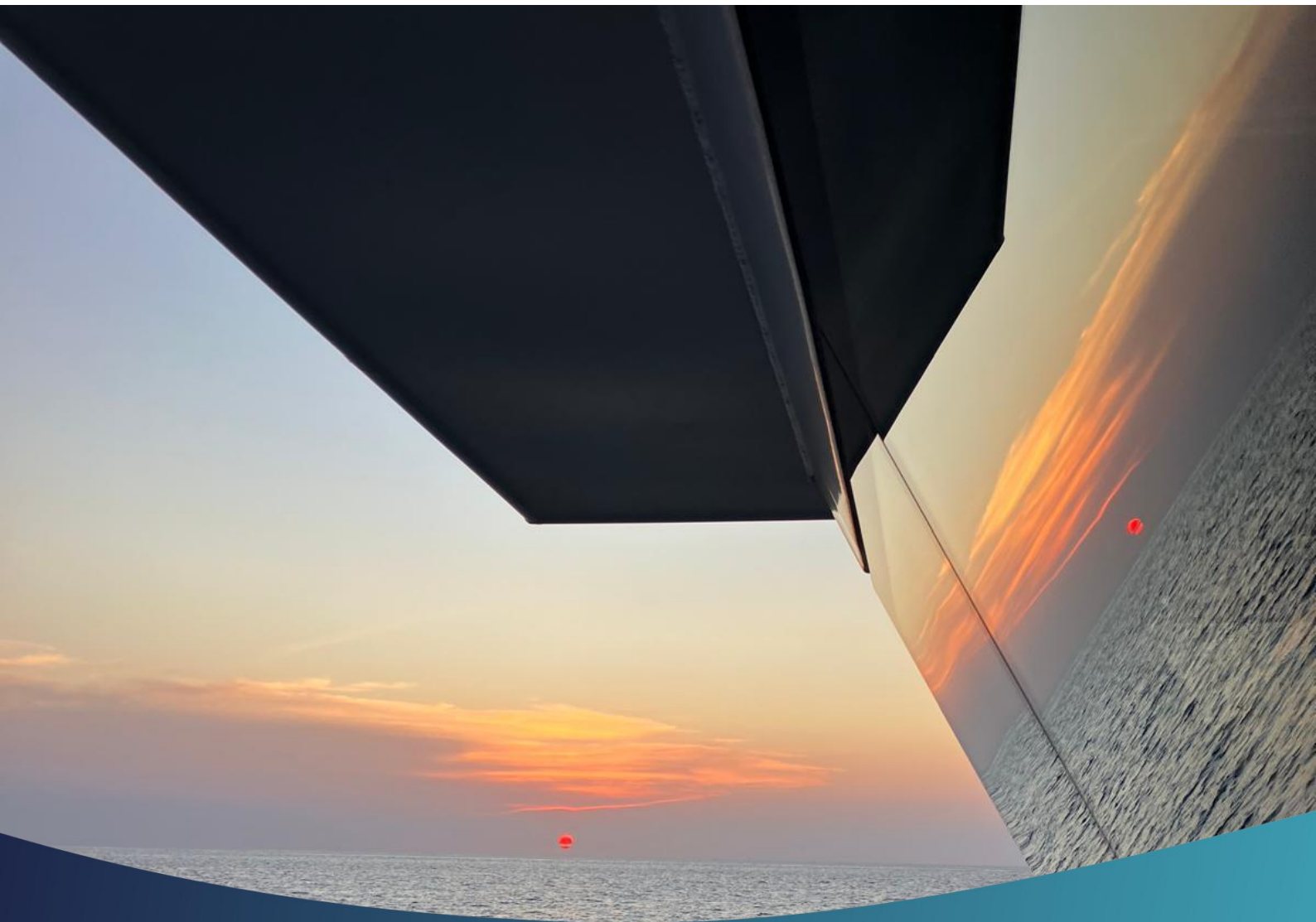
Preliminary Benthic Habitat Investigation

Field Report



ENVIRONMENT

An O2Marine company



CLIENT: ENI Australia

STATUS: Rev 0

REPORT NUMBER: R250447

ISSUE DATE: 17 December 2025



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O2 Marine acknowledges Aboriginal and Torres Strait Islander people as this land's first storytellers and holders of scientific knowledge through their ongoing and continued connection to land, sea and community. We pay our respect to Elders past and present for their custodianship of the land and sea over millennia, which inspires us daily in our collective responsibility to sustain the land and sea country which we live by, work in and dream about.

WA Marine Pty Ltd t/as O2 Marine

ACN 168 014 819

Originating Office – Western Australia

13 Mews Road FREMANTLE WA 6160

T 1300 219 801 | info@o2marine.com.au



Version Register

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Rev B	Client Review	B Jones	J Shakespeare	Minor updates to align with comments received from Technical Report	 12/12/2025
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Name	Email Address
Samir Wasim	samir.wasim@eni.com
Diego Lima	diego.lima@versalis.eni.com

Acronyms and Abbreviations

Term	Full term
BCH	Benthic Communities and Habitat
DPR	Daily Progress Report
FSOP	Field Safety and Operations Plan
GEP	Gas Export Pipeline
HAZID	Hazard Identification
JHA	Job Hazard Analysis
NT	Northern Territory
O2M	O2 Marine
PD	Project Director
PM	Project Manager
QAQC	Quality Assurance Quality Control
SWMS	Safe Work Method Statement
WA	Western Australia
WHP	Wellhead Platform
YGP	Yelcherr Gas Plant

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1. Introduction

1.1. Project background

ENI operates the Blacktip facilities in Lease Area WA-33-L, located in the Commonwealth waters of the Joseph Bonaparte Gulf (JBG), approximately 300 km west-south-west of Darwin. Within the same region lies the Petrel field, an undeveloped gas resource discovered in 1969 and situated across adjacent offshore retention leases NT/RL1 and WA-6-R. The Petrel field is located approximately 250 km west of Darwin, in water depths between 90–105 m, and lies about 136 km from the Northern Territory (NT) coastline near Wadeye and 145 km from the Western Australian (WA) coastline (Figure 1).

ENI is currently evaluating the development of the Petrel field to support long-term gas production, which would involve the construction of an offshore gas pipeline connecting to the existing Blacktip Gas Export Pipeline (GEP), enabling Petrel gas to be transported onshore for processing at the Yelcherr Gas Plant (YGP).

1.2. Objectives

The primary objective of this report is to provide a concise summary of the field survey with emphasis on the methods, equipment, key outcomes, and any deviations or limitations to the initial survey plan. Although no data analysis or results are presented within this report, a short statement detailing preliminary findings is provided.

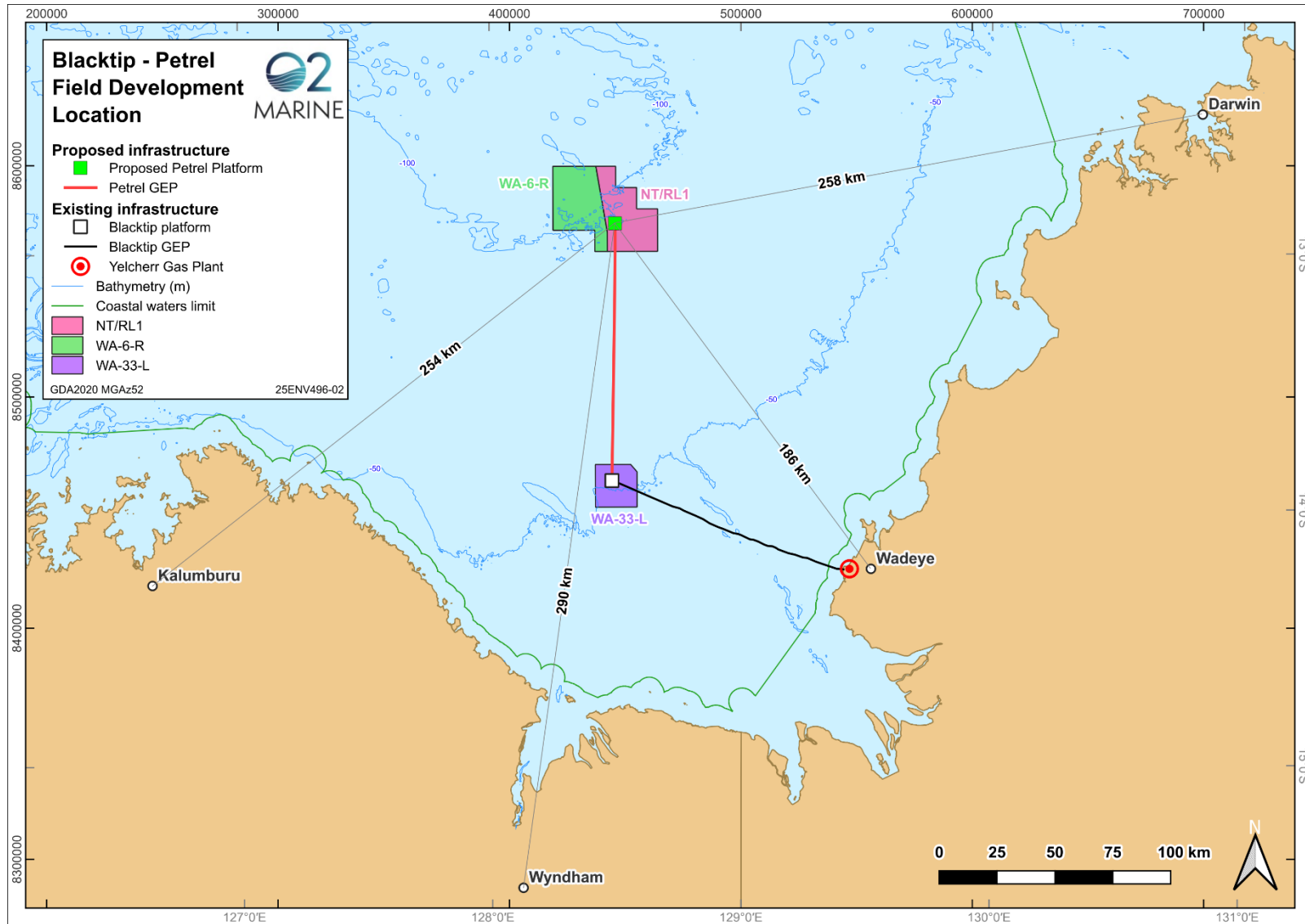


Figure 1: Regional setting of the survey location

2. Field Survey

2.1. Governance framework and safe system of work

Offshore operations for the Preliminary Benthic Habitat Investigation were undertaken between 16 and 21 October 2025 aboard the Bhagwan owned and operated vessel, *Lauri J*. All activities were executed under the project-specific Field Safety and Operations Plan (FSOP), Safe Work Method Statement (SWMS) and Hazard Identification (HAZID) assessment. These documents collectively formed the procedural, safety and risk-management framework for the field program, ensuring that all offshore activities were undertaken in a consistent, controlled and compliant manner.

The FSOP defined the scope of work, operational sequencing, communication protocols, equipment requirements and emergency response procedures required for the survey. It also detailed the daily operational structure, including toolbox meetings, pre-start checks, equipment function testing and end-of-day data verification, enabling consistent execution across the duration of the program.

The SWMS outlined the safe-work procedures associated with deployment and retrieval of the drop-camera system, including crane and winch operations, manual handling, cable-management controls, electrical safety, and vessel-deck movements. These controls were reviewed with vessel crew and O2 Marine (O2M) personnel during daily toolbox meetings and signed off prior to commencing daily operations.

The HAZID identified the key operational risks relating to camera deployment, subsea cable handling, vessel positioning, subsea hazards, environmental conditions, and proximity to subsea infrastructure. Mitigation measures were incorporated directly into the FSOP and SWMS, ensuring risks were reduced to as low as reasonably practicable throughout the survey.

2.2. Timeframe, communications, and key outcomes

An offshore field survey was conducted from 16 to 22 October 2025, which included mobilisation, demobilisation and data acquisition onboard the vessel, *Lauri J* (Figure 6). The key outcomes achieved for each day is given in Table 1.

Throughout the field survey, daily progress reports (DPRs) for each field day were produced by the field team to track the progress, issues, weather, and any comments. These were sent to O2M's designated Project Manager (PM) who would then distribute to selected ENI representatives as well as O2M's Project Director (PD). The DPRs provide a detailed breakdown of the key outcomes from each day and can be found within Appendix A.

Table 1: Daily key outcomes achieved during the field survey

Date	Key Outcomes
16/10	Mobilise to Bhagwan yard; Check and set up equipment; Conduct dry test
17/10	Vessel induction; Continue equipment preparation; Conduct wet test; Review of Job Hazard Analysis (JHA) between teams; Pre-survey discussions; Depart Darwin harbour for Blacktip-Petrel pipeline
18/10	Collect benthic imagery at nine (9) locations
19/10	Collect benthic imagery at eight (8) locations
20/10	Collect benthic imagery at 13 locations
21/10	Collect benthic imagery at 12 locations Depart survey area
22/10	Pack and prepare equipment ready for freight collection; Demobilise from Darwin

2.3. Survey equipment and methods

The field survey was undertaken using vessel-based drop-camera methods to collect seabed imagery suitable for preliminary benthic community and habitat (BCH) assessment. The approach was designed to provide consistent, repeatable ground-truth observations across a large offshore area while allowing flexibility to respond to conditions and observations encountered in real time.

Survey methods were implemented in accordance with the approved project documentation, including the FSOP, SWMS and associated risk assessments. These documents governed all operational activities, including equipment handling, vessel movements, deployment and recovery of the camera system, data recording and daily verification procedures.

Imagery acquisition focused on collecting stable, downward-facing video of the seabed while the vessel drifted slowly over the target area. Camera altitude, lighting and vessel speed were managed to optimise image quality and ensure benthic features and substrate types were clearly visible. Transects were conducted opportunistically along natural drift lines, with camera deployments repeated where required to capture representative imagery of each location.

2.3.1. Acquisition of benthic imagery

Benthic imagery was acquired using a vessel-deployed drop camera system (STR SeaSpyder; Figure 2), which provided a live video feed and was controlled via a topside unit (Figure 3). The SeaSpyder was tethered with a steel cable supplied through the STR SeaTow 500 electric winch (Figure 4).

All lifting operations required for deployment and retrieval of the SeaSpyder were undertaken using the vessel's crane, with the camera cable routed through the SeaCount cable counter mounted on the crane hook (Figure 5). This configuration allowed continuous monitoring of cable out during each deployment and assisted the operator in maintaining an appropriate camera altitude above the seabed.

Continuous GPS positioning was recorded during camera deployment using a handheld GPS unit (Garmin 79sc), configured to log vessel position at one-second intervals. Start and end waypoints were recorded for each transect to support spatial referencing of all video files. The equipment specification sheets are provided in Appendix B.

During field operations, each camera deployment followed a standardised sequence consisting of a pre-start toolbox meeting, confirmation of weather and sea conditions, equipment functionality checks, controlled lowering of the camera to the seabed, drift-based transect acquisition, and safe recovery of the system to deck. Vessel speed and heading were adjusted to maintain a stable drift and minimise excessive cable angle, ensuring acquisition of usable seabed imagery for BCH analysis.

Camera altitude, lighting conditions and seabed visibility were monitored in real time via the topside video feed. Adjustments to cable length were made as required to maintain consistent image scale and minimise seabed contact. Upon completion of each transect, video recording was stopped only once the camera was clear of the seabed to ensure complete capture of the surveyed area.

Following recovery, all video files were checked onboard for completeness and image quality. File naming, metadata logging and waypoint information were verified against field logs prior to daily data backup. These in-field checks formed part of the standard QA/QC measures implemented during acquisition and are described further in Section 2.4.

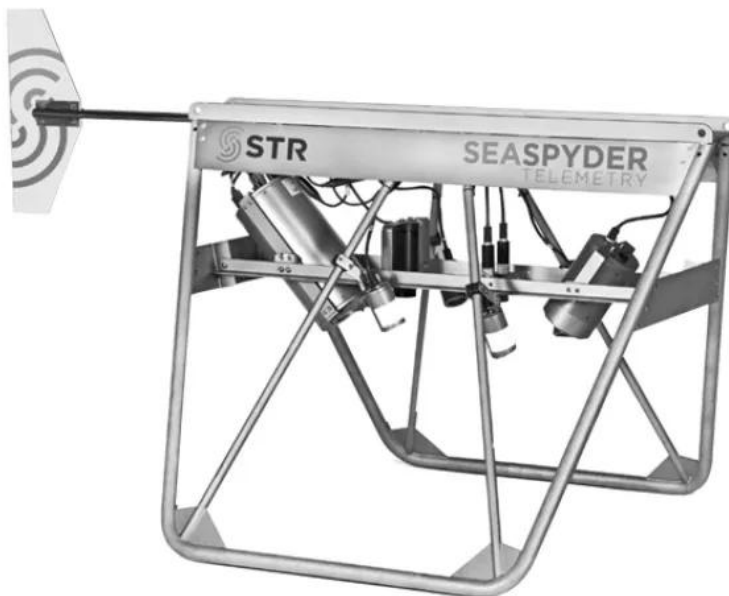


Figure 2: STR SeaSpyder



Figure 3: Topside unit controls for the SeaSpyder camera



Figure 4: STR SeaTow 500 electric winch as set up during the field survey



Figure 5: Overview of the set up for lifting operations (left) and during camera deployment (right)

2.3.2. Vessel

All offshore operations associated with the Preliminary Benthic Habitat Investigation were conducted onboard Bhagwan Marine's vessel *Lauri J* (Figure 6). *Lauri J* is a 30 m offshore work catamaran operating under 2B survey classification and is suitable for offshore survey, inspection and construction support activities in Commonwealth waters.

The vessel provided a stable working platform for drop-camera operations along the Blacktip to Petrel pipeline corridor. Adequate deck space was available for safe stowage, deployment and recovery of survey equipment, as well as for segregation of operational and transit zones in accordance with the SWMS. Lifting and deployment activities were supported by the vessel's fixed crane, which was operated within certified load limits and in accordance with the approved lifting procedures outlined in the FSOP.

Lauri J was equipped with standard marine navigation and positioning systems suitable for survey operations. Vessel positioning, heading and speed were monitored continuously to maintain steady drift conditions during benthic transects, while handheld GPS units were used by the survey team to independently record transect start and end positions for redundancy and verification purposes.

Accommodation and working facilities onboard the vessel supported multi-day offshore operations, including daily toolbox meetings, data reviews and safe equipment handling. The vessel's specifications and general arrangement drawings are provided in Appendix C.



Figure 6: Bhagwan vessel '*Lauri J*'

2.4. Sampling locations

Benthic imagery was collected along 52 transects across 40 locations, with transects undertaken at all planned survey locations (Categories A, B and C) as well as 19 opportunistic locations (Category D). The survey design combined the ten initially planned sites defined in the FSOP, ten additional pre-survey sites proposed during planning, and a further nineteen adaptive sites selected offshore. This approach ensured broad spatial coverage along the GEP corridor, within the Petrel field area, and across the wider survey area, while also allowing refinement of coverage based on real-time seabed observations.

Survey sites were structured around three planned categories and one adaptive category:

- **Category A:** Primary sites which were positioned along the indicative GEP corridor and within the Petrel field area. These included A01 to A07 along the GEP corridor, A08 to A10 within the Petrel field area, and AG1 and AG2 which were selected to investigate bathymetric variation.
- **Category B:** Secondary corridor sites positioned adjacent to A-sites to provide cross-corridor replication. These locations helped confirm whether seabed characteristics were consistent laterally across the corridor.
- **Category C:** Broader context sites placed further from the GEP corridor to capture wider habitat variability and provide confidence that the GEP corridor represented the broader offshore environment
- **Category D:** Additional drop-camera sites selected opportunistically offshore. Monitoring at these sites involved rapid deployments intended to inform spatial gaps in the map, target areas of interest identified from the vessel's side-scan and drift behaviour, and investigate any minor seabed relief visible on the sounder. Category D sites allowed the field team to strengthen overall coverage and help verify that no significant or structured habitats were present along the development footprint.

Planned orientations for Category A transects were predominantly north to south, with the exception of AG2 which was planned east to west. Category B and C transects were planned in an east to west orientation. During the field survey, prevailing winds and currents at times prevented achievement of these planned orientations. Where this occurred, multiple shorter transects were completed along the intended alignment to ensure imagery was collected from the start, middle and end of the proposed transect path.

Daily survey effort and transect-level information are summarised in Table 2, which presents site identifiers, acquisition dates, start coordinates and transect lengths. The geographic distribution of all transects across the survey area is shown in Figure 7. Between 18 and 21 October 2025, a total transect length of approximately 11.6 km was completed, providing extensive visual coverage of seabed conditions within the Petrel Operation Area.

Table 2: Daily survey effort during the field survey

Date	Site	Transect	Easting	Northing	Length(m)
18/10/2025	A02	A02-1	444550.8	8485168	177
		A02-2	444797.1	8485053	550
	A03	A03-1	444961.3	8504374	298
	A04	A04	445309.9	8528819	247
	A05	A05	445399.0	8534605	277
	A06	A06-1	445665.1	8564911	038
		A06-2	445656.0	8564978	285
	A07	A07	445651.2	8574775	352
	A08	A08	435900.5	8583660	531
	A09	A09	452650.5	8574298	377
	A10	A10	443984.4	8589867	357
19/10/2025	A01	A01.1	444326.0	8464578	297
	A02	A02-3	444624.6	8485092	291

Date	Site	Transect	Easting	Northing	Length(m)
	A03	A03-2	444901.9	8504349	306
	AG1	AG1-1	449530.7	8562577	187
		AG1-2	449432.3	8562501	248
		AG1-3	449385.7	8562418	182
	AG2	AG2-1	448652.1	8562922	231
		AG2-2	448758.5	8562996	267
		AG2-3	448818.4	8562934	307
	BA	BA-1	446832.0	8470053	277
		BA-2	446743.6	8470010	323
		BA-3	446939.7	8470084	321
	BB	BB-1	446283.4	8496312	268
		BB-2	446379.7	8496332	235
		BB-3	446178.3	8496309	236
	BE	BE-1	447681.9	8523368	276
		BE-2	447789.2	8523407	183
		BE-3	447565.3	8523411	182
20/10/2025	BI	BI	447032.0	8575948	249
	CC	CC	446892.6	8510978	288
	CD	CD	444063.9	8517339	268
	CF	CF	442636.0	8546921	440
	CH	CH	442539.4	8575485	374
	D2	D2	447873.0	8531007	022
	D1	D1	446560.0	8540659	093
	D3	D3	442855.3	8508359	093
	D4	D4	441065.7	8500351	095
	D5	D5	441604.6	8490667	101
	D6	D6	439973.6	8479224	076
	D7	D7	442194.5	8473183	112
21/10/2025	D10	D10	443515.4	8518885	085
	D11	D11	443435.5	8518892	102
	D13	D13	445750.4	8556083	125
	D14	D14	450865.1	8567482	084
	D15	D15	449568.0	8572416	332
	D16	D16	452004.3	8577368	129
	D17	D17	449223.1	8585557	109
	D18	D18	441465.4	8584975	082
	D19	D19	436532.3	8578086	071
	D8	D8	442108.8	8523788	127
	D9	D9	446782.6	8525716	071
TOTAL DISTANCE					11,634

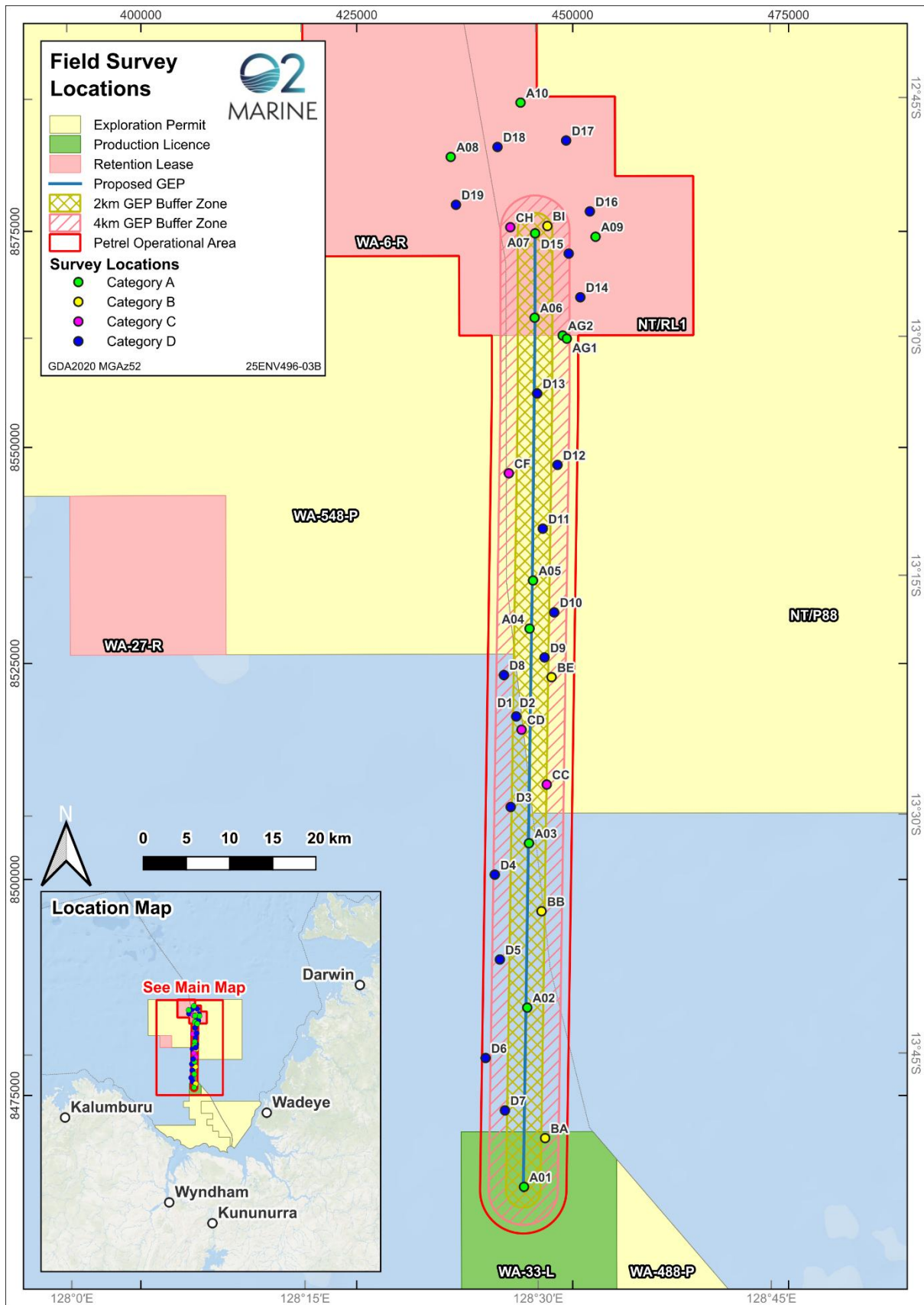


Figure 7: Field survey effort

2.5. Deviations and limitations

Transect orientation constraints

Planned transect orientations could not always be achieved due to prevailing winds, currents and vessel handling constraints at the time of survey. Where the intended orientation could not be maintained, transects were conducted along the dominant drift direction. In several cases, multiple shorter transects were completed along the intended alignment to ensure that representative imagery was collected from the start, middle and end of the planned transect extent. This adaptive approach ensured adequate seabed coverage while maintaining safe operational conditions.

Corrupted video files and alternative data sources

Video files for a small number of transects were found to be corrupted and could not be processed through the standard imagery analysis workflow. These transects included: CD-1, CD-2, BE-1, BE-2, BE-3, AG2-1, AG2-2, AG2-3, AG1-2 and AG1-3. For these transects, benthic habitat interpretation was undertaken using a combination of still images captured by the secondary camera system, contemporaneous field notes recorded by the observer (Pierre Bouvais), and live observations made during deployment and recovery of the drop camera. Habitat assignments were supported by real-time video monitoring at the time of acquisition, including direct observation of substrate type, relief and benthic assemblages. Video files for D12 were also found to be corrupted, however this transect was excluded from analysis due to insufficient imagery collected.

Given the consistency between still imagery, observer notes, live observations and adjacent transects, a high level of confidence is retained in the benthic classifications assigned to these locations. These transects were therefore retained in the dataset for the purposes of preliminary habitat characterisation.

Overall, the deviations described above were limited in scope and were appropriately managed through adaptive field methods and supplementary data sources. The resulting dataset remains robust and suitable for the objectives of this preliminary benthic habitat investigation.

3. Preliminary Findings

At the time of reporting, formal data processing and quantitative analysis of the benthic imagery had not yet been completed. The findings presented below are therefore preliminary in nature and are based on direct observations made during field operations, including live video feeds, post deployment video review onboard, still imagery, and field notes recorded by the observing marine scientist.

Across the surveyed transects, benthic habitats were visually dominated by soft substrates, primarily sand and muddy sand, which appeared generally flat to gently undulating and largely featureless. Surface sediments commonly showed evidence of bioturbation, including burrows, mounds and reworked sediments, indicating active infaunal communities. As expected for this survey method, these infaunal organisms were rarely directly observed in imagery, but their widespread sediment disturbance suggests an ecologically active benthos.

Epibenthic biota observed along the transects was sparse to rare. Where epifauna were present, they typically occurred as isolated individuals rather than continuous or structured assemblages. No extensive epibenthic communities, reef like features or biogenic structures were observed during the survey.

The epifauna recorded was dominated by filter feeding organisms. These included scattered sponges, solitary ascidians, hydroids, occasional octocorals such as whips and low relief gorgonian forms, and isolated sea pens. These taxa were generally observed at very low densities and patchy distributions, often associated with subtle localised seabed irregularities or changes in sediment texture. Hard corals, macroalgae and seagrass were either absent or extremely rare within the surveyed area.

Observations did not indicate the presence of distinct benthic assemblages or areas of elevated habitat complexity. Instead, the benthic environment appeared spatially consistent across transects, characterised by extensive soft sediment plains with very low epibenthic cover and limited habitat relief.

These preliminary observations suggest that benthic habitats within the survey area are primarily sediment-dominated systems supporting infaunal communities, with limited epifaunal development. This interpretation is consistent with expectations for offshore environments of this depth and setting and will be further refined and validated through the detailed image analysis and classification presented in the Technical Report.

Appendix A. Daily Progress Reports

Date: 16/10/2025

Client: ENI / BM

Project ID: 25ENV496-ENI/BM - Preliminary Benthic Habitat Investigation

Vessel ID: LAURI J (BM)

Field Lead: Pierre BOUVAIS

Personnel: Beau De Groot

Time Zone UTC +09:30

Operational Hours 12

From	To	Period	Code	Activity description
6:45	7:45	01:00	OP	Breakfast / Pre-start / Toolbox discussion. Reviewed HSE requirements and confirmed readiness for dry test of the STR SeaSpyder drop camera system.
8:30	11:15	02:45	OP	Conducted dry functional testing of STR SeaSpyder system. Verified video and still camera feed. Identified missing power cable, and issue with winch remote control.
11:15	12:15	01:00	OP	Shopping to sort missing parts and equipment.
12:15	13:15	01:00	OP	Lunch / short rest period.
13:15	14:15	01:00	OP	Conducted additional trial deployment simulation on land. Verified backup Technautics tow camera system operational. Reviewed FSOP and deployment checklist.
14:15	15:15	01:00	OP	Re-tested repaired remote control unit, partial success—will confirm full function tomorrow during wet test. Confirmed redundancyTow Camera equipment ready.
15:15	16:15	01:00	OP	Equipment inspection, inventory check, and labelling of subsea and topside components. Confirmed all items for mobilisation.
16:15	17:15	01:00	OP	Checked vessel deck layout with Bhagwan Marine welders for winch mounting position. Confirmed space and electrical connection for the SeaTow 500 winch.
17:15	18:15	01:00	OP	Secured all test equipment and packed for mobilisation to vessel tomorrow. Completed daily debrief and HSE review.

Total Hours 10:45 NB: Total hours must be either 12 or 24 hours according to the type of operations being conducted.

List of codes		Field Hours			Vessel Hours		
		Previous	Today	To Date	Previous	Today	To Date
MOB	Mobilisation / Demobilisation to/from site	MOB			Transit		
INS	Installation / Calibration	INS			Survey		
OP	Operational	OP			Weather		
WOW	Waiting on Weather	WOW			Watch		
DWN	Downtime (survey/vessel)	DWN			Mobilisation		
OTH	Other	Total	0:00	00:00	Total	0	0

Date: 16/10/2025

Project ID: 25ENV496

Observed Field Conditions

Forecast Field Conditions (next 24 hours)

Very similar to today

06:00 - 18:00 Swell:

06:00 - 18:00 Sea State:

06:00 - 18:00 Swell:

06:00 - 18:00 Sea State:

18:00 - 06:00 Swell:

18:00 - 06:00 Sea State:

18:00 - 06:00 Swell:

18:00 - 06:00 Sea State:

Work, Health and Safety

	Daily	Total		Daily	Total		Daily	Total
SWMS	0	0	Near Miss / Incident Reports	0	0	Workplace Inspections	0	0
JHA	1	1	Hazard Reports	0	0	Lost time injuries	0	0
Toolbox / Safety Meetings	1	1	Drills conducted	0	3	First Aid injuries	0	0
Stepback 5x5	0	0	Inductions	0	1	Environmental Reports	0	0

Equipment List

Quantity	Description & Serial Number	Status	Comment
	Sea Spider		
	tech Nautic Tow Camera		

Status ID: M = Mobilised / O = Operational / S = Standby / D = Demobilised / F = Freight Transit

O2M Representative Comments

Dry test of the STR SeaSpyder drop camera system successfully completed onshore. Minor issues identified with a missing power cable (replaced) and a faulty winch remote (temporarily repaired; full functionality to be confirmed tomorrow). Equipment systems—including telemetry, cameras, and backup tow camera—were inspected and confirmed operational. Coordination with Bhagwan Marine ongoing for final winch mounting and deck layout on Lauri J.

All personnel followed HSE procedures, and no incidents or safety concerns were reported. Mobilisation preparations remain on schedule, with wet testing and vessel induction planned for tomorrow prior to departure.

Weather conditions for the following day

N/A

Scope of work for the following day

Conduct final wet test of STR SeaSpyder drop camera system to verify full operational capability, including live video and still image feed, telemetry, and winch control.

Oversee installation of the SeaTow 500 winch and confirm secure mounting and power integration by Bhagwan Marine welders.

Perform deck layout and load-out checks for all O2 Marine sampling equipment (SeaSpyder, Technautics tow camera, winch, and umbilicals).

Complete vessel induction and HSE briefings for all O2 Marine and Bhagwan Marine personnel in line with FSOP and permit requirements.

Finalise equipment inventory and manifest prior to vessel departure.

Conduct short on-water system trial alongside berth to confirm readiness for deployment.

Prepare for night-time departure from Darwin port (~14-hour transit) to the first drop-camera site for commencement of offshore survey operations.

O2M Rep: P. BOUVAIS

Signature:



Client Rep:

Signature:

Date: 17/10/2025

Client: ENI / BM

Project ID: 25ENV496-ENI/BM - Preliminary Benthic Habitat Investigation

Vessel ID: LAURI J (BM)

Field Lead: Pierre BOUVAIS

Personnel: Beau De Groot

Time Zone		UTC +09:30		Operational Hours		12	
From	To	Period	Code	Activity description			
6:00	6:30	00:30	OP	Breakfast and pre-start meeting. Discussed daily objectives, HSE requirements, and equipment readiness.			
6:30	7:15	00:45	OP	Travelled to Bhagwan Marine yard. Met vessel crew and coordinated required equipment and consumables for mobilisation.			
7:15	9:15	02:00	OP	Boarded Lauri J and assisted with loading and internal setup. Installed STR SeaSpyder topside control unit, monitors, and power cabling within the mechanical engineer’s cabin. Routed cables from topside to deck, ensuring proper strain relief and protection.			
9:45	10:30	00:45	OP	Completed vessel induction and full safety walkthrough, including emergency muster, confined spaces, and lifting operations.			
10:30	11:15	00:45	OP	Identified and sourced minor missing items (additional cable sleeves and fasteners). Prepared for afternoon wet test.			
11:15	12:15	01:00	OP	Lunch break.			
12:15	14:30	02:15	OP	Returned to vessel. Finalised wiring and system integration. Conducted JHA reviews with Bhagwan Marine and O2 Marine teams. Confirmed readiness for sea trials.			
14:30	16:00	01:30	OP	Departed Darwin Port to mooring site for wet test. Conducted live trial of STR SeaSpyder drop-camera system to 15 m depth. Verified video feed, still image capture, lighting, and telemetry functionality.			
16:00	16:45	00:45	OP	Detected minor issue with winch pulley sleeve; adjusted and resecured. Retested system successfully.			
16:45	17:30	00:45	OP	Secured all equipment and cables. Brief squall encountered during transit prompted additional tie-down and securing of gear. Weather returned to calm by evening.			
17:30	18:00	00:30	OP	Continued steaming towards first operational site (A02). Systems monitored and operational. Expected ETA at 07:00.			

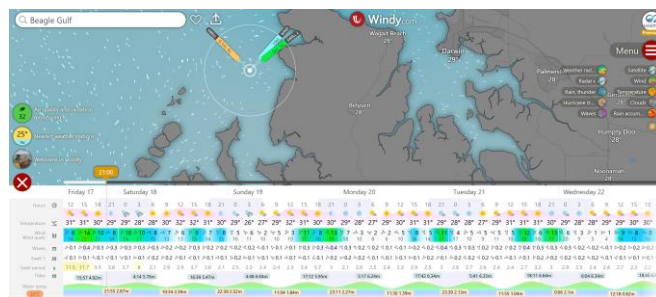
List of codes		Field Hours			Vessel Hours		
		Previous	Today	To Date	Previous	Today	To Date
MOB	Mobilisation / Demobilisation to/from site	MOB			Transit		
INS	Installation / Calibration	INS			Survey		
OP	Operational	OP	10:45	11:30	Weather		
WOW	Waiting on Weather	WOW			Watch		
DWN	Downtime (survey/vessel)	DWN	13:15	12:30	Mobilisation		
OTH	Other	Total	24:00	24:00	Total	24	24.00
				48:00:00			189.50

Date: 17/10/2025

Project ID: 25ENV496

Observed Field Conditions

Forecast Field Conditions (next 24 hours)



06:00 - 18:00 Swell:

06:00 - 18:00 Sea State:

18:00 - 06:00 Swell:

18:00 - 06:00 Sea State:

06:00 - 18:00 Swell:

06:00 - 18:00 Sea State:

18:00 - 06:00 Swell:

18:00 - 06:00 Sea State:

Work, Health and Safety

	Daily	Total		Daily	Total		Daily	Total
SWMS	0	0	Near Miss / Incident Reports	0	0	Workplace Inspections	0	0
JHA	1	1	Hazard Reports	0	0	Lost time injuries	0	0
Toolbox / Safety Meetings	1	1	Drills conducted	0	3	First Aid injuries	0	0
Stepback 5x5	0	0	Inductions	0	1	Environmental Reports	0	0

Equipment List

Quantity	Description & Serial Number	Status	Comment
	Sea Spider		
	tech Nautic Tow Camera		

Status ID: M = Mobilised / O = Operational / S = Standby / D = Demobilised / F = Freight Transit

O2M Representative Comments

All mobilisation and wet testing activities were completed successfully. The STR SeaSpyder system was fully integrated and tested, including cabling, power supply, and topside control components. The camera was deployed to 15 m depth at the mooring site, confirming full functionality of the video feed, still camera, lighting, and winch controls. A minor issue with a sleeve on the pulley was corrected on site. All systems are now operational and ready for offshore survey deployment. Excellent cooperation observed between O2 Marine and Bhagwan Marine crews. No safety incidents recorded.

Weather conditions for the following day

Partly cloudy with a slight chance of early morning showers or isolated thunderstorms. Winds expected to be light at dawn, increasing to 8–13 knots from the east-northeast, shifting to north-northerly 10–14 knots during the afternoon. Air temperature forecast between 27 °C and 37 °C. Sea state calm to slight, with wave heights generally below 0.5 m. Visibility good throughout the day. Overall, conditions are suitable for offshore survey operations, with only brief interruptions

Scope of work for the following day

Commence offshore survey operations starting at Site A2 (southernmost site), followed by A1, and progress northward according to the prioritised site list.

Deploy STR SeaSpyder drop camera for benthic video transects at each site.

Collect site position logs and video records in accordance with the approved sampling plan.

Monitor weather and vessel conditions during transit and site operations.

Conduct daily HSE toolbox and end-of-day review.

O2M Rep: P. BOUVAIS

Signature:



Client Rep:

Signature:

Date: 18/10/2025

Client: ENI / BM

Project ID: 25ENV496-ENI/BM - Preliminary Benthic Habitat Investigation

Vessel ID: LAURI J (BM)

Field Lead: Pierre BOUVAIS

Personnel: Beau De Groot

Time Zone		UTC +09:30		Operational Hours		12	
From	To	Period	Code	Activity description			
6:00	6:45	00:45	OP	Breakfast.			
6:45	7:15	00:30	OP	Toolbox meeting. Reviewed JHA, daily deployment plan, and HSE requirements.			
7:15	7:30	00:15	OP	Transiting to Site A02, setting drift parameters (E–W).			
7:30	7:45	00:15	OP	Pre-operational checks of STR SeaSpyder and telemetry system.			
7:45	8:00	00:15	OP	First deployment at A02 (low visibility). Transect shortened due to turbidity.			
8:00	8:30	00:30	OP	Redeployed A02 (E–W, 565 m). Second transect completed with usable footage. Completed A02, retrieved system, confirmed data integrity.			
8:30	10:05	01:35	OP	Transit			
10:05	10:25	00:20	OP	Deployed A03 (400 m transect, E–W). Stable drift and good visibility.			
10:25	11:20	00:55	OP	Transit			
11:20	11:40	00:20	OP	Deployed A04 (400 m transect, E–W). Stable drift and good visibility.			
11:40	12:10	00:30	OP	Transit			
12:10	13:00	00:50	OP	Deployed A05 (300 m, NE–SW). Transect completed with good seabed detail.			
13:00	14:00	01:00	OP	Lunch break.			
14:00	14:30	00:30	OP	Deployed A06 (N–S). First transect too short due to rapid drift; partial data logged.			
14:30	15:10	00:40	OP	Transit			
15:10	15:25	00:15	OP	Deployed A09 (N–S). Possible reef-flat feature observed with visible burrows and rough substrate.			
15:25	15:48	00:23	OP	Transit			
15:48	16:15	00:27	OP	Deployed A07 (N–S). Clear video, stable current.			
16:15	16:55	00:40	OP	Transit			
16:55	17:10	00:15	OP	Deployed A08 (N–S). Completed under calm conditions.			
17:10	17:38	00:28	OP	Transit			
17:38	17:58	00:20	OP	Deployed A10 (N–S). Final site of the day, clear water, high-quality imagery. Conducted full equipment wash-down, deck clean-up, and system checks. All data backed up to Automarine network and external hard drives.			

List of codes		Field Hours			Vessel Hours			
		Previous	Today	To Date		Previous	Today	To Date
MOB	Mobilisation / Demobilisation to/from site	MOB			Transit			
INS	Installation / Calibration	INS			Survey			
OP	Operational	OP			Weather			
WOW	Waiting on Weather	WOW			Watch			
DWN	Downtime (survey/vessel)	DWN			Mobilisation			
OTH	Other	Total	0:00	00:00	72	Total	24	24.00
					#####			

Date: 18/10/2025

Project ID: 25ENV496

Observed Field Conditions

Forecast Field Conditions (next 24 hours)

06:00 - 18:00 Swell:

06:00 - 18:00 Sea State:

06:00 - 18:00 Swell:

06:00 - 18:00 Sea State:

18:00 - 06:00 Swell:

18:00 - 06:00 Sea State:

18:00 - 06:00 Swell:

18:00 - 06:00 Sea State:

Work, Health and Safety

	Daily	Total		Daily	Total		Daily	Total
SWMS	0	0	Near Miss / Incident Reports	0	0	Workplace Inspections	0	0
JHA	1	1	Hazard Reports	0	0	Lost time injuries	0	0
Toolbox / Safety Meetings	1	1	Drills conducted	0	3	First Aid injuries	0	0
Stepback 5x5	0	0	Inductions	0	1	Environmental Reports	0	0

Equipment List

Quantity	Description & Serial Number	Status	Comment
	Sea Spider		
	tech Nautic Tow Camera		

Status ID: M = Mobilised / O = Operational / S = Standby / D = Demobilised / F = Freight Transit

O2M Representative Comments

A full operational day with eight successful STR SeaSpyder deployments (A02–A10). Site A02 required two transects due to low visibility but yielded sufficient data after re-deployment. Site A06 was redeployed after an initial short transect caused by rapid drift. At A09, a feature resembling a reef flat with burrows and coarse substrate was observed, indicating possible benthic complexity worth further review. Equipment performance was consistent throughout the day, with excellent team coordination and adherence to HSE procedures. All data were successfully backed up to both the Automarine network and external storage. No incidents recorded.

Weather conditions for the following day

Same as today — calm sea conditions, light winds (8–12 kn), and sunny with clear visibility.

Scope of work for the following day

Continue survey operations northward, commencing with Site A11, followed by A12–A15, depending on conditions.

Maintain STR SeaSpyder deployments following the same QA/QC procedure.

Conduct video and still imagery review for A02–A10 to verify habitat classification.

Perform daily HSE toolbox and JHA review before start of operations.

Monitor weather and drift parameters (forecast light N–NE winds, 8–14 kn, calm seas).

O2M Rep: P. BOUVAIS

Signature:



Client Rep:

Signature:

Date: 19/10/2025

Client: ENI / BM

Project ID: 25ENV496-ENI/BM - Preliminary Benthic Habitat Investigation

Vessel ID: LAURI J (BM)

Field Lead: Pierre BOUVAIS

Personnel: Beau De Groot

Time Zone		UTC +09:30		Operational Hours		12	
From	To	Period	Code	Activity description			
6:00	6:30	00:30	OP	Breakfast / Pre-start.			
6:30	7:15	00:45	OP	Toolbox meeting and BrickFest induction with Bhagwan Marine and Automarine teams. Conducted full vessel and safety induction (GH90).			
7:15	7:35	00:20	OP	Pre-operational checks of the STR SeaSpyder system, including topside power verification, winch control calibration, data logging test, and camera focus check.			
7:35	8:10	00:35	OP	Deployment at A01-1 (S–N transect). Site relocated outside the 500 m Blacktip exclusion zone after identifying proximity (25 m) to the subsea pipeline. Very low visibility but full transect successfully completed.			
8:10	9:00	00:50	OP	Deployment at BA site. Three transects completed (BA1, BA2, BA3) with moderate visibility and stable drift.			
9:00	9:50	00:50	OP	Deployment at A02 (N–S transect). One transect completed successfully.			
9:50	11:15	01:25	OP	Deployment at BB site. Three transects completed (BB1, BB2, BB3) in a north–south orientation.			
11:15	12:00	00:45	OP	Deployment at A03 (N–S transect). One supplementary transect completed to enhance site coverage.			
12:00	12:35	00:35	OP	Lunch break.			
12:35	15:30	02:55	OP	Deployment at BE site. Three transects completed (BE1, BE2, BE3) along a north–south orientation. Clear video and consistent current.			
15:30	16:30	01:00	OP	Deployment at AG1 site. Three transects completed (AG1-1, AG1-2, AG1-3) in a north-west to south-east direction. Excellent visibility and stable platform.			
16:30	17:25	00:55	OP	Deployment at AG2 site. Two transects completed (AG2-1, AG2-2) in the same NW–SE direction as AG1. Third transect scheduled for tomorrow.			
17:05	17:25	00:20	OP	End-of-day operations. All equipment cleaned, powered down, and data backed up to Automarine’s network and external			
Total Hours		11:45		NB: Total hours must be either 12 or 24 hours according to the type of operations being conducted.			

List of codes		Field Hours			Vessel Hours		
		Previous	Today	To Date	Previous	Today	To Date
MOB	Mobilisation / Demobilisation to/from site	MOB			Transit		
INS	Installation / Calibration	INS			Survey		
OP	Operational	OP			Weather		
WOW	Waiting on Weather	WOW			Watch		
DWN	Downtime (survey/vessel)	DWN			Mobilisation		
OTH	Other	Total	0:00	00:00	96	Total	24
						24.00	72.00

Date: 19/10/2025

Project ID: 25ENV496

Observed Field Conditions

Forecast Field Conditions (next 24 hours)

06:00 - 18:00 Swell:		06:00 - 18:00 Sea State:		06:00 - 18:00 Swell:		06:00 - 18:00 Sea State:	
18:00 - 06:00 Swell:		18:00 - 06:00 Sea State:		18:00 - 06:00 Swell:		18:00 - 06:00 Sea State:	

Work, Health and Safety

	Daily	Total		Daily	Total		Daily	Total
SWMS	0	0	Near Miss / Incident Reports	0	0	Workplace Inspections	0	0
JHA	1	1	Hazard Reports	0	0	Lost time injuries	0	0
Toolbox / Safety Meetings	1	1	Drills conducted	0	3	First Aid injuries	0	0
Stepback 5x5	0	0	Inductions	0	1	Environmental Reports	0	0

Equipment List

Quantity	Description & Serial Number	Status	Comment
	Sea Spider		
	tech Nautic Tow Camera		

Status ID: M = Mobilised / O = Operational / S = Standby / D = Demobilised / F = Freight Transit

O2M Representative Comments

A highly productive survey day with multiple successful SeaSpyder deployments.
The original A01 site was found within the Blacktip 500 m exclusion zone and 25 m from the pipeline, prompting relocation to A01-1, safely outside the boundary but aligned with the corridor.
Visibility at A01 was low but improved progressively across later sites. A total of 17 transects were completed across the A-, B-, BE-, and AG-series, all yielding high-quality benthic footage suitable for mapping and substrate classification.
All operational and safety procedures were followed, with pre-operational system checks confirming optimal SeaSpyder function.

Weather conditions for the following day

Same as today — calm sea conditions, light winds (8–12 kn), and sunny with clear visibility.

Scope of work for the following day

Complete the final Category B site.
Conduct all Category C site surveys.
Investigate two additional points of interest identified during previous operations.
Continue running supplementary transects at selected locations to improve data coverage.
If weather and timing allow, perform additional drop-camera points between planned sites to capture extra imagery.
Maintain daily HSE toolbox and JHA review before commencing operations.
Ensure all data are logged, quality-checked, and backed up after each deployment.

O2M Rep: P. BOUVAIS

Signature: 

Client Rep:

Signature:

Date: 20/10/2025

Client: ENI / BM

Project ID: 25ENV496-ENI/BM - Preliminary Benthic Habitat Investigation

Vessel ID: LAURI J (BM)

Field Lead: Pierre BOUVAIS

Personnel: Beau De Groot

Time Zone		UTC +09:30		Operational Hours		12
From	To	Period	Code	Activity description		
6:00	6:30	00:30	OP	Breakfast / Pre-start.		
6:30	7:00	00:30	OP	Toolbox meeting and HSE review with Bhagwan Marine crew.		
7:00	7:35	00:35	OP	Deployment at BI (E-W transect) – one transect completed successfully.		
7:35	8:00	00:25	OP	Deployment at CH (E-W transect) – one transect completed successfully.		
8:00	8:55	00:55	OP	Deployment at AG2-3 (E-W transect) – one transect completed successfully.		
8:55	10:00	01:05	OP	Deployment at CF (E-W transect) – performed using only vessel GPS for positioning		
10:00	11:55	01:55	OP	Deployment at CD (E-W transect) – two transects completed		
11:55	12:35	00:40	OP	Deployment at CC (E-W transect) – one transect completed successfully.		
12:35	13:35	01:00	OP	Lunch break.		
13:35	13:55	00:20	OP	Deployment at D1 (2 drops)		
13:55	14:05	00:10	OP	Deployment at D2 (1 drop)		
14:05	15:00	00:55	OP	Deployment at D3 (1 drop)		
15:00	15:35	00:35	OP	Deployment at D4 (1 drop)		
15:35	16:05	00:30	OP	Deployment at D5 (1 drop)		
16:05	16:40	00:35	OP	Deployment at D6 (1 drop)		
16:40	17:05	00:25	OP	Deployment at D7 (1 drop) – final transect of the day		
17:05	17:30	00:25	OP	Post-survey checks, equipment cleaning, power-down procedures, and full data backup to Automarine network and external storage.		

Total Hours 11:30

NB: Total hours must be either 12 or 24 hours according to the type of operations being conducted.

List of codes		Field Hours			Vessel Hours		
		Previous	Today	To Date	Previous	Today	To Date
MOB	Mobilisation / Demobilisation to/from site	MOB			Transit		
INS	Installation / Calibration	INS			Survey		
OP	Operational	OP			Weather		
WOW	Waiting on Weather	WOW			Watch		
DWN	Downtime (survey/vessel)	DWN			Mobilisation		
OTH	Other	Total	0:00	00:00	Total	24	24.00
			120			96.00	

Date: 20/10/2025

Project ID: 25ENV496

Observed Field Conditions				Forecast Field Conditions (next 24 hours)			
06:00 - 18:00 Swell:		06:00 - 18:00 Sea State:		06:00 - 18:00 Swell:		06:00 - 18:00 Sea State:	
18:00 - 06:00 Swell:		18:00 - 06:00 Sea State:		18:00 - 06:00 Swell:		18:00 - 06:00 Sea State:	

Work, Health and Safety								
	Daily	Total		Daily	Total		Daily	Total
SWMS	0	0	Near Miss / Incident Reports	0	0	Workplace Inspections	0	0
JHA	1	1	Hazard Reports	0	0	Lost time injuries	0	0
Toolbox / Safety Meetings	1	1	Drills conducted	0	3	First Aid injuries	0	0
Stepback 5x5	0	0	Inductions	0	1	Environmental Reports	0	0

Equipment List			
Quantity	Description & Serial Number	Status	Comment
	Sea Spider		
	tech Nautic Tow Camera		

Status ID: M = Mobilised / O = Operational / S = Standby / D = Demobilised / F = Freight Transit

O2M Representative Comments

A highly productive day with 14 transects completed across the remaining Category B site, all Category C sites, and several new drop-camera points added along the pipeline corridor.

Seven new sites were added to increase spatial coverage and ensure comprehensive imagery collection along the full route.

All operations were conducted safely and efficiently, with consistent data quality and excellent collaboration between the O2 Marine and Bhagwan Marine teams.

The SeaSpyder system performed reliably throughout the day, and all video and metadata were successfully archived and backed up.

Weather conditions for the following day

Same as today — calm sea conditions, light winds (8–12 kn), and sunny with clear visibility.

Scope of work for the following day

Continue with drop-camera deployments at additional points of interest along the pipeline corridor.

Review video quality and ensure metadata completeness for all transects.

Conduct QA/QC checks on imagery collected during Category B and C site surveys.

If conditions remain favourable, undertake opportunistic supplementary transects for improved coverage.

Maintain daily HSE toolbox meeting and JHA review prior to operations.

Ensure all data are logged, verified, and backed up at the end of the day.

O2M Rep: P. BOUVAIS
Signature: 

Client Rep:
Signature:

Date: 21/10/2025

Client: ENI / BM

Project ID: 25ENV496-ENI/BM - Preliminary Benthic Habitat Investigation

Vessel ID: LAURI J (BM)

Field Lead: Pierre BOUVAIS

Personnel: Beau De Groot

Time Zone		UTC +09:30		Operational Hours	
From	To	Period	Code	Activity description	
6:00	6:30	00:30	OP	Breakfast / Pre-start.	
6:30	7:00	00:30	OP	Toolbox meeting and daily HSE review with Bhagwan Marine crew.	
7:00	7:30	00:30	OP	Deployment at D8 – smooth operation, good quality footage.	
7:30	7:55	00:25	OP	Deployment at D9 – smooth operation, good quality footage.	
7:55	8:30	00:35	OP	Deployment at D10 – smooth operation, good quality footage.	
8:30	9:00	00:30	OP	Deployment at D11 – smooth operation, good quality footage.	
9:00	9:30	00:30	OP	Deployment at D12 – smooth operation, good quality footage.	
9:30	10:15	00:45	OP	Deployment at D13 – smooth operation, good quality footage.	
10:15	10:55	00:40	OP	Deployment at D14 – smooth operation, good quality footage.	
10:55	11:30	00:35	OP	Deployment at D15 – long transect covering ~300 m gallery zone.	
11:30	12:00	00:30	OP	Deployment at D16 – smooth operation, good quality footage.	
12:00	12:30	00:30	OP	Lunch break.	
12:30	13:10	00:40	OP	Deployment at D17 – smooth operation, good quality footage.	
13:10	13:40	00:30	OP	Deployment at D18 – smooth operation, good quality footage.	
13:50	14:00	00:10	OP	Deployment at D19 (N–S transect) – final transect completed.	
14:00	16:00	02:00	OP	Post-survey activities: all equipment cleaned, secured, and packed for demobilisation. Full data transfer, verification, and backup completed.	

Total Hours 09:50

NB: Total hours must be either 12 or 24 hours according to the type of operations being conducted.

List of codes		Field Hours				Vessel Hours			
			Previous	Today	To Date		Previous	Today	To Date
MOB	Mobilisation / Demobilisation to/from site	MOB				Transit			
INS	Installation / Calibration	INS				Survey			
OP	Operational	OP				Weather			
WOW	Waiting on Weather	WOW				Watch			
DWN	Downtime (survey/vessel)	DWN				Mobilisation			
OTH	Other	Total	0:00	00:00	126.65	Total	24	24.00	####

Date: 21/10/2025

Project ID: 25ENV496

Observed Field Conditions

Forecast Field Conditions (next 24 hours)

06:00 - 18:00 Swell:		06:00 - 18:00 Sea State:		06:00 - 18:00 Swell:		06:00 - 18:00 Sea State:	
18:00 - 06:00 Swell:		18:00 - 06:00 Sea State:		18:00 - 06:00 Swell:		18:00 - 06:00 Sea State:	

Work, Health and Safety

	Daily	Total		Daily	Total		Daily	Total
SWMS	0	0	Near Miss / Incident Reports	0	0	Workplace Inspections	0	0
JHA	1	1	Hazard Reports	0	0	Lost time injuries	0	0
Toolbox / Safety Meetings	1	1	Drills conducted	0	3	First Aid injuries	0	0
Stepback 5x5	0	0	Inductions	0	1	Environmental Reports	0	0

Equipment List

Quantity	Description & Serial Number	Status	Comment
	Sea Spider		
	tech Nautic Tow Camera		

Status ID: M = Mobilised / O = Operational / S = Standby / D = Demobilised / F = Freight Transit

O2M Representative Comments

The survey phase of Project 25ENV496 was successfully completed today with the final series of Category D sites (D8–D19). A total of 12 transects were undertaken under calm and clear conditions, covering the remaining sections of the survey corridor. Video quality and positioning data were consistent throughout the day. The SeaSpyder system performed reliably, and no technical or safety incidents occurred. All data were verified, logged, and backed up to Automarine's network and external drives. All equipment has been cleaned, packed, and secured for transport.

Weather conditions for the following day

Same as today — calm sea conditions, light winds (8–12 kn), and sunny with clear visibility.

Scope of work for the following day

Begin demobilisation of SeaSpyder and support equipment.

Finalise equipment inventory and packing list prior to shipment.

Prepare daily summary report and update data logs.

Maintain safety checks and vessel handover procedures with Bhagwan Marine.

O2M Rep: P. BOUVAIS

Signature:

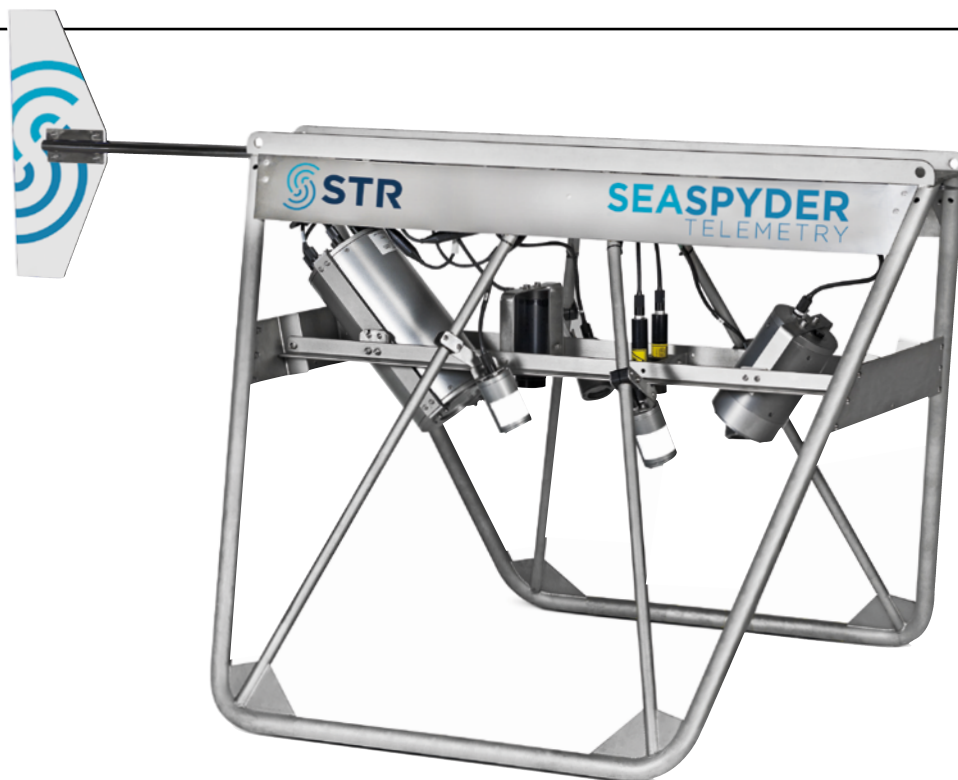


Client Rep:

Signature:

Appendix B. STR Equipment Specifications

STR SeaSpyder TELEMETRY DROP CAMERA SYSTEM



The SeaSpyder Underwater Drop Camera System is part of a family of field proven camera systems manufactured by STR for the marine survey and environmental communities. This technology has been developed continually by STR for several years in order to satisfy the ever increasing demand for quality and performance.

The SeaSpyder Telemetry system is designed for operation in water depths up to 1000m utilising standard coaxial sonar umbilicals.

The system as standard offers simultaneous uninterrupted recording of low latency live video footage along with

high resolution stills photography, along with interfacing to a wide range of sensors and dataloggers

The stills camera is fitted with a high quality 18 mega pixel digital SLR Camera offering full control of all photographic parameters including manual focus, shutter speed and aperture. The stills camera is housed within a robust 1000m rated aluminium enclosure along with an internal IP video camera.

All data is transferred directly to the surface unit for live interpretation, this includes video, stills photos, serial sensor data and Ethernet data such as an imaging sonar.

KEY FEATURES

- Operation in water depths up to 1000m
- Simultaneous uninterrupted recording
- Interfacing to wide range of sensors and dataloggers
- High resolution stills photography
- Direct data transfer for live interpretation
- Fully remote controllable stills camera settings

STR SeaSpyder TELEMETRY DROP CAMERA SYSTEM

SEASPYDER TELEMETRY RACK MOUNT PROCESSOR- SP-PRO2

Hardware: Standard 19" Rack Mountable
Processor: Intel i7 3770 3.4GHz Quad-Core
Memory: 8GB DDR3 RAM
Storage: 1TB internal hard drive & 4TB removable drive in caddy
Interface: DVD-RW, 2 x 1 GigE, 6 x USB, 8 x RS232
Display: 2 x 22" LED HDMI Monitor
Power: 110/240 VAC, 50 Hz (900W)
Dimensions: 19" 3U rack mountable 550 mm (L) x 485 mm (W) x 132mm (H)

SEASPYDER TELEMETRY SURFACE CONTROL UNIT - ST-TSU

Power Input: 100 - 264 VAC (47 - 63 Hz) ffi 500 W max
Dimensions: 19" 4U rack mountable
Interface: 2x 100Mbps Ethernet, 8x RS232/485 serial ports, TTL Trigger Input*

Cable Diagnostics: Low & High Voltage closed loop cable diagnostics, cable polarity test, cable leakage, open and short circuit protection, built in current limit. Voltage and Current LED readout. Fault Indicator LEDs and audible alarm.

*Optional TTL Trigger input available for USBL operation.

SEASPYDER SUBSEA MULTIPLEXER - SP-TM-1000

Power Input: 340VDC
Power Output: 24VDC 200W
Interface: ADSL/Ethernet
Dimensions: 454mm (L) x 200mm Dia.
Weight (Air/Water): 16.5kg/2.3kg
Housing: Hard anodised aluminium
Depth Rating: 1000m

SEASPYDER DROP CAMERA FRAME

Length: 2.21m (with tail fin), 1.55m (no tail fin)
Width: 1.43m
Height: 1.40m (with tail fin), 1.18m (no tail fin)
Weight in Air: 91kg (empty frame), 142kg (fully loaded)

SEASPYDER TELEMETRY 18MP DIGITAL STILLS CAMERA - SP-TM-1000

Power Output: 24VDC on User Ports (12VDC option on Port 3); 200W Max.

Interface: 1 x Underwater Flash
4 x 24VDC LED Lamps
2 x RS232 Ports with 24VDC
1 x RS232 Port with 12 VDC/ 24VDC
1 x Dual Scaling Lasers
1 x 12V LAN Port
Dimensions: 413mm x 213mm Dia.
Weight (Air/Water): 19kg/4.3kg in air/water
Housing: Hard anodised aluminium
Depth Rating: 1000m
Image Size: JPEG (720 x 480) to (5184 x 3456)
RAW (5184 x 3456)
ISO Sensitivity: Auto (100 - 6400), 100 - 12800

Sensor Type: 22.3 x 14.9mm CMOS
Aspect Ratio: 3:2
Shutter Speed: 30 - 1/4000 Sec
Aperture Range: F3.5 - F22
Focal Length: 18mm
Focus: Manual & Automatic mode
Angle of View: ~53° in water
Lens: Acrylic Viewport
Video Resolution: 800*592 at 25FPS (default)
Video Format: H.264 IP Video
Video Sensor: 1/3" CMOS
Video Minimum Illumination: 0.1Lux

SEASPYDER HIGH POWER FLASH - MP-F

Control: TTL control via digital stills camera
Power Input: Power supply via stills camera
Depth Rating: 3000m
Housing: Hard anodised aluminium
Dimensions: 248mm x 152mm Dia (Without connector)
Weight (Air/Water): 8kg/4.8kg

SEASPYDER 20W LED LIGHT - MP-L3

Lighting: LED Lamp
Luminous Flux: 1500Lm
Wavelength: Neutral white
Power Input: 24VDC at 1.1A (Built in thermal protection)
Dimensions: 70mm (L) x 110mm Dia.
Weight (Air/Water): 1kg/0.58kg
Housing: Hard anodised aluminium
Depth Rating: 3000m

STR LASER POINTER / LINE GENERATOR

Red Dot
Power Input: 8 - 30VDC (30mA at 24VDC)
Fault Protection: Reverse polarity input protection with self reset fuse.
Type: 2 x Class II Safety Classification

Beam Shape: Elliptical (Approx. 6mm red dot output)

Beam Divergence: 0.75mrad
Wavelength: 650nm
Depth Rating: 3000m Standard / 6000m option available
Control: NA

Green Dot
Power Input: 8 - 30VDC (60mA at 24VDC)

Fault Protection: Reverse polarity input protection with self reset fuse.
Type: 2 x Class II Safety Classification
Beam Shape: 60° Line / 90° Line / 30° Cross

Beam Divergence: 0.2mrad
Wavelength: 520nm
Temperature Range: -10°C to 40°C
Housing Material: Black Hard Anodised Aluminium

Dimensions: 205mm x 38mm Dia
Weight: 360g in air / 130g in water
Depth Rating: 3000m Standard / 6000m option available

Connector: Subconn MCBH2M / MCIL2F & MCDLSF Mating Half
Control: NA

Green Line
Power Input: 8 - 30VDC (160mA at 24VDC)

Fault Protection: Reverse polarity input protection with self reset fuse.
Type: 2 x Class 3B Safety Classification (35mW output)

Beam Shape: 60° Line / 90° Line / 30° Cross
Beam Divergence: 0.25mrad single axis

Wavelength: 520nm
Temperature Range: -10°C to 40°C
Housing Material: Black Hard Anodised Aluminium

Dimensions: 205mm x 38mm Dia
Weight: 360g in air / 130g in water
Depth Rating: 3000m
Connector: Subconn MCBH2M / MCIL2F & MCDLSF Mating Half

Control: Internal Thermal Protection at 45°C / TTL&PWM Options available upon request

UMBILICAL OPTIONS

Rochester A301241 (0.68") (17mm) - 3000m Max
Rochester A302799 (0.45") (11.43mm) - 1500m Max
Rochester A304874 (0.25") (6.53mm) - 700m Max
Other umbilical types supported - please consult STR for further info.

All information contained in this brochure may be subject to change without prior notice.

WWW.STR-SUBSEA.COM



SeaTow 500 Electric Winch

STR offer an extensive range of field proven electric winch systems for marine applications

The STR SeaTow 500 is a latest generation compact and lightweight single phase AC electric winch designed for the installation of 500 m of 1/4" steel armoured tow cable.

Typical applications for this winch are sidescan sonar, combined sidescan sonar and sub-bottom profiler systems, marine magnetometers, gradiometers, oceanographic sensors and drop camera systems.

The SeaTow 500 offers improved performance and features above that of the STR ESW-500, including improved speed Vs line pull, user interface and remote operability, making it ideally suited for unmanned surface vessel applications.



SeaTow 500 Electric Winch

Key features

- Compact footprint
- Integrated variable speed drive
- Coax / multicore tow-cable and slip-ring
- Remote and local joystick control
- Precise direct drive diamond bar level wind
- Low maintenance
- Remote operation interface

TECHNICAL SPECIFICATIONS

Properties	DESCRIPTION
Motor	1.5 kW, variable speed
Supply	3.2 kW, single phase, 200 – 240 V, 50 / 60 Hz
Brake	Electrical disc brake integral with motor
Drum Capacity	500 m of 1 / 4" steel armoured cable (e.g. Rochester A304874 / A240250)
Drum Dimensions	Drum Ø 457 mm, Drum Width 357 mm, Cheek Ø 580 mm
Line Speed (at drum)	36 m / minute
Line Speed (at top)	42 m / minute
Line Pull WLL	320 kg
Handling	Load tested 4 point lift eyes
Level Wind	Diamond screw from shaft
Motor Regeneration	Internal resistive load to avoid regeneration onto input supply
Construction	Aluminium with powder coating finish
Slip-Ring	4 way slip ring fitted with MCBH6M connector and dummy plug
Joysticks	1x Local and 1x remote joystick control C/W 30 m remote cable. LCD user configuration and status interface, emergency stop button.
Safety Features	• Multiple emergency stop buttons at operator stations and main unit • Moving parts contained within cage • Sounder beacon indicating operation • Low voltage control circuitry • Fail safe brake
Weight	280 kg (bare drum), 360 kg (500 m 1/4" Cable)
Dimensions	1.0 x 1.06 x 0.76 m (WxDxH)
Remote Interface	Customised remote control and diagnostic interfaces supported
Deck Fastenings	4 off removable bolt on sacrificial feet for welding to deck

All information contained in this brochure may be subject to change without prior notice.

STR 14112024

Visit **str-subsea.com** for more information

Appendix C. Vessel Specifications

VESSEL:

LAURI J

CLASSIFICATION:

Crew Transfer/
Utility/Survey/Supply



BHAGWAN^{BM}
marine



TECHNICAL SPECIFICATIONS

BUILT: Fine Entry Marine, Geraldton, WA, 2008
HULL: Aluminium Catamaran

CLASSIFICATION

CLASSIFICATION: DCV 2B
FLAG: AUSTRALIAN
TRADING AREA: Coastal Waters Within 200nm
CALL SIGN: VNW6213
M&H NUMBER: 6290

DIMENSIONS

LENGTH OVERALL: 30m
BEAM: 10m
MEASURED DEPTH: 4.24m
DRAFT: 2m
DECK AREA: 130m²
LIGHT SHIP: 125t
DEAD WEIGHT: 75t

MACHINERY

PROPULSION: Twin Screw
MAIN ENGINES: 2x MTU V12-4000 M72
TOTAL POWER (kW): 2x 945kW
GENERATOR: 2x Cummins Synchronous 14kva
BOW THRUSTER: 2x 75HP Hydraulic
GEAR BOX: 2x MGX 6848 Sc

SPEED AND CONSUMPTION

FULL OPERATION: 15kts @ 430L/hr
ECO OPERATION: 10.7kts @ 160L/hr
BOLLARD PULL: 15t
IN PORT: 350L/day
RANGE: Approx. 960nm

CAPACITIES

FUEL: 17m³
WATER: 5m³
SULLAGE: 0.5m³
LUBE OIL: 1m³
DECK CARGO: 40t

DECK EQUIPMENT

MOON POOL: 1200mm x 1200mm (Retractable)
DECK CRANES: 1296kg HIAB
A-FRAME: 7.5t, Can Be Fitted As Requested
WINCH: 9.5t
MISCELLANEOUS: 4 Point Mooring (Can be fitted)

COMMUNICATIONS EQUIPMENT

AIS: Furuno Navnet VX2
GPS: 2x Furuno Gp 37
AUTO PILOT: Simrad AP50
ECHO SOUNDER: Furuno Fcv-295
CHART PLOTTER: Maxsea
RADAR FURUNO: JRC 48 Mile
RADIOS: HF ICOM ic-m801e
VHF ICOM ic-m505
COMPASS: 2x Magnetic Plastimo
SEARCHLIGHT: Colorlight
INTERCOM: 2x Netcomm Voice & Data Modems
3/4G (Client to Bridge)

ACCOMODATION

BERTHS: 16 + 2 Crew
TOTAL PASSENGERS: 22 (Can Be Increased to 47 Passengers & 3 Crew)
FEATURES: Fully Air-Conditioned, Galley/Mess, Sanitary Facilities and Laundry

MISCELLANEOUS EQUIPMENT

Medivac Stretcher
Marpol Compliant Sewage Treatment Plant
Hydraulic MOB Rescue Recovery Platform

Head Office
L3 / 251 St Georges Tce
Perth WA 6000
Tel: +61 8 9424 2300

Dampier Office
1 Nielsen Place
Dampier WA 6713
Tel: +61 8 9144 3300

Darwin Office
12/30 Frances Bay Drive
Stuart Park NT 0800
Tel: +61 8 8982 0600

Brisbane Office
30 Paringa Road
Murarrie QLD 4172
Tel: +61 7 3907 3111

Melbourne Office
97 Kooronga Way
Port Melbourne VIC 3207
Tel: +61 3 7019 3300

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APPENDIX E ABORIGINAL CULTURAL HERITAGE INQUIRY SYSTEM (ACHIS) SEARCH



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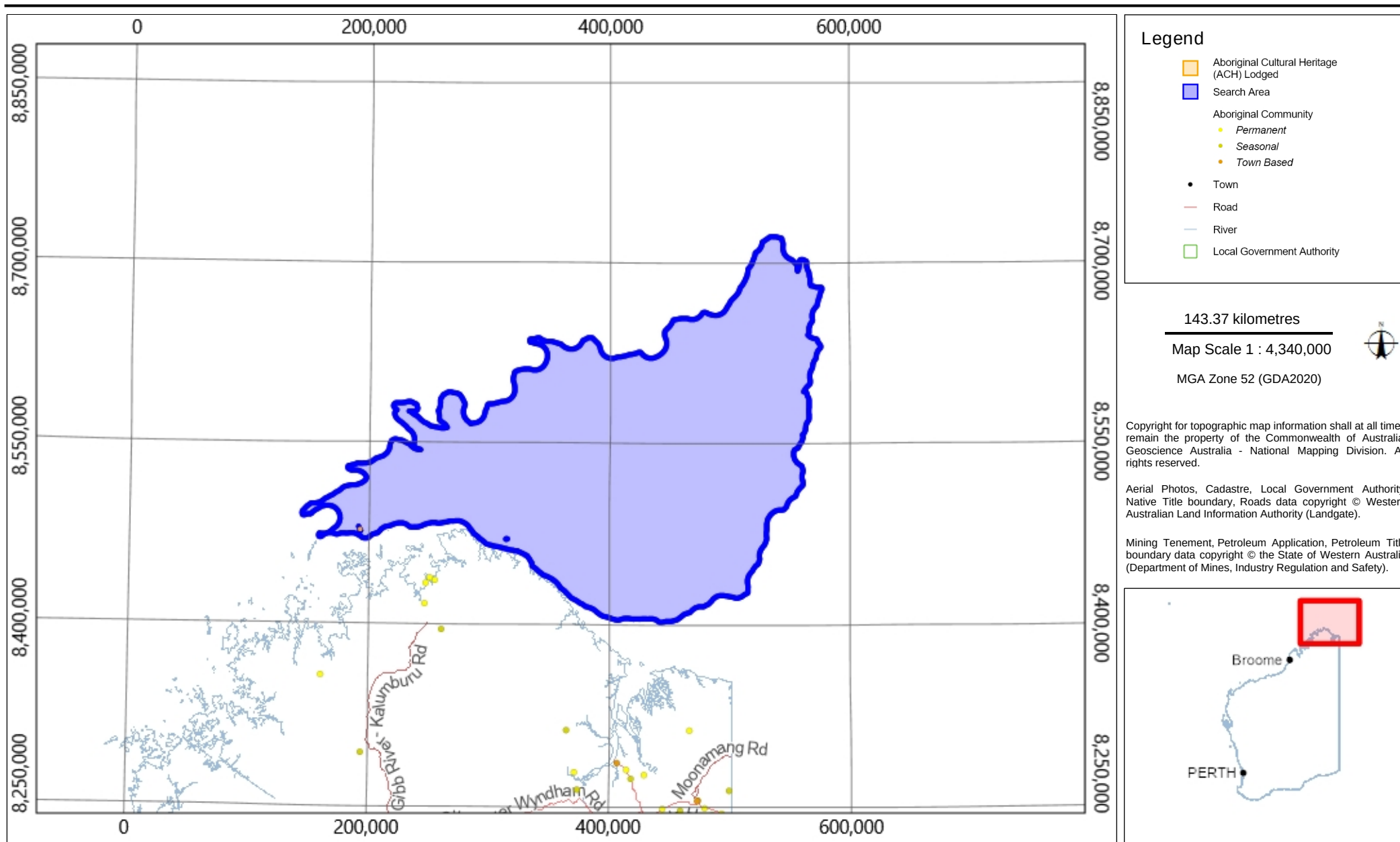
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APPENDIX F UNDERWATER NOISE MODELLING

ENI Petrel OPP

Acoustic Modelling for Assessing Marine Fauna Sound Exposures

JASCO Applied Sciences (Australia) Pty Ltd

23 October 2025

Submitted to:

Xodus

Order No. 0615

Authors:

Victoria E. Warren

Steven C. Connell

Brenton Chatfield

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Executive Summary

JASCO Applied Sciences (JASCO) performed a modelling study of underwater sound levels associated with proposed pile driving, drilling, and vessel activities as part of ENI Australia's plans to develop the Petrel gas field in the Bonaparte Basin in northern Australia.

The modelling study specifically assessed distances from planned activities where underwater sound levels reached thresholds corresponding to behavioural response and impairment (temporary threshold shift (TTS), and permanent threshold shift (PTS)). PTS is a form of auditory injury as it is referred to in NMFS (2024) (using the acronym AUD INJ), however in this report, for consistency with previous work, the term PTS is used but it is acknowledged that auditory injury may occur without PTS. The animals considered here included low-, high-, and very high-frequency cetaceans, sirenians, fish (including fish larvae and eggs), and sea turtles.

The modelling methodology considered scenario-specific source levels 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}); and either single-strike (i.e., per-strike) or accumulated sound exposure levels (SEL, L_E) as appropriate for different noise effect criteria and noise sources. 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}.

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

The key results of this acoustic modelling study are summarised in the marine mammal, sea turtle and fish sections below. Maps are provided in the report to assist with contextualising tabulated distances.

Pile Driving Activities

JASCO modelled four pile driving scenarios using an IHC S-1800 or an MHU 2400S impact hammer for use with driving one or two piles at two Petrel Wellhead Platform locations that are separated by 1.3 km. Due to the proximity of the two sites, and similar environmental parameters, the results at both platforms can be considered representative of each other. The modelling considered either two identical piles (Pile 1), each 90 m in length and 2.13 m in diameter with a pile wall thickness of 5.1 cm, a single pile (Pile 2) 90 m in length, 2.59 m in diameter and with a wall thickness of 6.35 cm, or a single pile (Pile 3) 90 m in length, 2.74 m in diameter and with a wall thickness of 6.50 cm.

Based on the provided drivability information for Pile 1, it is estimated that it would take approximately 6,266 blows (2.61 h driving at 40 blows per minute) to drive each of the two piles 70 m into the substrate with the ICH S-1800 hammer. Driving two of these piles, the total number of strikes required is estimated to be 12,532, with a total driving time of 5.22 hours. For Pile 2 the estimated number of strikes to drive the pile to 80 m into the substrate is 9,593 (4 h) or 6,086 (2.5 h) using the IHC S-1800 or MHU 2400S impact hammers, respectively. For Pile 3, drivability was not available and so the driveability for Pile 2 with the MHU 2400S impact hammer was used which gave an estimated number of strikes of 8,020 (3.3 h).

Marine mammals

Table 1 summarises the distances to criteria for marine mammals.

- The maximum distance where the NOAA (2024) marine mammal behavioural response criterion of 160 dB re 1 μ Pa (SPL) for impulsive noise could be exceeded was 3.62 km.
- The results for marine mammal injury considered the criteria from NMFS (2024) and Accomando et al. (2025). These criteria contain two metrics (PK and SEL_{24h}), both required for the assessment of marine mammal PTS/AUD INJ and TTS. 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 piling activities to behavioural response thresholds and temporary threshold shift (TTS) and permanent threshold shift (PTS/AUD INJ) for marine mammals showing the relevant metric.

Hearing group	Maximum modelled distance to effect threshold (R_{max})		
	Behavioural response ¹ (km)	Impairment (km): TTS ²	Impairment (km): PTS/AUD INJ ²
LF cetaceans	3.62	23.1 (SEL _{24h})	3.79 (SEL _{24h})
HF cetaceans		0.99 (SEL _{24h})	0.27 (SEL _{24h})
VHF cetaceans		14.7 (SEL _{24h})	2.43 (SEL _{24h})
Sirenians		0.89 (SEL _{24h})	0.25 (SEL _{24h})

Noise exposure criteria: ¹ NOAA (2024) and ² NMFS (2024) for cetaceans and Accomando et al. (2025) for sirenians.

Sea turtles

Table 2 summarises the distances to criteria for sea turtles.

- The PK sea turtle injury threshold of 230 dB re 1 μ Pa for PTS was not predicted to occur and 224 dB re 1 μ Pa for TTS from Accomando et al. (2025) was predicted to occur within 20 m.
- The maximum distances to the SEL_{24h} metrics for PTS/AUD INJ and TTS onset for sea turtles (Accomando et al. 2025) were 2.93 and 15.6 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 injured, but rather that an animal could be exposed to the sound level associated with either PTS/AUD INJ or TTS if it remained within that radius for 24 hours.
- The criteria for behavioural response (166 dB re 1 μ Pa (SPL)) and behavioural disturbance (175 dB re 1 μ Pa (SPL)) (McCauley et al. 2000) were exceeded at distances of 2.18 and 1.01 km, respectively.

Table 2. 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)/auditory injury (AUD INJ).

Hearing group	Maximum modelled distance to effect threshold (R_{max}) (km)			
	Behavioural disturbance ¹	Behavioural response ²	Impairment: TTS ³	Impairment: PTS/AUD INJ ³
Sea Turtles	1.01	2.18	15.6 (SEL _{24h})	2.93 (SEL _{24h})

Noise exposure criteria: ^{1,2} McCauley et al. (2000), and ³ 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 3 summarises distances to effect criteria for fish, fish eggs, and fish larvae along with the relevant metric.

Table 3. Summary of fish results: Summary of maximum fish, fish eggs, and larvae injury and temporary threshold shift (TTS) onset distances for single impulse (PK) and 24-hour sound exposure level (SEL_{24h}) modelled scenarios.

Relevant hearing group	Effect criteria	Water column	
		Metric associated with longest distance to criteria	R _{max} (km)
Fish: No swim bladder	Mortality and potential mortal injury	SEL _{24h}	0.16
	Recoverable injury	SEL _{24h}	0.19
	TTS	SEL _{24h}	5.54
Fish: Swim bladder not involved in hearing	Mortality and potential mortal injury	SEL _{24h}	0.57
	Recoverable injury	SEL _{24h}	1.13
	TTS	SEL _{24h}	5.54
Fish: Swim bladder involved in hearing and Fish eggs, and larvae (relevant to plankton)	Mortality and potential mortal injury	SEL _{24h}	0.76
	Recoverable injury	SEL _{24h}	1.13
	TTS	SEL _{24h}	5.54

Drilling and Vessel Activities

Table 4 outlines the modelled drilling and vessel activity scenarios. Scenarios 4 and 4a are combined scenarios where Scenarios 1 and 2 (Scenario 4), or 1a and 2 (Scenario 4a), occur concurrently.

Table 4. Description of modelled scenarios for drilling and vessel activities.

Scenario	Operation Name	Operation Description
1	Anchored MODU Drilling and Support	Anchored MODU (Drilling) supported by an AHT under DP and two OSVs on standby under DP
1a	MODU on DP Drilling and Support	MODU under DP (Drilling) supported by an AHT under DP and two OSVs on standby under DP
2	Construction and Support	OCV under DP supported by a resupply AHT under DP and a standby AHT under DP
3	Pipelay and Support	Pipelay vessel moving at 100m/hr under DP, supported by a pipelay construction support vessel moving at 100m/hr under DP
4	Anchored MODU Drilling and Support + Construction and Support	Anchored MODU (Drilling) supported by an AHT under DP and two OSVs on standby under DP + OCV under DP supported by a resupply AHT under DP and a standby AHT under DP
4a	MODU on DP Drilling and Support + Construction and Support	MODU under DP (Drilling) supported by an AHT under DP and two OSVs on standby under DP + OCV under DP supported by a resupply AHT under DP and a standby AHT under DP

Marine mammals

The maximum distances to the NOAA (2024) marine mammal behavioural response criterion of 120 dB re 1 μ Pa (SPL) ranged between 8.11 km (Scenario 1) and 24.6 km (Scenario 4a) (Table 5). The longest TTS and PTS/AUD INJ ranges were associated with low-frequency (LF) cetaceans. Table 5 summarises the maximum horizontal distances to frequency-weighted thresholds (NMFS 2024) for scenario 1–3, along with the total area ensonified above threshold.

Scenarios 4 and 4a are combined scenarios where Scenarios 1 and 2 (Scenario 4), or 1a and 2 (Scenario 4a), occur concurrently. As combining multiple circular sound footprints can result in elongated ensonified areas, reporting maximum distances to noise effect criteria thresholds was not informative in all cases. Therefore, in addition to maximum distances, a comparison of the area ensonified above the thresholds between the summed individual scenarios (1 and 2, or 1a and 2) and the combined scenarios (4 or 4a) was made. When the activities were conducted concurrently (in Scenarios 4 or 4a), the area ensonified above each criteria threshold was equal to or greater than the areas ensonified when Scenario 1 and 2, or 1a and 2, were conducted separately. The greatest increase in area above threshold for the combined scenarios was for the TTS threshold for LF cetaceans with the area increasing by 49% for Scenario 4 and 39% for Scenario 4a, respectively.

Table 5. Summary of marine mammal results: Summary of maximum ($R_{\max}$) horizontal distances (in km), from all scenarios considered, to the marine mammal behavioural response criterion of 120 dB re 1 μ Pa (SPL) and the longest frequency-weighted TTS and PTS/AUD INJ thresholds (with frequency-weighting in parentheses) based on NMFS (2024) and Accomando et al. (2025). Ensonified areas are also provided for TTS and PTS/AUD INJ thresholds.

Scenario Number	Description	Marine Mammal Behavioural Response - SPL ^a $R_{\max}$ (km)	TTS - SEL _{24h} ^b		PTS/ AUD INJ - SEL _{24h} ^b	
			$R_{\max}$ (km)	Area (km ²)	$R_{\max}$ (km)	Area (km ²)
1	Anchored MODU Drilling and Support	8.11	3.03 (LF-cetacean)	24.0	0.47 (LF-cetacean)	0.29
1a	MODU on DP Drilling and Support	14.8	4.06 (LF-cetacean)	48.4	0.60 (LF-cetacean)	0.47
2	Construction and Support	17.4	5.92 (LF-cetacean)	90.1	0.80 (LF-cetacean)	0.99
3	Pipelay and Support	11.8	3.92 (LF-cetacean)	53.2	0.20 (LF-cetacean)	1.12
4	Anchored MODU Drilling and Support + Construction and Support	18.1	7.70 (LF-cetacean)	170	1.20 (LF-cetacean)	1.51
4a	MODU on DP Drilling and Support + Construction and Support	24.6	8.16 (LF-cetacean)	192	1.26 (LF-cetacean)	1.68

Noise exposure criteria: ^a NOAA (2024) and ^b NMFS (2024) and Accomando et al. (2025).

Sea turtles

The threshold criteria from Accomando et al. (2025) were used to assess PTS/AUD INJ and TTS for sea turtles. Across modelled scenarios 1 to 3, the maximum distances to threshold were 2.20 km for TTS and 640 m for PTS/AUD INJ. In Scenarios 4 and 4a, where Scenarios 1 and 2 or 1a and 2 occurred concurrently, the overall area ensonified above the sea turtle PTS threshold was 14% and 35% larger respectively than when the scenarios occurred separately. However, in contrast, the overall area ensonified above the TTS threshold for Scenarios 4 and 4a was 13% smaller than when the scenarios occurred separately. This is due to areas from the individual scenarios overlapping when combined (concurrent activities), reducing the overall area ensonified above the TTS threshold.

Table 6. Summary of sea turtle results: Summary of maximum ($R_{\max}$) horizontal distances (in km), from all scenarios considered, to the frequency-weighted TTS and PTS/AUD INJ thresholds (with frequency-weighting in parentheses) based on Accomando et al. (2025). Ensonified areas are also provided for TTS and PTS/AUD INJ thresholds.

Scenario Number	Description	TTS - SEL _{24h} ^b		PTS/ AUD INJ - SEL _{24h} ^b	
		$R_{\max}$ (km)	Area (km ²)	$R_{\max}$ (km)	Area (km ²)
1	Anchored MODU Drilling and Support	1.66	5.98	0.13	0.08
1a	MODU on DP Drilling and Support	2.08	12.6	0.14	0.14
2	Construction and Support	2.20	13.2	0.64	0.35
3	Pipelay and Support	1.33	9.16	0.08	0.3
4	Anchored MODU Drilling and Support + Construction and Support	0.67	0.49	2.78	16.6
4a	MODU on DP Drilling and Support + Construction and Support	0.97	0.66	3.02	22.4

Noise exposure criteria: ^a NOAA (2024) and ^b NMFS (2024) and Accomando et al. (2025).

Fish

Sound produced by the modelled drilling and vessel activities reached the sound levels associated with recoverable injury and TTS for fish species with a swim bladder involved in hearing in close proximity to the sound sources (Table 7), but in order for the thresholds to be exceeded, the fish must remain within those distances for either 48 or 12 h, respectively.

Table 7. Summary of fish results : Maximum ($R_{\max}$) horizontal distances (in km), from all scenarios considered, to sound pressure level (SPL) criteria based on Popper et al. (2014).

Scenario Number	Description	Maximum ($R_{\max}$) distance to threshold (km)	
		Recoverable injury (48 h)	TTS (12 h)
1	Anchored MODU Drilling and Support	0.06	0.08
1a	MODU under DP Drilling and Support	0.02	0.12
2	Construction and Support	–	0.10
3	Pipelay and Support	–	0.09
4	Anchored MODU Drilling and Support + Construction and Support	0.06	0.10
4a	MODU under DP Drilling and Support + Construction and Support	0.02	0.12

A dash indicates the level was not reached within the limits of the modelled resolution (20 m).

1. Introduction

JASCO Applied Sciences (JASCO) performed a modelling study of underwater acoustic noise levels associated with proposed pile driving, drilling and vessel activities as part of ENI Australia's plans to develop the Petrel gas field. The modelling study specifically predicted the distances from the proposed activities at which underwater sound levels reached noise effect thresholds and criteria applicable to marine fauna. Due to the variety of species considered, there are several different thresholds for evaluating effects, which include behavioural response, impairment (temporary threshold shift (TTS) and permanent threshold shift (PTS)), and injury. PTS is a form of auditory injury as it is referred to in NMFS (2024) (using the acronym AUD INJ), however in this report, for consistency with previous work, the term PTS is used, but it is acknowledged that auditory injury may occur without PTS.

For the impulsive sound source of pile driving, estimated underwater acoustic levels are presented as sound pressure levels (SPL, L_p); zero-to-peak pressure levels (PK, L_{pk}), and either single-strike (i.e., per-strike) or accumulated sound exposure levels (SEL, L_E) as appropriate for different noise effect criteria and noise sources.

Estimated underwater acoustic levels for non-impulsive (continuous) noise sources of vessel activity and drilling are presented as sound pressure levels (SPL, L_p), and as accumulated sound exposure levels (SEL, L_E) as appropriate for different noise effect criteria. The SPL metric is the root-mean-square pressure level over a stated frequency band over a specified time window. In this study, for continuous noise, a time window of 1 s was used.

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 permanent threshold shift (PTS) or temporary threshold shift (TTS)) if it remained at that location for 24 hours.

Section 1.1 outlines the specific details of the modelling study. Section 2 details the metrics used to represent underwater acoustic fields and the associated effect criteria considered. Section 3 details the methodology for predicting the source levels and modelling the sound propagation, including source levels and environmental parameters required by the propagation models. Section 4.1.2 presents the acoustic results as tabulated ranges to thresholds, Section 4.1.3 provides sound level contour maps. The acoustic modelling results are then discussed in Section 5.

1.1. Modelling Scenarios

The modelled activities included both pile driving (impulsive noise source) and drilling and vessel activities (non-impulsive/continuous noise sources).

1.1.1. Pile Driving Activities

JASCO modelled an IHC S-1800 and an MHU 2400S impact hammer for use with driving of one or two consecutive piles at two Petrel Wellhead Platform locations. Modelling incorporated client-supplied drivability information. The modelling considered either two identical piles (Pile 1), each 90 m

in length and 2.13 m in diameter with a pile wall thickness of 5.1 cm, a single pile (Pile 2) 90 m in length, 2.59 m in diameter and with a wall thickness of 6.35 cm, or a single pile (Pile 3) 90 m in length, 2.74 m in diameter and with a wall thickness of 6.50 cm.

The total noise exposure (SEL) for the pile driving scenario depends on the total number of hammer blows required to drive the pile. Based on the provided drivability information for Pile 1, it is estimated that it would take approximately 6,266 blows (2.61 h driving at 40 blows per minute) to drive each of the two piles 70 m into the substrate with the IHC S-1800 hammer. Driving two of these piles, the total number of strikes required is estimated to be 12,532, with a total driving time of 5.22 hours. For Pile 2 the estimated number of strikes to drive the pile to 80 m into the substrate is 9,593 (4 h) or 6,086 (2.5 h) using the IHC S-1800 or MHU 2400S impact hammers, respectively. For Pile 3 the drivability was not available and so the drivability for Pile 2 with the MHU 2400S impact hammer was used which gave an estimated number of strikes of 8,020 (3.3 h).

The pile driving modelling locations are detailed in Table 8 and indicated graphically in Figure 1. ENI identified two potential wellhead platform locations, which are approximately 1.3 km apart. For the purposes of the modelling, Piles 1 and 2 were considered to be installed in the same location. Table 9 summarises the modelled pile specifications.

Table 8. Location of the piling activities in MGA coordinates (GDA 2020, MGA Zone 52).

Site	Piling Scenario	Latitude (S)	Longitude (E)	MGA ¹ Zone 52		Water depth (m)
				X (m)	Y (m)	
1	Piles 1 and 2	12° 53' 23.51"	128° 30' 33.88"	446776	8574993	99.7
2	Pile 3	12° 53' 16.24"	128° 29' 55.64"	445623	8575214	98.4

¹ Map Grid of Australia

Table 9. Pile specifications for the driven cylindrical steel piles.

Scenario	Pile Number	Pile Description	Pile Specifications			Final Penetration Depth (m)	Hammer(s)	Number of installed piles per day
			Length (m)	Diameter (m)	Wall Thickness (mm)			
1	Pile 1	Uniform cylindrical steel	90	2.13	50.8	70	IHC S-1800	2
2	Pile 2	Uniform cylindrical steel	90	2.59	63.5	80	IHC S-1800	1
3							MHU 2400S	1
4	Pile 3	Uniform cylindrical steel	90	2.74	65.0	85	MHU 2400S	1

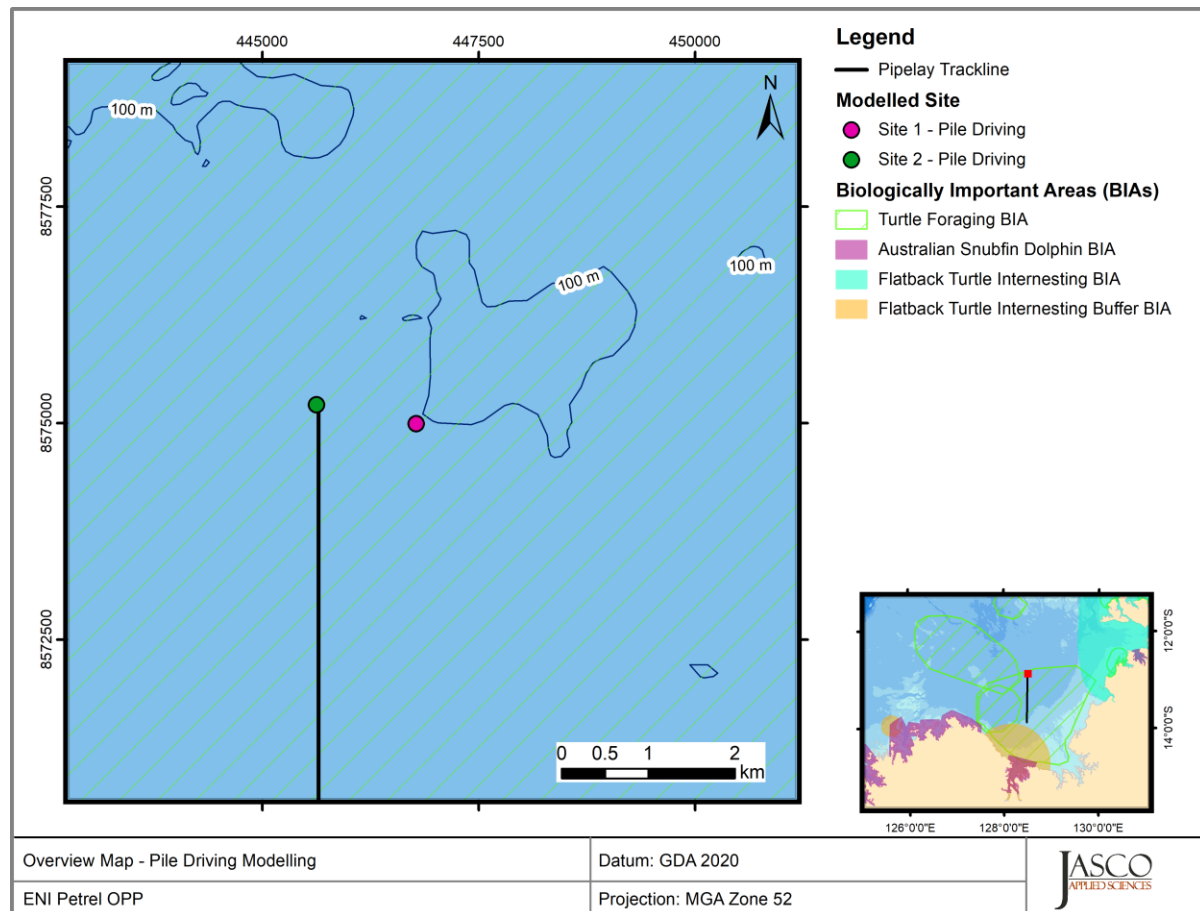


Figure 1. Overview map of the relevant features of the modelled pile driving locations within the ENI Petrel OPP.

1.1.2. Drilling and Vessel Activities

This study considered the following sound-producing activities:

- Drilling noise from an anchored Mobile Offshore Drilling Unit (MODU) located at the initial well location (Site 1),
- Drilling noise from a MODU under dynamic positioning (DP) at the initial well location (Site 1a),
- Vessel noise from drilling support operations from an anchor handling tug (AHT) under DP alongside the MODU for 4 hours (Site 2a), and on stand-by 500 m from the MODU for 20 hours (Site 2b),
- Vessel noise from drilling support operations from two other offshore support vessels (OSVs), also under DP, each located 500 m from the MODU (Sites 3 and 4),
- Vessel noise from an offshore construction vessel (OCV) under DP located at the Petrel Wellhead Platform (Site 5),
- Vessel noise from construction support operations from a resupply AHT and a standby AHT, each under DP and located 500 m from the OCV (Sites 6 and 7),
- Vessel noise from a pipelay vessel moving along the Petrel pipeline from the Blacktip GEP tie-in point at 100 m/hr under DP (Site 8),
- Vessel noise from a pipelay construction support vessel located 500 m from the pipelay vessel, also moving at 100 m/hr under DP (Site 9).

Tables 10 and 11 outline the drilling and vessel modelling locations and scenarios, and these are indicated graphically in Figure 2. It should be noted that the location of the OCV (modelled Site 5, Table 10) is the same location as modelled Site 1 for pile driving activities (Table 8), however they are presented in this report with two different references for clarity. It is also noted that the two sites associated with pipelay, Sites 8 and 9, are based on an early concept pipelay trackline that has since been updated to the full pipelay trackline as shown in Figure 2. These sites are offset approximately 0.62 km from the full pipelay trackline.

Scenarios 4 and 4a are cumulative scenarios comprising the concurrent occurrence of either Scenarios 1 and 2, or 1a and 2, respectively.

Table 10. Modelled site locations and vessel type information.

Site	Source/Vessel	Latitude (°S)	Longitude (°E)	MGA ¹ Zone 52		Water depth (m)
				X (m)	Y (m)	
1	Anchored MODU (Drilling)	12° 53' 29.74"	128° 30' 07.76"	445989	8574800	98.3
1a	MODU under DP (Drilling)	12° 53' 29.74"	128° 30' 07.76"	445989	8574800	98.3
2a	Drilling support AHT under DP alongside MODU	12° 53' 31.69"	128° 30' 07.75"	445989	8574740	98.3
2b	Drilling support AHT under DP 500 m from MODU	12° 53' 46.02"	128° 30' 07.72"	445989	8574300	98.6
3	Drilling OSV on standby under DP	12° 53' 29.71"	128° 29' 51.17"	445489	8574800	97.8
4	Drilling OSV on standby under DP	12° 53' 29.77"	128° 30' 24.35"	446489	8574800	98.9
5	Offshore Construction Vessel (OCV) under DP	12° 53' 23.51"	128° 30' 33.88"	446776	8574993	99.7
6	Construction resupply AHT under DP	12° 53' 23.48"	128° 30' 17.29"	446276	8574993	99.1
7	Construction standby AHT under DP	12° 53' 23.54"	128° 30' 50.47"	447276	8574993	100.0
8	Pipelay vessel under DP	13° 53' 09.55"	128° 28' 43.28"	443675	8464822	55.5
9	Pipelay construction support vessel under DP	13° 53' 09.55"	128° 28' 26.64"	443176	8464820	55.5

¹Map Grid of Australia (MGA)

Table 11. Description of modelled scenarios for drilling and vessel activities.

Scenario	Site(s)	Location	Operation Name	Operation Description	Operation Time
1	1, 2a, 2b, 3, 4	Initial Well Location	Anchored MODU Drilling and Support	Anchored MODU (Drilling) supported by an AHT under DP and two OSVs on standby under DP	24 h (Site 2a for 4 hours, Site 2b for the remaining 20 hours)
1a	1, 1a, 2a, 2b, 3, 4	Initial Well Location	MODU on DP Drilling and Support	MODU under DP (Drilling) supported by an AHT under DP and two OSVs on standby under DP	24 h (Site 2a for 4 hours, Site 2b for the remaining 20 hours)
2	5, 6, 7	Petrel Wellhead Platform	Construction and Support	OCV under DP supported by a resupply AHT under DP and a standby AHT under DP	24 h
3	8, 9	Blacktip GEP tie-in	Pipelay and Support	Pipelay vessel moving at 100m/hr under DP, supported by a pipelay construction support vessel moving at 100m/hr under DP	24 h
4	1, 2a, 2b, 3, 4 + 5, 6, 7	Initial Well Location + Petrel Wellhead Platform	Anchored MODU Drilling and Support + Construction and Support	Anchored MODU (Drilling) supported by an AHT under DP and two OSVs on standby under DP + OCV under DP supported by a resupply AHT under DP and a standby AHT under DP	24 h (Site 2a for 4 hours, Site 2b for the remaining 20 hours)
4a	1, 1a, 2a, 2b, 3, 4, 5, 6, 7	Initial Well Location + Petrel Wellhead Platform	MODU on DP Drilling and Support + Construction and Support	MODU under DP (Drilling) supported by an AHT under DP and two OSVs on standby under DP + OCV under DP supported by a resupply AHT under DP and a standby AHT under DP	24 h (Site 2a for 4 hours, Site 2b for the remaining 20 hours)

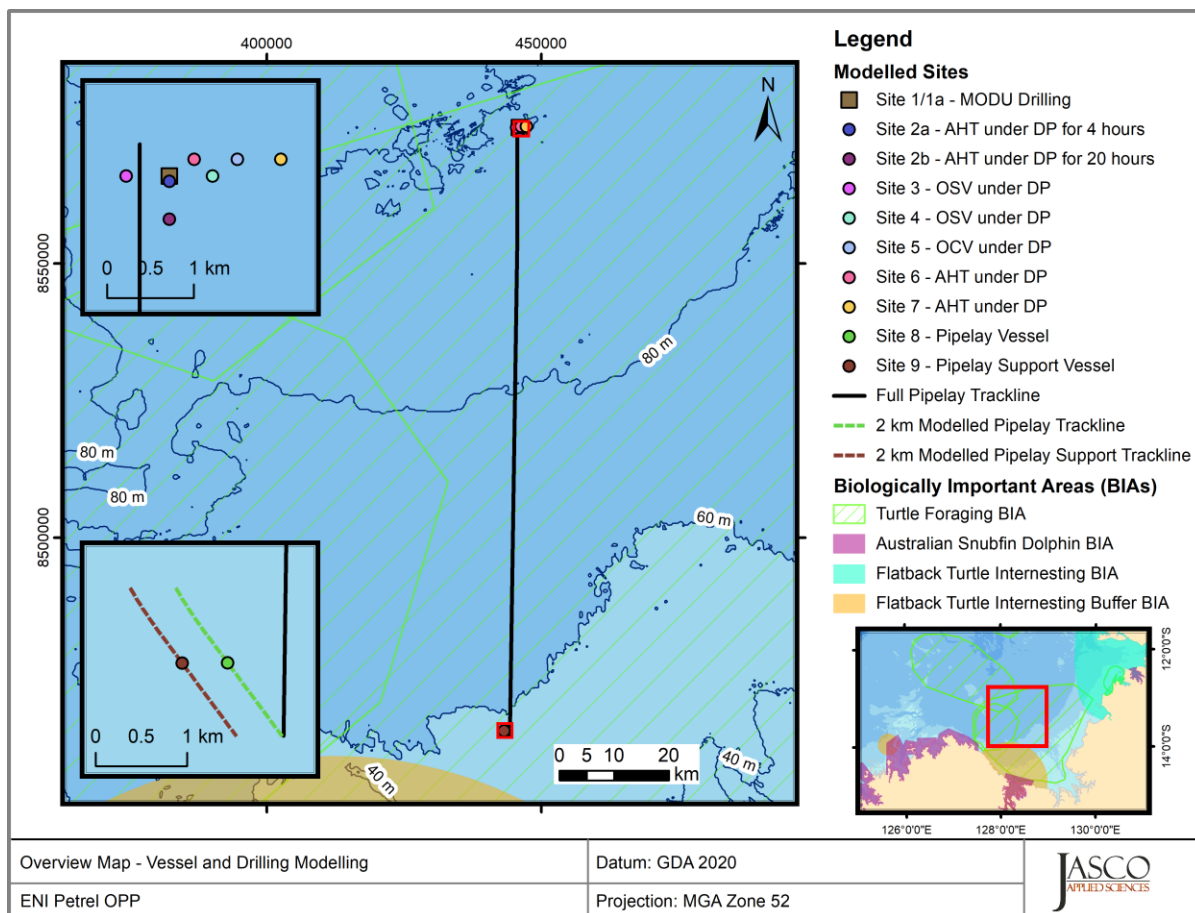


Figure 2. Overview map of the relevant features of the modelled drilling and vessel activities within the ENI Petrel OPP.

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. (2007a), Finneran and Jenkins (2012), Popper et al. (2014), United States National Marine Fisheries Service (NMFS 2018) and 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.

2.1. Impulsive Noise

Impact pile driving activities have been assessed as an impulsive noise source consistent with the considered thresholds and guidelines.

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-strike” assessment or over 24 h. For non-impulsive sound sources, such as vessels, SPL and SEL are the relevant metrics. The acoustic metrics in this report reflect the ISO standard for acoustic terminology, ISO/DIS 18405:2017 (2017).

The following thresholds and guidelines for impulsive sound in 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, and Accomando et al. (2025) for sirenians. 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 μ Pa (SPL; L_p) for impulsive sound sources.
- 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 μ Pa (SPL; L_p) for impulsive noise, along with a sound level associated with behavioural disturbance 175 dB re 1 μ Pa (SPL; L_p) (McCauley et al. 2000).
- Fish, fish eggs, and larvae:
 - Sound exposure guidelines for fish, fish eggs, and larvae (used as a surrogate for plankton) (Popper et al. 2014).

The following sections (along with Appendices A.3 and A.4), expand on the thresholds, guidelines and sound levels for all marine fauna.

2.1.1. Marine Mammals

The criteria applied in this study to assess possible effects of impulsive noise sources on marine mammals are summarised in Table 12; cetaceans and sirenians 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 criteria from the current interim U.S. National Oceanic and Atmospheric Administration (NOAA) (2024) has been applied.

Table 12. 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) for cetaceans and Accomando et al. (2025) for sirenians			
	Behaviour	TTS onset thresholds* (received level)		PTS/AUD INJ onset thresholds* (received level)	
	SPL (L_p ; dB re 1 μ Pa)	Weighted SEL _{24h} ($L_{E,24h}$; dB re 1 μ Pa ² ·s)	PK (L_{pk} ; dB re 1 μ Pa)	Weighted SEL _{24h} ($L_{E,24h}$; dB re 1 μ Pa ² ·s)	PK (L_{pk} ; dB re 1 μ Pa)
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
Sirenians		171	219	186	225

* Dual metric (SEL_{24h} and PK) acoustic thresholds for impulsive sounds: Use whichever results in the largest isopleth for calculating TTS and PTS/AUD INJ onset.

L_p denotes sound pressure level and has a reference value of 1 μ Pa.

L_{pk} denotes peak sound pressure is flat weighted or unweighted and has a reference value of 1 μ Pa.

$L_{E,24h}$ denotes cumulative sound exposure over a 24 h period and has a reference value of 1 μ Pa²·s.

2.1.2. Fish, Sea turtles, 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 13 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.

Impulsive noise from pile driving is assessed in this study based on the relevant effects thresholds from Popper et al. (2014) listed in Table 13. In general, whether an impulsive sound adversely affects 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. (2007a) defines the exposure evaluation time as the greater of 24 h 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. Integration times in this study for piling have been applied over the time taken to install two piles as two piles are expected to be driven per day.

Table 13. Criteria for pile driving 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}	Pile driving: (N) Moderate (I, 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}	Pile driving: (N) Moderate (I, 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}	Pile driving: (N, I) High (F) Moderate	(N, 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	Pile driving: (N) Moderate (I, F) Low	(N) Moderate (I, F) Low

Peak sound pressure level: dB re 1 µPa; SEL_{24h} dB re 1µPa²-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).

There is a paucity of data regarding the 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) in turn 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 14).

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 μ Pa (SPL), the sea turtles increased their swimming activity, and above 175 dB re 1 μ Pa they began to behave erratically, which was interpreted as an agitated state. The Recovery Plan for Marine Turtles in Australia (Department of the Environment and Energy et al. 2017) acknowledges the 166 dB re 1 μ Pa SPL reported (McCauley et al. 2000) as the level that may result in a behavioural response to marine turtles. The 175 dB re 1 μ Pa level from McCauley et al. (2000) is recommended as a criterion for behavioural disturbance; these thresholds are shown in Table 14.

Table 14. 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	Criterion	SPL (L_p ; dB re 1 μ Pa)	Weighted SEL _{24h} ($L_{E,24h}$; dB re 1 μ Pa ² ·s)	PK (L_{pk} ; dB re 1 μ Pa)
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 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 μ Pa.

L_{pk} denotes peak sound pressure is flat weighted or unweighted and has a reference value of 1 μ Pa.

$L_{E,24h}$ denotes cumulative sound exposure over a 24 h period and has a reference value of 1 μ Pa²s.

2.2. Non-impulsive Noise

Drilling and vessel activities have been assessed as non-impulsive noise sources consistent with the considered thresholds and guidelines.

Two sound level metrics, SPL and SEL, are commonly used to evaluate non-impulsive noise and its effects on marine life. In this report, the duration of the SEL accumulation is defined as integrated over a 24-hour period. Appropriate subscripts indicate any frequency weighting applied (see Appendix A.4). The acoustic metrics in this report reflect the ANSI and ISO standards for acoustic terminology, ANSI S1.1 (S1.1-2013) and ISO 18405:2017 (2017).

The following thresholds and guidelines for this study were chosen because they represent the best available science:

- 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 non-impulsive sound sources, and Accomando et al. (2025) for sirenians. 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 threshold based on the current US National Oceanic and Atmospheric Administration (NOAA) (2024) criterion for marine mammals of 120 dB re 1 μ Pa (SPL; L_p) for non-impulsive sound sources.
- Sound exposure guidelines for fish, fish eggs, and larvae (Popper et al. 2014).
- Frequency-weighted accumulated sound exposure levels (SEL; $L_{E,24h}$) from Accomando et al. (2025) for the onset of temporary threshold shift (TTS) and permanent threshold shift (PTS) in sea turtles.

Section 2.1.1, along with Appendices A.3 and A.4, expands on the relevant thresholds, guidelines, and sound levels applicable to marine mammals. Section 2.2.2 expands on the guidelines for fish and sea turtles.

2.2.1. Marine Mammals

The criteria applied in this study to assess possible effects of non-impulsive noise sources on marine mammals are summarised in Table 15. Cetaceans and sirenians were identified as the marine mammals requiring assessment. 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.

Table 15. Criteria for effects of non-impulsive noise exposure, including vessel noise, for marine mammals: unweighted SPL and weighted SEL_{24h} thresholds.

Hearing group	NOAA (2024)	NMFS (2024) and Accomando et al. (2025) for sirenians	
	Behaviour	TTS onset thresholds (received level)	PTS onset thresholds (received level)
	SPL (L_p ; dB re 1 μ Pa)	Weighted SEL_{24h} ($L_{E,24h}$; dB re 1 μ Pa ² ·s)	Weighted SEL_{24h} ($L_{E,24h}$; dB re 1 μ Pa ² ·s)
Low-frequency (LF) cetaceans	120	177	197
High-frequency (HF) cetaceans		181	201
Very High-frequency (VHF) cetaceans		161	181
Sirenians		180	200

L_p denotes sound pressure level and has a reference value of 1 μ Pa.

L_E denotes cumulative sound exposure over a 24 h period and has a reference value of 1 μ Pa²·s.

2.2.1.1. Behavioural Response

The NOAA continuous noise criterion was selected for this assessment because it represents the most commonly applied behavioural response criterion by regulators. The distances at which behavioural responses could occur are therefore determined by areas ensonified above an unweighted SPL of 120 dB re 1 μ Pa (NOAA, 2024). Appendix A.3 provides more information about the development of this criteria.

2.2.1.2. Injury and Hearing Sensitivity Changes

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.

To assist in assessing the potential for effects on marine mammals, this report applies the criteria recommended by NMFS (2024) and Accomando et al. (2025), considering both TTS and PTS (see Table 15). Appendix A.3 provides more information about the NMFS (2024) criteria.

2.2.2. Fish, Sea Turtles, Fish Eggs, and Fish Larvae

Table 16 lists the relevant effects thresholds from Popper et al. (2014) for shipping and continuous noise. Some evidence suggests that fish sensitive to acoustic pressure show a recoverable loss in hearing sensitivity, or injury when exposed to high levels of noise (Scholik and Yan 2002, Amoser and Ladich 2003, Smith et al. 2006); this is reflected in the SPL thresholds for fish with a swim bladder involved in hearing (shaded cells in Table 16). Accomando et al. (2025) presented revised thresholds for sea turtle TTS and PTS/AUD INJ onset from continuous noise sources, considering frequency weighted SEL, which have been applied in this study (Table 17).

Table 16. Criteria for vessel noise exposure for fish and sea turtles, adapted from Popper et al. (2014) with shaded cells showing SPL thresholds.

Type of animal	Mortality and Potential mortal injury	Impairment			Behaviour
		Recoverable injury	TTS	Masking	
Fish: No swim bladder (particle motion detection)	(N) Low (I) Low (F) Low	(N) Low (I) Low (F) Low	(N) Moderate (I) Low (F) Low	(N) High (I) High (F) Moderate	(N) Moderate (I) Moderate (F) Low
Fish: Swim bladder not involved in hearing (particle motion detection)	(N) Low (I) Low (F) Low	(N) Low (I) Low (F) Low	(N) Moderate (I) Low (F) Low	(N) High (I) High (F) Moderate	(N) Moderate (I) Moderate (F) Low
Fish: Swim bladder involved in hearing (primarily pressure detection)	(N) Low (I) Low (F) Low	170 dB SPL for 48 h	158 dB SPL for 12 h	(N) High (I) High (F) High	(N) High (I) Moderate (F) Low
Sea Turtles	(N) Low (I) Low (F) Low	(N) Low (I) Low (F) Low	(N) Moderate (I) Low (F) Low	(N) High (I) High (F) Moderate	(N) High (I) Moderate (F) Low
Fish eggs and fish larvae	(N) Low (I) Low (F) Low	(N) Low (I) Low (F) Low	(N) Low (I) Low (F) Low	(N) High (I) Moderate (F) Low	(N) Moderate (I) Moderate (F) Low

Sound pressure level dB re 1 μ Pa.

Relative risk (high, moderate, low) is given for animals at three distances from the source defined in relative terms as near (N) – tens of metres, intermediate (I) – hundreds of metres, and far (F) – thousands of metres.

Table 17. Acoustic effects of continuous noise on sea turtles, weighted SEL_{24h} , Accomando et al. (2025). In this report, PTS is used interchangeably with auditory injury (AUD INJ).

Hearing group	TTS onset thresholds (received level)	PTS onset thresholds (received level)
	Weighted SEL_{24h} ($L_{E,24h}$; dB re 1 μPa^2s)	Weighted SEL_{24h} ($L_{E,24h}$; dB re 1 μPa^2s)
Sea Turtles	178	198

L_E denotes cumulative sound exposure over a 24 h period and has a reference value of 1 μPa^2s .

3. Methods and Parameters

The modelled sites for the activities considered in this study were located in the Bonaparte Basin, northern Australia (refer to wide regional bathymetry in Appendix D.3.1). The modelled sites were situated in water depths of approximately 55 – 100 m.

To allow for operational flexibility, the sound speed profile implemented within the modelling was selected through a sensitivity analysis considering all months of the year. The month of June was found to be the most favourable for sound propagation, resulting in the largest ranges to considered isopleths criteria. As such, June was selected as the conservative choice for modelling. Additional detail can be found in Appendix D.3.2.

The seabed beneath the modelled sites will likely consist of layers of clay and sand, and the sediment profile for the modelling area was taken from the geotechnical assessment for pile driving provided by ENI. Further details on the associated geoaoustic properties used in this modelling study are provided in Appendix D.3.3.

The following sections provide a description of the models, methods and sources used for this underwater noise modelling study.

3.1. Pile Driving Activities

3.1.1. Per-strike Modelling

When driven with impact hammers, piles deform, creating a stress wave that travels down the pile and radiates sound into the surrounding air, water, and seabed. This sound may be received as a direct transmission from the sound source to biological receivers (such as marine mammals, sea turtles, and fish) through the water or as the result of reflected paths from the surface or re-radiated into the water from the seabed. Sound transmission depends on many environmental parameters, such as the sound speeds in water and substrates; material parameters of the pile and how it is driven, including the pile material, size (length, diameter, and thickness) and the type and energy of the hammer.

To predict the acoustic field from the pile driving, JASCO's Pile Driving Source Model (PDSM; Appendix B.1), a physical model of pile vibration and near-field sound radiation (MacGillivray 2014), was used in conjunction with the GRLWEAP 2010 wave equation model (GRLWEAP, Pile Dynamics 2010) to predict source levels associated with impact pile driving activities. Piles are modelled as a vertical installation using a finite-difference structural model of pile vibration based on thin-shell theory. The sound radiating from the pile itself was simulated using a vertical array of discrete point sources. GRLWEAP 2010 was used to compute the force at the top of each pile assuming direct contact between the representative hammers, and piles. The pile was modelled at three representative depths to account for variability over the entire drive; details are provided in Table 18. The drivability information provided by ENI advises that each pile is likely to self-settle to 16 m penetration, therefore the modelled driving depths began at 16 m (Table 18). As advised by ENI, the modelling has considered that each pile is installed with 'direct drive' i.e. with no helmet between the hammer and the pile.

Table 18. Modelled pile driving hammer parameters.

Pile Number	Hammer model	Modelled Depths (m)	Modelled Energy (kJ)	Hammer Efficiency (%)	Ram weight (t)	Helmet weight (t)	Modelled blow rate (per min)
Pile 1	IHC S-1800	16 – 34	1800	95	90	N/A	40
		34 – 52					
		52 – 70					
Pile 2	IHC S-1800	19.0 – 39.3	1800	95	90	N/A	40
		39.3 – 59.7					
		59.7 – 80.0					
	MHU 2400S	22.0 – 41.3	2400	95	121	N/A	40
		41.3 – 60.7					
		60.7 – 80.0					
Pile 3	MHU 2400S	22 – 43	2400	95	121	N/A	40
		43 – 64					
		64 – 85					

The forcing function serves as input to JASCO's pile driving source model (PDSM), which was used to estimate equivalent acoustic source characteristics detailed in Appendix B.1.2. Forcing functions were modelled assuming that driving was carried out using the associated hammer energy for each modelled segment by adjusting the hammers efficiency (Figure 3). These efficiencies/energies were derived from the client-supplied geotechnical information for the area.

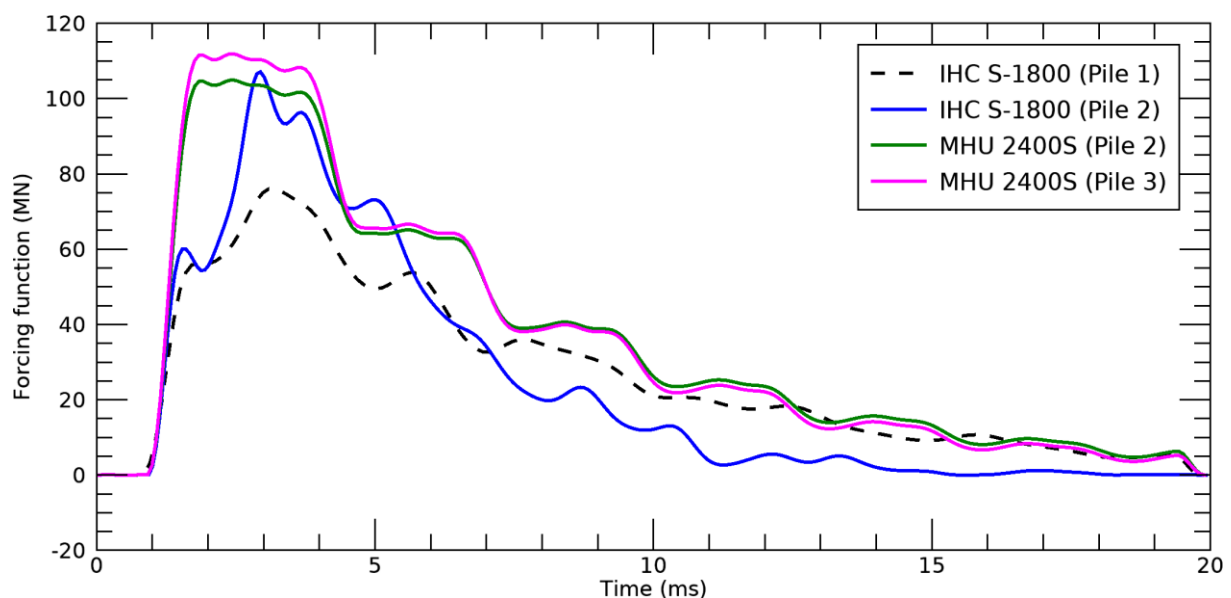


Figure 3. Force (in meganewtons) at the top of the pile corresponding to impact pile driving using the either the IHC S-1800 or MHU 2400S impact hammer with no helmet, computed using the GRLWEAP 2010 wave equation model for the modelled 90 m pile.

JASCO's FWRAM propagation model (Appendix B.2) was used to combine the outputs of the source model with spatial environmental factors (e.g., location, oceanographic conditions, and seabed type, see Appendix D.3 for detail) to get time-domain representations of the sound signals in the environment and estimate sound field levels. This model is used to estimate the energy distribution per frequency (source spectrum) at a close distance from the source (10 m) from 10 Hz to 1024 Hz. In addition, an empirical extrapolation was applied to these results to extend the frequency range up to 25 kHz and a 20 dB/decade decay rate was applied to match acoustic measurements of impact pile driving of similarly-sized piles (Illingworth & Rodkin 2007, Matuschek and Betke 2009). Examples of

decade band levels are provided in Section 4.1. Appendix A.1 describes the sound level metrics in further detail.

To produce maps of received sound level distributions and to calculate distances to specified sound level thresholds, the maximum-over-depth level is calculated at each modelled received level within the considered region. The radial grids of maximum-over-depth levels are then resampled (by linear triangulation) to produce a regular Cartesian grid with a cell size of 20 m. The contours and threshold ranges were calculated from these flat Cartesian projections of the modelled acoustic fields (Appendix D.2).

3.1.2. Accumulated SEL Modelling for Pile Driving

The modelling approach outlined in Section 3.1 provides per-strike SEL for three stages of pile driving (i.e., three penetration depths) for each modelled pile. In Scenario 1, two piles have been considered to be driven per day, while Scenarios 2, 3 and 4 consider the driving of one pile per day. The piling noise level is likely to exceed any background noise level, so the corresponding sound exposure level can be denoted as SEL_{24h} even though the effective period of accumulation is the estimated time for fully driving the two piles. The accumulated SEL, or the SEL_{24h} , depends on the total number of strikes to drive each pile to the target penetration depth.

Total driving time was estimated assuming continuous piling at a rate of 40 strikes/minute for the IHC S-1800 and MHU 2400S hammers. As per the pile design, likely hammer and installation approach, the number of strikes required for the driving of each pile was estimated using the provided drivability. The SEL_{24h} was computed by adjusting the single-strike SEL by $10 \cdot \log_{10}(N)$, where N is the total number of strikes. A summary of the total number of strikes per penetration depth and per pile is provided in Table 19. For Scenario 1 (Pile 1 at Site 1), two piles have been modelled per day, therefore the total number of strikes in 24 hours is 12,532, for a total operation time of 5.22 hours.

Table 19. Total number of strikes and driving time per pile. Strikes were broken down into stages corresponding to the three modelled penetration depths. Hammer specifications are shown in Table 18.

Scenario	Hammer	Full penetration depth (m)	Modelled penetration depth (m)	Penetration range for accumulated SEL (m)	Number of strikes per pile	Average Penetration rate (mm/strike)	Total number of strikes per pile	Time for full penetration per pile (hr)	Number of installed piles per day
1 (Site 1, Pile 1)	IHC S-1800	70	25	16 – 34	279	64.6	6266	2.61	2
			43	34 – 52	1095	16.4			
			61	52 – 70	4892	3.68			
2 (Site 1, Pile 2)	IHC S-1800	80	29.2	19.0 – 39.3	689	29.48	9593	4.00	1
			49.5	39.3 – 59.7	1702	11.98			
			69.8	59.7 – 80.0	7202	2.82			
3 (Site 1, Pile 2)	MHU 2400S	80	30.2	22.0 – 41.3	611	31.57	6086	2.54	1
			48	41.3 – 60.7	1267	15.31			
			67.3	60.7 – 80.0	4208	4.59			
4 (Site 2, Pile 3)	MHU 2400S	85	32.5	22 – 43	697	30.13	8020	3.34	1
			53.5	43 – 64	1858	11.31			
			74.5	64 – 85	5465	3.84			

3.2. Drilling and Vessel Activities

3.2.1. Drilling and Vessel Noise Sources

Underwater sound that radiates from vessels is produced mainly by propeller and thruster cavitation, with a smaller fraction of noise produced by sound transmitted through the hull, such as by engines, gearing, and other mechanical systems. Sound levels tend to be the highest when thrusters are used to position the vessel and when the vessel is transiting at high speeds. A vessel's sound signature depends on the vessel's size, power output, propulsion system (e.g., conventional propellers vs. Voith Schneider propulsion), and the design characteristics of the given system (e.g., blade shape and size). A vessel produces broadband acoustic energy with most of the energy emitted below a few kilohertz. Sound from onboard machinery, particularly sound below 200 Hz, dominates the sound spectrum before cavitation begins (Spence et al. 2007).

Figure 4 presents a summary plot of all considered source spectra for comparison purposes. The source spectra plot shows the distribution of sound across the decade frequency bands that the modelling considers. Additional detail on the sources is provided in Sections 3.2.1.1 and 3.2.1.2.

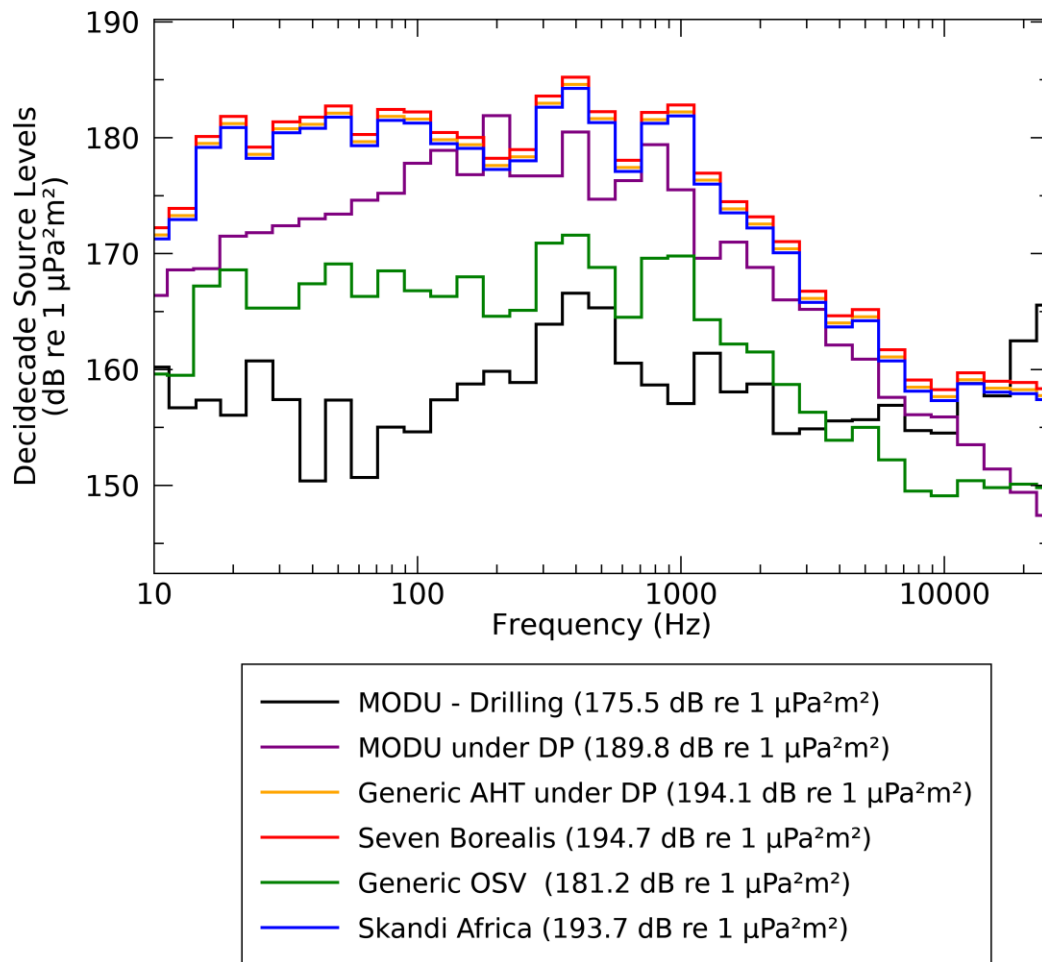


Figure 4. Monopole source level (MSL) spectra (in decidecade frequency-band) for all sound sources.

3.2.1.1. Mobile Offshore Drilling Unit (MODU)

An MODU has been considered in this study. While in operation, the MODU will be held in position either by anchors and chains, or by thrusters under DP. Underwater drilling sound from the MODU is expected to originate primarily from onboard equipment vibrations, while a smaller portion of the sound is expected to be transmitted directly into the water via the rotating drill string (Austin et al. 2018). For the MODU under DP, the thruster noise is an additional sound component of the MODU.

For the drilling operations of this modelling project, the *Ocean Onyx* has been considered as a representative MODU. Since the dominant vibration sources (e.g. pumps, generators, and machinery) are located on or below the main deck of the platform, the modelled depth of the point source representing the MODU was set to 11 m, which is approximately half the draft of the *Ocean Onyx*.

The *Ocean Onyx* was measured by JASCO while anchored and drilling (McPherson et al. 2021a), and had a broadband (10 Hz to 31 kHz) source level of 175.5 dB re 1 $\mu\text{Pa}^2\text{m}^2$. The applied spectra are included in Figure 4.

For the thruster noise, the *West Aquarius* has been considered as a representative MODU. The source depth of the thruster noise has been modelled as 70% of the *West Aquarius*, resulting in a source depth of 23 m, per ISO 17208-1 (2016). The source level spectrum for the *West Aquarius* was previously measured by JASCO whilst under DP with a source level of 189.8 dB re 1 $\mu\text{Pa}^2\text{m}^2$.

3.2.1.2. Vessel Radiated Noise

3.2.1.2.1. Drilling Resupply Anchor Handling Tug (AHT)

The vessel nominated as a representative AHT for this modelling study is the *Siem Sapphire* (Figure 5). This vessel has an overall length, beam and draft of 91 m, 22 m, and 8.0 m, respectively. The source depth of the *Siem Sapphire* has been modelled as 70% of the vessel draft, resulting in a source depth of 5.6 m, per ISO 17208-1 (2016).

The source level and spectra of the *Siem Sapphire* are publicly available (McPherson et al. 2021b). The broadband (10 Hz to 31 kHz) source level of this vessel has been modelled as 194.1 dB re 1 $\mu\text{Pa}^2\text{m}^2$ (Figure 4).



Figure 5. *Siem Sapphire*, the representative AHT.

3.2.1.2.2. Drilling Standby Offshore Support Vessel (OSV)

Two OSVs have been modelled supporting the drilling activities. Both of these vessels have been represented by the OSV *MMA Leeuwin*, which has a length of 82.2 m, a beam of 17 m and a draft of 6.3 m. The source depth of the *MMA Leeuwin* has been modelled as 70% of the vessel draft (6.3 m), resulting in a source depth of 4.4 m, per ISO 17208-1 (2016).

The average broadband (10 Hz to 31 kHz) source level of the *MMA Leeuwin* undertaking DP exercises has been measured as 181.2 dB re 1 $\mu\text{Pa}^2\text{m}^2$ (Esso and ExxonMobil 2021). As the spectral shape of the *MMA Leeuwin* source is not available, the publicly available spectral shape of the *Siem Sapphire* (McPherson et al. 2021b), has been scaled to the *MMA Leeuwin* broadband source level (Figure 4).

3.2.1.2.3. Offshore Construction Vessel (OCV)

The vessel nominated as a representative OCV is the *Subsea 7 Seven Borealis* (Figure 6). This vessel has an overall length of 182.2 m, beam of 46.2 m, and an operating draft of 8.5 – 11.35 m. The source depth for this vessel has been modelled as 7.9 m, which is 70% of the maximum vessel draft, per ISO 17208-1 (2016).

As there are no publicly available measurements of the source level of the *Subsea 7 Seven Borealis*, the source level of the *Siem Sapphire* (McPherson et al. 2021b) was scaled based on total installed power to correspond with a suitable source level for the *Subsea 7 Seven Borealis*. The overall power of the *Siem Sapphire* is 22,840 kW, while the *Subsea 7 Seven Borealis* has an overall installed power of 26,300 kW. The resulting broadband (10 Hz to 31 kHz) source level of the *Subsea 7 Seven Borealis* has been modelled as 194.7 dB re 1 $\mu\text{Pa}^2\text{m}^2$. The spectra for this vessel has also been represented via scaling the spectra of the *Siem Sapphire* (McPherson et al. 2021b) (Figure 4).



Figure 6. *Subsea 7 Seven Borealis*, the representative OCV and pipelay vessel.

3.2.1.2.4. Construction Resupply and Standby Anchor Handling Tugs (AHTs)

Two AHTs have been modelled as support vessels to the OCV; one AHT has been modelled as a resupply vessel, and one as a standby vessel, both under DP. Both of these AHTs have been represented by the *Siem Sapphire* with modelled source levels of 194.1 dB re 1 $\mu\text{Pa}^2\text{m}^2$ (Figure 4), as per the drilling resupply AHT (refer to Section 3.2.1.2.1 for all details).

3.2.1.2.5. Pipelay Vessel

The vessel nominated as a representative pipelay vessel for this modelling study is the *Subsea 7 Seven Borealis* (Figure 6), the same vessel that was used to represent the OCV (Section 3.2.1.2.3). The pipelay vessel has been represented by a scaled measurement of the *Siem Sapphire* with a modelled source level of 194.7 dB re 1 $\mu\text{Pa}^2\text{m}^2$, as per the OCV (refer to Section 3.2.1.2.3 for additional details).

3.2.1.2.6. Pipelay Construction Support Vessel

The pipelay construction support vessel has been considered as the *Skandi Africa* (Figure 7). This vessel has an overall length of 161 m, a beam of 32 m, and a draft of 9.3 m. The source depth for this vessel has been modelled as 6.5 m, which is 70% of the vessel draft, per ISO 17208-1 (2016)).

In this modelling study, the source information for the *Skandi Africa* has been represented by the *Siem Sapphire*, which is similarly sized, with a similar installed power level (21,100 kW for the *Skandi Africa*, 22,840 kW for the *Siem Sapphire*). The publicly available source level and spectra of the *Siem Sapphire* (McPherson et al. 2021b) have been scaled down slightly (based on installed power) to represent the *Skandi Africa*, resulting in a broadband (10 Hz to 31 kHz) source level of 193.7 dB re 1 $\mu\text{Pa}^2\text{m}^2$ (Figure 4).



Figure 7. *Skandi Africa*, the representative pipelay construction support vessel.

3.2.2. Geometry and Modelled Regions

JASCO's Marine Operations Noise Model (MONM-BELLHOP; see Appendix C.1) was used to predict the acoustic field at frequencies of 10 Hz to 25 kHz for all vessels. To supplement the MONM results (10 Hz to 1 kHz), high-frequency results for propagation loss were modelled using BELLHOP (Porter and Liu 1994) for frequencies from 1.26 to 25 kHz. The MONM and BELLHOP results were combined to produce results for the full frequency range of interest.

The sound field modelling calculated propagation losses up to 80 km from each source, 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 $\Delta\theta = 2.5^\circ$ for a total of $N = 144$ radial planes. Receiver depths were chosen to span the entire water column over the modelled area, from 2 m to a maximum of 150 m.

To produce the maps of received sound level isopleths, and to calculate distances to specified sound level thresholds, the maximum-over-depth level was calculated at each sampling point within the modelled region. The radial grids of maximum-over-depth levels were then resampled (by linear triangulation) to produce a regular Cartesian grid. The contours and threshold ranges were calculated from these grids of the modelled acoustic fields.

3.2.3. Accumulated SEL

In this study, the drilling and vessel sound sources were considered to be continuously operating with new sound energy constantly being introduced to the environment. The reported source levels are usually in terms of sound pressure levels (SPL), representing the root-mean-square (rms) pressure

level of a considered source. The evaluation of the cumulative sound field (i.e., in terms of SEL_{24h}) depends on the number of seconds of operation during the accumulation period.

The SPL modelling results were converted to SEL by the duration of the measurement, which is appropriate for a non-impulsive noise source. Here, SEL was assessed over 24 hours. For a stationary vessel, the conversion from SPL was obtained by increasing the levels by $10 \cdot \log_{10}(T)$, where T is 86,400 (the number of seconds in 24 h). For scenarios where a vessel was transiting along a track, a similar adjustment to the SPL was applied, however the time factor was determined based on the step size along the track and the vessel's speed. See Appendix C.2 for detail.

4. Results

4.1. Pile Driving Activities

4.1.1. Received Levels at 10 m

Since piles are distributed and directional sources, they cannot be accurately approximated by a point source with corresponding source levels. It is possible to compare the maximum modelled levels at short distances from the piles. Figures 8, 9, 10 and 11 show the decidecade-band levels for the receiver with the highest SEL at a horizontal range of 10 m, for each of the three modelled penetration depths and each of the four modelling scenarios. The levels above 1000 Hz were extrapolated using a 20 dB/decade decay rate to match acoustic measurements of impact pile driving of similarly sized piles (Illingworth & Rodkin 2007, Matuschek and Betke 2009). The modelled results at a distance of 10 m are included to provide results comparable to other pile driving reports and literature, such as Illingworth & Rodkin (2007), and Denes et al. (2016).

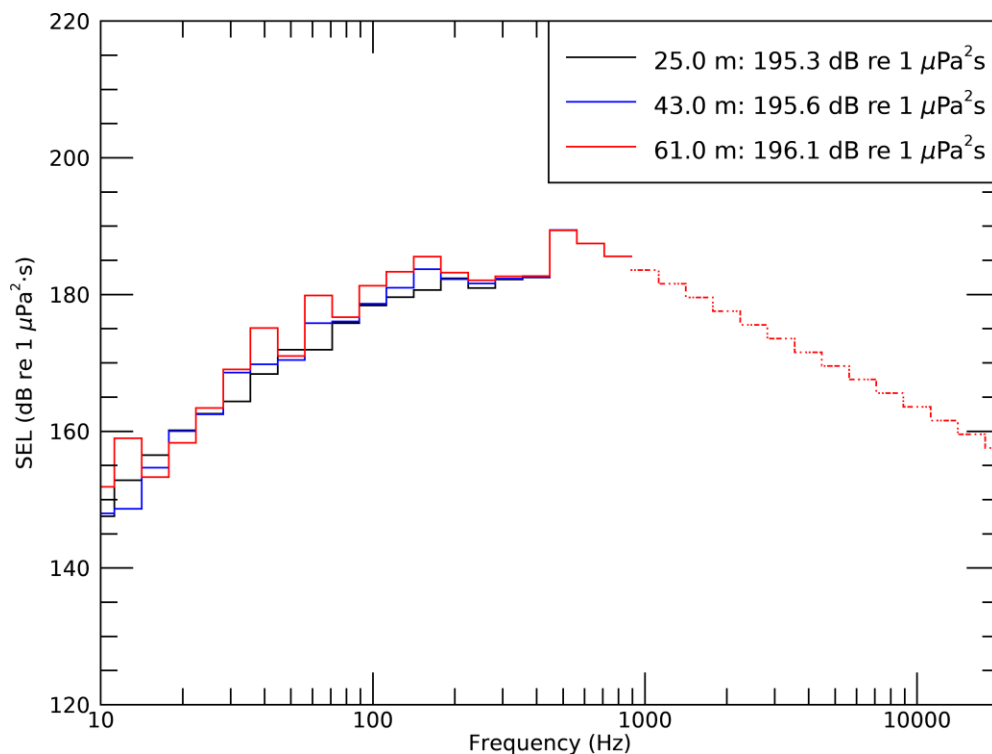


Figure 8. *Scenario 1, Pile 1*: Decidecade-band levels for the receiver with highest SEL at 10 m horizontal range for impact pile driving using the IHC S-1800 hammer with no helmet, after high-frequency extrapolation (dashes indicate extrapolated portion of the spectrum above 1000 Hz). Legend items indicate the modelled pile penetration and the broadband SEL in dB re 1 $\mu\text{Pa}^2\cdot\text{s}$.

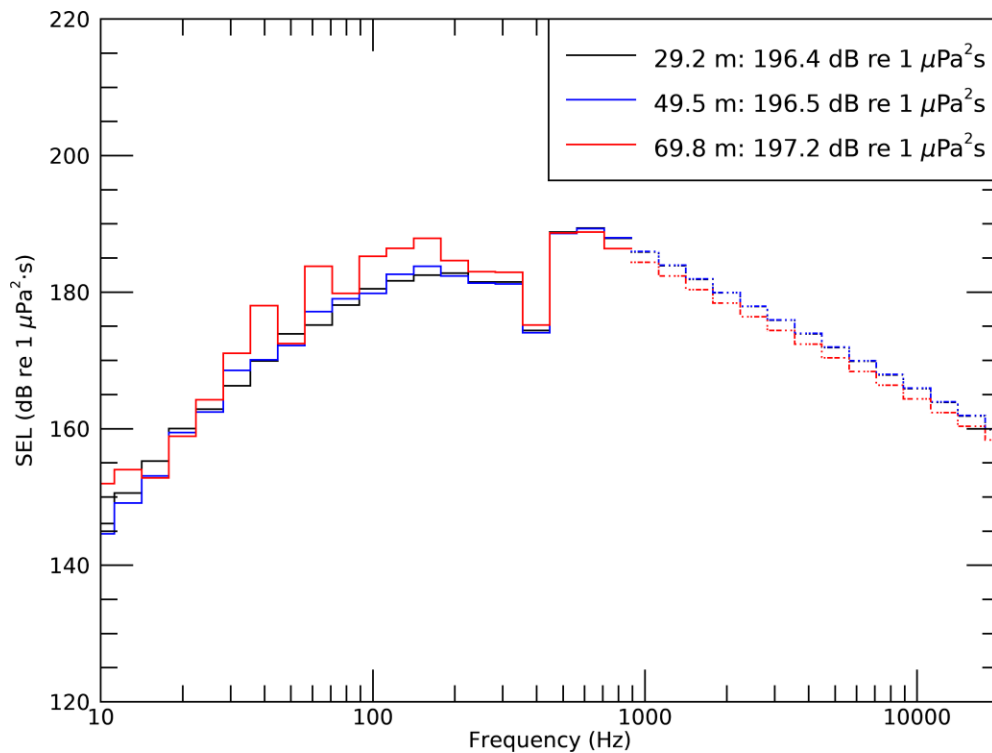


Figure 9. *Scenario 2, Pile 2*: Decade-band levels for the receiver with highest SEL at 10 m horizontal range for impact pile driving using the IHC S-1800 hammer with no helmet, after high-frequency extrapolation (dashes indicate extrapolated portion of the spectrum above 1000 Hz). Legend items indicate the modelled pile penetration and the broadband SEL in dB re 1 $\mu\text{Pa}^2\cdot\text{s}$.

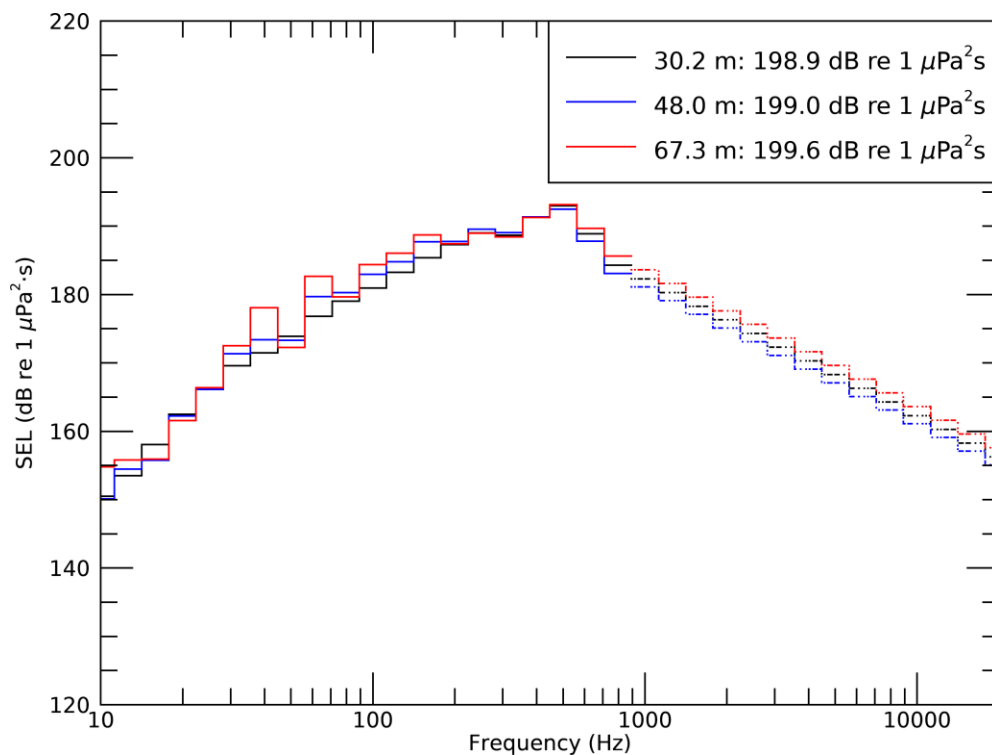


Figure 10. *Scenario 3, Pile 2*: Decade-band levels for the receiver with highest SEL at 10 m horizontal range for impact pile driving using the MHU 2400S hammer with no helmet, after high-frequency extrapolation (dashes indicate extrapolated portion of the spectrum above 1000 Hz). Legend items indicate the modelled pile penetration and the broadband SEL in dB re 1 $\mu\text{Pa}^2\cdot\text{s}$.

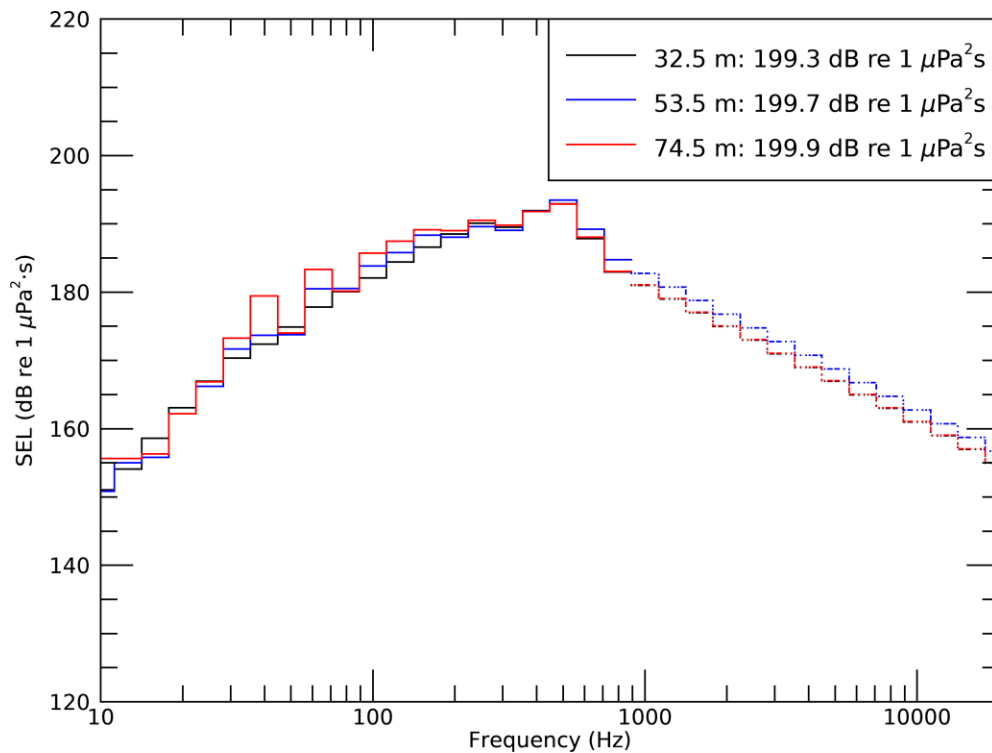


Figure 11. *Scenario 4, Pile 3*: Decade-band levels for the receiver with highest SEL at 10 m horizontal range for impact pile driving using the MHU 2400S hammer with no helmet, after high-frequency extrapolation (dashes indicate extrapolated portion of the spectrum above 1000 Hz). Legend items indicate the modelled pile penetration and the broadband SEL in dB re 1 $\mu\text{Pa}^2\cdot\text{s}$.

4.1.2. Tabulated Results

This section presents the per-strike sound fields in terms of maximum-over-depth SPL, SEL, and PK. The different metrics are presented for the following reasons:

- SPL sound fields (Table 20) were used to determine the distances to marine mammal and turtle behavioural thresholds (see Section 2.1).
- Per-pulse SEL sound fields (Table 21) are used as inputs into the 24 h SEL scenario.
- PK metrics within the water column (Table 22) are relevant to thresholds and guidelines for marine mammals, sea turtles, fish, fish eggs and larvae (as well as plankton; see Section 2.1).

Frequency-weighted $\text{SEL}_{24\text{h}}$ sound fields were used to estimate the maximum and 95% distances (R_{max} and $R_{95\%}$; calculated as detailed in Appendix D.2) to marine mammals and turtle PTS and TTS thresholds (listed in Table 23), and to estimate maximum distance and the area to injury and TTS guidelines for fish (Table 24).

Table 20. Modelled maximum-over-depth per-strike SPL isopleths: Maximum (R_{max}) and 95% ($R_{95\%}$) horizontal distances (in km) from each pile and for each penetration depth.

SPL (L_p ; dB re 1 μ Pa)	Scenario 1: Pile 1, IHC S-1800						Scenario 2: Pile 2, IHC S-1800						Scenario 3: Pile 2, MHU 2400S						Scenario 4: Pile 3, MHU 2400S					
	25 m		43 m		61 m		29.2 m		49.5 m		69.8 m		30.2 m		48 m		67.3 m		32.5 m		53.5 m		74.5 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)	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	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.06	0.06	0.05	0.05
190	0.14	0.13	0.15	0.14	0.09	0.09	0.16	0.15	0.15	0.15	0.08	0.08	0.18	0.18	0.18	0.17	0.09	0.09	0.19	0.18	0.18	0.18	0.09	0.09
180	0.58	0.56	0.53	0.51	0.45	0.44	0.59	0.57	0.56	0.54	0.47	0.46	0.61	0.59	0.61	0.59	0.52	0.50	0.62	0.60	0.63	0.62	0.52	0.50
175 ¹	0.81	0.79	0.73	0.70	0.71	0.68	0.88	0.84	0.81	0.78	0.75	0.73	0.90	0.87	0.92	0.89	0.82	0.80	0.93	0.89	1.01	0.96	0.82	0.80
170	1.12	1.09	1.20	1.05	1.18	1.14	1.30	1.25	1.22	1.18	1.33	1.25	1.29	1.25	1.42	1.38	1.40	1.33	1.34	1.30	1.64	1.58	1.42	1.31
166 ²	1.67	1.61	1.62	1.56	1.80	1.67	1.77	1.70	1.79	1.71	1.83	1.74	1.74	1.67	1.91	1.85	1.84	1.75	1.82	1.76	2.18	2.11	1.83	1.75
160 ³	2.78	2.66	2.66	2.54	3.03	2.89	2.85	2.72	2.75	2.62	3.05	2.90	3.05	2.92	3.20	2.98	3.16	3.04	3.21	3.10	3.62	3.47	3.08	2.95
150	6.49	6.17	6.56	6.27	7.10	6.79	6.80	6.47	6.78	6.46	6.82	6.54	8.63	8.22	8.27	7.91	7.30	7.01	9.27	8.80	8.87	8.46	7.00	6.70
140	19.8	18.8	18.2	16.0	15.7	14.6	19.2	18.1	16.7	15.7	13.2	12.3	35.9	31.1	25.8	22.7	15.9	14.8	35.9	32.5	25.9	23.6	15.0	14.0
130	>80	\	79.9	66.1	55.1	42.6	>80	\	78.2	56.1	37.9	30.6	>80	\	>80	\	48.3	40.6	>80	\	>80	\	39.5	35.2

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 the $R_{95\%}$ radius to threshold is not reported when the R_{max} is greater than the maximum modelling extent.

Table 21. *Modelled maximum-over-depth per-strike SEL isopleths: Maximum ($R_{\max}$) and 95% ($R_{95\%}$) horizontal distances (in km) from each pile and for each penetration depth.*

Per-strike SEL (L_{E^*} dB re 1 $\mu\text{Pa}^2\cdot\text{s}$)	Scenario 1: Pile 1, IHC S-1800						Scenario 2: Pile 2, IHC S-1800						Scenario 3: Pile 2, IHC S-1800						Scenario 4: Pile 3, MHU 2400S					
	25 m		43 m		61 m		32.5 m		53.5 m		74.5 m		29.2 m		49.5 m		69.8 m		32.5 m		53.5 m		74.5 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)	$R_{\max}$ (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	0.03	0.03	0.03	0.03	0.03	0.03	0.04	0.04	0.04	0.04	0.05	0.05	0.06	0.06	0.06	0.06	0.05	0.05	0.06	0.06	0.06	0.06	0.05	0.05
180	0.16	0.16	0.17	0.16	0.09	0.09	0.18	0.17	0.17	0.17	0.09	0.09	0.19	0.19	0.19	0.18	0.11	0.11	0.19	0.19	0.19	0.19	0.11	0.11
170	0.61	0.59	0.56	0.54	0.50	0.48	0.61	0.60	0.58	0.56	0.52	0.50	0.64	0.62	0.64	0.63	0.56	0.55	0.65	0.63	0.74	0.71	0.58	0.56
160	1.18	1.14	1.28	1.23	1.46	1.40	1.41	1.33	1.33	1.29	1.62	1.54	1.40	1.35	1.64	1.58	1.63	1.56	1.48	1.43	1.72	1.67	1.65	1.59
150	3.08	2.94	2.88	2.76	3.69	3.55	3.23	3.09	3.09	2.97	4.02	3.61	3.45	3.28	3.65	3.51	4.05	3.81	3.57	3.43	4.05	3.86	4.05	3.82
140	7.49	7.20	7.36	7.06	8.46	8.11	7.83	7.50	7.61	7.29	8.03	7.66	10.0	9.48	9.24	8.85	8.51	8.16	10.6	10.1	9.92	9.43	8.25	7.88
130	23.3	22.0	22.4	20.9	17.3	16.2	23.4	22.0	21.4	18.2	16.6	15.6	38.3	34.8	29.5	25.5	18.4	16.9	38.9	36.0	30.0	27.3	17.1	15.7

Table 22. *Modelled maximum-over-depth per-strike PK isopleths*: Maximum ($R_{\max}$) horizontal distances (in km) from the piling source to modelled maximum-over-depth peak pressure level (PK) thresholds based on NMFS (2024) for marine mammals, and Popper et al. (2014) for fish and Accomando et al. (2025) for sea turtles.

Hearing group	PK threshold (L_{pk} ; dB re 1 μ Pa)	Scenario 1: Pile 1, IHC S-1800			Scenario 2: Pile 2, IHC S-1800			Scenario 3: Pile 2, MHU 2400S			Scenario 4: Pile 3, MHU 2400S		
		25 m	43 m	61 m	29.2 m	49.5 m	69.8 m	29.2 m	49.5 m	69.8 m	32.5 m	53.5 m	74.5 m
		$R_{\max}$ (km)	$R_{\max}$ (km)	$R_{\max}$ (km)	$R_{\max}$ (km)	$R_{\max}$ (km)	$R_{\max}$ (km)	$R_{\max}$ (km)	$R_{\max}$ (km)	$R_{\max}$ (km)	$R_{\max}$ (km)	$R_{\max}$ (km)	$R_{\max}$ (km)
PTS													
LF cetaceans	222	–	–	–	0.02	0.02	–	0.02	0.03	0.03	0.03	0.03	0.02
HF cetaceans	230	–	–	–	–	–	–	–	–	–	–	–	–
VHF cetaceans	202	0.19	0.19	0.13	0.19	0.19	0.13	0.20	0.25	0.17	0.50	0.34	0.17
Sirenians	225	–	–	–	–	–	–	–	–	–	–	–	–
Sea turtles	230	–	–	–	–	–	–	–	–	–	–	–	–
TTS													
LF cetaceans	216	0.03	0.03	0.03	0.05	0.04	0.04	0.06	0.06	0.05	0.05	0.06	0.05
HF cetaceans	224	–	–	–	–	–	–	–	0.02	0.02	0.02	0.02	0.02
VHF cetaceans	196	0.61	0.55	0.34	0.60	0.56	0.25	0.64	0.62	0.50	0.65	0.64	0.48
Sirenians	219	0.02	0.02	0.02	0.03	0.03	0.03	0.04	0.03	0.04	0.03	0.04	0.03
Sea turtles	224	–	–	–	–	–	–	–	0.02	0.02	0.02	0.02	0.02
Fish													
Fish I (also applied to sharks) ¹	213	0.05	0.06	0.06	0.06	0.06	0.05	0.10	0.10	0.06	0.10	0.09	0.05
Fish II, III ¹ Fish eggs, and larvae ²	207	0.15	0.15	0.09	0.16	0.16	0.07	0.17	0.18	0.07	0.18	0.18	0.06

¹ Threshold for recoverable injury, potential mortal injury and mortality.

² Threshold for potential mortal injury and mortality.

Fish I–No swim bladder; Fish II–Swim bladder not involved with hearing; Fish III–Swim bladder involved with hearing.

A dash indicates the threshold is not reached within the limits of the modelling resolution (20 m).

Table 23. *Modelled maximum-over-depth SEL_{24h} isopleths for marine mammals and sea turtles: Maximum-over-depth distances (in km) to frequency-weighted 24 h sound exposure level (SEL_{24h}) based PTS/AUD INJ and TTS for cetaceans per NMFS (2024), and for sirenians and sea turtles per Accomando et al. (2025).*

Hearing group	Threshold for SEL_{24h} ($L_{E,24h}$; dB re $1 \mu Pa^2 \cdot s$)	Scenario 1: Pile 1, IHC S-1800, 2 piles per day		Scenario 2: Pile 2, IHC S-1800, 1 pile per day		Scenario 3: Pile 2, MHU 2400S, 1 pile per day		Scenario 4: Pile 3, MHU 2400S 1 pile per day	
		R_{max} (km)	Area (km ²)	R_{max} (km)	Area (km ²)	R_{max} (km)	Area (km ²)	R_{max} (km)	Area (km ²)
PTS/AUD INJ									
LF cetaceans	183	3.72	41.9	3.62	38.5	3.41	34.0	3.79	43.3
HF cetaceans	193	0.27	0.23	0.27	0.22	0.23	0.17	0.23	0.17
VHF cetaceans	159	2.43	12.6	2.12	13.6	1.40	5.93	1.45	5.75
Sirenians	186	0.25	0.19	0.25	0.20	0.20	0.12	0.20	0.12
Sea turtles	184	2.88	24.8	2.62	20.6	2.65	21.5	2.93	26.1
TTS									
LF cetaceans	168	23.1	1468	16.5	797	18.5	965	21.5	1139
HF cetaceans	178	0.99	3.04	0.96	2.84	0.89	2.46	0.90	2.52
VHF cetaceans	144	14.7	482	12.4	436	8.76	232	9.06	246
Sirenians	171	0.89	2.44	0.88	2.39	0.72	1.51	0.81	2.03
Sea turtles	169	13.6	555	10.4	318	13.3	527	15.6	683

Table 24. *Modelled maximum-over-depth SEL_{24h} isopleths for fish: Maximum-over-depth distances (in km) to 24 h sound exposure level (SEL_{24h}) based fish criteria in the water column for fish (Popper et al. 2014) considering the driving of two entire piles.*

Hearing group	Threshold for SEL _{24h} (<i>L</i> _{<i>E</i>,24h} ; dB re 1 μPa ² ·s)	Scenario 1: Pile 1, IHC S-1800, 2 piles per day		Scenario 2: Pile 2, IHC S-1800, 1 pile per day		Scenario 3: Pile 2, MHU 2400S, 1 pile per day		Scenario 4: Pile 3, MHU 2400S 1 pile per day	
		<i>R</i> _{max} (km)	Area (km ²)	<i>R</i> _{max} (km)	Area (km ²)	<i>R</i> _{max} (km)	Area (km ²)	<i>R</i> _{max} (km)	Area (km ²)
Mortality and potential mortal injury									
Fish I	219	0.15	0.07	0.14	0.06	0.13	0.06	0.16	0.08
Fish II, fish eggs and fish larvae	210	0.54	0.92	0.53	0.88	0.53	0.87	0.57	1.01
Fish III	207	0.72	1.62	0.71	1.60	0.63	1.25	0.76	1.79
Recoverable injury									
Fish I	216	0.19	0.11	0.18	0.10	0.18	0.10	0.19	0.12
Fish II, III	203	1.13	4.00	1.10	3.76	0.93	2.72	1.09	3.68
Temporary threshold shift (TTS)									
Fish I, II, III	186	5.54	93.5	4.74	68.0	4.42	58.9	4.86	71.6

Fish I—No swim bladder; Fish II—Swim bladder not involved with hearing; Fish III—Swim bladder involved with hearing.

4.1.3. Sound Field Maps

Maps of the per strike sound fields are presented as maximum-over-depth sound level contour maps in Figures 12–23 and as vertical slice plots in Figures 24–35 for north-south transects. Accumulated SEL_{24h} maps are shown in Figures 36–39.

4.1.3.1. SPL Sound Level Contour Maps

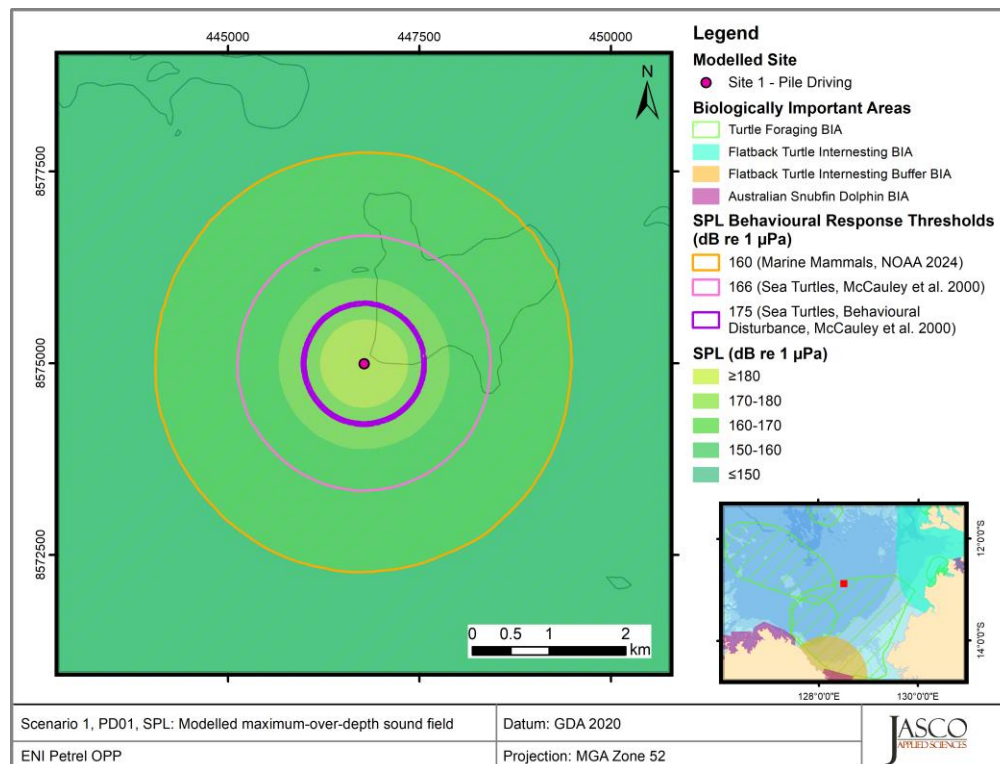


Figure 12. *Pile Driving, Scenario 1, Penetration Depth – 25 m, SPL*: Sound level contour map showing the unweighted maximum-over-depth sound field in 10 dB steps, and the isopleths for behavioural thresholds for marine mammals and sea turtles.

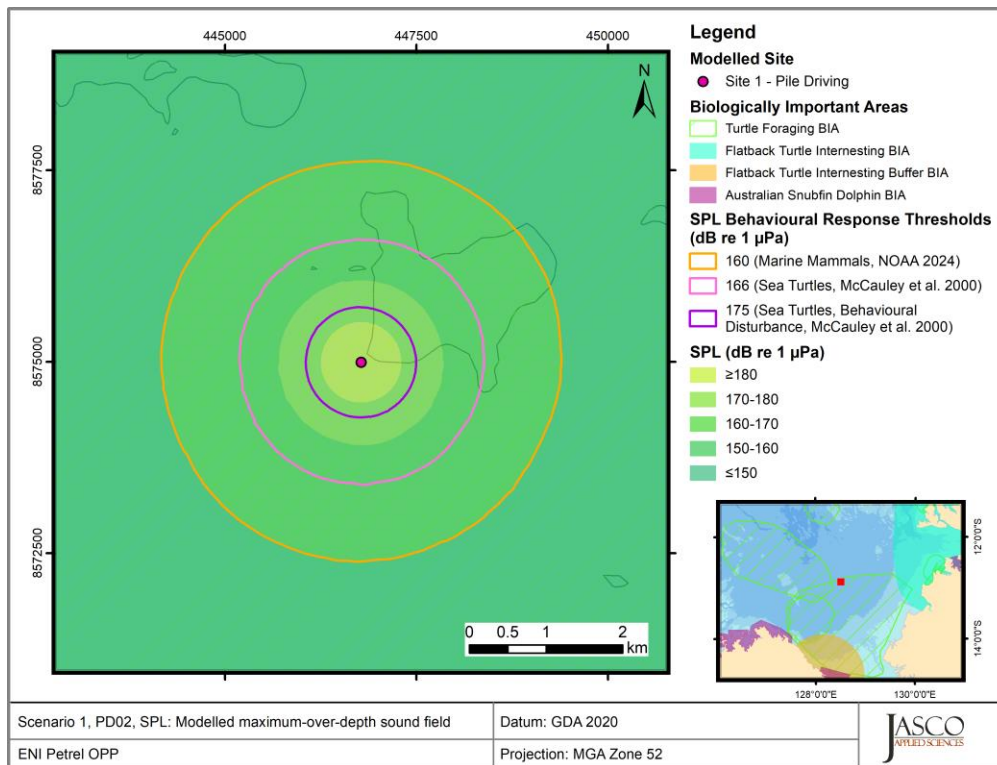


Figure 13. *Pile Driving, Scenario 1, Penetration Depth – 43 m, SPL*: Sound level contour map showing the unweighted maximum-over-depth sound field in 10 dB steps, and the isopleths for behavioural thresholds for marine mammals and sea turtles.

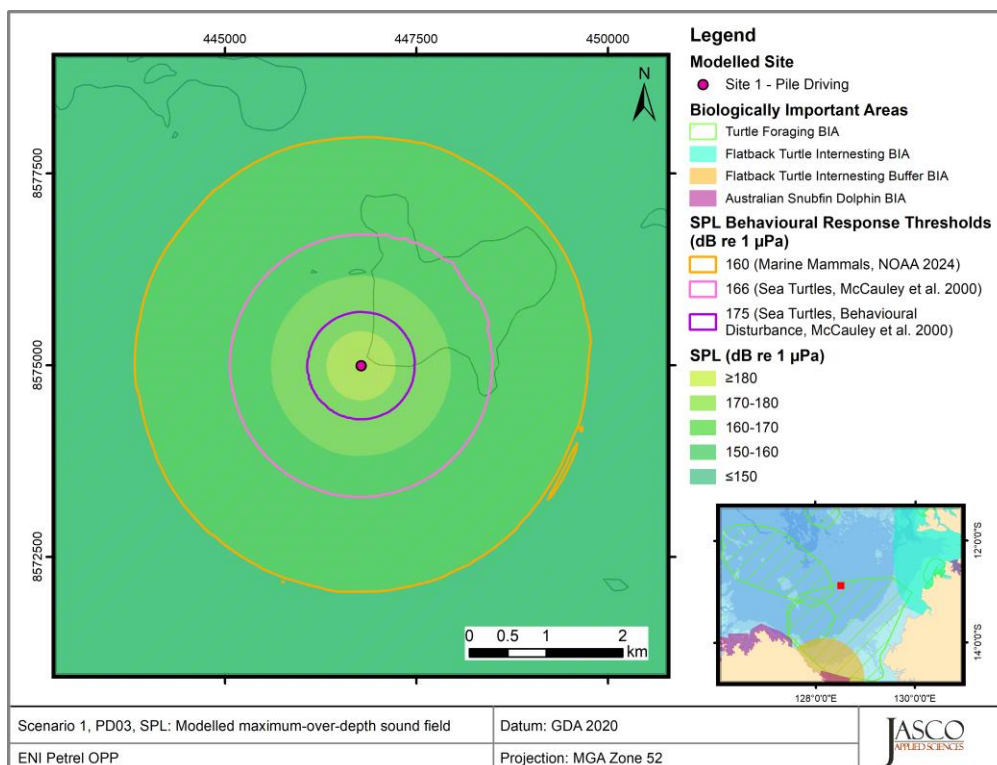


Figure 14. *Pile Driving, Scenario 1, Penetration Depth – 61 m, SPL*: Sound level contour map showing the unweighted maximum-over-depth sound field in 10 dB steps, and the isopleths for behavioural thresholds for marine mammals and sea turtles.

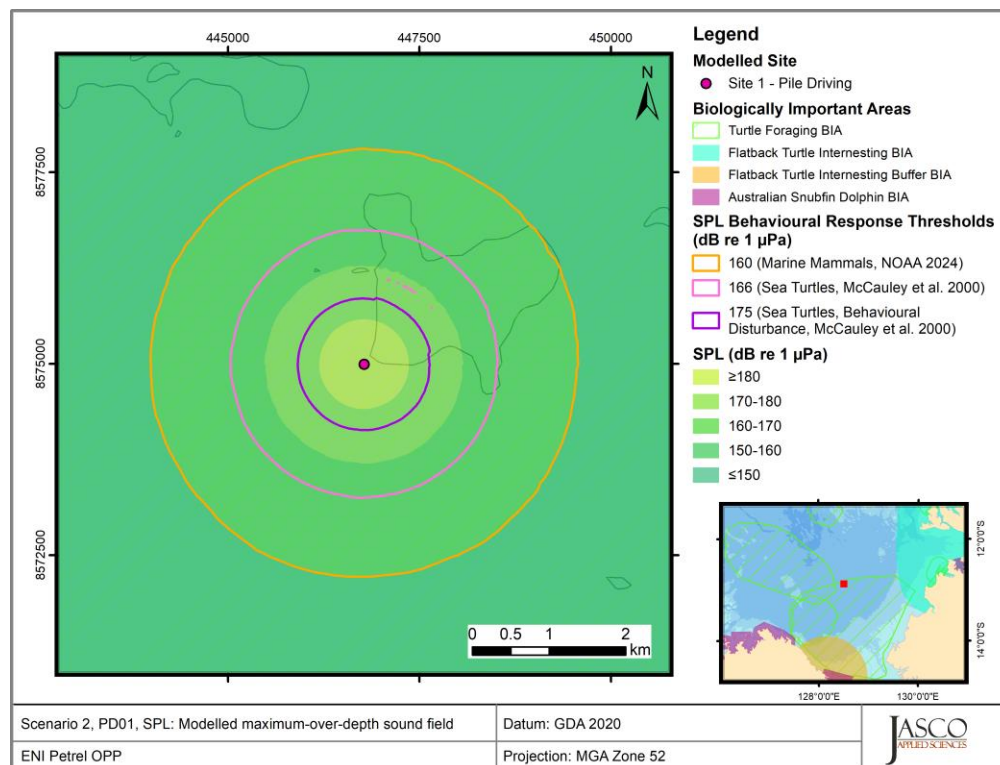


Figure 15. *Pile Driving, Scenario 2, Penetration Depth – 29.2 m, SPL*: Sound level contour map showing the unweighted maximum-over-depth sound field in 10 dB steps, and the isopleths for behavioural thresholds for marine mammals and sea turtles.

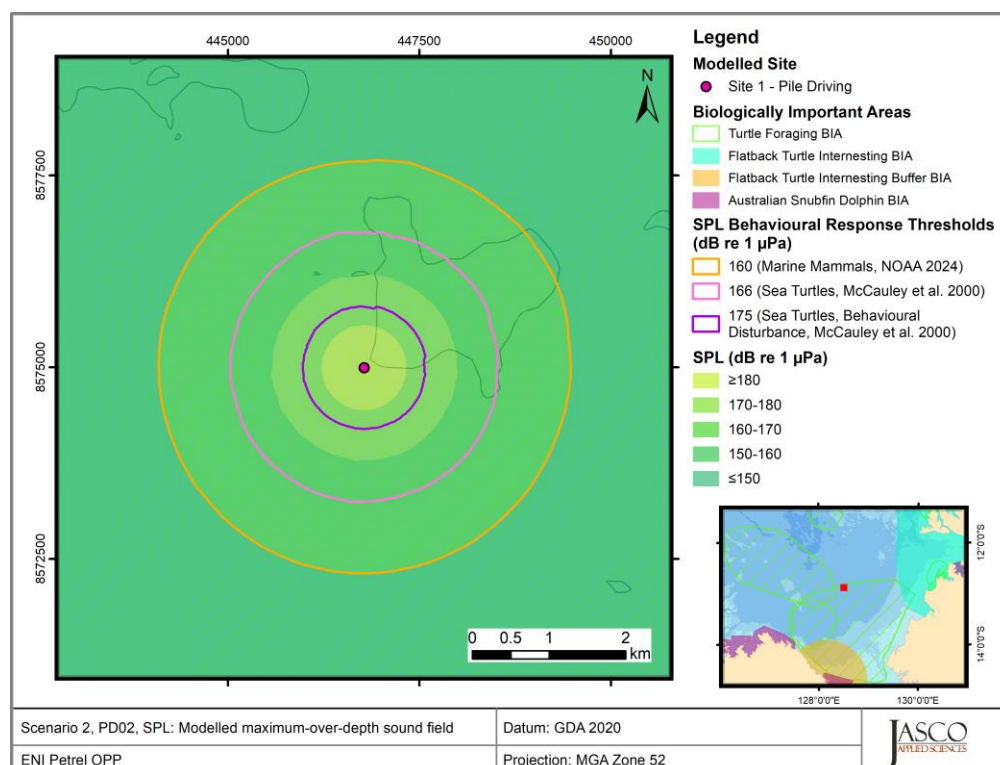


Figure 16. *Pile Driving, Scenario 2, Penetration Depth – 49.5 m, SPL*: Sound level contour map showing the unweighted maximum-over-depth sound field in 10 dB steps, and the isopleths for behavioural thresholds for marine mammals and sea turtles.

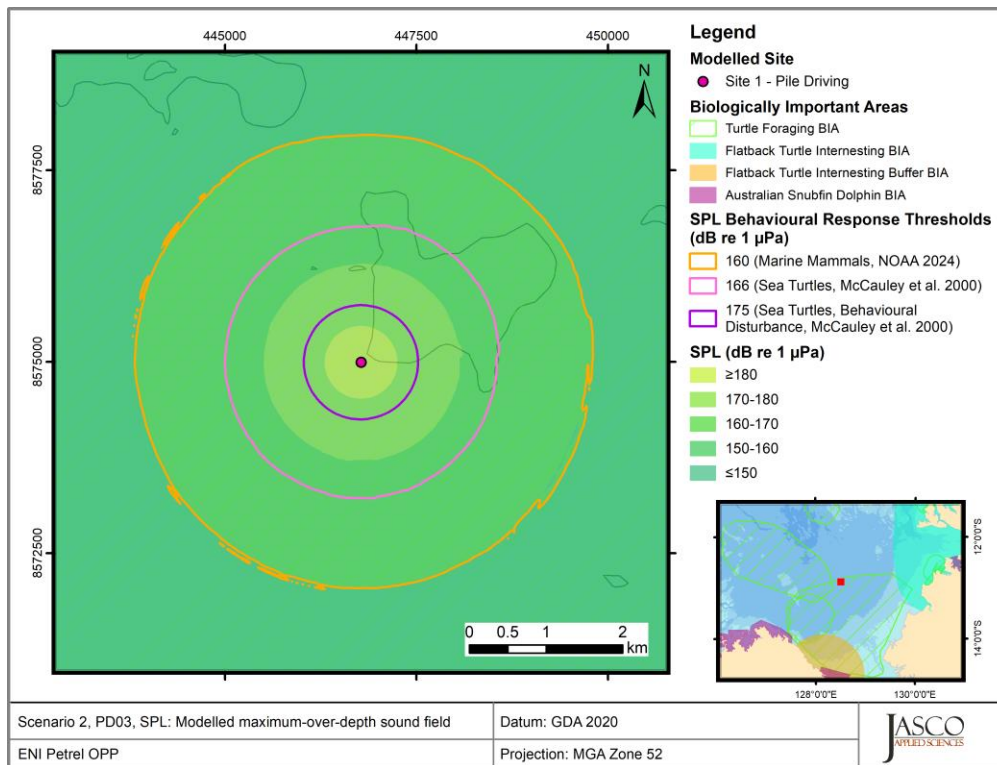


Figure 17. *Pile Driving, Scenario 2, Penetration Depth – 69.8 m, SPL*: Sound level contour map showing the unweighted maximum-over-depth sound field in 10 dB steps, and the isopleths for behavioural thresholds for marine mammals and sea turtles.

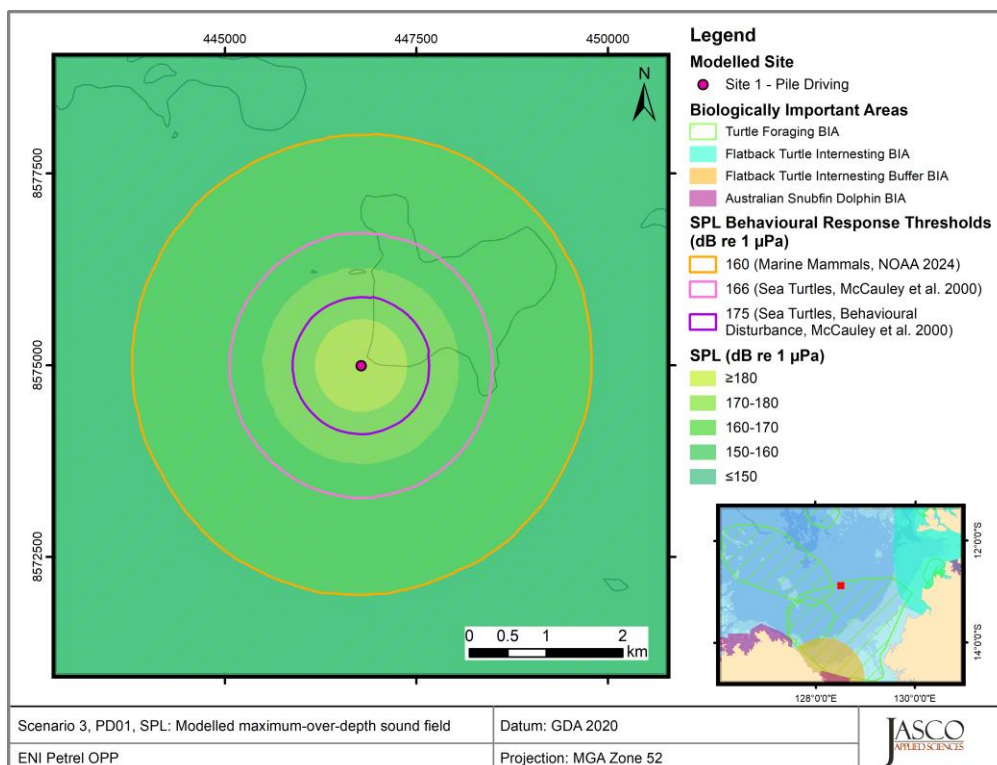


Figure 18. *Pile Driving, Scenario 3, Penetration Depth – 30.2 m, SPL*: Sound level contour map showing the unweighted maximum-over-depth sound field in 10 dB steps, and the isopleths for behavioural thresholds for marine mammals and sea turtles.

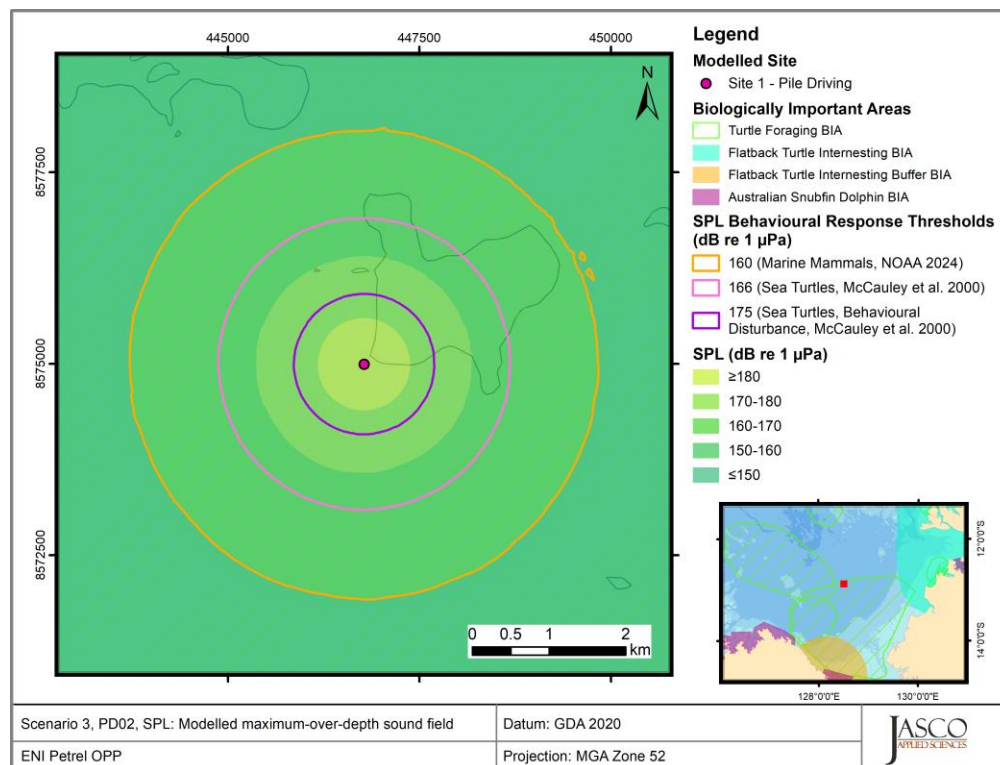


Figure 19. *Pile Driving, Scenario 3, Penetration Depth – 48 m, SPL*: Sound level contour map showing the unweighted maximum-over-depth sound field in 10 dB steps, and the isopleths for behavioural thresholds for marine mammals and sea turtles.

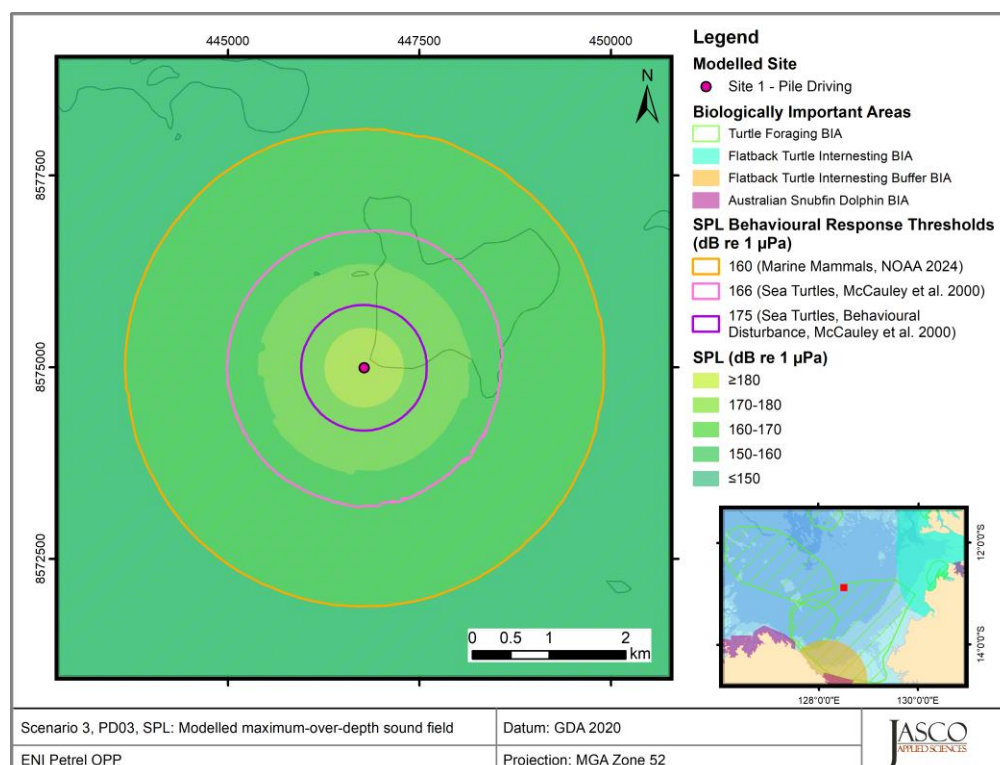


Figure 20. *Pile Driving, Scenario 3, Penetration Depth – 67.3 m, SPL*: Sound level contour map showing the unweighted maximum-over-depth sound field in 10 dB steps, and the isopleths for behavioural thresholds for marine mammals and sea turtles.

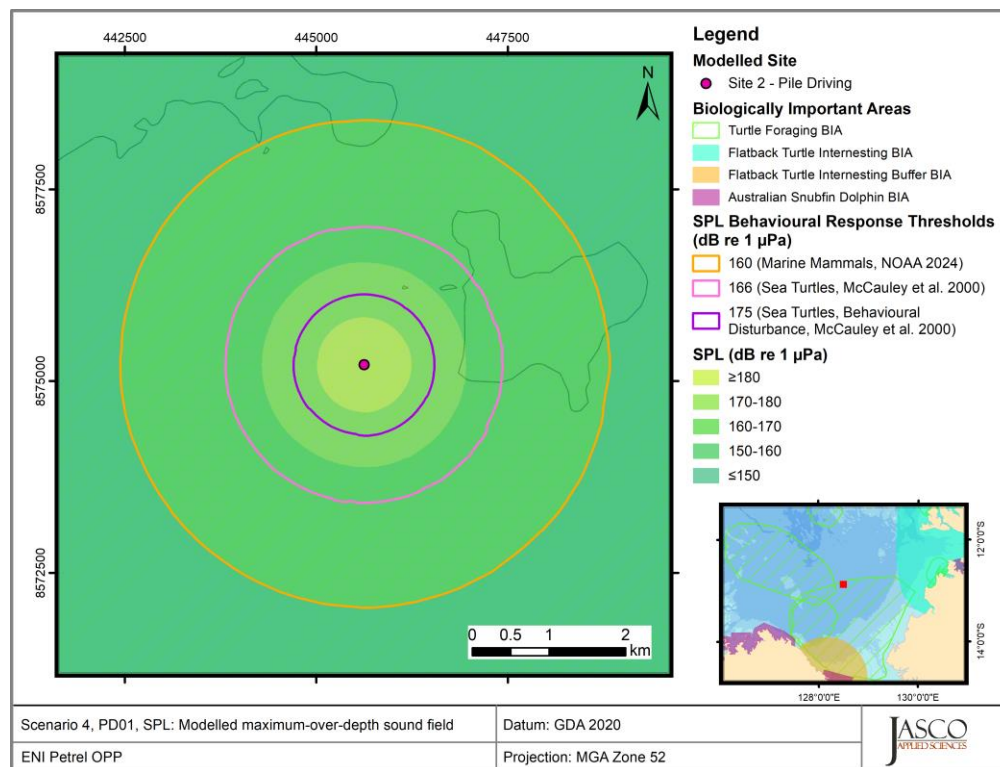


Figure 21. *Pile Driving, Scenario 4, Penetration Depth – 32.5 m, SPL*: Sound level contour map showing the unweighted maximum-over-depth sound field in 10 dB steps, and the isopleths for behavioural thresholds for marine mammals and sea turtles.

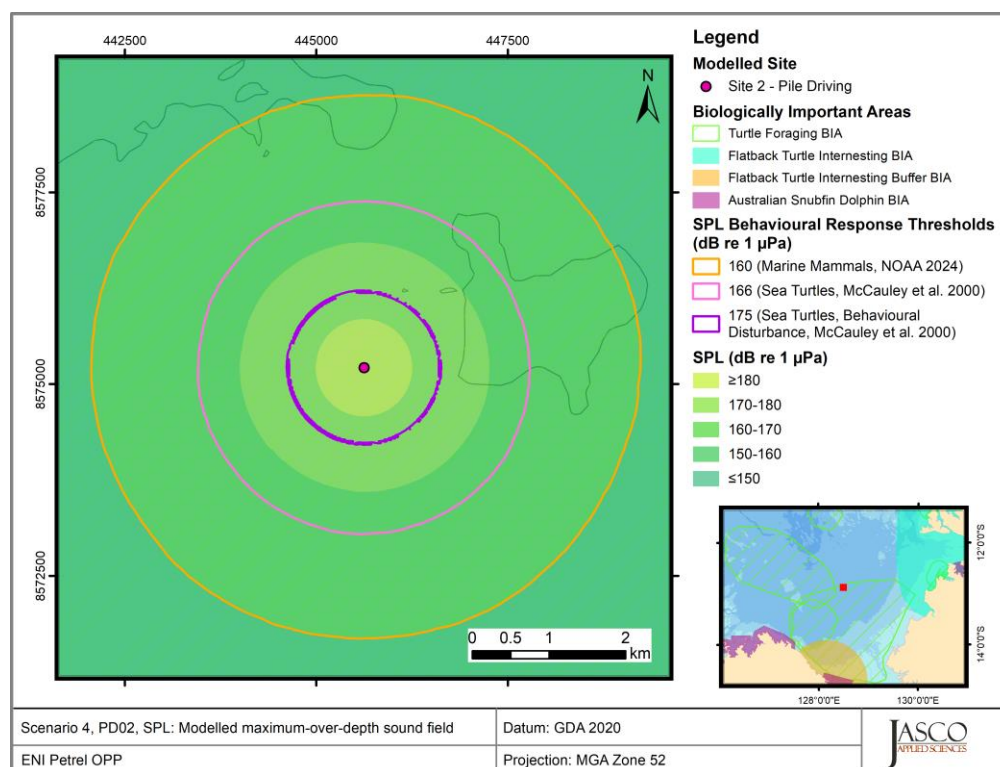


Figure 22. *Pile Driving, Scenario 4, Penetration Depth – 53.5 m, SPL*: Sound level contour map showing the unweighted maximum-over-depth sound field in 10 dB steps, and the isopleths for behavioural thresholds for marine mammals and sea turtles.

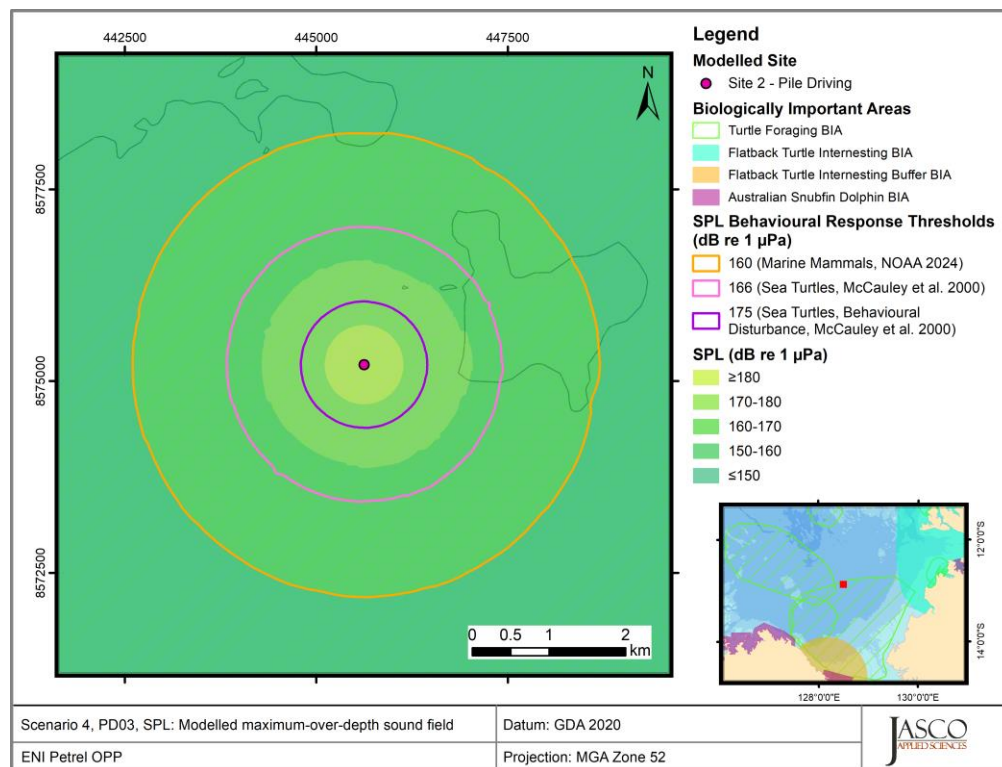


Figure 23. *Pile Driving, Scenario 4, Penetration Depth – 74.5 m, SPL*: Sound level contour map showing the unweighted maximum-over-depth sound field in 10 dB steps, and the isopleths for behavioural thresholds for marine mammals and sea turtles.

4.1.3.2. SPL Per-strike Vertical Slice Plots

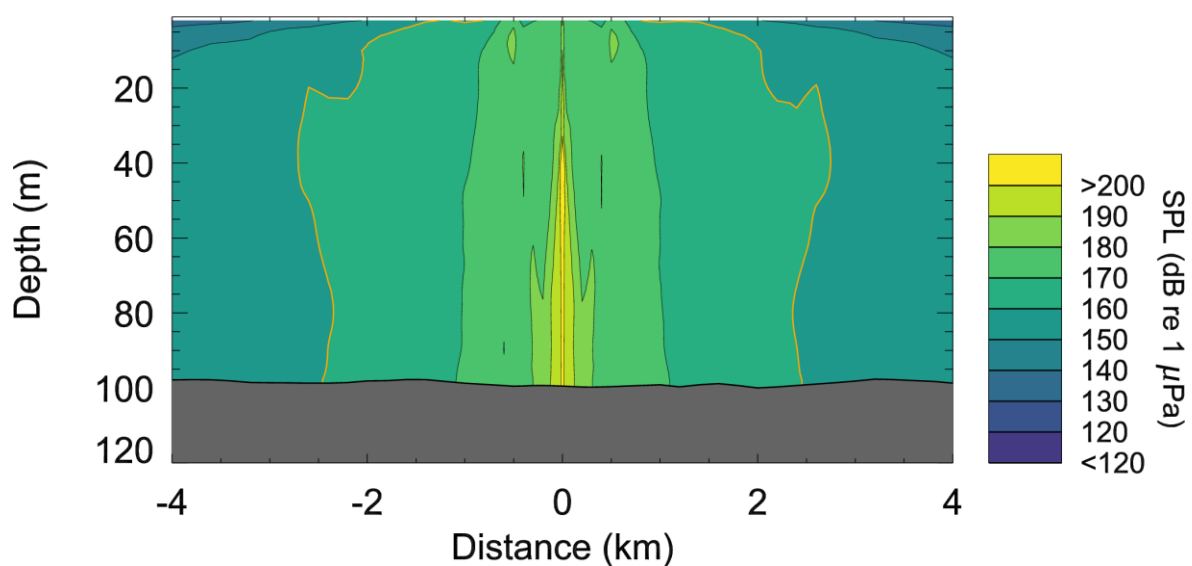


Figure 24. *Pile Driving, Scenario 1, Penetration Depth – 25 m, SPL*: Vertical slice plot showing variations with depth and distance from the pile. The seabed is shown as dark grey. Cross section shows north/south transects from the pile location.

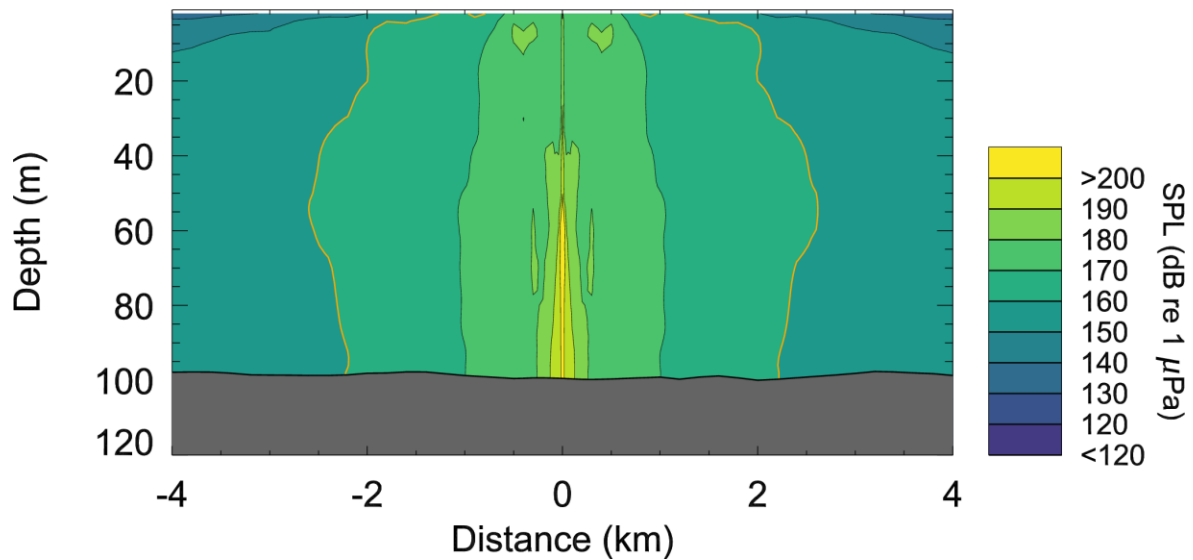


Figure 25. *Pile Driving, Scenario 1, Penetration Depth – 43 m, SPL*: Vertical slice plot showing variations with depth and distance from the pile. The seabed is shown as dark grey. Cross section shows north/south transects from the pile location.

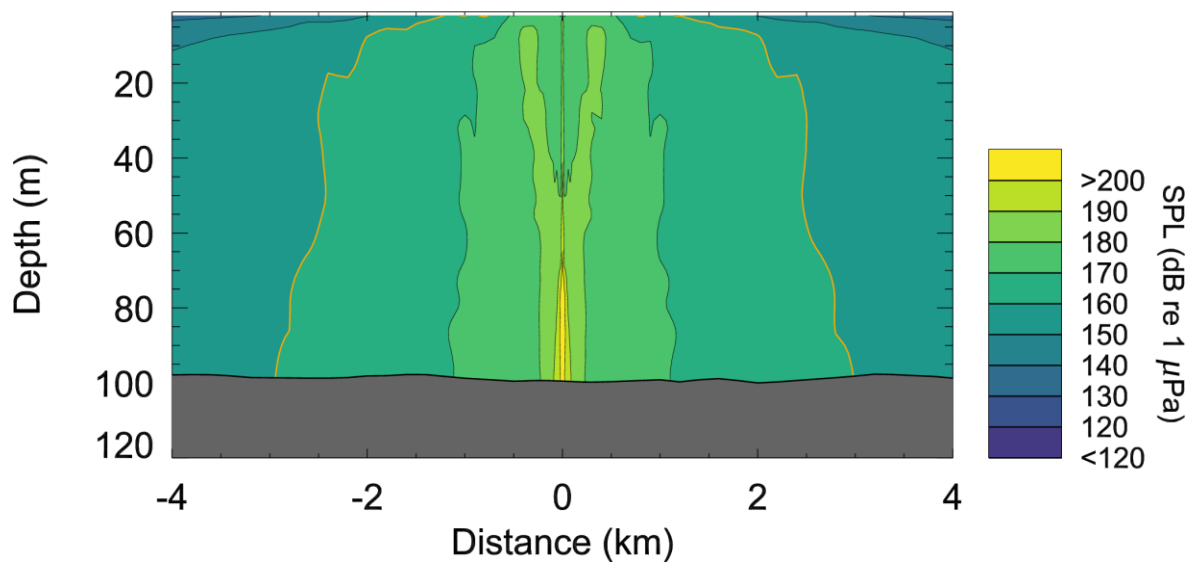


Figure 26. *Pile Driving, Scenario 1, Penetration Depth – 61 m, SPL*: Vertical slice plot showing variations with depth and distance from the pile. The seabed is shown as dark grey. Cross section shows north/south transects from the pile location.

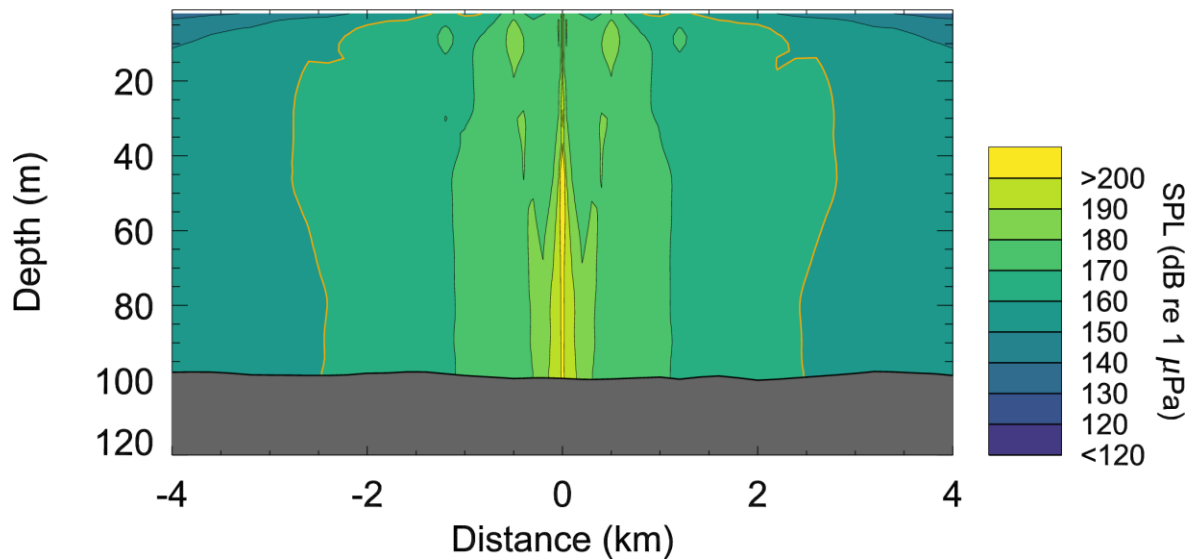


Figure 27. *Pile Driving, Scenario 2, Penetration Depth – 29.2 m, SPL*: Vertical slice plot showing variations with depth and distance from the pile. The seabed is shown as dark grey. Cross section shows north/south transects from the pile location.

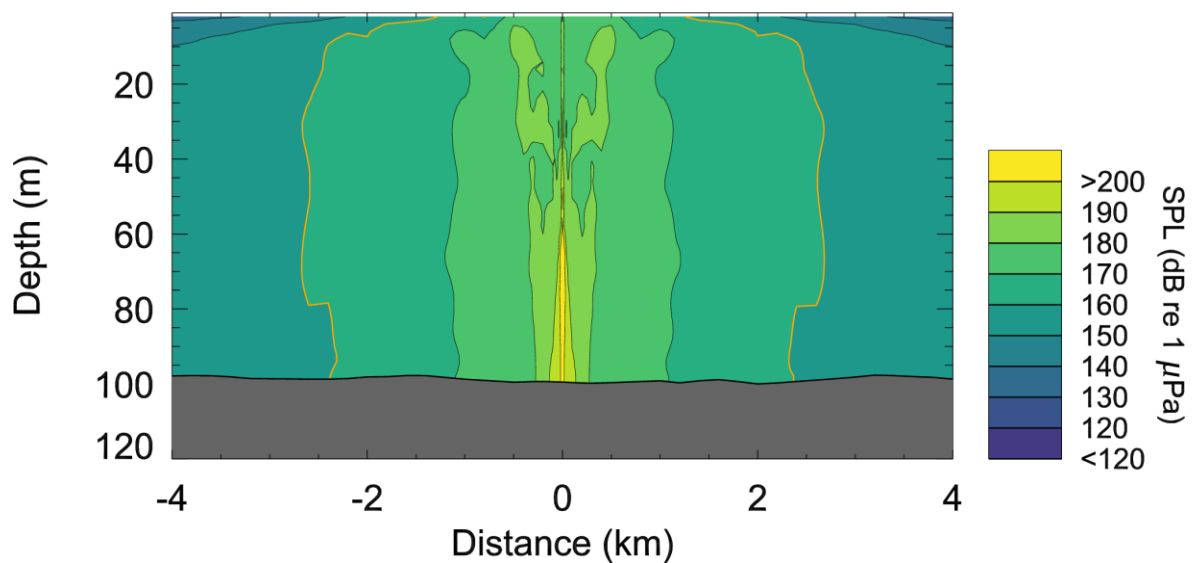


Figure 28. *Pile Driving, Scenario 2, Penetration Depth – 49.5 m, SPL*: Vertical slice plot showing variations with depth and distance from the pile. The seabed is shown as dark grey. Cross section shows north/south transects from the pile location.

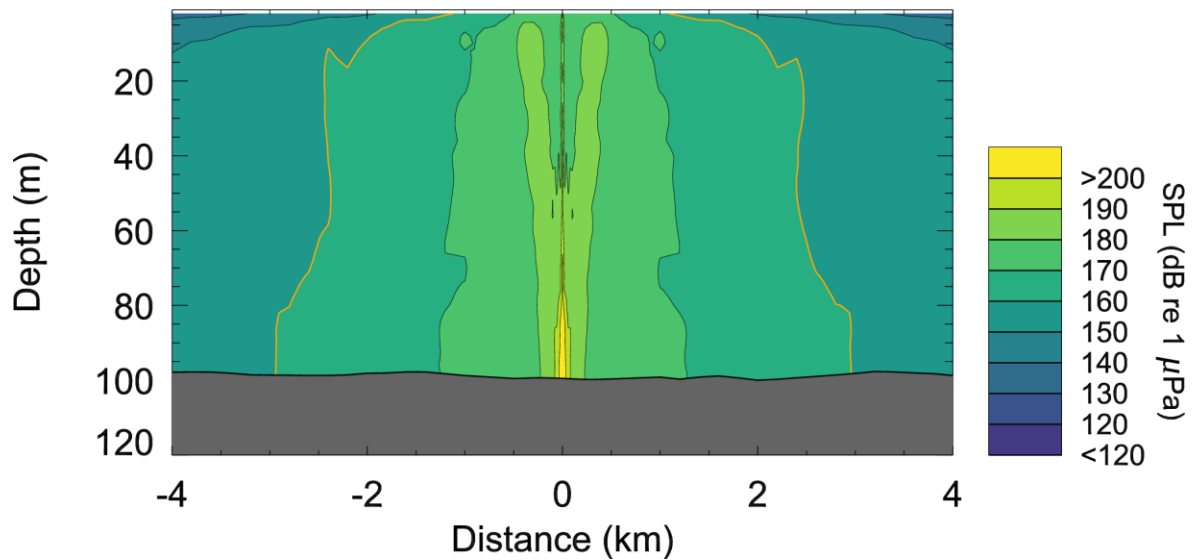


Figure 29. *Pile Driving, Scenario 2, Penetration Depth – 69.8 m, SPL*: Vertical slice plot showing variations with depth and distance from the pile. The seabed is shown as dark grey. Cross section shows north/south transects from the pile location.

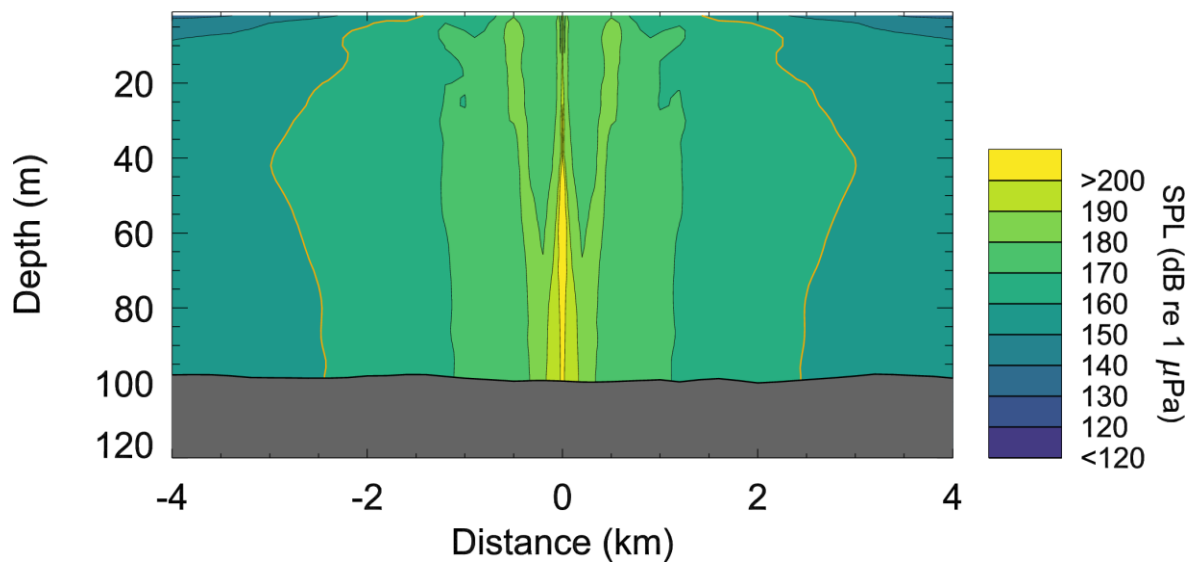


Figure 30. *Pile Driving, Scenario 3, Penetration Depth – 30.2 m, SPL*: Vertical slice plot showing variations with depth and distance from the pile. The seabed is shown as dark grey. Cross section shows north/south transects from the pile location.

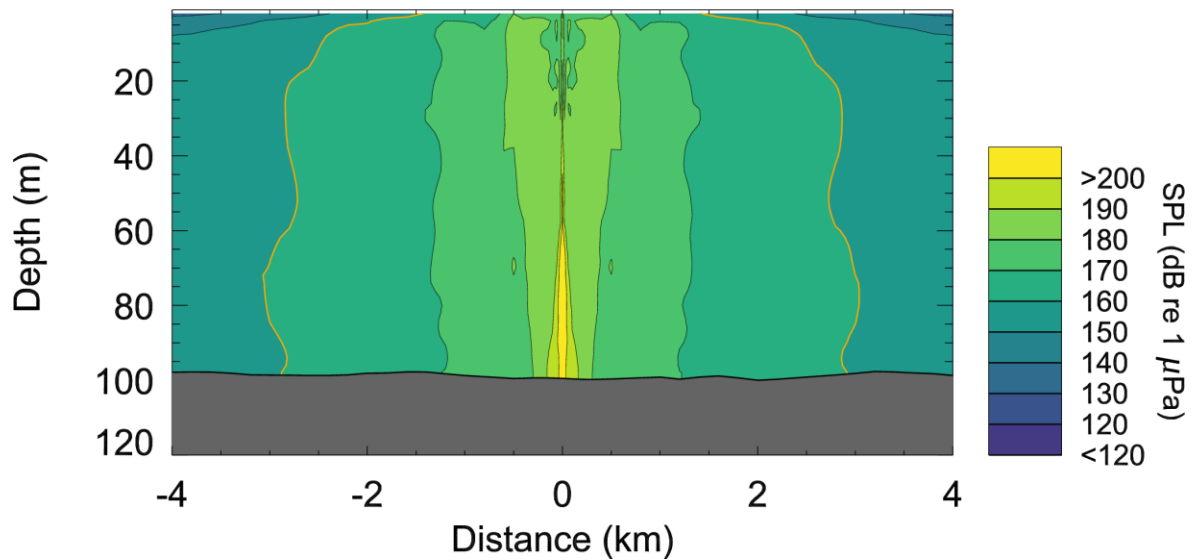


Figure 31. *Pile Driving, Scenario 3, Penetration Depth – 48 m, SPL*: Vertical slice plot showing variations with depth and distance from the pile. The seabed is shown as dark grey. Cross section shows north/south transects from the pile location.

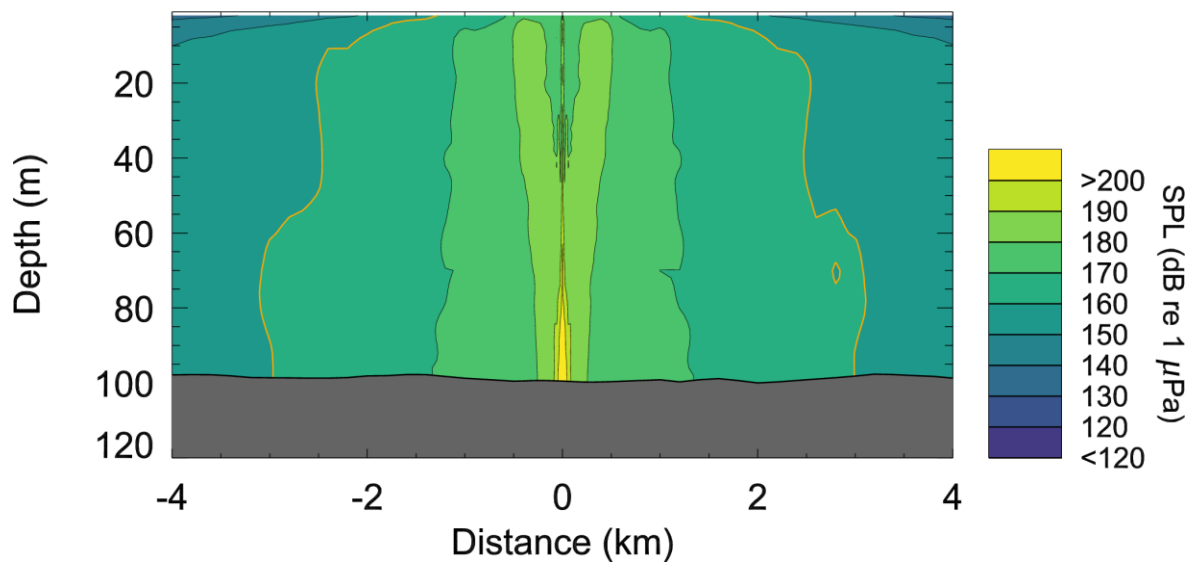


Figure 32. *Pile Driving, Scenario 3, Penetration Depth – 67.3 m, SPL*: Vertical slice plot showing variations with depth and distance from the pile. The seabed is shown as dark grey. Cross section shows north/south transects from the pile location.

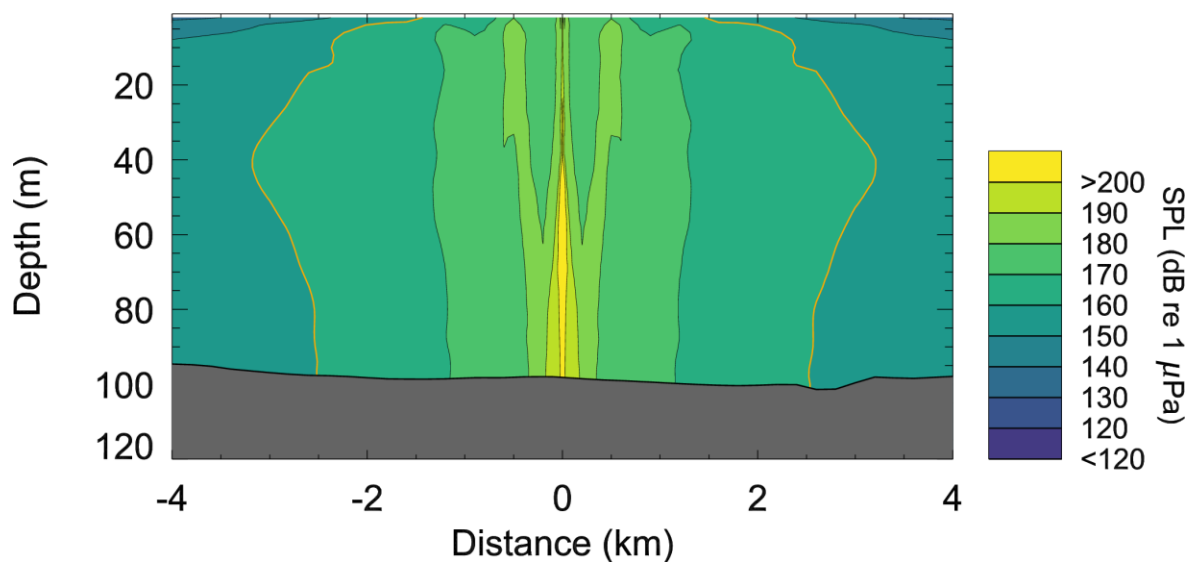


Figure 33. *Pile Driving, Scenario 4, Penetration Depth – 32.5 m, SPL*: Vertical slice plot showing variations with depth and distance from the pile. The seabed is shown as dark grey. Cross section shows north/south transects from the pile location.

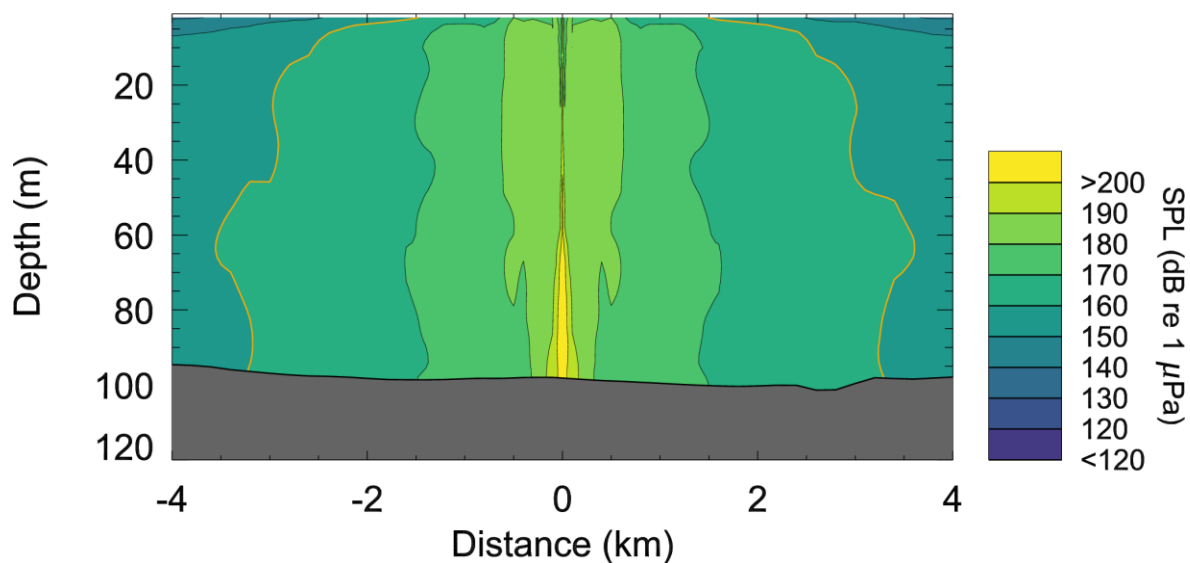


Figure 34. *Pile Driving, Scenario 4, Penetration Depth – 53.5 m, SPL*: Vertical slice plot showing variations with depth and distance from the pile. The seabed is shown as dark grey. Cross section shows north/south transects from the pile location.

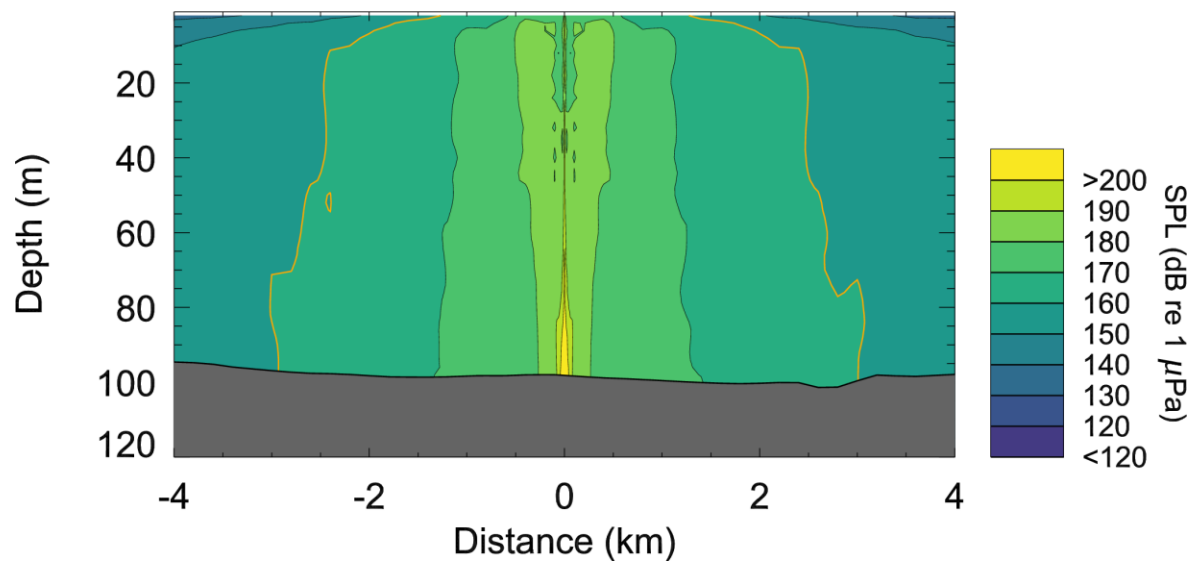


Figure 35. *Pile Driving, Scenario 4, Penetration Depth – 74.5 m, SPL*: Vertical slice plot showing variations with depth and distance from the pile. The seabed is shown as dark grey. Cross section shows north/south transects from the pile location.

4.1.3.3. Accumulated SEL_{24h} Sound level Contour Maps

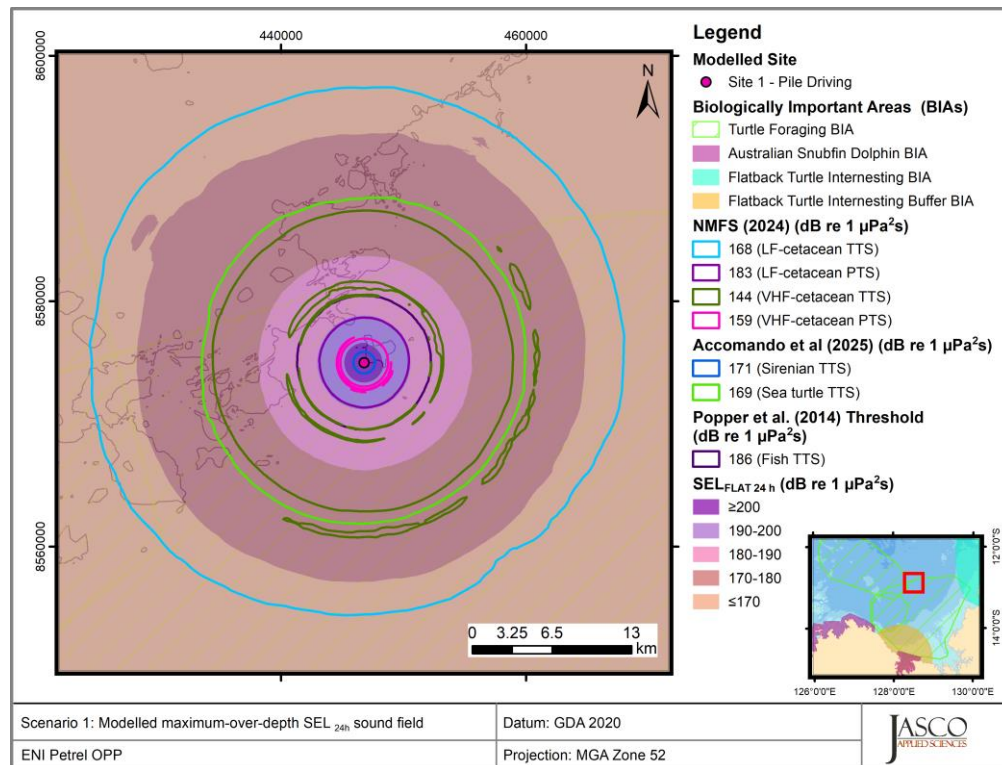


Figure 36. *Scenario 1, Pile 1, two piles per day, accumulated SEL_{24h}* : Sound level contour map showing maximum-over-depth SEL_{24h} results (unweighted/flat), along with frequency weighted isopleths for low- and very high-frequency cetaceans, sea turtles and fish. Thresholds omitted here were not reached or not long enough to display graphically.

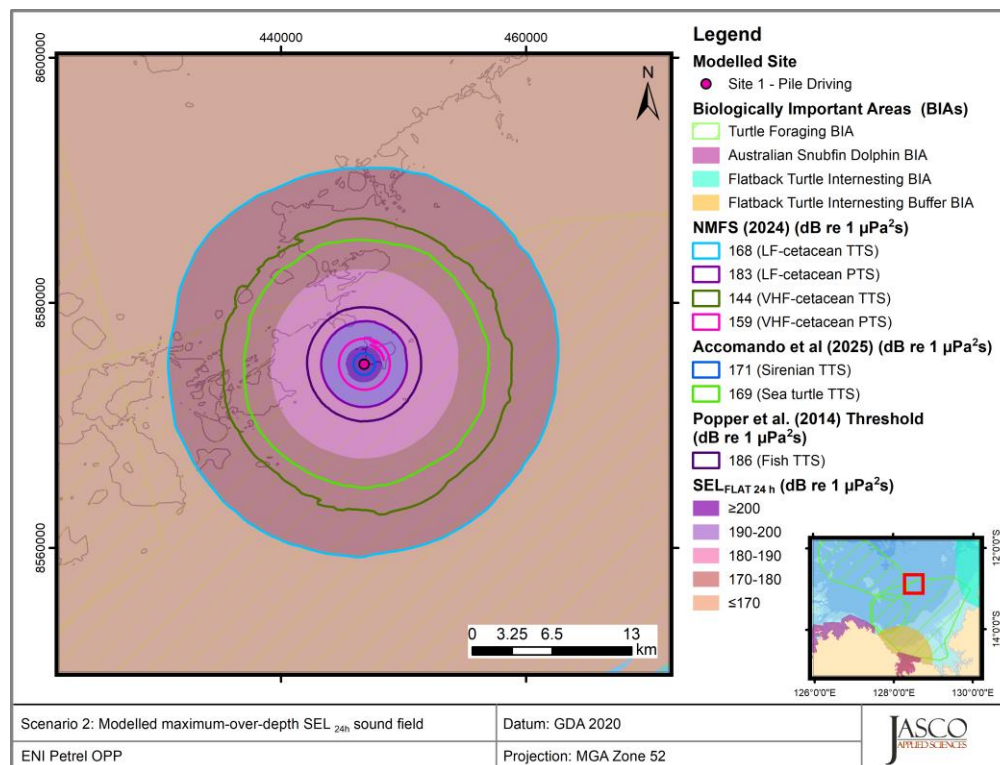


Figure 37. *Scenario 2, Pile 2, one pile per day, accumulated SEL_{24h}*: Sound level contour map showing maximum-over-depth SEL_{24h} results (unweighted/flat), along with frequency weighted isopleths for low- and very high-frequency cetaceans, sea turtles and fish. Thresholds omitted here were not reached or not long enough to display graphically.

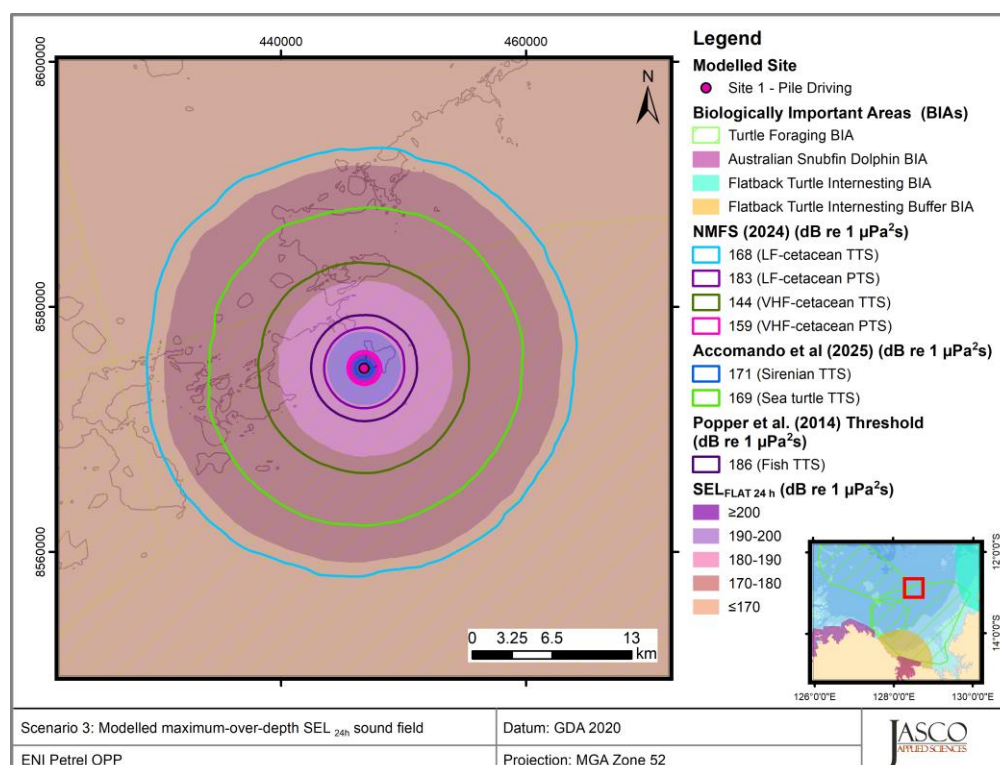


Figure 38. *Scenario 3, Pile 2, one pile per day, accumulated SEL_{24h}*: Sound level contour map showing maximum-over-depth SEL_{24h} results (unweighted/flat), along with frequency weighted isopleths for low- and very high-frequency cetaceans, sea turtles and fish. Thresholds omitted here were not reached or not long enough to display graphically.

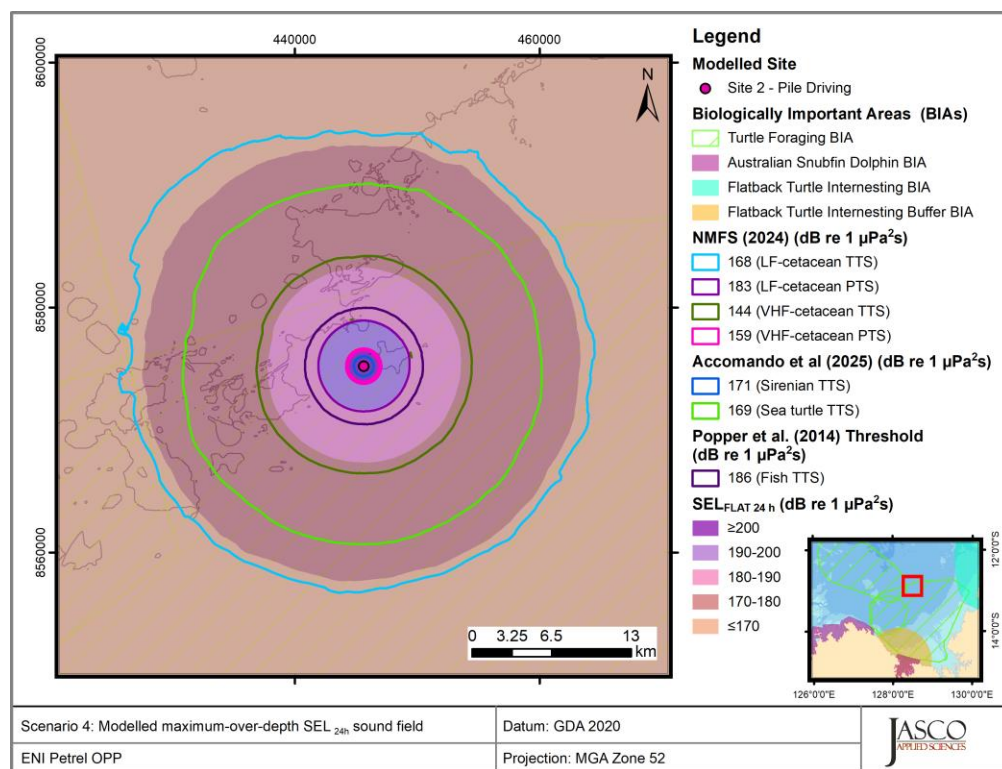


Figure 39. Scenario 4, Pile 3, one pile per day, accumulated SEL_{24h}: Sound level contour map showing maximum-over-depth SEL_{24h} results (unweighted/flat), along with frequency weighted isopleths for low- and very high-frequency cetaceans, sea turtles and fish. Thresholds omitted here were not reached or not long enough to display graphically.

4.2. Drilling and Vessel Activities

The maximum-over-depth sound fields for the modelled scenarios are presented below in two formats: as tables of distances to sound levels and, where the distances are long enough, as contour maps showing the directivity and range to various sound levels.

For the results below, the distances to isopleths/thresholds were reported from either the centroid of several sources or from the most dominant single source. When an isopleth completely envelopes multiple sources the centroid was used. When several closed isopleths exist the most dominant source was used. Maps are provided in Section 4.2.2 to assist with contextualising tabulated distances.

4.2.1. Tabulated Results

Table 25 presents the maximum and 95% horizontal distances to specific SPL contours. The SPL sound footprints represent instantaneous sound fields and do not depend on time accumulation.

Table 26 presents the maximum distances to frequency-weighted SEL_{24h} thresholds, as well as total ensonified areas for Scenarios 1–3.

Scenarios 4 and 4a are combined scenarios where Scenarios 1 and 2 (Scenario 4), or 1a and 2 (Scenario 4a), occur concurrently. As combining multiple circular sound footprints can result in elongated ensonified areas, reporting maximum distances to noise effect criteria thresholds were not informative in all cases. Therefore in addition to maximum distances, a comparison of the area ensonified above the thresholds between the summed individual scenarios (1 and 2, or 1a and 2) and the combined scenarios (4 or 4a) has been presented as a change in km² or a percentage change in Table 27 to provide guidance about the effect of conducting the activities in these scenarios concurrently. The sound field maps provided in Section 4.2.2 provide context to these reported areas in relation to the shape around different sound sources.

Table 25. *Drilling and Vessel Activities, SPL*: Maximum ($R_{\max}$) and 95% ($R_{95\%}$) horizontal distances (in km) to sound pressure level (SPL) from most appropriate location for considered sources per scenario. Scenario descriptions are provided in Section 1.1.

SPL (L_p ; dB re 1 μ Pa)	Scenario 1: Anchored MODU Drilling and Support		Scenario 1a: MODU on DP Drilling and Support		Scenario 2: Construction and Support		Scenario 3: Pipelay and Support		Scenario 4: Anchored MODU Drilling and Construction and Support		Scenario 4a: MODU on DP Drilling and Construction and Support	
	$R_{\max}$ (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)
180	–	–	–	–	–	–	–	–	–	–	0.02	0.02
170 ^a	0.06	0.06	0.02	0.02	–	–	–	–	0.06	0.06	0.02	0.02
160	0.07	0.06	0.09	0.09	0.07	0.07	0.07	0.07	0.07	0.06	0.10	0.09
158 ^b	0.08	0.08	0.12	0.11	0.10	0.09	0.09	0.09	0.10	0.09	0.12	0.11
150	0.26	0.25	0.63	0.57	0.78	0.71	0.54	0.49	1.11	0.96	1.24	1.08
140	1.20	1.08	1.26	1.15	1.58	1.45	1.28	1.17	2.11	1.83	2.16	1.89
130	2.71	2.48	3.40	3.13	4.30	4.07	3.34	3.14	5.19	4.65	6.25	5.79
120 ^c	8.11	7.65	14.8	14.0	17.4	16.7	11.8	10.7	18.1	17.3	24.6	23.4
110	34.1	30.1	75.2	67.5	89.0	80.1	53.0	46.2	>100.0	/	>100.0	/
100	>100.0	/	>100.0	/	>100.0	/	>100.0	/	>100.0	/	>100.0	/

^a 48 h threshold for recoverable injury for fish with a swim bladder involved in hearing (Popper et al. 2014).

^b 12 h threshold for TTS for fish with a swim bladder involved in hearing (Popper et al. 2014).

^c Threshold for marine mammal behavioural response to non-impulsive noise (NOAA 2024).

A dash indicates the level was not reached within the limits of the modelled resolution (20 m).

A slash indicates the $R_{95\%}$ radius to threshold is not reported when the $R_{\max}$ is greater than the maximum modelling extent.

Table 26. *Drilling and Vessel Activities, SEL_{24h}*: Maximum ($R_{\max}$) horizontal distances (in km) to frequency-weighted SEL_{24h} PTS and TTS thresholds based on NMFS (2024) for cetaceans and Accomando et al. (2025) for sirenians and sea turtles, from most appropriate location for considered sources per scenario, along with ensonified area (km²).

Hearing group	Frequency-weighted SEL _{24h} threshold (<i>L</i> _{E,24h} ; dB re 1 μPa ² ·s)	Scenario 1: Anchored MODU Drilling and Support		Scenario 1a: MODU on DP Drilling and Support		Scenario 2: Construction and Support		Scenario 3: Pipelay and Support	
		<i>R</i> _{max} (km)	Area (km ²)	<i>R</i> _{max} (km)	Area (km ²)	<i>R</i> _{max} (km)	Area (km ²)	<i>R</i> _{max} (km)	Area (km ²)
PTS / AUD INJ									
LF cetaceans	197	0.47	0.29	0.60	0.47	0.80	0.99	0.20	1.12
HF cetaceans	201	0.03	0.01	0.03	0.01	0.04	0.01	0.03	0.07
VHF cetaceans	181	0.10	0.03	0.11	0.04	0.07	0.05	0.05	0.12
Sirenians	200	–	/	–	/	–	/	0.03	0.07
Sea turtles	198	0.13	0.08	0.14	0.14	0.64	0.35	0.08	0.3
TTS									
LF cetaceans	177	3.03	24.0	4.06	48.4	5.92	90.1	3.92	53.2
HF cetaceans	181	0.52	0.72	0.70	0.97	0.96	1.86	0.32	2.07
VHF cetaceans	161	1.51	6.03	1.76	7.46	1.76	8.05	1.07	7.28
Sirenians	180	0.12	0.09	0.14	0.11	0.16	0.21	0.06	0.22
Sea turtles	178	1.66	5.98	2.08	12.6	2.20	13.2	1.33	9.16

A dash indicates the level was not reached within the limits of the modelled resolution (20 m).

A slash indicates that the area is less than an area associated with the modelled resolution (0.0013 km²).

Table 27. *Drilling and Vessel Activities, SEL_{24h}*: Total ensonified area (km²) above frequency-weighted SEL_{24h} PTS and TTS thresholds based on NMFS (2024) for cetaceans and Accomando et al. (2025) for sirenians and sea turtles. The ensonified areas for the corresponding individual scenarios are provided along with the area and percentage increase.

Hearing group	Frequency-weighted SEL _{24h} threshold (L _{E,24h} ; dB re 1 µPa ² ·s)	Scenario 4: Scenario 1+2					Scenario 4a: Scenario 1a + 2				
		R _{max} (km)	Combined Scenario Area (km ²)	Sum of Individual Scenario Areas (km ²)	Area Increase from Sum of Individual Scenarios (km ²)	Percentage Increase from Sum of Individual Scenarios (%)	R _{max} (km)	Combined Scenario Area (km ²)	Sum of Individual Scenario Areas (km ²)	Area Increase from Sum of Individual Scenarios (km ²)	Percentage Increase from Sum of Individual Scenarios (%)
PTS / AUD INJ											
LF cetaceans	197	1.20	1.51	1.28	0.23	18	1.26	1.68	1.46	0.22	15
HF cetaceans	201	0.04	0.02	0.02	0	0	0.04	0.02	0.02	0.00	0
VHF cetaceans	181	0.10	0.09	0.08	0.01	13	0.11	0.09	0.09	0.00	0
Sirenians	200	–	/	/	n/a	n/a	–	/	/	n/a	n/a
Sea turtles	198	0.67	0.49	0.43	0.06	14	0.97	0.66	0.49	0.17	35
TTS											
LF cetaceans	177	7.70	170	114	55.9	49	8.16	192	139	53.5	39
HF cetaceans	181	1.48	2.96	2.58	0.38	15	1.54	3.17	2.83	0.34	12
VHF cetaceans	161	2.27	15.1	14.1	1.02	7	2.51	16.8	15.5	1.29	8
Sirenians	180	0.16	0.33	0.30	0.03	10	0.32	0.38	0.32	0.06	19
Sea turtles	178	2.78	16.6	19.2	-2.58	-13	3.02	22.4	25.8	-3.40	-13

A slash indicates that the area is less than an area associated with the modelled resolution (0.0013 km²).

4.2.2. Sound Field Maps

Maps of the estimated sound fields, threshold contours, and isopleths of interest for SPL and SEL_{24h} sound fields are presented for the modelled drilling and vessel scenarios.

4.2.2.1. SPL Sound Level Contour Maps

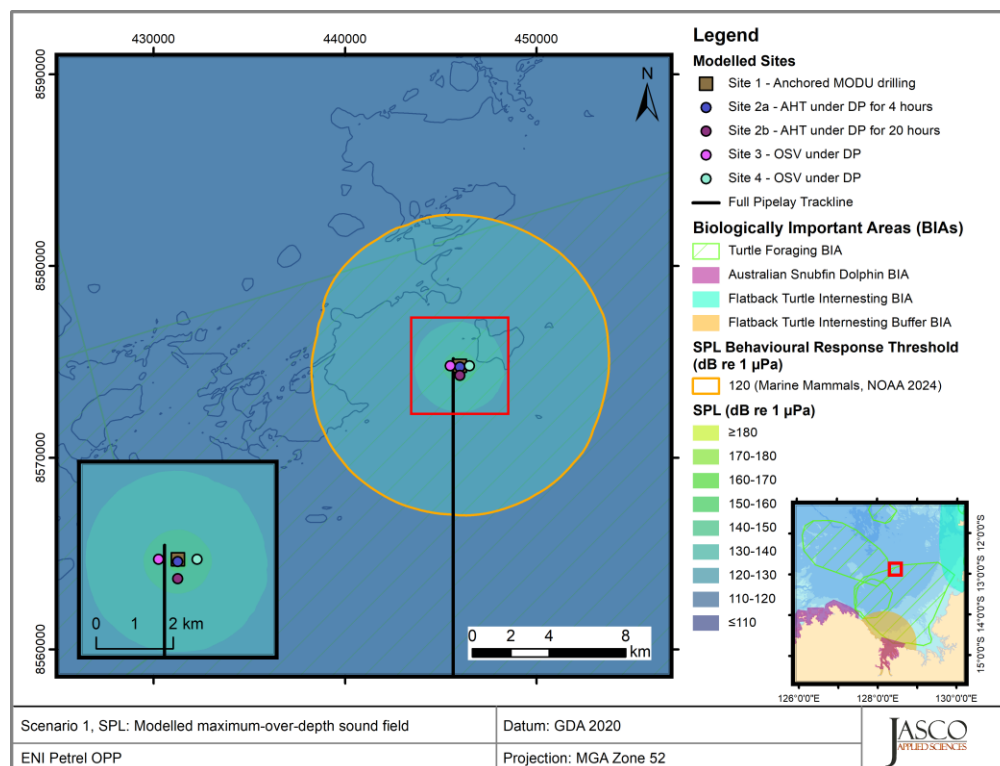


Figure 40. Scenario 1, Anchored MODU Drilling and Support, SPL: Sound level contour map showing the unweighted maximum-over-depth sound field in 10 dB steps, and the isopleths for behavioural response threshold for marine mammals.

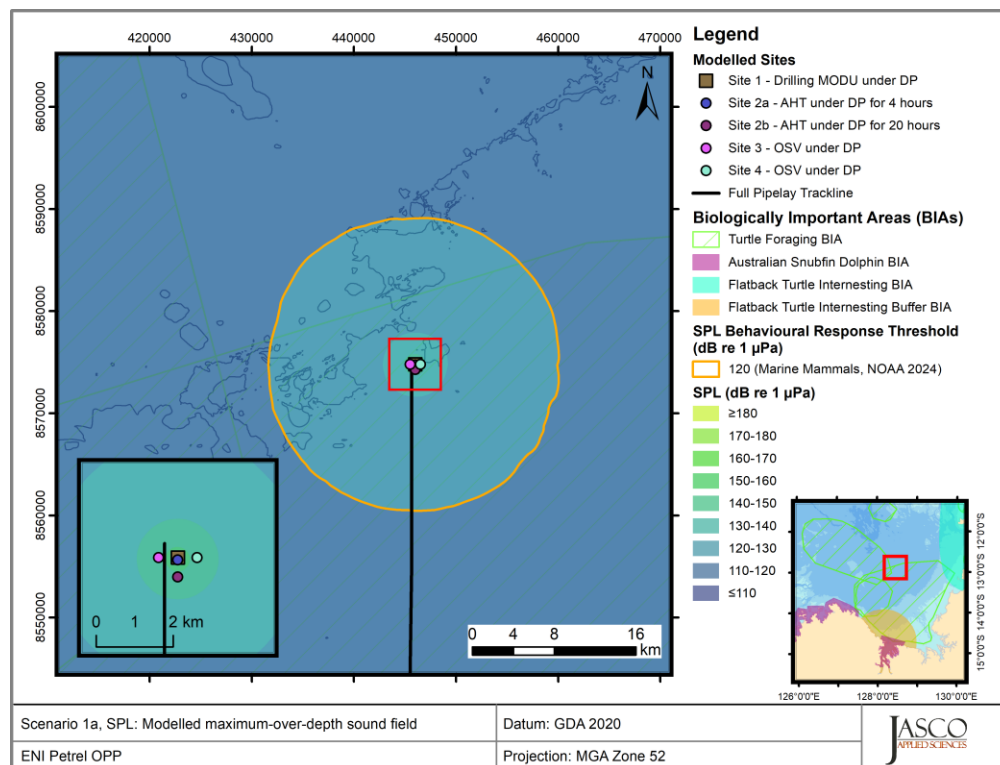


Figure 41. Scenario 1a, MODU on DP Drilling and Support, SPL: Sound level contour map showing the unweighted maximum-over-depth sound field in 10 dB steps, and the isopleths for behavioural response threshold for marine mammals.

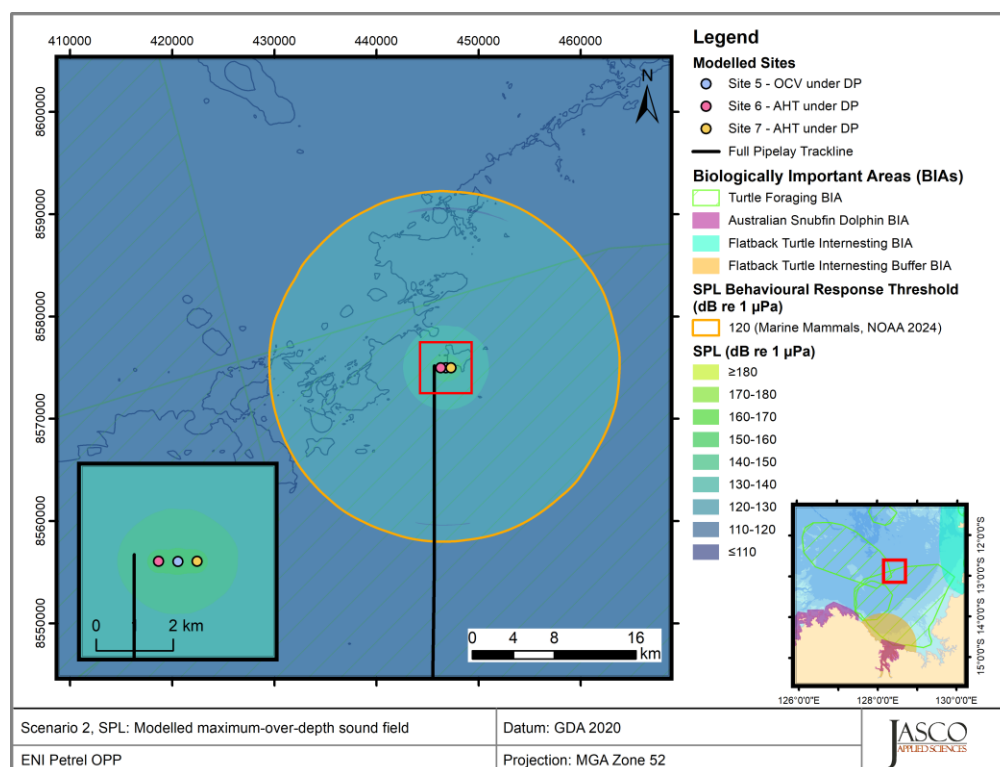


Figure 42. Scenario 2, Construction and Support, SPL: Sound level contour map showing the unweighted maximum-over-depth sound field in 10 dB steps, and the isopleths for behavioural response threshold for marine mammals.

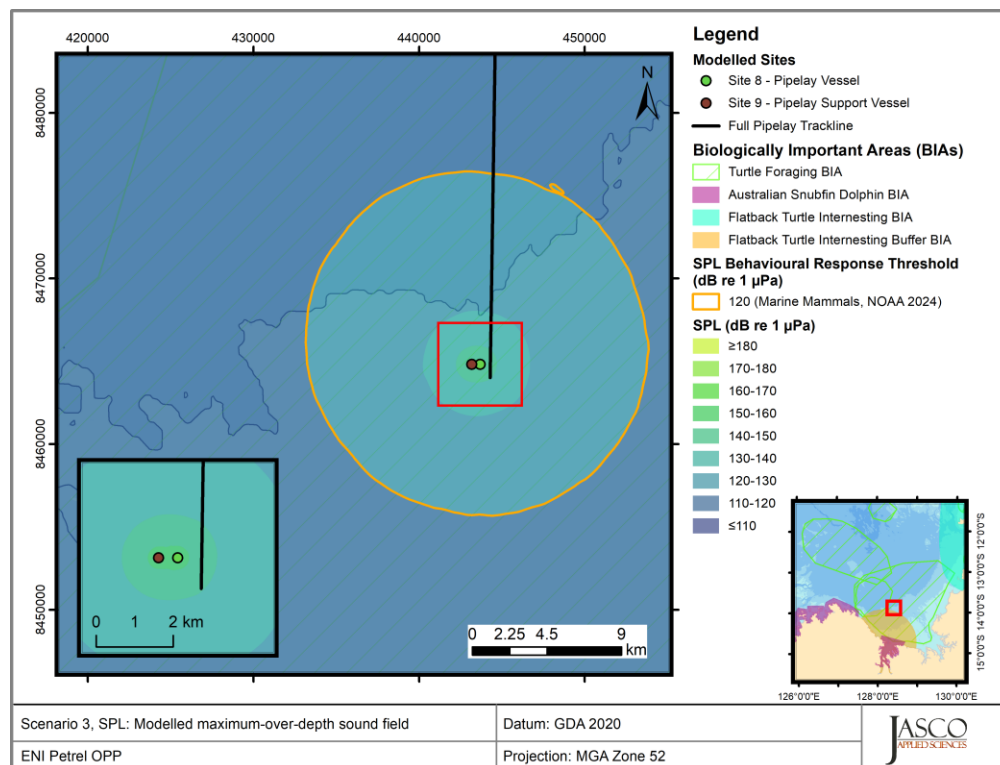


Figure 43. Scenario 3, Pipelay and Support, SPL: Sound level contour map showing the unweighted maximum-over-depth sound field in 10 dB steps, and the isopleths for behavioural response threshold for marine mammals.

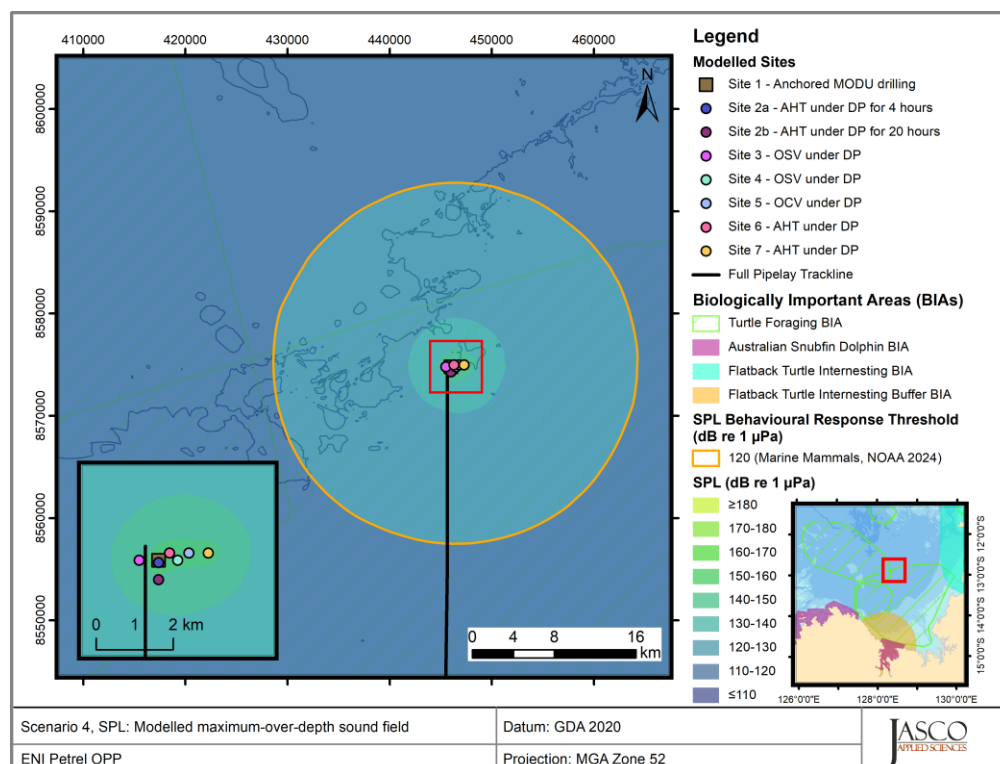


Figure 44. Scenario 4, Anchored MODU Drilling and Support + Construction and Support, SPL: Sound level contour map showing the unweighted maximum-over-depth sound field in 10 dB steps, and the isopleths for behavioural response threshold for marine mammals.

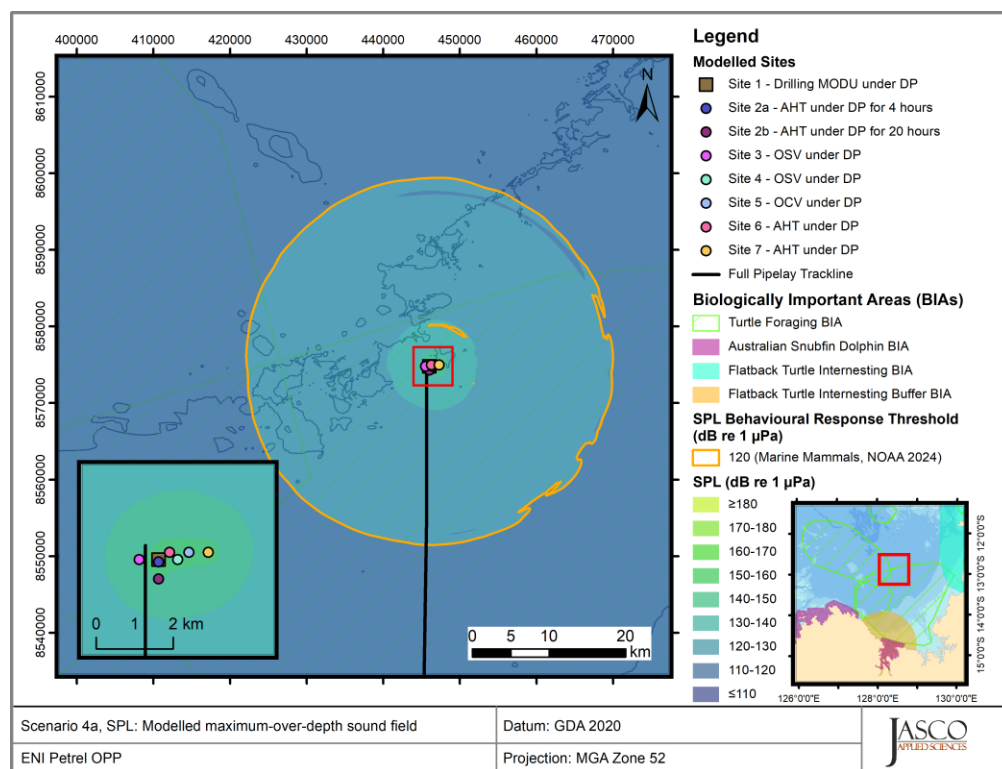


Figure 45. Scenario 4a, MODU on DP Drilling and Support + Construction and Support, SPL: Sound level contour map showing the unweighted maximum-over-depth sound field in 10 dB steps, and the isopleths for behavioural response threshold for marine mammals.

4.2.2.2. Accumulated SEL_{24h} Sound level Contour Maps

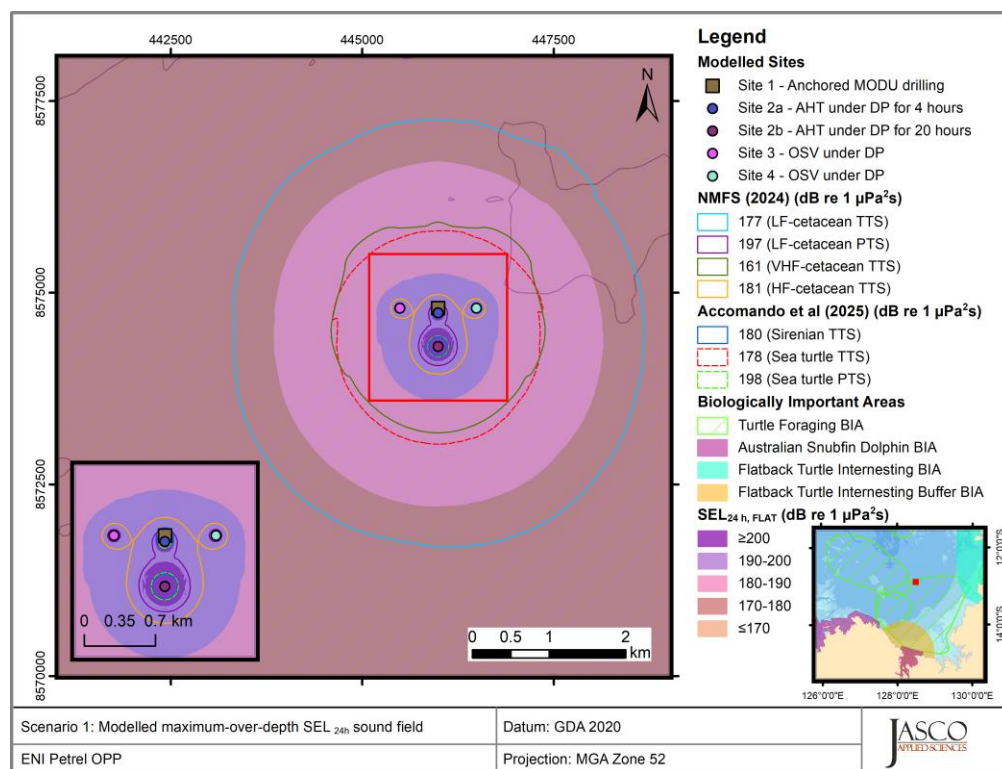


Figure 46. Scenario 1, Anchored MODU Drilling and Support, accumulated SEL_{24h} : Sound level contour map showing maximum-over-depth SEL_{24h} results (unweighted/flat), along with frequency weighted isopleths for PTS and TTS in low, high, and very high-frequency cetaceans, sirenians and turtles. Thresholds omitted here were not reached or not long enough to display graphically.

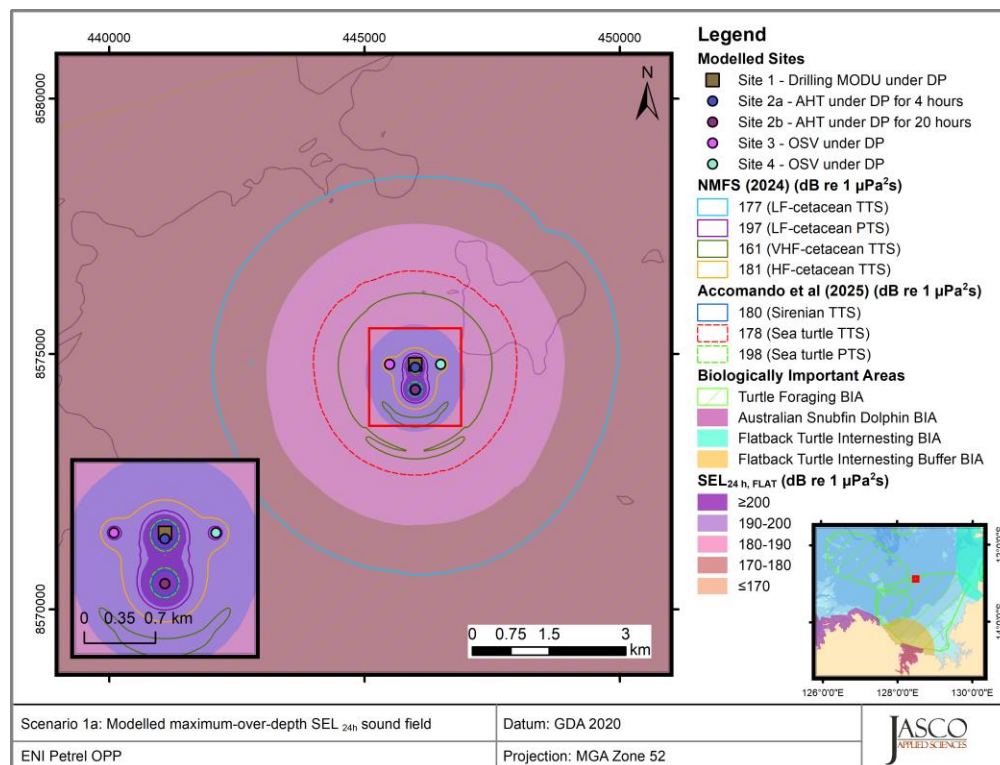


Figure 47. *Scenario 1a, MODU on DP Drilling and Support, accumulated SEL_{24h}*: Sound level contour map showing maximum-over-depth SEL_{24h} results (unweighted/flat), along with frequency weighted isopleths for PTS and TTS in low, high, and very high-frequency cetaceans, sirenians and turtles. Thresholds omitted here were not reached or not long enough to display graphically.

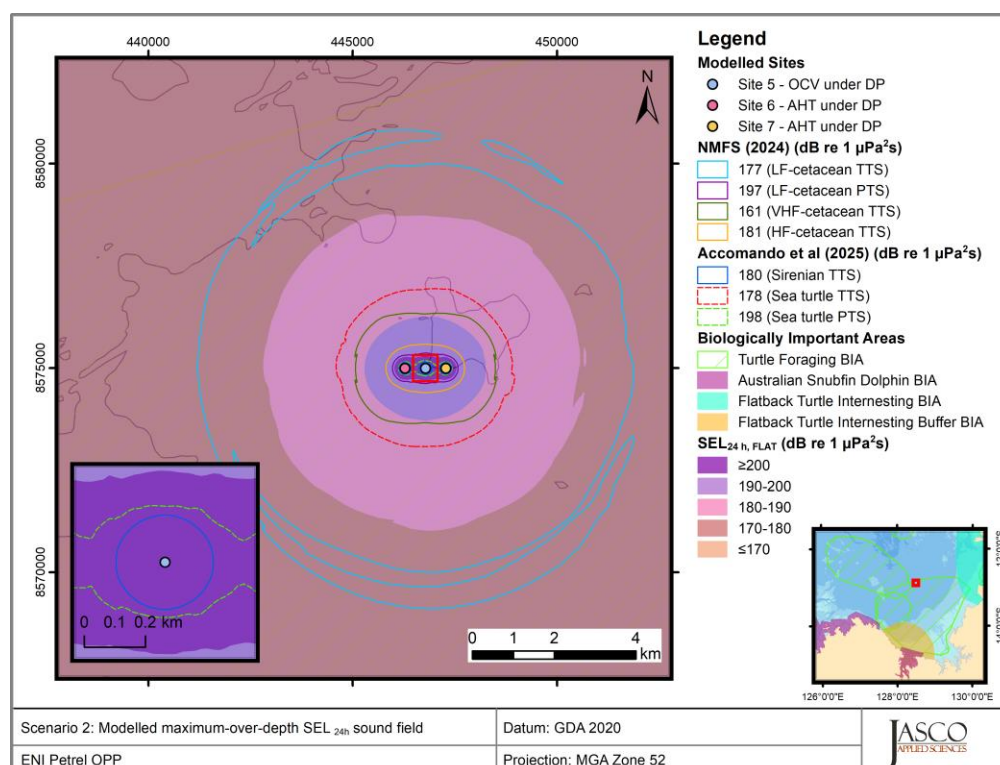


Figure 48. *Scenario 2, Construction and Support, accumulated SEL_{24h}*: Sound level contour map showing maximum-over-depth SEL_{24h} results (unweighted/flat), along with frequency weighted isopleths for PTS and TTS in low, high, and very high-frequency cetaceans, sirenians and turtles. Thresholds omitted here were not reached or not long enough to display graphically.

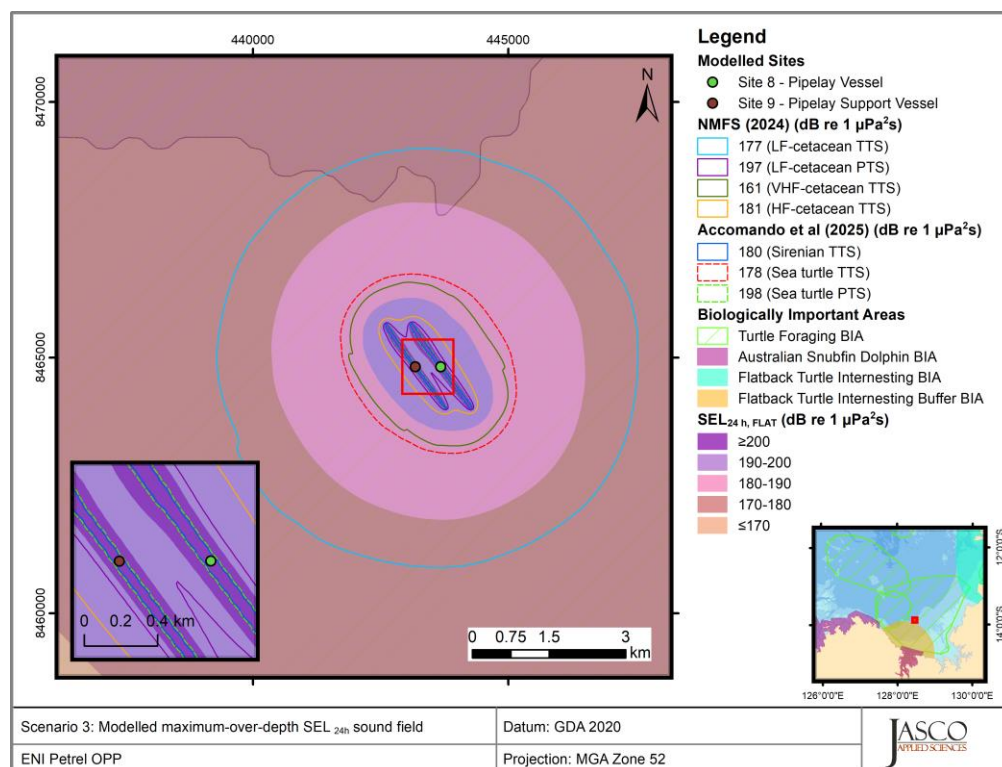


Figure 49. *Scenario 3, Pipelay and Support, accumulated SEL_{24h}*: Sound level contour map showing maximum-over-depth SEL_{24h} results (unweighted/flat), along with frequency weighted isopleths for PTS and TTS in low, high, and very high-frequency cetaceans, sirenians and turtles. Thresholds omitted here were not reached or not long enough to display graphically.

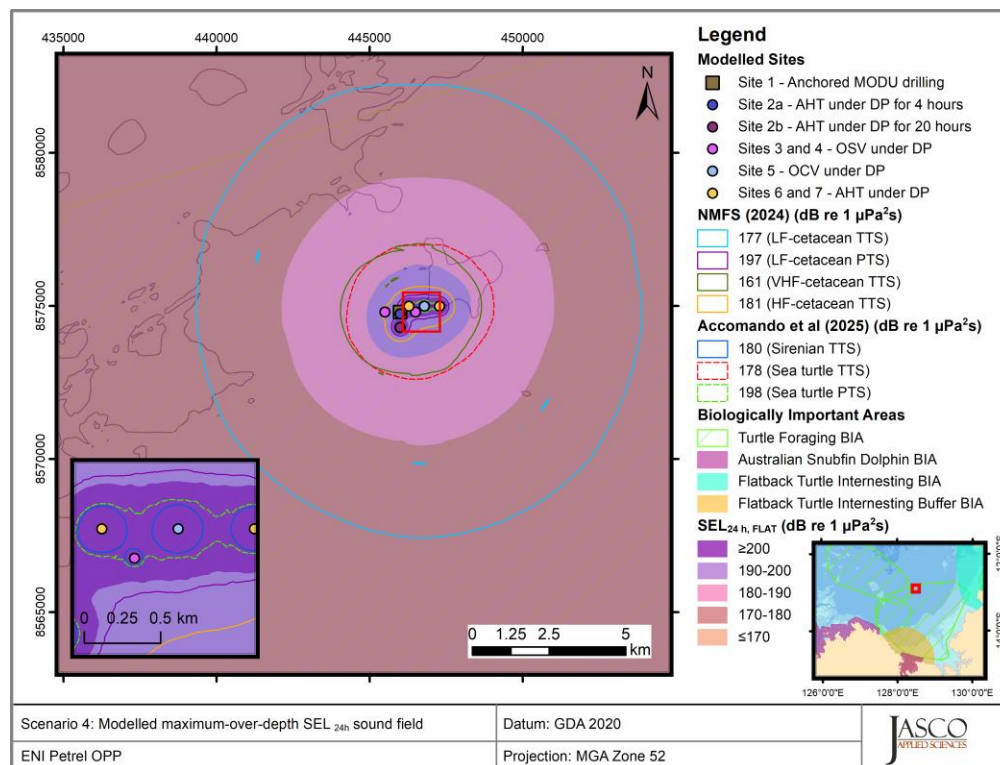


Figure 50. Scenario 4, Anchored MODU Drilling and Support + Construction and Support, accumulated SEL_{24h}: Sound level contour map showing maximum-over-depth SEL_{24h} results (unweighted/flat), along with frequency weighted isopleths for PTS and TTS in low, high, and very high-frequency cetaceans, sirenians and turtles. Thresholds omitted here were not reached or not long enough to display graphically.

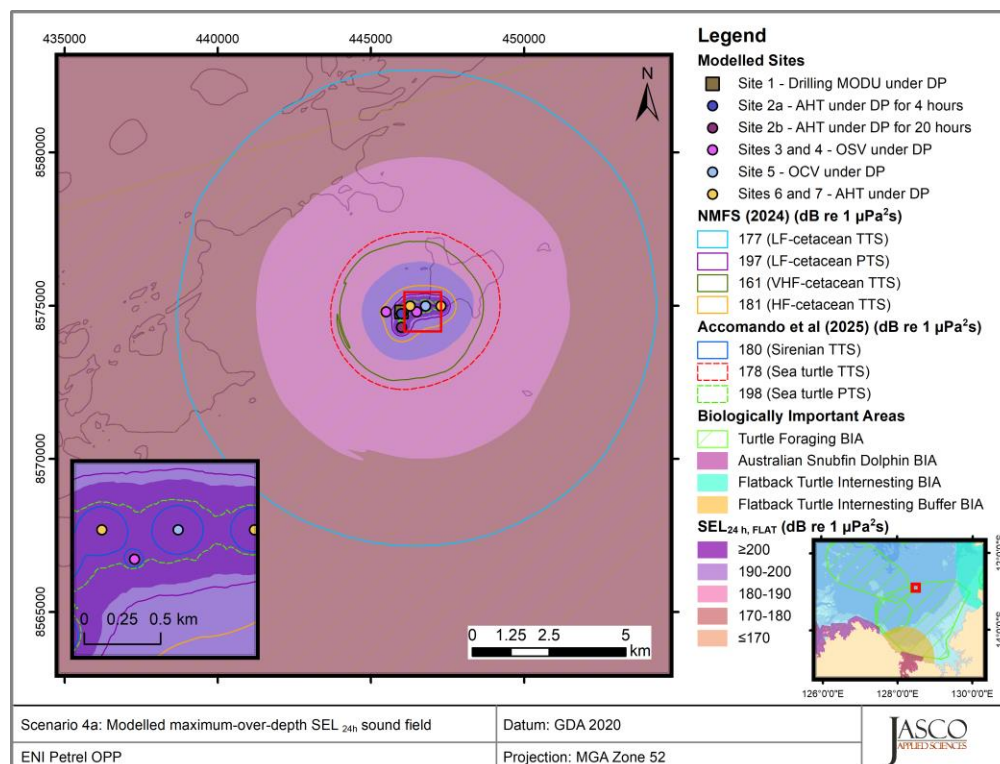


Figure 51. Scenario 4a, MODU on DP Drilling and Support + Construction and Support, accumulated SEL_{24h}: Sound level contour map showing maximum-over-depth SEL_{24h} results (unweighted/flat), along with frequency weighted isopleths for PTS and TTS in low, high, and very high-frequency cetaceans, sirenians and turtles. Thresholds omitted here were not reached or not long enough to display graphically.

5. Discussion

The modelling study predicted underwater sound levels associated with key activities for the planned ENI Petrel OPP. The underwater sound field was modelled for a variety of sound sources including pile driving, drilling, and vessel operations. An analysis of seasonal sound speed profiles indicated that June was the most conducive to sound propagation; as such it was selected to ensure a conservative estimation of distances to received sound level thresholds (Appendix D.3.2). Modelling also accounts for site-specific bathymetric variations (Appendix D.3.1) and local geoacoustic properties (Appendix D.3.3).

The modelled sites encompassed water depths from 55 to 100 m across one defined geological area with a single representative water column sound speed profile. The sound speed profile was primarily upwards refracting across the entire water column with a minimum sound speed of 1530 m/s at the surface. The bathymetry near the modelled areas varied slowly, generally increasing to the North. Most of the acoustic energy from the considered sound sources was output at lower frequencies, in the tens to hundreds of hertz.

The combination of low-frequency content from the acoustic sources with the water depths near the modelled sites resulted in the sound fields substantially interacting with the seabed. The vertical slice plots (Section 4.1.3.2) assist in demonstrating the influence of the bathymetry, sound speed profile, and seabed composition on the sound field, which provide context to the maximum-over-depth sound footprint maps, particularly for pile driving (Sections 4.1.3.1 and 4.1.3.3).

Within the results and summary tables where a dash is used in place of a horizontal distance, these thresholds may or may not be reached. Due to the discretely sampled 20 m radial increments of the modelled sound fields, distances to those levels could not be estimated within the computational resolution of the closest step to the source. It is likely that in the case of per-strike SPL, SEL, PK, and continuous SPL some thresholds would be reached at distances between the source and the modelled horizontal resolution (20 m); the injury thresholds based on accumulated SEL on the other hand may not be reached at any range due the species-specific frequency weighing functions. A dash therefore is an indication that effect levels for the associated metric may only be reached within a very close proximity to a given source, if at all.

5.1. Piling

This study predicted underwater sound levels associated with impact driving at two sites with three types of subsea piles across four scenarios for the development of the Petrel Wellhead Platform location. The two sites, Sites 1 and 2, are 1.3 km apart and were modelled with the same geoacoustic profile and the same sound speed profile, in an area with relatively flat bathymetry. The combination of these environmental factors leads to a similar sound propagation environment for Sites 1 and 2 where results will for either will be representative of each other. The pile driving scenarios are based on approximated and likely designs and installation approaches using client supplied driveability for the IHC S-1800 and MHU 2400S impact hammers.

For the first pile (Site 1, Scenario 1), the underwater sound field was modelled for 90 m long piles with a 2.13 m diameter with 50.8 mm wall thickness and was modelled driven 70 m into the seabed. The second pile (Site 1, Scenarios 2 and 3) was 90 m long with a diameter of 2.59 m and a wall thickness of 63.5 mm, and was modelled as driven a total of 80 m into the seabed. The third pile (Site 2, Scenario 4) was 90 m long with a diameter of 2.74 m with 65 mm wall thickness and was modelled driven 85 m in the seabed. The broadband sound energy at 10 m for each penetration depth ranged from 195.3 to 199.9 dB re 1 $\mu\text{Pa}^2\cdot\text{s}$ with the peak sound energy concentrated in the frequency range 100 to 600 Hz (Figures 8 – 11), with levels from the pile at the deepest penetration depth having the highest energy. The peak at 400 Hz is attributed to modelling without a helmet.

Noise emissions from pile driving were modelled here as a vertically distributed source that is axially-symmetrical, and the same water column conditions are also considered throughout the modelling area. As such, variations in noise propagation in different directions from the source are attributed to bathymetry. When the hammer strikes the pile, noise propagates into the water as a downward Mach cone (see Appendix B-1). A portion of the energy from the strike is also reflected at the pile bottom, generating an upward Mach cone. This cycle of downward propagation, reflection, and upward propagation occurs multiple times per strike. At close range to the pile, noise levels are determined by the summation of Mach cones, which might add constructively (i.e., their summation results in a total wave with higher amplitude than the original ones) or destructively (i.e., wavefronts can cancel each other, resulting in lower amplitudes). The way in which Mach cones combine with each other is strongly dependent on their frequency content, which is determined by the hammer forcing function and the pile dimensions.

Due to the relation between the speed of sound in steel (~5000 m/s) relative to the speed of sound in water (~1525 m/s at the depth of the pile), the Mach cone propagates away from the pile and impinges the seabed at an angle of ~17°. The first bottom bounce occurs within 17 m of the pile, and the first surface bounce occurs within 36 m from the pile. As shown in the figures in Section 4.1.3.2, the Mach cone corresponding to the shallowest pile penetration introduces substantial energy that propagates through the water column, compared to the deepest pile penetration for which underground sound propagation tends to dominate near the pile.

The modelling of the three penetration depths for each pile provides a detailed quantification of the associated sound levels for each penetration. The distances to per-strike isopleths are generally farthest when most of the pile is buried in the sediment. This is despite the per-strike pile penetration being less during the final stages of driving and the increased resistance generating stronger stress-wave reflections at the pile toe.

For criteria based on SEL_{24h} metrics, the ranges to threshold must be considered in context of the duration of operations. For Pile 1 we have modelled two piles driven per day with the IHC S-1800 hammer, for Pile 2 we have modelled one pile driven per day either with the IHC S-1800 or the MHU 2400S hammer, and for Pile 3 the MHU2400S hammer. The corresponding sound levels are denoted as SEL_{24h} to indicate a 24-hour accumulation period. The estimated time for driving a single pile was between 2.52–4.00 h for the piles (Table 19). The SEL_{24h} is a cumulative metric that reflects the dosimetric impact of noise levels within the driving period and assumes that an animal is consistently exposed to such noise levels at a fixed position. The radii that correspond to SEL_{24h} typically represent an unlikely worst-case scenario for SEL-based exposure since more realistically marine fauna (mammals, sea turtles or fish) would not stay in the same location or at the same range for an extended period. Therefore, a reported radius associated with the accumulated SEL criteria does not mean that any animal travelling within this radius of the source will be injured, but rather that it could be injured if it remained in that range for the entire period of driving.

Distances to relevant acoustic thresholds for pile driving are shown in Table 28.

Table 28. *Piling Operations*: Summary of the maximum (R_{max}) horizontal distances (in km) to relevant thresholds for marine fauna across all piling scenarios.

Hearing group	Threshold Type	Metric	Threshold	Site 1			Site 2
				Scenario 1: Pile 1, IHC S-1800, 2 piles per day	Scenario 2: Pile 2, IHC S-1800, 1 pile per day	Scenario 3: Pile 2, MHU 2400S, 1 pile per day	Scenario 4: Pile 3, MHU 2400S, 1 pile per day
				R_{max} (km)	R_{max} (km)	R_{max} (km)	R_{max} (km)
Low frequency cetaceans	PTS ^a	$L_{E,24h}$	183	3.72	3.62	3.41	3.79
	TTS ^a	$L_{E,24h}$	168	23.1	16.5	18.5	21.5
High frequency cetaceans	PTS ^a	$L_{E,24h}$	185	0.27	0.27	0.23	0.23
	TTS ^a	$L_{E,24h}$	170	0.99	0.96	0.89	0.90
Very high-frequency cetaceans	PTS ^a	$L_{E,24h}$	155	2.43	2.12	1.40	1.45
	TTS ^a	$L_{E,24h}$	140	14.7	12.4	8.76	9.06
Sirenians	PTS ^a	$L_{E,24h}$	226	0.25	0.25	0.20	0.20
	TTS ^a	$L_{E,24h}$	220	0.89	0.88	0.72	0.81
All Marine Mammal Groups	Behavioural Response ^b	L_p	160	3.03	3.05	3.20	3.62
Fish without swim bladder	Mortality and Potential mortal injury ^c	$L_{E,24h}$	219	0.15	0.14	0.13	0.16
	Recoverable injury ^c	$L_{E,24h}$	216	0.19	0.18	0.18	0.19
	TTS ^c	$L_{E,24h}$	186	5.54	4.74	4.42	4.86
	Recoverable injury ^c	L_{pk}	213	0.06	0.06	0.10	0.10
Fish with swim bladder not involved in hearing	Mortality and Potential mortal injury ^c	$L_{E,24h}$	210	0.54	0.53	0.53	0.57
	Recoverable injury ^c	$L_{E,24h}$	203	1.13	1.10	0.93	1.09
	TTS ^c	$L_{E,24h}$	186	5.54	4.74	4.42	4.86
	Recoverable injury ^c	L_{pk}	207	0.15	0.16	0.18	0.18
Fish with swim bladder involved in hearing	Mortality and Potential mortal injury ^c	$L_{E,24h}$	207	0.72	0.71	0.63	0.76
	Recoverable injury ^c	$L_{E,24h}$	203	1.13	1.10	0.93	1.09
	TTS ^c	$L_{E,24h}$	186	5.54	4.74	4.42	4.86
	Recoverable injury ^c	L_{pk}	207	0.15	0.16	0.18	0.18
Sea turtles	PTS ^d	$L_{E,24h}$	184	2.88	2.62	2.65	2.93
	TTS ^d	$L_{E,24h}$	169	13.6	10.4	13.3	15.6
	Behavioural response ^e	L_p	166	1.80	1.83	1.91	2.18
	Behavioural disturbance ^e	L_p	175	0.81	0.88	0.92	1.01

L_{pk} = unweighted peak sound pressure level (dB re 1 μ Pa)

L_p = unweighted root-mean-square sound pressure level (dB re 1 μ Pa)

L_E = sound exposure level for single strike (dB re 1 μ Pa² s)

$L_{E,24h}$ = sound exposure level over 24 hours (dB re 1 μ Pa² 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)

5.2. Vessels and Drilling

This study predicted underwater sound levels associated with several vessel scenarios which included a MODU drilling, both anchored and under DP, anchor handling tugs, an offshore construction vessel (OCV), and pipelay along with associated OSVs. The two sites associated with pipelay, Sites 8 and 9, are based on an early concept pipelay trackline that has since been updated to the full pipelay trackline as shown in Figure 2. These sites are offset approximately 0.62 km from the full pipelay trackline and were modelled with the same geoacoustic profile and the same sound speed profile in an area with relatively flat bathymetry. The combination of these environmental factors leads to a similar sound propagation environment for the full pipelay trackline where results will be representative of each other.

Vessel noise was modelled as a point source that is omni-directional, therefore variation in propagation in different directions is primarily influenced by bathymetric features given that the sound speed profile and geoacoustic profile are consistent across the modelled area. As the bathymetry of the area is relatively flat, the sound footprints associated with the modelled sources are generally symmetrical and circular.

Scenarios including the OCV produced the largest distances to isopleths due to its significantly higher source level compared to the other modelled vessels. For scenarios including drilling activities, the distances to specific isopleths were greater when the MODU was modelled under DP as opposed to being anchored. Maximum distances to isopleths are shown in Table 29.

Considering the area ensonified when drilling and construction activities occur concurrently, i.e., Scenario 4 (Scenarios 1 and 2) and 4a (Scenarios 1a and 2), the area ensonified above each criteria threshold was generally greater than when the scenarios were conducted separately (refer Table 27). The exception was in the case of the sea turtle TTS zone, which was 13% smaller due to areas from the individual scenarios overlapping when the activities occurred concurrently, reducing the overall area ensonified above the TTS threshold. The sound field maps provided in Section 4.2.2 illustrate the ensonified areas.

Table 29. *Vessel operations: Maximum (R_{max}) and 95% ($R_{95\%}$) horizontal distances (in km) to the marine mammal behavioural response criterion of 120 dB re 1 μ Pa (SPL) (NOAA 2024) and maximum (R_{max}) horizontal distances (in km) and ensonified area (km²) for the frequency-weighted LF-cetacean SEL_{24h} TTS thresholds (NMFS 2024) from the most appropriate location for considered sources per scenario.*

Scenario Number	Description	SPL		SEL _{24h}	
		R_{max} (km)	$R_{95\%}$ (km)	R_{max} (km)	Area (km ²)
1	Anchored MODU Drilling and Support	8.11	7.65	3.03	24.0
1a	MODU on DP Drilling and Support	14.8	14.0	4.06	48.4
2	Construction and Support	17.4	16.7	5.92	90.1
3	Pipelay and Support	11.8	10.7	3.92	53.2
4	Anchored MODU Drilling and Support + Construction and Support	18.1	17.3	7.70	170
4a	MODU on DP Drilling and Support + Construction and Support	24.6	23.4	8.16	192

MODU: Mobile Offshore Drilling Unit

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](#) ($1/3 \text{ oct} \approx 1.003 \text{ ddec}$).

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.

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.

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. (2007b).

auditory frequency-weighting function

[Frequency-weighting function](#) describing a compensatory approach accounting for a species' (or [functional hearing group's](#)) [frequency](#)-specific hearing sensitivity.

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.

background noise

Combination of [ambient sound](#), [acoustic self-noise](#), and, where applicable, sonar reverberation (ISO 18405:2017) that is detected, measured, or recorded with a signal.

bandwidth

A range within a continuous band of frequencies. Unit: [hertz \(Hz\)](#).

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.

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.

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.

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 ($1 \text{ ddec} \approx 0.3322 \text{ oct}$), 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.

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: $1 \mu\text{Pa}^2 \text{m}^2 \text{s}$.

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. (2007b), 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.

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. (2007b) 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).

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 $1 \mu\text{Pa}^2$ can be written in the form $x \text{ dB re } 1 \mu\text{Pa}^2$.

low-frequency (LF) cetaceans

See [functional hearing group](#).

median

The 50th percentile of a statistical distribution.

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](#).

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. (2007b).

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*).

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.

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.

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: $1 \mu\text{Pa}^2$.

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.

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.

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**: $1 \mu\text{Pa}^2 \text{m}^2/\text{Hz}$.

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	$p_0^2 = 1 \mu\text{Pa}^2$ or $p_0 = 1 \mu\text{Pa}$
Sound exposure	$E_0 = 1 \mu\text{Pa}^2\text{s}$
Sound particle displacement	$\delta_0^2 = 1 \text{pm}^2$
Sound particle velocity	$u_0^2 = 1 \text{nm}^2/\text{s}^2$
Sound particle acceleration	$a_0^2 = 1 \mu\text{m}^2/\text{s}^4$

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^2s). 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: $1 \mu\text{Pa}^2\text{s}$.

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 ($\text{Pa}^2\text{s/Hz}$).

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/m²). Symbol: *I*.

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_{rms}^2) in a stated **frequency** band and time window: $L_p = 10\log_{10}(p_{rms}^2/p_0^2) = 20\log_{10}(p_{rms}/p_0)$, where rms is the abbreviation for root-mean-square. Unit: **decibel (dB)**. **Reference value** (p_0^2) for **sound** in water: 1 μPa². SPL can also be expressed in terms of the root-mean-square (rms) with a **reference value** of $p_0 = 1 \mu\text{Pa}$. 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.

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 μPa² m².

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.

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 $p_0 = 1 \mu\text{Pa}$. 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 $1 \mu\text{Pa}$), is the decibel level of the maximum instantaneous acoustic pressure in a stated frequency band attained by an acoustic pressure signal, $p(t)$:

$$L_{p,pk} = 10 \log_{10} \frac{\max|p^2(t)|}{p_0^2} = 20 \log_{10} \frac{\max|p(t)|}{p_0} \quad (\text{A-1})$$

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 $L_{p,pk-pk}$; dB re $1 \mu\text{Pa}$) is the difference between the maximum and minimum instantaneous sound pressure, possibly filtered in a stated frequency band, attained by an impulsive sound, $p(t)$:

$$L_{p,pk-pk} = 10 \log_{10} \frac{[\max(p(t)) - \min(p(t))]^2}{p_0^2} \quad (\text{A-2})$$

The sound pressure level (SPL or L_p ; dB re $1 \mu\text{Pa}$) 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:

$$L_p = 10 \log_{10} \left(\frac{1}{T} \int_T g(t) p^2(t) dt / p_0^2 \right) \text{ dB} \quad (\text{A-3})$$

where $g(t)$ 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 $g(t)$ 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 $g(t)$ 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 $g(t)$ 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 $\mu\text{Pa}^2\cdot\text{s}$) is the time-integral of the squared acoustic pressure over a duration (T):

$$L_E = 10 \log_{10} \left(\int_T p^2(t) dt / T_0 p_0^2 \right) \text{ dB} \quad (\text{A-4})$$

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:

$$L_{E,N} = 10 \log_{10} \left(\sum_{i=1}^N 10^{\frac{L_{E,i}}{10}} \right) \text{ dB} . \quad (\text{A-5})$$

If applied, the frequency weighting of an acoustic event should be specified, as in the case of weighted SEL (e.g., $L_{E,LFC,24h}$; Appendix A.4). 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 i th band, $f_c(i)$, is defined as:

$$f_c(i) = 10^{\frac{i}{10}} \text{ kHz} \quad (\text{A-6})$$

and the low (f_{lo}) and high (f_{hi}) frequency limits of the i th decade band are defined as:

$$f_{lo,i} = 10^{\frac{-1}{20}} f_c(i) \quad \text{and} \quad f_{hi,i} = 10^{\frac{1}{20}} f_c(i) \quad (\text{A-7})$$

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 ($f_c(10) = 10 \text{ Hz}$) to band 44 ($f_c(44) = 25 \text{ kHz}$).

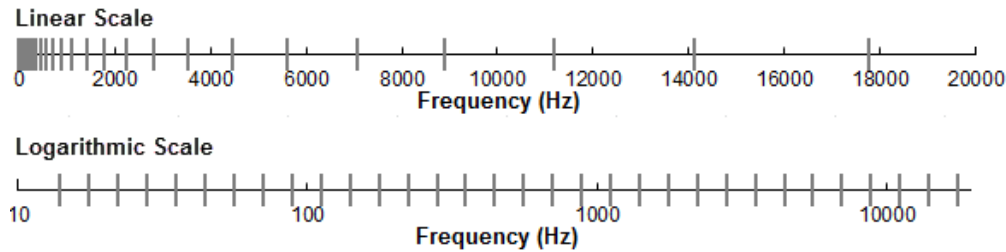


Figure A-1. Decade frequency bands (vertical lines) shown on a linear frequency scale and a logarithmic scale.

The sound pressure level in the i th band ($L_{p,i}$) is computed from the spectrum $S(f)$ between $f_{lo,i}$ and $f_{hi,i}$:

$$L_{p,i} = 10 \log_{10} \int_{f_{lo,i}}^{f_{hi,i}} S(f) df \text{ dB} \quad (\text{A-8})$$

Summing the sound pressure level of all the bands yields the broadband sound pressure level:

$$\text{Broadband SPL} = 10 \log_{10} \sum_i 10^{\frac{L_{p,i}}{10}} \text{ dB} \quad (\text{A-9})$$

Figure A-2 shows an example of how the decade band sound pressure levels compare to the sound pressure spectral density levels of an ambient sound signal. Because the decade bands are wider than 1 Hz, the decade band SPL is higher than the spectral levels at higher frequencies. Acoustic modelling of decade bands requires less computation time than 1 Hz bands and still resolves the frequency-dependence of the sound source and the propagation environment.

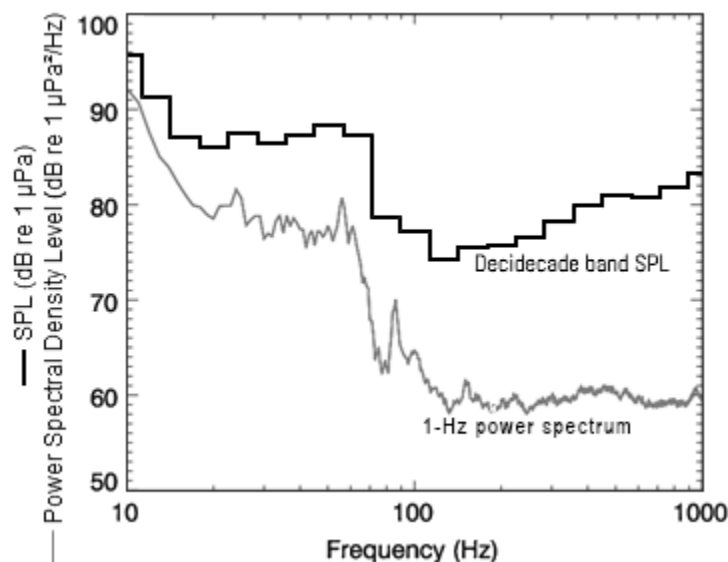


Figure A-2. Sound pressure spectral density levels and the corresponding decade band sound pressure levels of example ambient noise shown on a logarithmic frequency scale. Because the decade bands are wider with increasing frequency, the decade band SPL is higher than the power spectrum.

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. Acoustic Injury and Hearing Sensitivity Changes

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. 2007b) 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. (2007b) 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 (2007b) 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 $\mu\text{Pa}^2\cdot\text{s}$. 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. (2007b) assumed. Wood et al. (2012) thus recommended a more conservative TTS-onset level for LF cetaceans of 192 dB re 1 $\mu\text{Pa}^2\cdot\text{s}$.

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. 2007b, Ellison and Frankel 2012, Southall et al. 2016).

For impulsive noise, NMFS currently uses a step function threshold of 160 dB re 1 μ Pa SPL (unweighted) to assess and regulate noise-induced behavioural impacts for marine mammals (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 μ Pa. Southall et al. (2007b) found varying responses for most marine mammals between a SPL of 140 and 180 dB re 1 μ Pa, consistent with the HESS (1999) report, but lack of convergence in the data prevented them from suggesting explicit step functions.

NMFS currently uses a step function (all-or-none) threshold of 120 dB re 1 μ Pa SPL (unweighted) for non-impulsive sounds to assess and regulate noise-induced behavioural impacts on marine mammals (NOAA 2024). The 120 dB re 1 μ Pa threshold is associated with continuous sources and was derived based on studies examining behavioural responses to drilling and dredging (NOAA 2018), referring to Malme et al. (1983), Malme et al. (1984), and Malme et al. (1986), which were considered in Southall et al. (2007b). Malme et al. (1986) found that playback of drillship noise did not produce clear evidence of disturbance or avoidance for levels below 110 dB re 1 μ Pa (SPL), possible avoidance occurred for exposure levels approaching 119 dB re 1 μ Pa. Malme et al. (1984) determined that measurable reactions usually consisted of rather subtle short-term changes in speed and/or heading of the whale(s) under observation. It has been shown that both received level and proximity of the sound source is a contributing factor in eliciting behavioural reactions in humpback whales (Dunlop et al. 2017, Dunlop et al. 2018).

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. The latest guidance for sirenian criteria was presented in Accomando et al. (2025). 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) and Accomando et al. (2025) for sirenians. 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 (kHz)	fhi (kHz)	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, <i>Kogia</i> , river dolphins, <i>Cephalorhynchus</i> spp., <i>Lagenorhynchus cruciger</i> and <i>L. australis</i>)	2.23	5	5.93	186	0.91
Sirenians	1.66	5	5.91	37.6	3.61

* The 'C' parameter in NMFS (2024) is equivalent to the 'K' parameter in Finneran (2015).

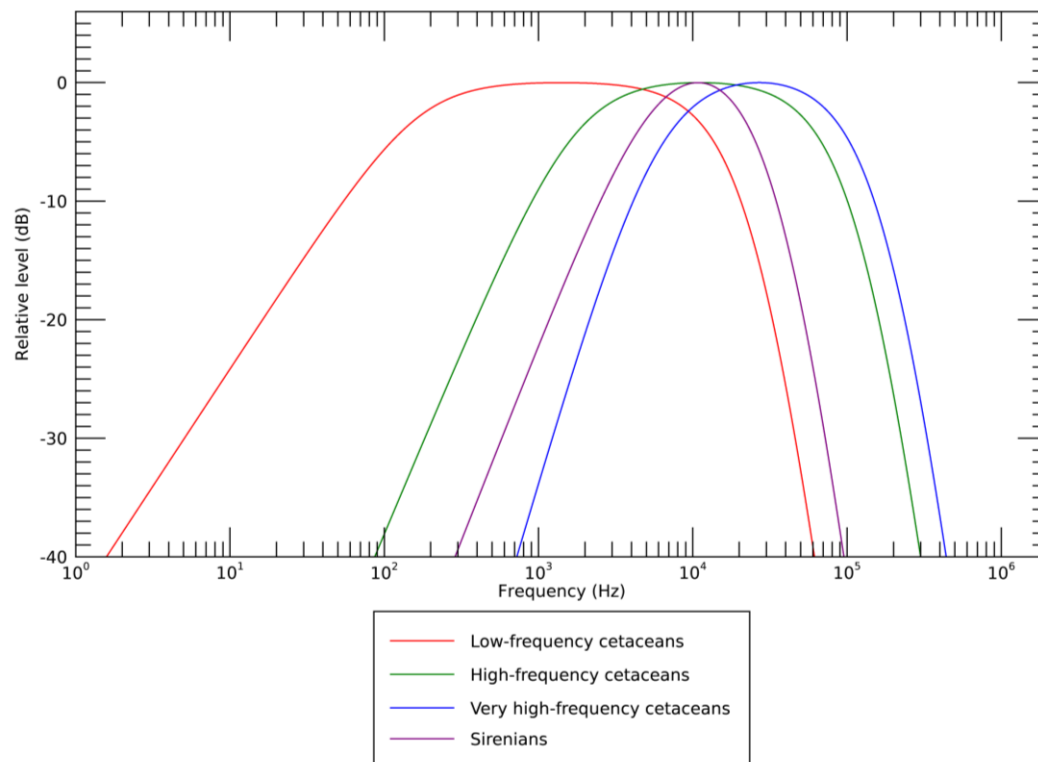


Figure A-3. Auditory weighting functions for functional marine mammal hearing groups used in this project as recommended by NMFS (2024) and Accomando et al. (2025) for sirenians.

Appendix B. Pile Driving Models

B.1. Acoustic Source Model – Pile Driving

B.1.1. Source Properties

For most projects involving pile driving, there is potential for direct transmission from the sound source to biological receivers, and there are reflected sound paths from the water's surface and bottom that may be perceived by marine fauna. Normally, ground-radiated sound is dominated by low frequencies that cannot propagate efficiently through shallow water. When pile driving is the sound source, there is the potential for substrate-borne sound caused by the hammer's action on the pile to be re-radiated back into the water where it may reach a biological receiver. For pile driving, energy transmission through water depends on the following factors (Christopherson and Lundberg 2013):

1. Direct contact between the pile and the water
2. The depth of the water column
3. The size of the pile
4. The type of hammer
5. The hammer energy
6. The addition of re-radiation of substrate-borne sound

The way sound propagates in water is affected by obstructions (barges, breakwater walls, other piles, etc.) and the bathymetric characteristics (Buehler et al. 2015). Figure B-1 illustrates these basic propagation concepts.

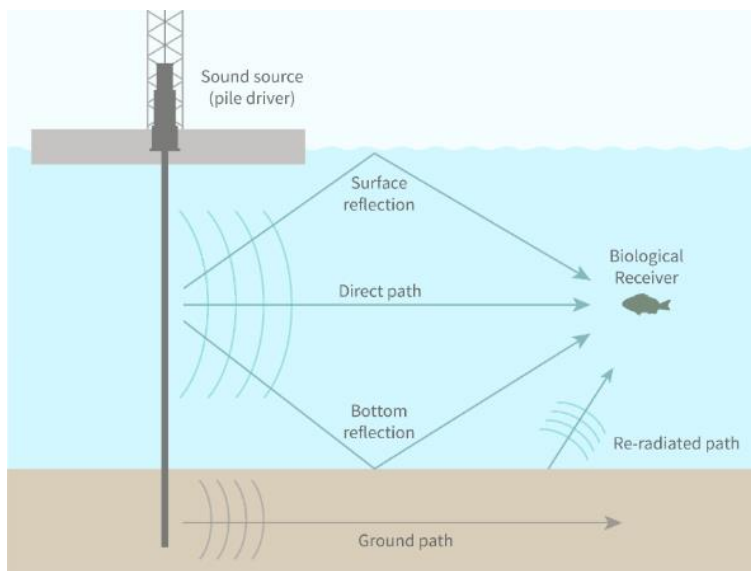


Figure B-1 Underwater sound propagation paths associated with pile driving (Buehler et al. 2015).

B.1.2. Source Model

A physical model of pile vibration and near-field sound radiation is used to calculate source levels of piles. The physical model employed in this study computes the underwater vibration and sound radiation of a pile by solving the theoretical equations of motion for axial and radial vibrations of a

cylindrical shell. These equations of motion are solved subject to boundary conditions, which describe the forcing function of the hammer at the top of the pile and the soil resistance at the base of the pile, as shown in Figure B-2. Damping of the pile vibration due to radiation loading is computed for Mach waves emanating from the pile wall. The equations of motion are discretised using the finite difference (FD) method and are solved on a discrete time and depth mesh.

To model the sound emissions from the piles, the force of the pile driving hammers also had to be modelled. The force at the top of each pile was computed using the GRLWEAP 2010 wave equation model (GRLWEAP, Pile Dynamics 2010), which includes a large database of simulated hammers—both impact and vibratory—based on the manufacturer’s specifications. The forcing functions from GRLWEAP were used as inputs to the FD model to compute the resulting pile vibrations.

The sound radiating from the pile itself is simulated using a vertical array of discrete point sources. The point sources are centred on the pile axis. Their amplitudes are derived using an inverse technique, such that their collective particle velocity, calculated using a near-field wave-number integration model, matches the particle velocity in the water at the pile wall. The sound field propagating away from the vertical source array is then calculated using a time-domain acoustic propagation model (FWRAM, Appendix B.2). MacGillivray (2014) describes the theory behind the physical model in more detail.

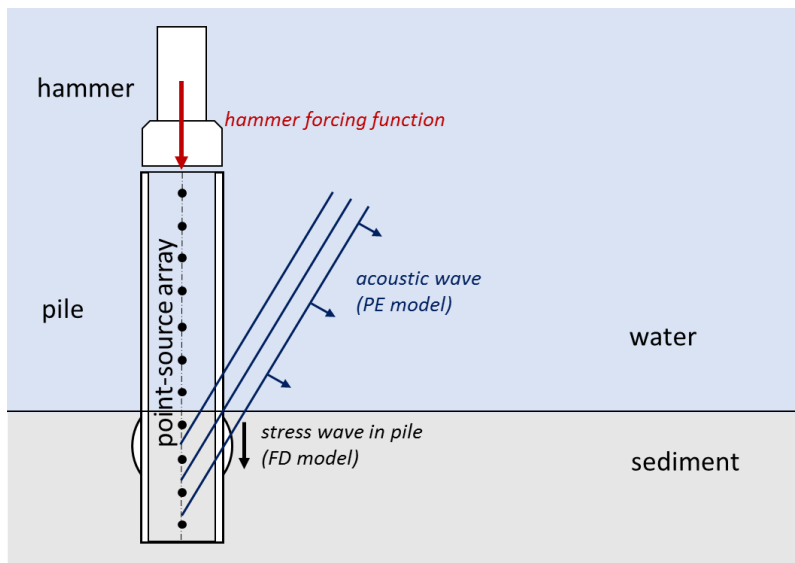


Figure B-2. Physical model geometry for impact driving of a cylindrical pile (vertical cross-section). The hammer forcing function is used with the finite difference (FD) model to compute the stress wave vibration in the pile. A vertical array of point sources is used with the parabolic equation (PE) model to compute the acoustic waves that the pile wall radiates.

B.2. Full Waveform Range-dependent Acoustic Model: FWRAM

For impulsive sounds from impact pile driving, time-domain representations of the pressure waves generated in the water are required for calculating SPL and peak pressure level. Furthermore, the pile 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 the Full Waveform Range-dependent Model (FWRAM), which is a time-domain acoustic model based on the wide-angle parabolic equation (PE) algorithm (Collins 1993). FWRAM computes synthetic pressure waveforms versus range and depth for range-varying marine acoustic environments, and it takes bathymetry, water sound speed profile, and seabed geoacoustic profile, as environmental inputs. 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). Synthetic pressure waveforms were modelled over the frequency range 10 – 1024 Hz, inside a 1 s window. These waveforms are post-processed, after applying a travel time correction, to calculate standard SPL and SEL metrics versus range and depth from the source.

Appendix C. Drilling and Vessel Models

C.1. MONM-BELLHOP

Long-range sound fields were computed using JASCO's Marine Operations Noise Model (MONM). While other models may be more accurate for steep-angle propagation in high-shear environment, MONM is well suited for effective longer-range estimation. This model computes sound propagation at frequencies of 10 Hz to 1 kHz via a wide-angle parabolic equation solution to the acoustic wave equation (Collins 1993) based on a version of the U.S. 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.

MONM computes acoustic fields in three dimensions by modelling propagation loss within two-dimensional (2-D) vertical planes aligned along radials covering a 360° swath from the source, an approach commonly referred to as $N \times 2$ -D. These vertical radial planes are separated by an angular step size of $\Delta\theta$, yielding $N = 360^\circ/\Delta\theta$ number of planes (Figure C-1).

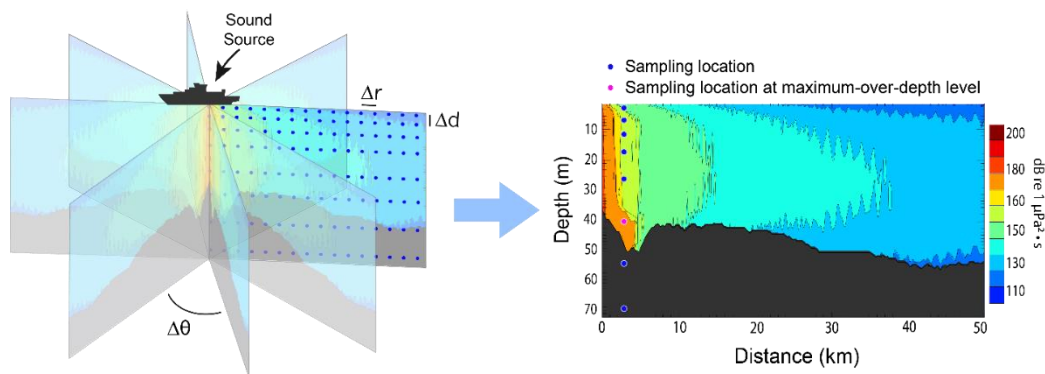


Figure C-1. The $N \times 2$ -D and maximum-over-depth modelling approach used by MONM.

MONM treats frequency dependence by computing acoustic propagation loss at the centre frequencies of decade bands. Sufficiently many decade frequency-bands, starting at 10 Hz, are modelled to include most of the acoustic energy emitted by the source. At each centre frequency, the propagation loss is modelled within each of the N vertical planes as a function of depth and range from the source. The decade received per-second SEL are computed by subtracting the band propagation loss values from the directional source level in that frequency band. Composite broadband received per-second SEL are then computed by summing the received decade levels.

The received 1-s 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. For areas with deep water,

sampling is not performed at depths beyond those reachable by marine mammals. The received per-second SEL at a surface sampling location is taken as the maximum value that occurs over all samples within the water column, i.e., the maximum-over-depth received per-second SEL. These maximum-over-depth per-second SEL are presented as colour contours around the source.

C.2. Estimating Sound Fields from Moving Vessels

During vessel transit, new sound energy is constantly being introduced to the environment. The noise footprint for the transiting vessels considered in this report were estimated by modelling the 1-s maximum over depth SEL footprints for the vessel at one location, and by translating and summing these footprints along the vessel transit routes. The vessel locations along the tracks were spaced uniformly, with an approximate step of $\Delta s \approx 10$ m.

The SEL sound field at any given point along the track is dependent upon the time duration within each 10 m segment of the track. When the track segment spacing is fixed, the duration of exposure depends upon the speed of the vessel during each segment of the transit. The 1-s SEL footprint at each vessel location (i) was therefore scaled based on the speed of the vessel following:

$$SEL_i = SEL_{1s} + 10 \log_{10} \left(\frac{\Delta s}{v} \right) . \quad (C-1)$$

where v represents the vessel speed in m/s.

The present method acceptably reflects large-scale sound propagation features, primarily dependent on water depth, which dominate the cumulative field and is thus considered to provide a meaningful estimate of the SEL_{24h} field.

Appendix D. Methods and Parameters

D.1. Propagation Loss

The propagation of sound through the environment was modelled by predicting the acoustic propagation loss—a measure, in decibels, of the decrease in sound level between a source and a receiver some distance away. Geometric spreading of acoustic waves is the predominant way by which propagation loss occurs. Propagation loss also happens when the sound is absorbed and scattered by the seawater, and absorbed scattered, and reflected at the water surface and within the seabed. Propagation loss depends on the acoustic properties of the ocean and seabed; its value changes with frequency.

If the acoustic energy source level (ESL), expressed in dB re 1 $\mu\text{Pa}^2\cdot\text{s m}^2$, and propagation loss (PL), in units of dB, at a given frequency are known, then the received level (RL) at a receiver location can be calculated in dB re 1 $\mu\text{Pa}^2\cdot\text{s}$ by:

$$\text{RL} = \text{SL} - \text{PL}. \quad (\text{D-1})$$

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-1).

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-1 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-1(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.

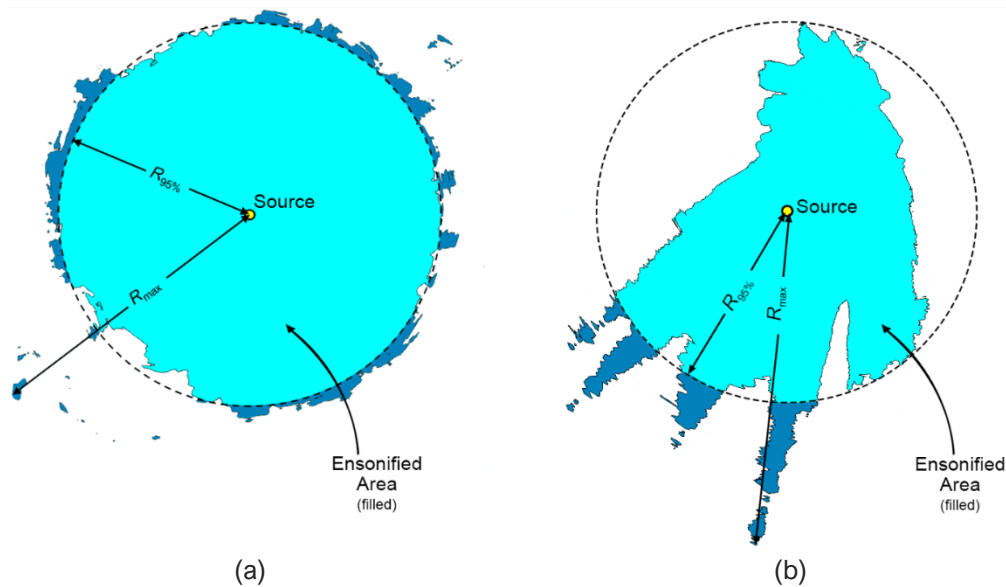


Figure D-1. Sample areas ensonified to an arbitrary sound level with $R_{\max}$ and $R_{95\%}$ ranges shown for two different scenarios. (a) Largely symmetric sound level contour with small protrusions. (b) Strongly asymmetric sound level contour with long protrusions. Light blue indicates the ensonified areas bounded by $R_{95\%}$; darker blue indicates the areas outside this boundary which determine $R_{\max}$.

D.3. Environmental Parameters

D.3.1. Bathymetry

Bathymetry throughout the modelled area was extracted from the high-resolution depth model for Northern Australia (Beaman 2018). The ~30 m grid bathymetry data were extracted and re-gridded onto a Map Grid of Australia (MGA) coordinate projection (Zone 52) with a regular grid spacing of 250×250 m to generate the bathymetry in Figure D-2.

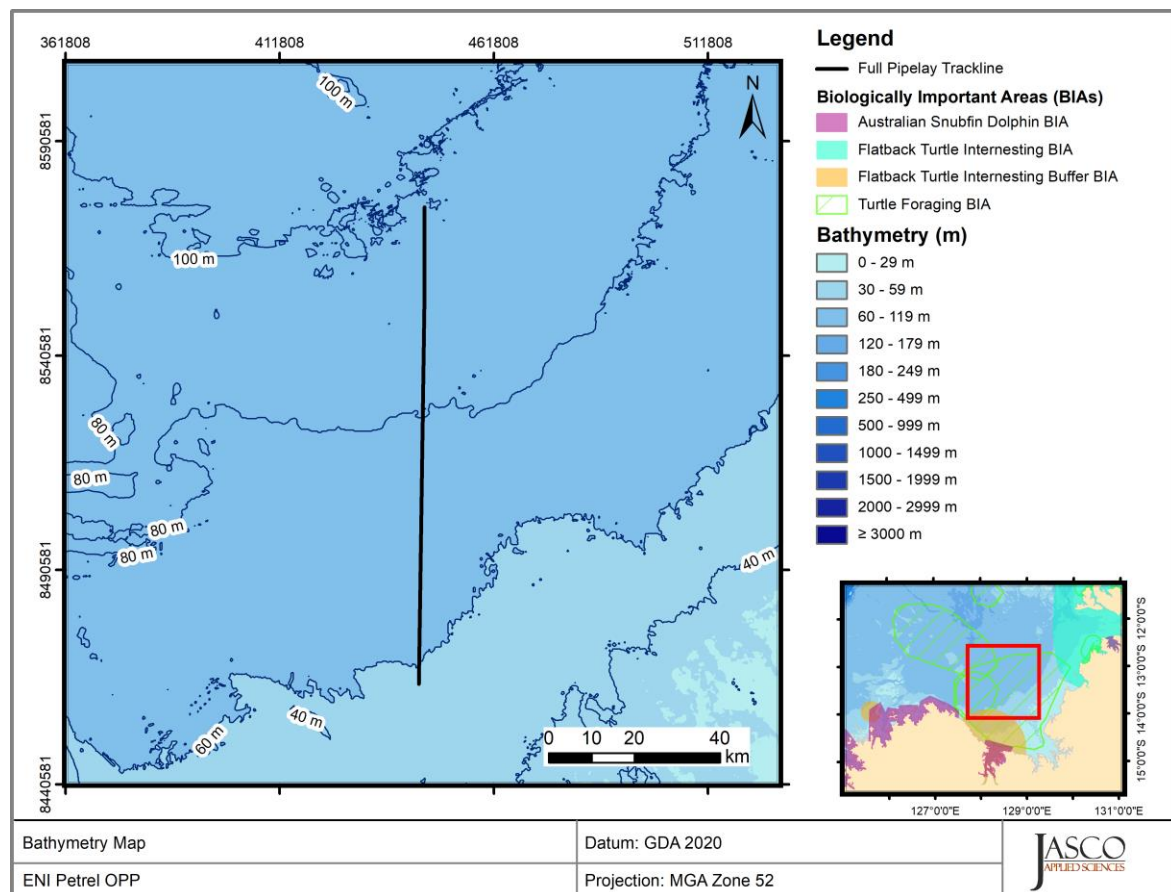


Figure D-2. Bathymetry in the modelled area.

D.3.2. Sound Speed Profile

The sound speed profile in the 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. The June sound speed profile was found to be most favourable to longer-range sound propagation. As such, June was selected for sound propagation modelling to ensure precautionary estimates of distances to received sound level thresholds. Figure D-3 shows the resulting profile, which was used as input to the sound propagation modelling.

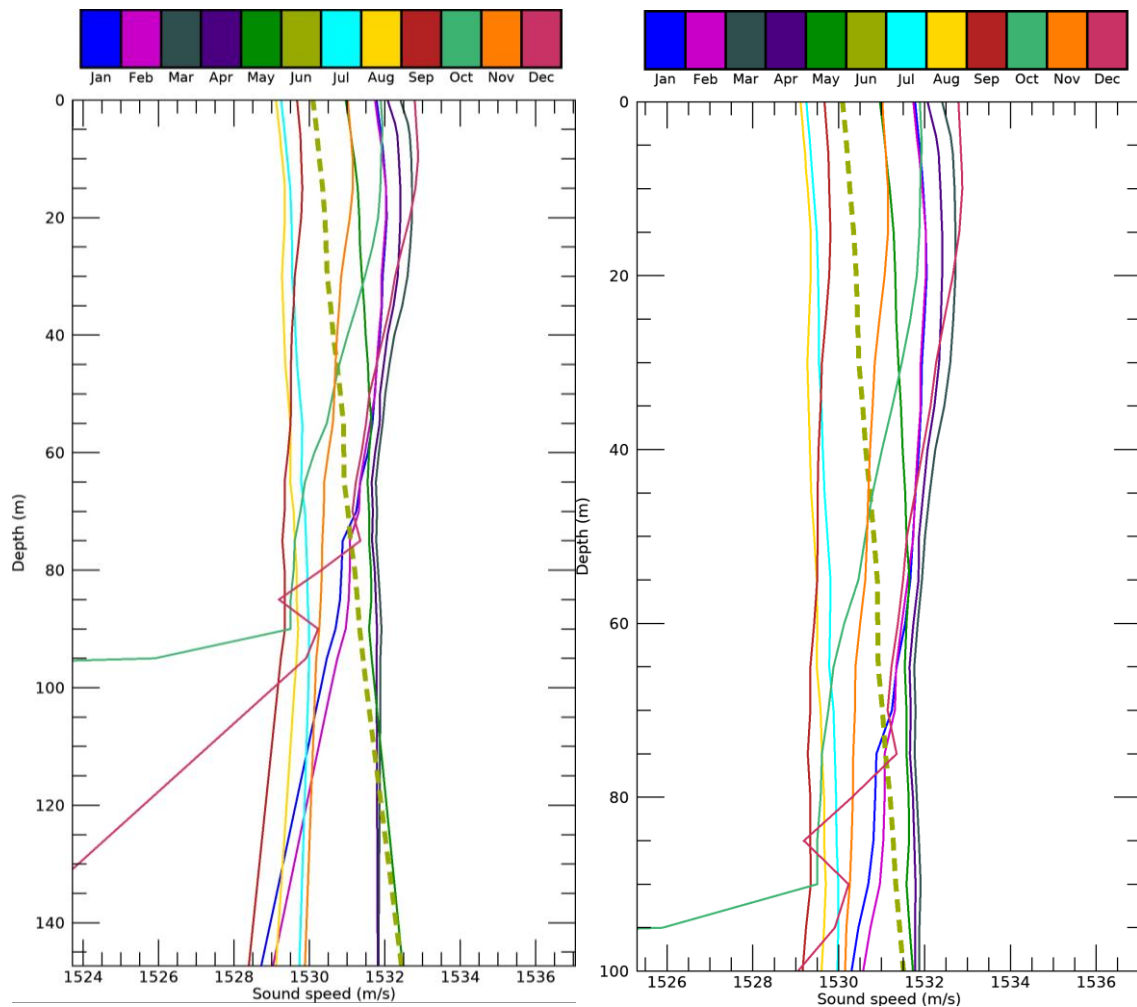


Figure D-3. Sound speed profiles for all months, with the applied month (June) displayed as a dotted line : full profile (left) and top 100 m (right) Profiles are calculated from temperature and salinity profiles from Generalized Digital Environmental Model V 3.0 (GDEM; Teague et al. 1990, Carnes 2009).

D.3.3. Geoacoustics

The seabed in the modelled area has been defined based on a pile drivability assessment provided by ENI. The profile consists of layers of clay and sand. Table D-1 presents the geoacoustic profile used for the acoustic modelling. The geoacoustic parameters used for modelling are based on Duncan et al. (2009).

Table D-1. Geoacoustic profile for all modelled sites. Each parameter varies linearly within the stated range.

Depth below seafloor (m)	Predicted lithology	Density (g/cm ³)	Compressional wave		Shear wave	
			Speed (m/s)	Attenuation (dB/λ)	Speed (m/s)	Attenuation (dB/λ)
0	Clay	1.32	1472.0	0.02	62.3	3.65
2		1.32	1495.6	0.14		
8		1.32	1512.7	0.22		
12		1.32	1519.4	0.25		
18		1.32	1527.2	0.28		
24		1.32	1533.4	0.31		
28		1.32	1537.1	0.33		
28 – 34	Medium sand	2.07	2077.8 – 2112.9	1.37 – 1.44		
34 – 46	Clay	1.32	1541.9 – 1550.1	0.35 – 0.38		
46 – 48	Fine sand	2.06	2061.4 – 2068.7	1.36 – 1.37		
48 – 56	Clay	1.32	1551.4 – 1556.0	0.39 – 0.41		
56 – 60	Fine sand	2.06	2096.3 – 2109.3	1.43 – 1.46		
60 – 99		2.06	2109.3 – 2215.1	1.46 – 1.66		

D.4. Model Validation Information

Predictions from JASCO's 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).

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APPENDIX G SPILL MODELLING

ENI PETREL SURVEY ENVIRONMENTAL PLAN OIL SPILL MODELLING

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Prepared by:

RPS

Dr Sasha Zigic
General Manager

PO Box 1048,
Robina, QLD, 4230
Lakehouse Corporate Space, Suite 425
Level 2, 34-38 Glenferrie Drive
Robina, QLD, 4226

T +61 7 5553 6900
E sasha.zigic@rpsconsulting.com

Prepared for:

Xodus Group

Elaine Silveira Passos
Environmental Consultant

Level 1
1 William Street
Perth, WA, 6000

T
E elaine.passos@xodusgroup.com

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TERMS AND ABBREVIATIONS

Term	Meaning
Actionable oil	Oil which is thick enough for the effective use of mitigation strategies
AMSA	Australian Maritime Safety Authority
API	American Petroleum Institute gravity. A measure of how heavy or light a petroleum liquid is compared to water.
Bonn Agreement	An agreement for cooperation in dealing with pollution of the North Sea by oil and other harmful substances, 1983, includes: Governments of the Kingdom of Belgium, the Kingdom of Denmark, the French Republic, the Federal Republic of Germany, the Republic of Ireland, the Kingdom of the Netherlands, the Kingdom of Norway, the Kingdom of Sweden, the United Kingdom of Great Britain and Northern Ireland and the European Union.
BP	Boiling point. The temperature at which the vapor pressure of the liquid is equal to the pressure exerted on it by the surrounding atmosphere
BTEX	Benzene, Toluene, Ethylbenzene, and Xylenes
Decay	Oil components are chemically or biologically broken down into simpler compounds through processes like biodegradation by bacteria, exposure to sunlight (photo-oxidation), and other chemical reactions.
Dissolution	Soluble hydrocarbons from the oil mix into the surrounding water, with lighter, lower molecular weight hydrocarbons dissolving more readily than heavier ones.
Dynamic viscosity	The dynamic viscosity of a fluid expresses its resistance to shearing flows, where adjacent layers move parallel to each other with different speeds.
EMBA	The environment that may be affected (EMBA), which is defined by the low exposure threshold values
Entrainment	Oil is physically mixed from the sea surface into the water column by wind and wave action or from underwater releases. The oil breaks into droplets with the smaller droplets staying suspended and spread in the water, while larger droplets rise back to the surface.
Evaporation	The process whereby components of the oil mixture are transferred from the sea-surface to the atmosphere as vapours.
Floating oil exposure	Contact by floating oil on the sea surface at concentrations equal to or exceeding defined threshold concentrations. The consequence will vary depending on the threshold and the receptors
HYCOM	Hybrid Coordinate Ocean Model. A data-assimilative, three-dimensional ocean model
HYDROMAP	Advanced ocean/coastal tidal model used to predict tidal water levels, current speed and current direction.
MAHs	Monoaromatic Hydrocarbons
NOPSEMA	National Offshore Petroleum Safety and Environmental Management Authority
PAH	Polycyclic aromatic hydrocarbons
Pour Point	The pour point of a liquid is the temperature below which the liquid loses its flow characteristics
Shoreline accumulation	Arrival of oil at or near shorelines at on-water concentrations equal to or exceeding defined threshold concentrations. Shoreline accumulation is judged for floating oil arriving within a 2 km buffer zone from any shoreline as a conservative measure
SIMAP	Spill Impact Model Application Package. SIMAP is designed to simulate the fate and effects of spilled hydrocarbons for surface or subsea releases
Stochastic (multiple) oil spill modelling	Stochastic oil spill modelling is created by overlaying and statistically analysing the outcomes of many single oil-spill simulations of a defined spill scenario, where each simulation was subject to a different sequence of metocean conditions, selected objectively (typically by random selection) from a long sequence of historic conditions for the study area. Analysis of this larger set of simulations provides a more accurate indication of the environment that maybe affected (low threshold exposure area) and indicates which locations are more likely to be affected (as well as other statistics). Stochastic oil spill modelling avoids biases that affect single oil spill modelling (due to the reliance on only one possible sequence of conditions). However, when interpreting

	stochastic modelling, which is based on a wide range of potential conditions that might happen to occur, it is essential to understand that calculations will encompass a much larger area than could be affected in any single spill event, where a more limited set of conditions will occur. Consequently, it is misleading to imply that the region derived from stochastic modelling indicate the outcomes expected from a single spill event (NOPSEMA, 2018) Stochastic modelling is generally used for risk assessment and preparedness planning by indicating locations that could be exposed and may require response or subsequent impact assessment
WGS 1984	World Geodetic System 1984 (WGS84); reference coordinate system

EXECUTIVE SUMMARY

Background

Petrel is an undeveloped gas field located in the northern Australian waters of the Joseph Bonaparte Gulf (JBG). The Petrel gas field is located across 2 retention leases, NT/RL1 and WA-6-R, approximately 250 km west of Darwin.

The proposed Petrel Development involves drilling of wells, an unmanned wellhead platform and a new ~113 km subsea gas export pipeline (GEP) tying into the existing Blacktip GEP. All proposed Petrel infrastructure is located in Commonwealth waters. Eni intends to undertake surveys of the proposed Petrel Development area to better understand the existing environment and seabed characteristics.

To support the preparation of the Petrel Survey Environmental Plan (EP), a detailed oil spill modelling study was commissioned. The study assessed the risk of exposure from a 130 m³ of surface release of marine diesel oil (MDO) over 1 hour following a vessel collision involving a multi-purpose vessel at the WYE (piggable structure to commingle production from Petrel to Blacktip) structure, the Petrel riser platform and a mid-point between these two locations.

The potential exposure of surrounding waters and shorelines was assessed and presented for the distinct seasons, summer (October to March), transitional periods (April and September), and winter (May to August).

It is important to note that this modelling study does not encompass any spill prevention, mitigation, or response strategies that would be implemented in the event of an actual spill.

Methodology

The modelling study was carried out in stages. Firstly, a 10-year wind and current dataset (2010–2019) that includes the combined influence of large-scale ocean and tidal currents was prepared. Secondly, the currents, local winds and the hydrocarbon properties were input into the three-dimensional oil spill model (SIMAP) to model the movement, spreading, entrainment, weathering and potential shoreline accumulation over time.

A total of 300 spill simulations were modelled per location, comprising of 100 simulations per season (summer, winter and transitional conditions). Each scenario specific simulation had the same spill information, including spill volume, duration and hydrocarbon composition, however, random start times were used to capture a diverse range of wind and current conditions.

Once all 100 simulations per season were completed, the results were combined to assess the potential exposure to the surrounding waters, shorelines, and receptors. The assessment was based on the thresholds defined in the NOPSEMA Oil Spill Modelling information paper (NOPSEMA, 2025).

Oil Characteristics

MDO has a density of 890.0 kg/m³ (API gravity of 27.5) and a pour point of -9.0°C. Its low viscosity of 14.0 cP at 25°C allows it to spread and form a thin film on the sea surface, enhancing evaporation. Approximately 4% of MDO is expected to evaporate within the first 12 hours (boiling point < 180°C), with an additional 32% evaporating within 24 hours and 54% over four weeks. About 10% will not evaporate but will decay slowly. According to AMSA (2023), MDO is classified as a Group II light-persistent oil. The heavier components may become entrained in the upper water column under moderate wind conditions but can resurface when winds calm.

Summary of Modelling Results

Detailed summaries of the results are provided in the table below.

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Summary of key results

Parameter		Location 1	Location 2	Location 3
Description		Vessel collision at the WYE	Vessel collision at the Petrel riser platform	Vessel collision at a mid-point between the WYE and Petrel riser platform
Spill volume		130 m ³		
Oil type		Marine Diesel Oil		
Release depth		0 m (surface)		
Release duration		1 hour		
Simulation length		20 days		
The release location falls within these receptors; therefore, commentary for these receptors is omitted, but the results are still included in the modelling results tables		Bonaparte Gulf Integrated Marine and Coastal Regionalisation of Australia (IMCRA) and North-west (Marine) Marine Region (MR)	Bonaparte Gulf Integrated Marine and Coastal Regionalisation of Australia (IMCRA) and North (Marine) Marine Region (MR)	Bonaparte Gulf Integrated Marine and Coastal Regionalisation of Australia (IMCRA) and North (Marine) Marine Region (MR)
Floating Oil Exposure	Maximum distances from the release location to floating oil exposure thresholds	Floating oil concentrations ≥ 1 g/m ² could extend up to 44 km from the release location, with the distances reducing to 19 km and 9 km as the thresholds increase to 10 g/m ² and 50 g/m ² , respectively.	Floating oil concentrations ≥ 1 g/m ² could extend up to 83 km from the release location, with the distances reducing to 25 km and 8 km as the thresholds increase to 10 g/m ² and 50 g/m ² , respectively.	Floating oil concentrations ≥ 1 g/m ² could extend up to 56 km from the release location, with the distances reducing to 21 km and 7 km as the thresholds increase to 10 g/m ² and 50 g/m ² , respectively.
	Highest probability of floating oil exposure to a receptor at, or above, 1 g/m ² and 10 g/m ²	North (Marine) MR, 4% during transitional conditions	North-west (Marine) MR, 20% during transitional and winter conditions	North-west (Marine) MR, 40% during winter conditions
	Quickest time before exposure to a receptor at, or above, 1 g/m ²	North (Marine) MR, 15 hours during transitional conditions	North-west (Marine) MR, 3 hours during summer, transitional and winter conditions	North-west (Marine) MR, 1 hour during summer, transitional and winter conditions
Shoreline Oil Accumulation	Probability of oil accumulation on any shoreline at, or above, 10 g/m ²	NC	NC	NC
	Maximum volume of oil ashore from a single spill simulation at, or above, 10 g/m ²	NC	NC	NC
	Absolute minimum time for oil to accumulate on shoreline cell at, or above, 10 g/m ²	NC	NC	NC
	Highest probability of oil accumulation for a shoreline cell at, or above, 10 g/m ²	NC	NC	NC

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	Maximum volume of oil ashore from a single spill simulation for a shoreline cell at, or above, 10 g/m ²	NC	NC	NC
Dissolved Hydrocarbons	Maximum distances from the release location to dissolved hydrocarbon exposure thresholds	Concentrations ≥10 ppb threshold may potentially extend up to 43 km from the release location, decreasing to 4 km for concentrations exceeding 50 ppb. No exposure was predicted at, or above, 300 ppb.	Concentrations ≥10 ppb threshold may potentially extend up to 41 km from the release location, decreasing to 1 km for concentrations exceeding 50 ppb. No exposure was predicted at, or above, 300 ppb.	Concentrations ≥10 ppb threshold may potentially extend up to 51 km from the release location, decreasing to 4 km for concentrations exceeding 50 ppb. No exposure was predicted at, or above, 300 ppb.
	Highest probability of dissolved hydrocarbon exposure to a receptor at, or above, 10 ppb	North (Marine) MR, 4% during summer conditions	North-west (Marine) MR, 11% during winter conditions	North-west (Marine) MR, 18% during winter conditions
	Quickest time before exposure to a receptor at, or above, 10 ppb	North (Marine) MR, 13 hours during summer conditions	North (Marine) MR, 4 hours during transitional conditions	North (Marine) MR, 2 hours during summer, transitional and winter conditions
Entrained Hydrocarbons	Maximum distances from the release location to entrained hydrocarbons exposure thresholds	Concentrations ≥10 ppb threshold may potentially extend up to 300 km from the release location. As the threshold increases to 100 ppb and 1,000 ppb, the maximum distance decreases to 58 km and 17 km, respectively.	Concentrations ≥10 ppb threshold may potentially extend up to 225 km from the release location. As the threshold increases to 100 ppb and 1,000 ppb, the maximum distance decreases to 70 km and 18 km, respectively.	Concentrations ≥10 ppb threshold may potentially extend up to 263 km from the release location. As the threshold increases to 100 ppb and 1,000 ppb, the maximum distance decreases to 77 km and 16 km, respectively.
	Highest probability of entrained hydrocarbon exposure to a receptor at, or above, 10 ppb	Carbonate bank and terrace system of the Sahul Shelf KEF, 67% during winter conditions	North-west (Marine) MR, 67% during winter conditions	North-west (Marine) MR, 77% during winter conditions
	Quickest time before exposure to a receptor at, or above, 10 ppb	North (Marine) MR, 10 hours during summer conditions	North (Marine) MR, 3 hours during transitional and winter conditions	North (Marine) MR, 1 hour during summer, transitional and winter conditions

NC: No contact to receptor predicted for specified threshold.

1 INTRODUCTION

1.1 Background

Petrel is an undeveloped gas field located in the northern Australian waters of the Joseph Bonaparte Gulf (JBG). The Petrel gas field is located across 2 retention leases, NT/RL1 and WA-6-R, approximately 250 km west of Darwin.

The proposed Petrel Development involves drilling of wells, an unmanned wellhead platform and a new ~113 km subsea gas export pipeline (GEP) tying into the existing Blacktip GEP. All proposed Petrel infrastructure is located in Commonwealth waters. Eni intends to undertake surveys of the proposed Petrel Development area to better understand the existing environment and seabed characteristics.

To support the preparation of the Petrel Survey Environmental Plan (EP), RPS was commissioned by Xodus on behalf of ENI to undertake a detailed oil spill modelling study. The study assessed the risk of exposure from a 130 m³ of surface release of marine diesel oil (MDO) over 1 hour following a vessel collision involving a multi-purpose vessel at the WYE (piggable structure to commingle production from Petrel to Blacktip) structure, the Petrel riser platform and a mid-point between these two locations.

The coordinates of the release location are presented in Table 1-1 and illustrated in Figure 1-1.

The potential exposure of surrounding waters and shorelines was assessed and presented for the distinct seasons, October to March), transitional periods (April and September), and winter (May to August).

The spill modelling was performed using an advanced three-dimensional trajectory and fates model; Spill Impact Model Application Package (SIMAP). The SIMAP model calculates the transport, spreading, entrainment and evaporation of spilled hydrocarbons over time, based on the prevailing wind and current conditions and the physical and chemical properties. The modelling does not take into consideration any of the spill prevention, mitigation and response capabilities that would be implemented in response to the spill.

The hydrocarbon spill model, the method and analysis applied herein use modelling algorithms which have been peer reviewed and published in international journals. Further, RPS warrants that this work meets and exceeds the American Society for Testing and Materials (ASTM) Standard F2067-22 "*Standard Practice for Development and Use of Oil-Spill Trajectory Models*".

Table 1-1 Coordinates of the oil spill modelling release locations.

Release site	Longitude*	Latitude*	Easting^	Northing^	Water Depth (m)
The WYE	128° 29' 3.31" E	13° 53' 37.63" S	444278	8463960	54
Petrel riser platform	128° 30' 33.9" E	12° 53' 23.50" S	446776	8574993	99
Mid-point between the WYE and Petrel riser platform	128° 29' 57.6" E	13° 23' 41.50" S	44579	8519142	75

*Datum: WGS 1984

^ GDA94 MGA Zone 52S

REPORT

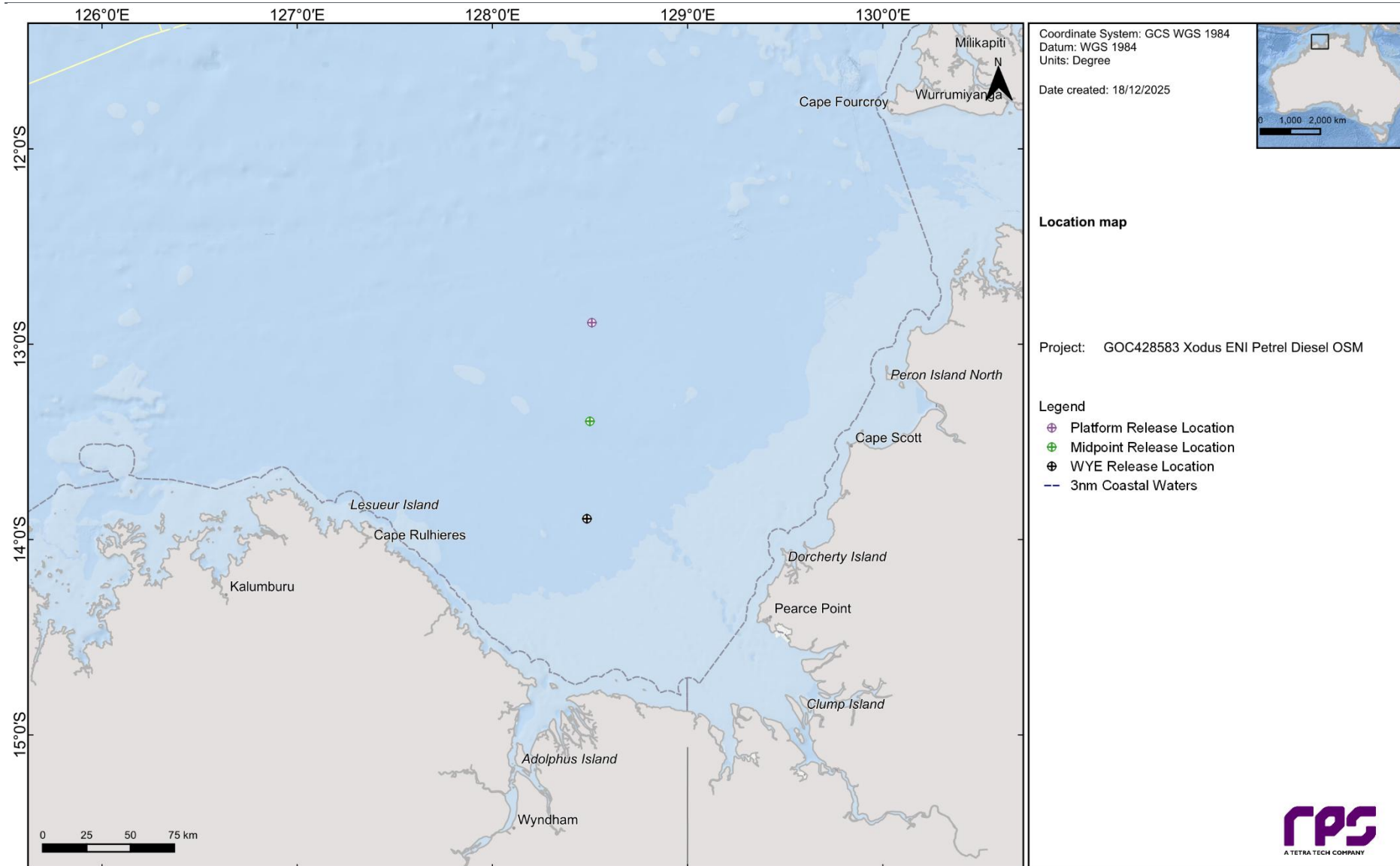


Figure 1-1 Map of the oil spill modelling release location for Petrel OPP Project.

1.2 What is Oil Spill Modelling?

Oil spill modelling is a valuable tool widely used for risk assessment, emergency response and contingency planning where it can be particularly helpful to proponents and decision makers. By modelling a series of the most likely oil spill scenarios, decisions concerning suitable response measures and strategic locations for deploying equipment and materials can be made, and the locations at most risk can be identified. The two types of oil spill modelling often used are stochastic and deterministic modelling.

1.2.1 Stochastic Modelling (Multiple Spill Simulations)

Stochastic oil spill modelling is created by overlaying a great number (often hundreds) of individual, computer-simulated hypothetical spills (NOPSEMA, 2018; Figure 1-2).

Stochastic modelling is a common means of assessing the potential risks from oil spills related to new projects and facilities. Stochastic modelling typically utilises hydrodynamic data for the location in combination with historic wind data. Typically, 100 simulations are run, which sufficiently samples the historic dataset that is most relevant to the season or timing of the project.

The outcomes are often presented as a probability of exposure and are primarily used for risk assessment purposes in view to understand the range of environments that may be affected or impacted by a spill. Elements of the stochastic modelling can also be used in oil spill preparedness and planning.

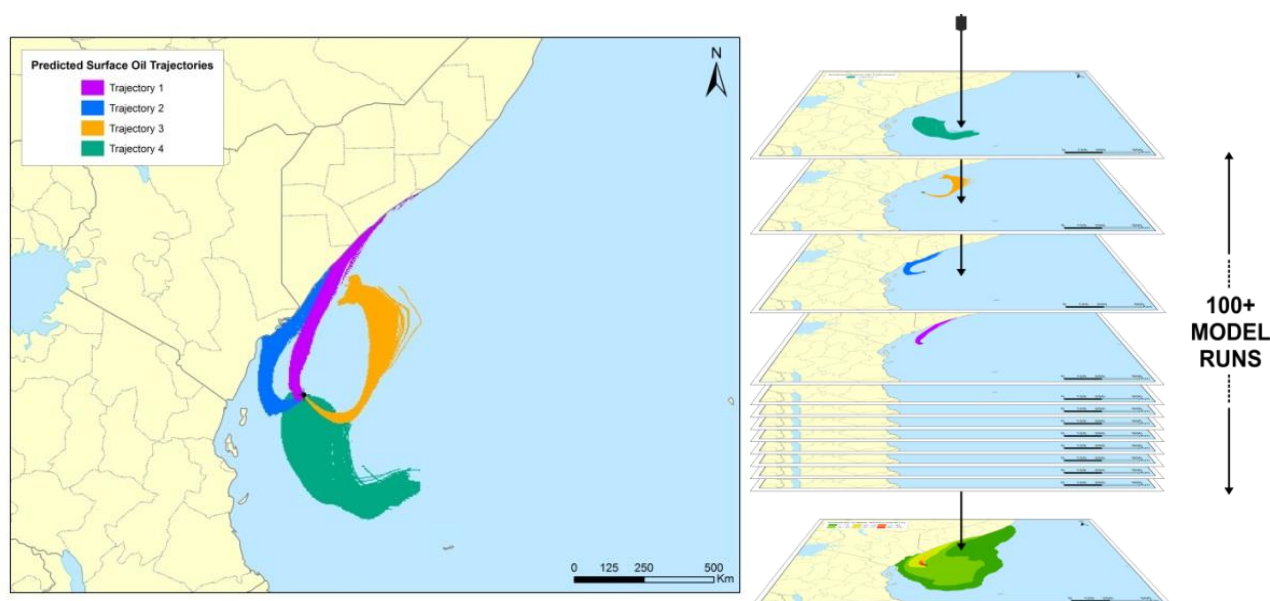


Figure 1-2 Examples of four individual spill trajectories (four replicate simulations) predicted by SIMAP for a spill scenario (left pane). The frequency of contact with given locations is used to calculate the probability of impacts during a spill. Essentially, all model runs are overlain (shown as the stacked runs on the right) and the number of times that trajectories contact a given location at a concentration is used to calculate the probability.

2 SCOPE OF WORK

The scope of work included the following components:

1. Generate 10 years (2010 to 2019 (inclusive)) of wind and current data. The three-dimensional current data include the combined influence of ocean and tidal currents;
2. Include the wind data, current data and hydrocarbon properties as input into the three-dimensional oil spill model; SIMAP, to model the movement, spreading, entrainment, weathering and potential shoreline accumulation over time;
3. For each location, 100 spill simulations were modelled per season (summer, transitional and winter), with each simulation having the same spill information (location, volume, duration and hydrocarbon properties) but different start times to ensure a range of wind and current conditions were assessed; and
4. Combine the results from the 100 spill simulations per season to determine the potential exposure to the surrounding waters, shorelines and sensitive receptors based on the thresholds outlined in the NOPSEMA Oil Spill Modelling information paper (NOPSEMA, 2025).

3 REGIONAL CURRENTS

The release location is within the Joseph Bonaparte Gulf, a shallow (generally <100 m) waterbody bordered by the Indian Ocean and Timor Sea. The gulf is characterised by complex geomorphology (i.e. shoals, valleys and terraces) and is dominated by tidal (ranges > 4 m) and wind driven currents which are dependent on season (DEWHA, 2008).

The Indonesian Throughflow brings southwest flowing, less saline, warm waters from the tropics, however the internal gyres generate local currents in any direction. As these gyres migrate through the area, large spatial variations in the speed and direction of currents will occur at a given location over time. The Holloway current, which flows southwest and close to the coastline, intensifies during April to July due to increased wind forcing.

A schematic of the regional ocean currents is shown in Figure 3-1.

While, the tidal currents are generally weaker in the deeper waters (beyond the Joseph Bonaparte Gulf), its influence is greatest along the near shore, within the Gulf, coastal passage regions and, in and around the islands. Therefore, to accurately account for the movement of an oil spill, which can move between the offshore and near shore region, ocean and tidal currents were combined as part of the study.

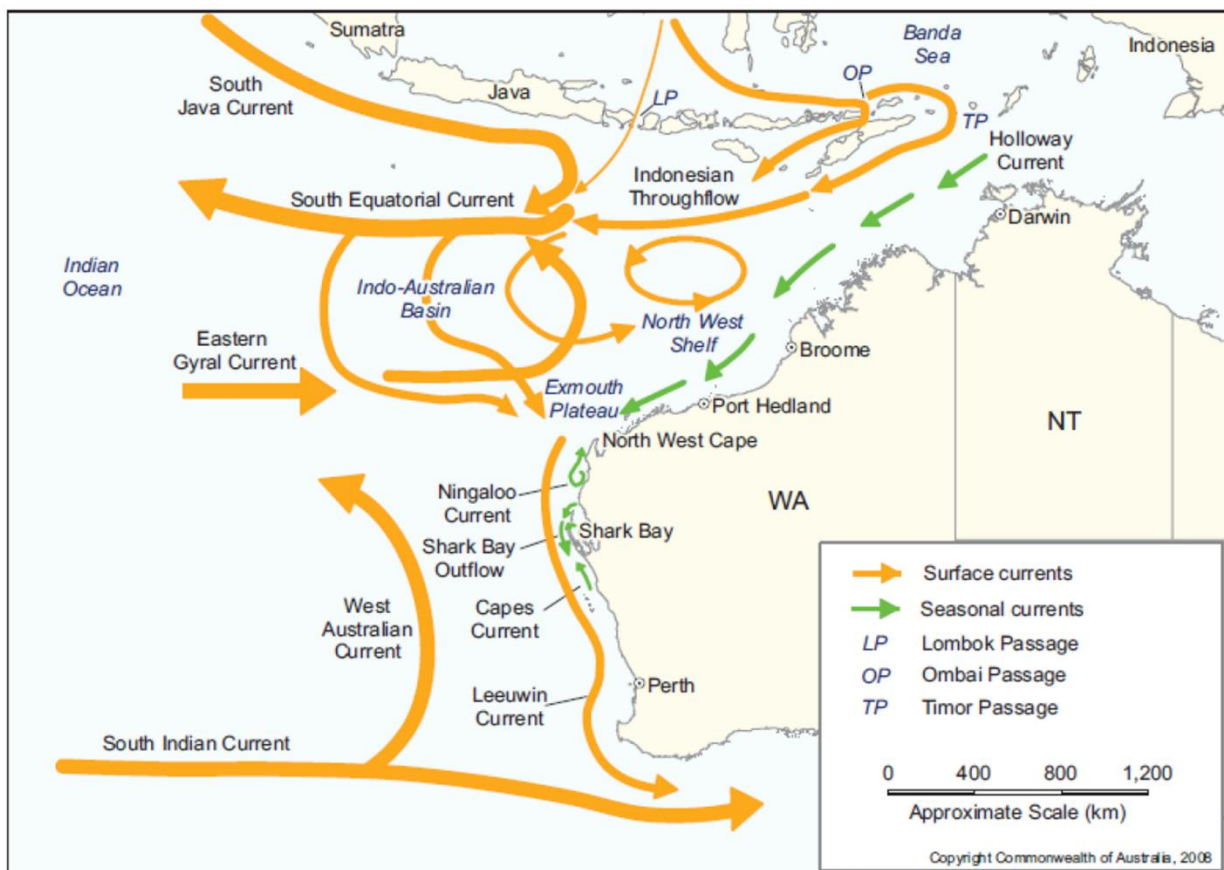


Figure 3-1 Schematic of regional ocean currents. Image adapted from DEWHA (2008).

3.1 Tidal Currents

The effects of tides were generated using RPS's advanced ocean/coastal model, HYDROMAP. The HYDROMAP model has been thoroughly tested and verified through field measurements throughout the world for over 35 years (Isaji and Spaulding, 1984; Isaji et al., 2001; Zigic et al., 2003; Makarynskyy et al., 2010), whilst being used for a wide variety of disciplines within marine environments (e.g. Zigic et al., 2003; 2009; Talouli et al., 2009; King et al., 2010; Makarynskyy et al., 2010; 2015). In fact, HYDROMAP tidal

current data have been used as input for the OILMAP hydrocarbon spill modelling system, which forms part of the Incident Management System (IMS) operated by Maritime New Zealand (MNZ), Australian Maritime Safety Authority (AMSA) and the United Kingdom Maritime and Coastguard Agency, as well as several major oil and gas companies.

HYDROMAP employs a sophisticated sub-gridding strategy, which supports up to six levels of spatial resolution, halving the grid cell size as each level of resolution is employed. The sub-gridding allows for higher resolution of currents within areas of greater bathymetric and coastline complexity, and/or of particular interest to a study.

The numerical solution methodology follows that of Davies (1977a and 1977b) with further developments for model efficiency by Owen (1980) and Gordon (1982). A more detailed presentation of the model can be found in Isaji and Spaulding (1984) and Isaji et al. (2001).

3.1.1 Grid Setup

The tidal model domain has been sub-gridded to a resolution of 500 m for shallow and coastal regions, starting from an offshore (or deep water) resolution of 8 km. The finer grids were allocated in a step-wise fashion to resolve flows more accurately along the coastline, around islands and over regions with more complex bathymetry.

A combination of datasets was used and merged to describe the shape of the seabed within the grid domain (Figure 3-2). These included spot depths and contours which were digitised from nautical charts released by the hydrographic offices as well as Geoscience Australia database and depths extracted from the Shuttle Radar Topography Mission (SRTM30_PLUS) Plus dataset (see Becker et al., 2009).

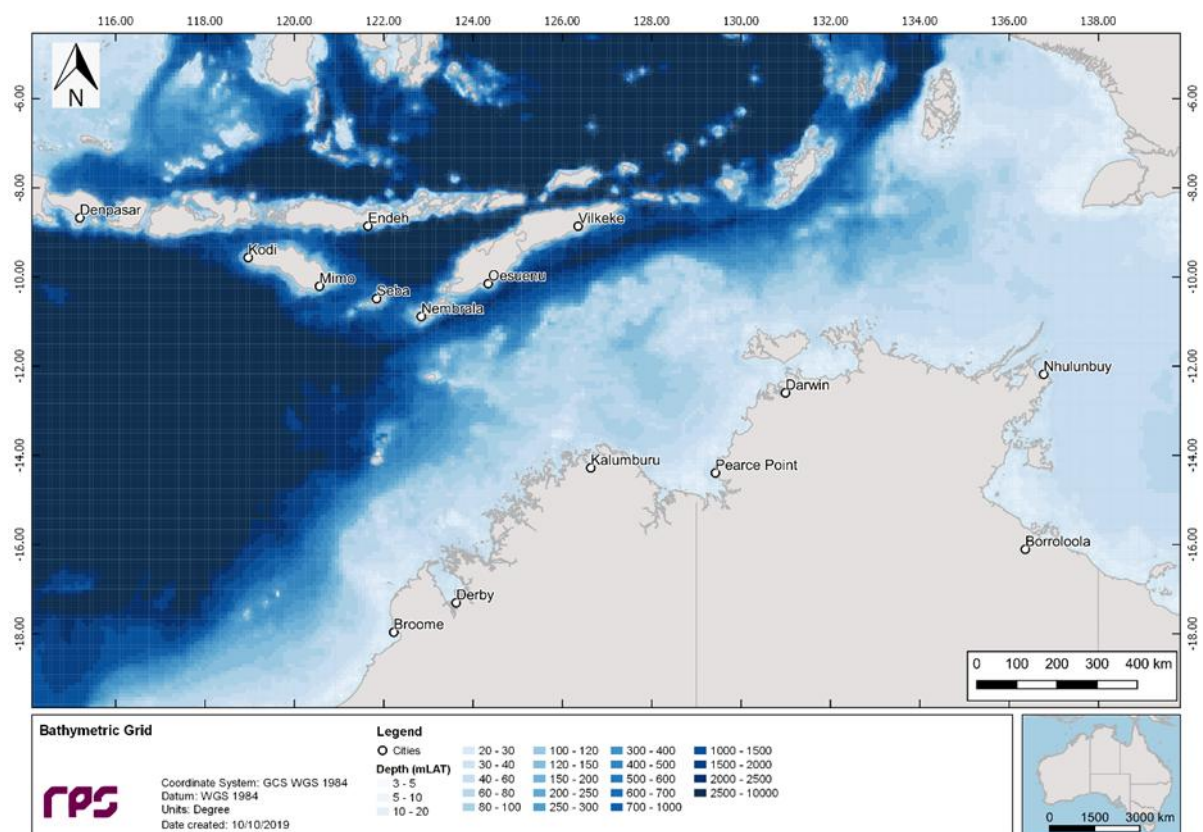


Figure 3-2 Zoomed in view of the bathymetry defined for the tidal model domain.

3.1.2 Tidal Conditions

The ocean boundary data for the regional model were obtained from satellite measured altimetry data (TOPEX/Poseidon 7.2) which provided estimates of the eight dominant tidal constituents at a horizontal scale of approximately 0.25 degrees. The eight major tidal constituents used were K_2 , S_2 , M_2 , N_2 , K_1 , P_1 , O_1 and Q_1 . Using the tidal data, surface heights were firstly calculated along the open boundaries, at each time step in the model.

The TOPEX/Poseidon satellite data have a global resolution of 0.25 degrees and is produced and quality controlled by NASA (National Aeronautics and Space Administration). The satellites equipped with two highly accurate altimeters and capable of taking sea level measurements with an accuracy of ± 5 cm measured oceanic surface elevations (and the resultant tides) for over 13 years (1992–2005). In total, these satellites carried out 62,000 orbits of the planet.

The Topex-Poseidon tidal data have been extensively reported and utilised within the oceanographic community (e.g. Andersen, 1995; Ludicone et al., 1998; Matsumoto et al., 2000; Kostianoy et al., 2003; Yaremchuk and Tangdong, 2004; Qiu and Chen 2010; Amores et al., 2019; Sagnieres et al., 2020; Veng et al., 2021; Zeithöfler et al., 2023). As such the Topex/Poseidon tidal data is considered suitably accurate for this study.

3.2 Ocean Currents

Data describing the flow of ocean currents were obtained from HYCOM (Hybrid Coordinate Ocean Model, (Chassignet et al., 2007), which is operated by the HYCOM Consortium, sponsored by the National Ocean Partnership Program (NOPP), as part of the U.S. Global Ocean Data Assimilation Experiment (GODAE). HYCOM is a data-assimilative, three-dimensional ocean model that is run as a hindcast (for a past period), assimilating time-varying observations of sea surface height, sea surface temperature and in-situ temperature and salinity measurements (Chassignet et al., 2009). The HYCOM predictions for drift currents are produced at a horizontal spatial resolution of approximately 8.25 km ($1/12^{\text{th}}$ of a degree) over the region, at a frequency of every 3 hours. HYCOM uses isopycnal layers in the open, stratified ocean, but uses the layered continuity equation to make a dynamically smooth transition to a terrain following coordinate in shallow coastal regions, and to z-level coordinates in the mixed layer and/or unstratified seas.

For this study, the HYCOM hindcast currents were obtained for the years 2010 to 2019 (inclusive).

3.3 Surface Currents

Figure 3-3 to Figure 3-5 presents the monthly and total current rose distributions adjacent to the release locations derived from the 2010 to 2019 modelled dataset.

Note the convention for defining current direction throughout this report is the direction the current flows towards. Each branch of the current rose distribution represents the currents flowing to that direction, with north to the top of the diagram. The branches are divided into segments of different colour, which represent the current speed ranges for each direction. Speed intervals of 0.1 m/s are typically used in these current roses. The length of each coloured segment within a branch is proportional to the frequency of currents flowing within the corresponding speed and direction.

The average and maximum surface current speeds were 0.38 m/s and 1.15 m/s, respectively adjacent to the WYE release location. Additionally, the average and maximum surface current speeds at the Petrel riser platform were 0.29 m/s and 1.08 m/s, respectively. At the mid-point between these two locations the average and maximum surface current speeds were 0.33 m/s and 1.42 m/s. Throughout the year at all release locations the dominant current directions were along the northwest-southeast axis due to the influence of the ebb and flood tide dynamics in the region.

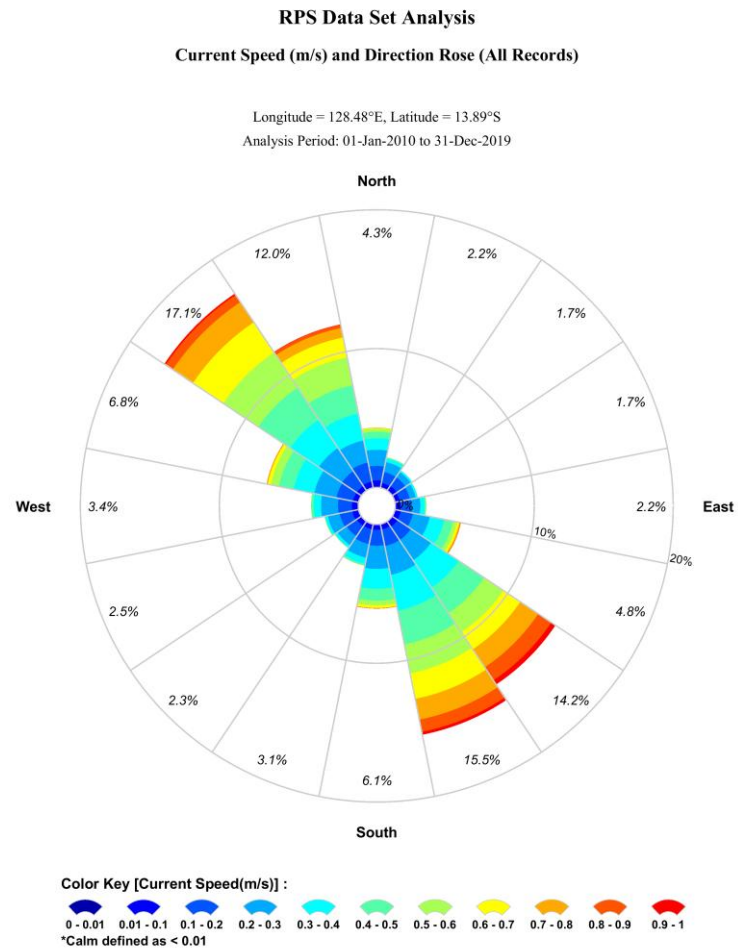
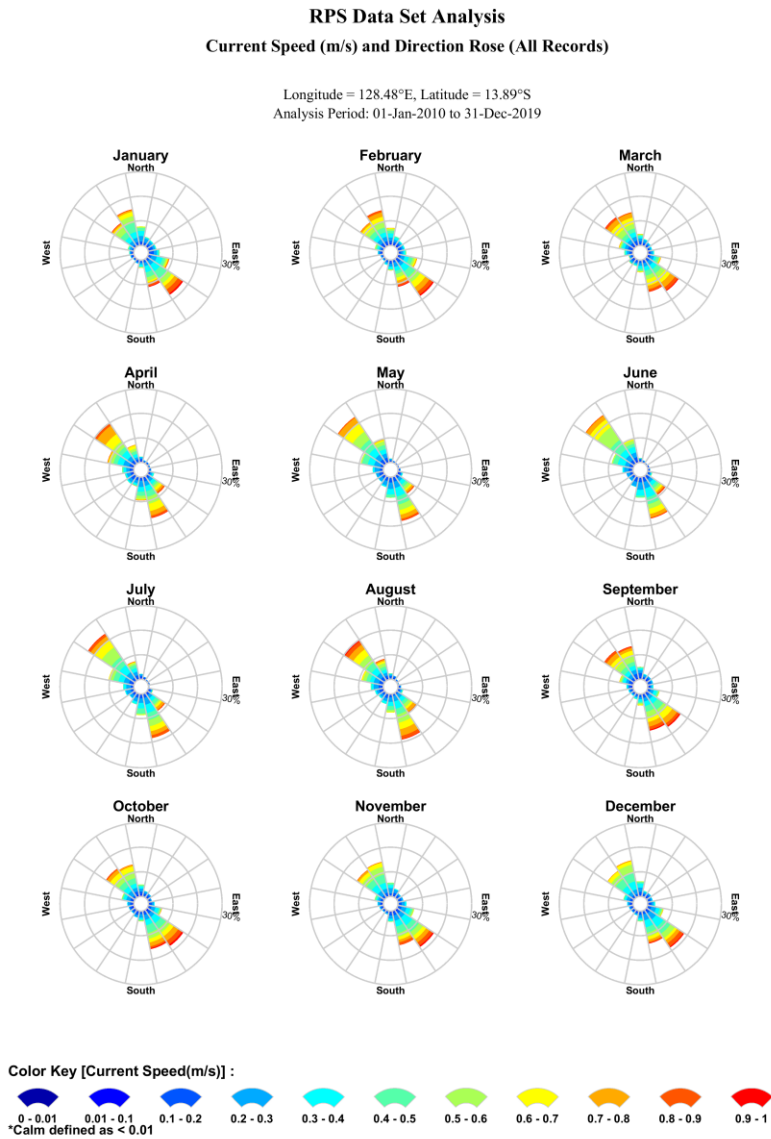


Figure 3-3 Monthly (left) and total (right) surface current rose distributions adjacent to the WYE release location, derived from the 2010 to 2019 modelled dataset.

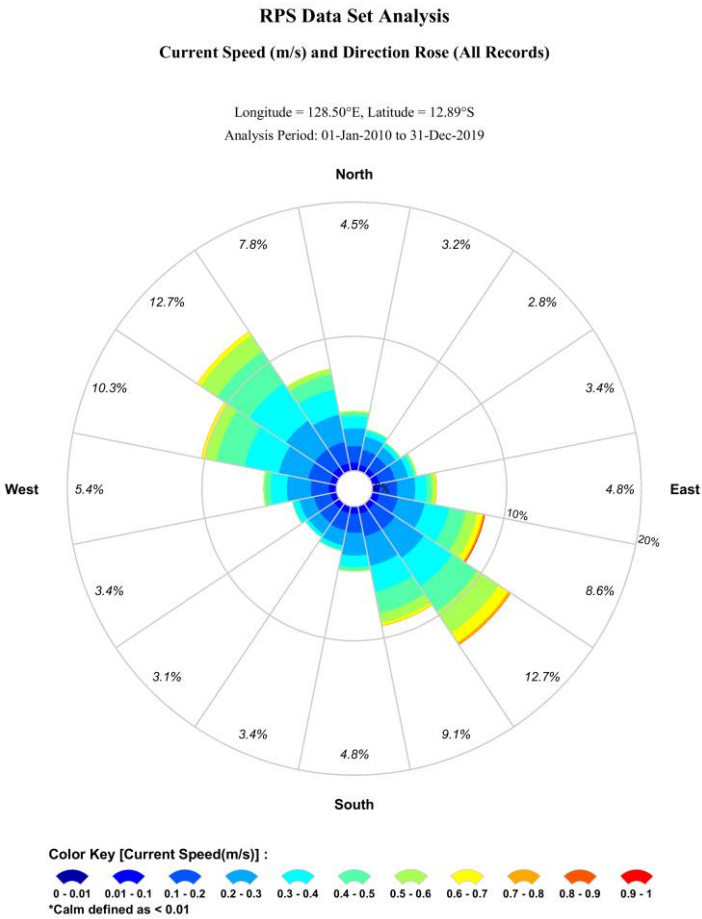
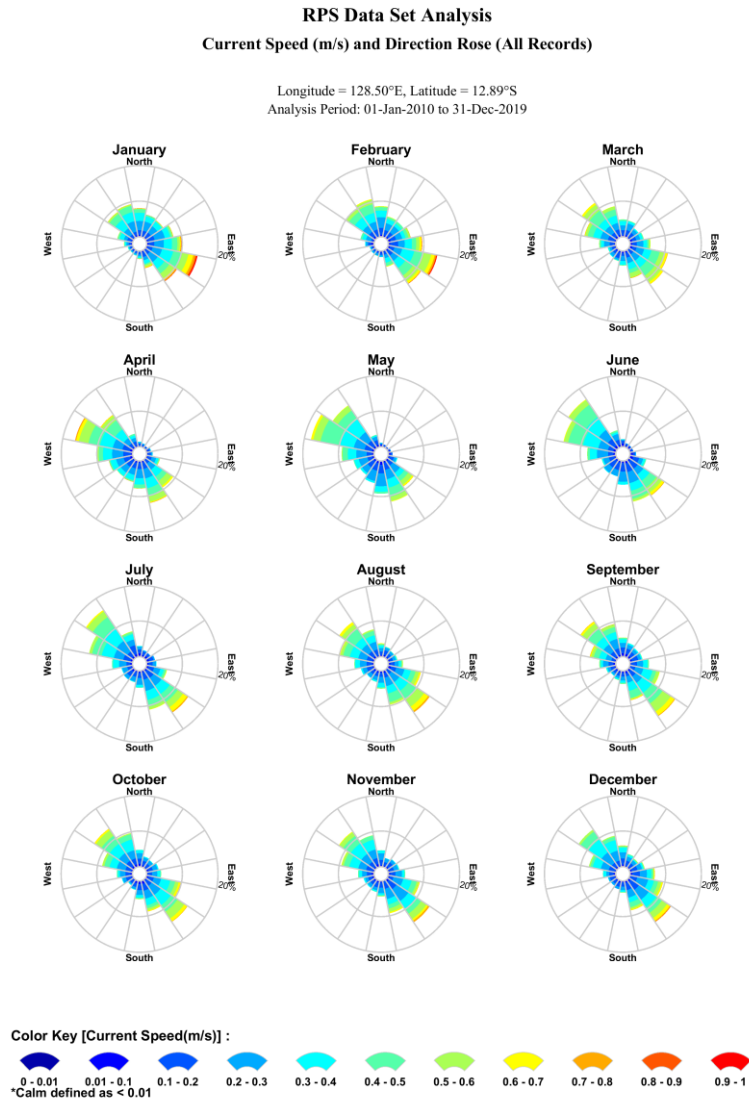
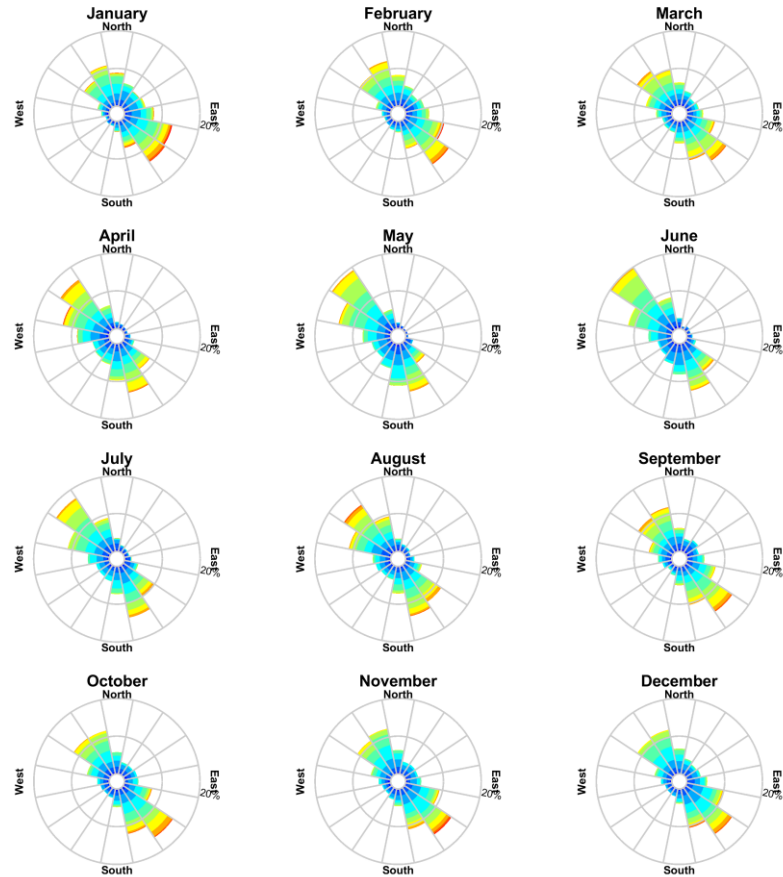


Figure 3-4 Monthly (left) and total (right) surface current rose distributions adjacent to the Petrel riser platform release location, derived from the 2010 to 2019 modelled dataset.

RPS Data Set Analysis
Current Speed (m/s) and Direction Rose (All Records)

Longitude = 128.50°E, Latitude = 13.39°S



RPS Data Set Analysis
Current Speed (m/s) and Direction Rose (All Records)

Longitude = 128.50°E, Latitude = 13.39°S

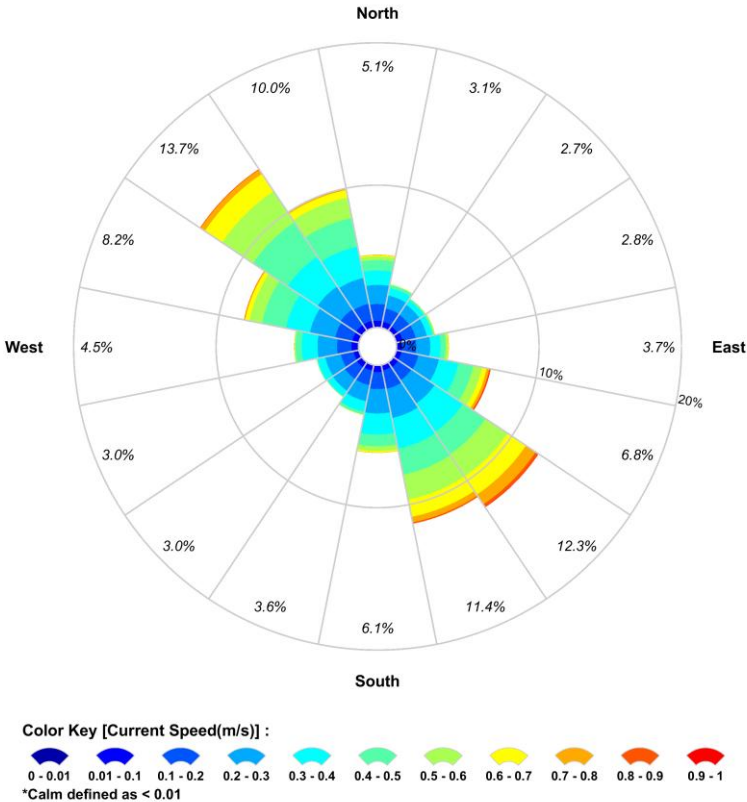


Figure 3-5 Monthly (left) and total (right) surface current rose distributions adjacent to the mid-point release location between the WYE and Petrel riser platform, derived from the 2010 to 2019 modelled dataset.

4 WIND DATA

To account for the influence of the wind on the floating oil, wind data from 2010 to 2019 (inclusive) were sourced from the National Centre for Environmental Prediction (NCEP) Climate Forecast System Reanalysis (CFSR; see Saha et al., 2010). The CFSR wind model includes observations from many data sources; surface observations, upper-atmosphere air balloon observations, aircraft observations and satellite observations. The model is capable of accurately representing the interaction between the earth's oceans, land and atmosphere. The gridded wind data output is available at $\frac{1}{4}$ of a degree resolution (~ 33 km) and 1-hourly time intervals. Figure 4-1 shows the spatial resolution of the wind field used as input into the oil spill model.

Figure 4-2 to Figure 4-4 present the monthly and total wind roses adjacent to the release locations derived from the 2010 to 2019 modelled dataset.

Note that the atmospheric convention for defining wind direction, that is, the direction the wind blows from, is used to reference wind direction throughout this report. Each branch of the rose represents wind coming from that direction, with north to the top of the diagram. Sixteen directions are used. The branches are divided into segments of different colour, which represent wind speed ranges from that direction. Speed ranges of 5-knot intervals are typically used in these wind roses. The length of each segment within a branch is proportional to the frequency of winds blowing within the corresponding range of speeds from that direction.

The average and maximum wind speeds were 11.1 knots and 46.0 knots, respectively adjacent to the WYE release location and 9.7 knots and 46.6 knots, respectively, adjacent to the Petrel riser platform release location. Additionally, adjacent to the mid-point release location between the WYE and Petrel riser platform the average and maximum wind speeds were 9.96 knots and 50.5 knots, respectively. Typically, at all release locations winds blow from the west during summer months, and predominantly from the east-southeast during winter months.

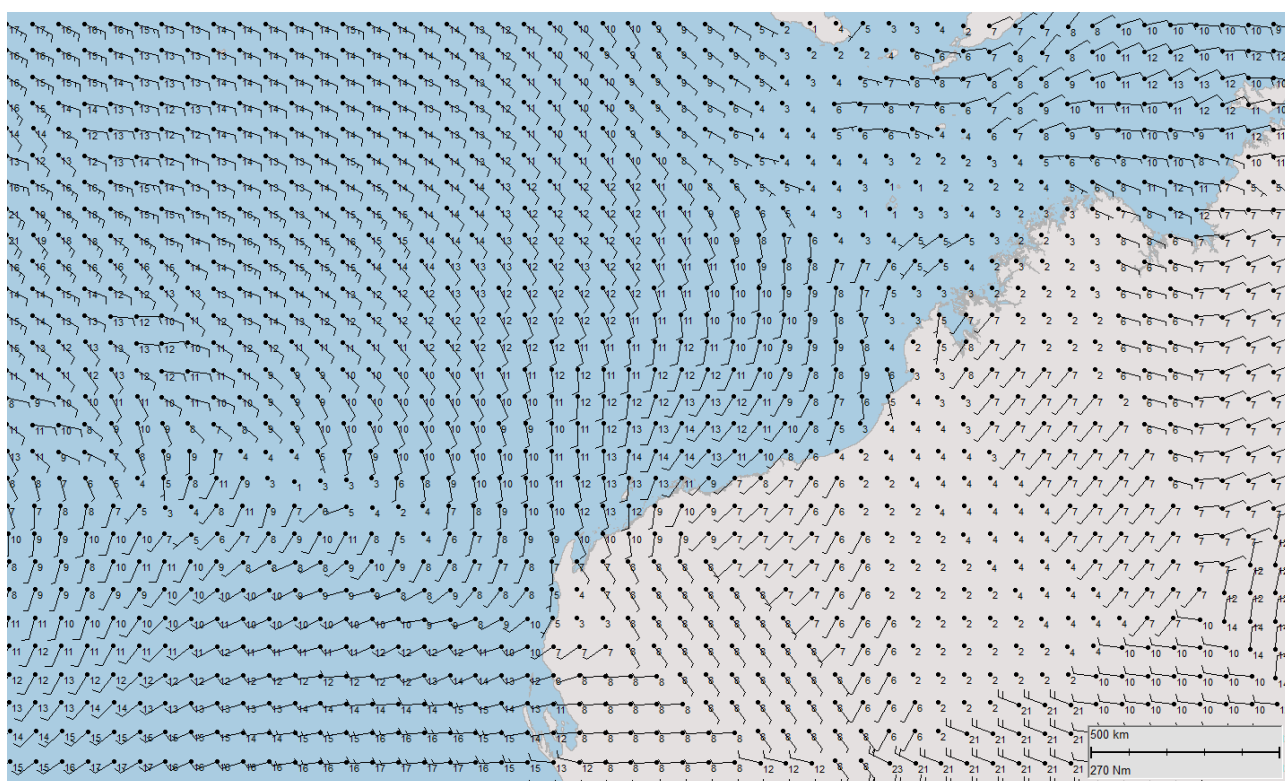


Figure 4-1 Spatial resolution of the CFSR modelled wind data used as input into the oil spill model. Note, for ease viewing only every second wind vector is displayed on the map.

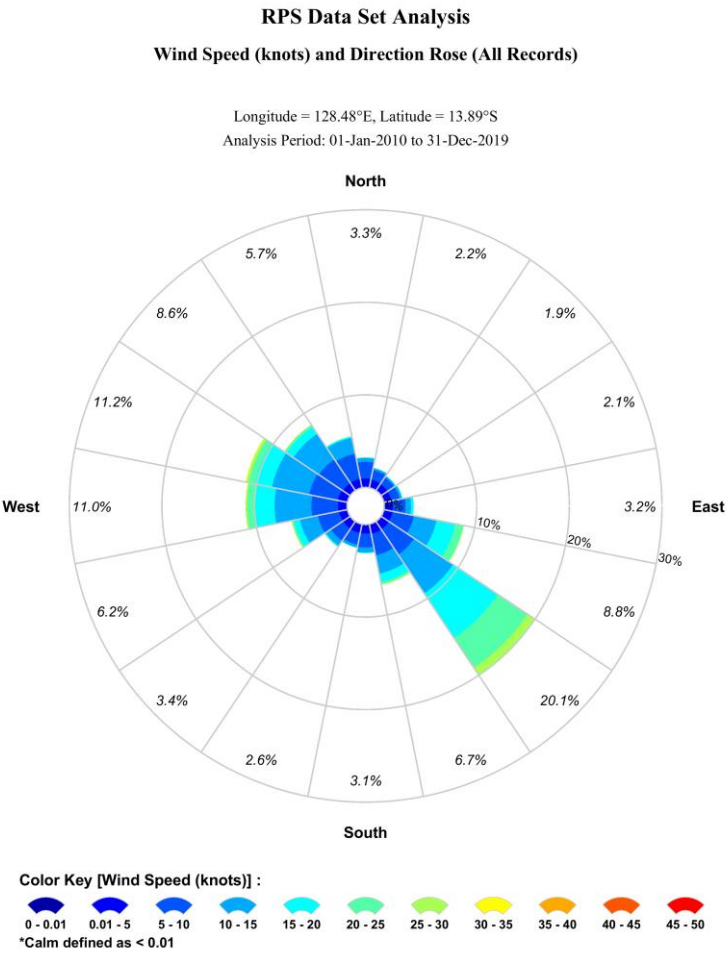
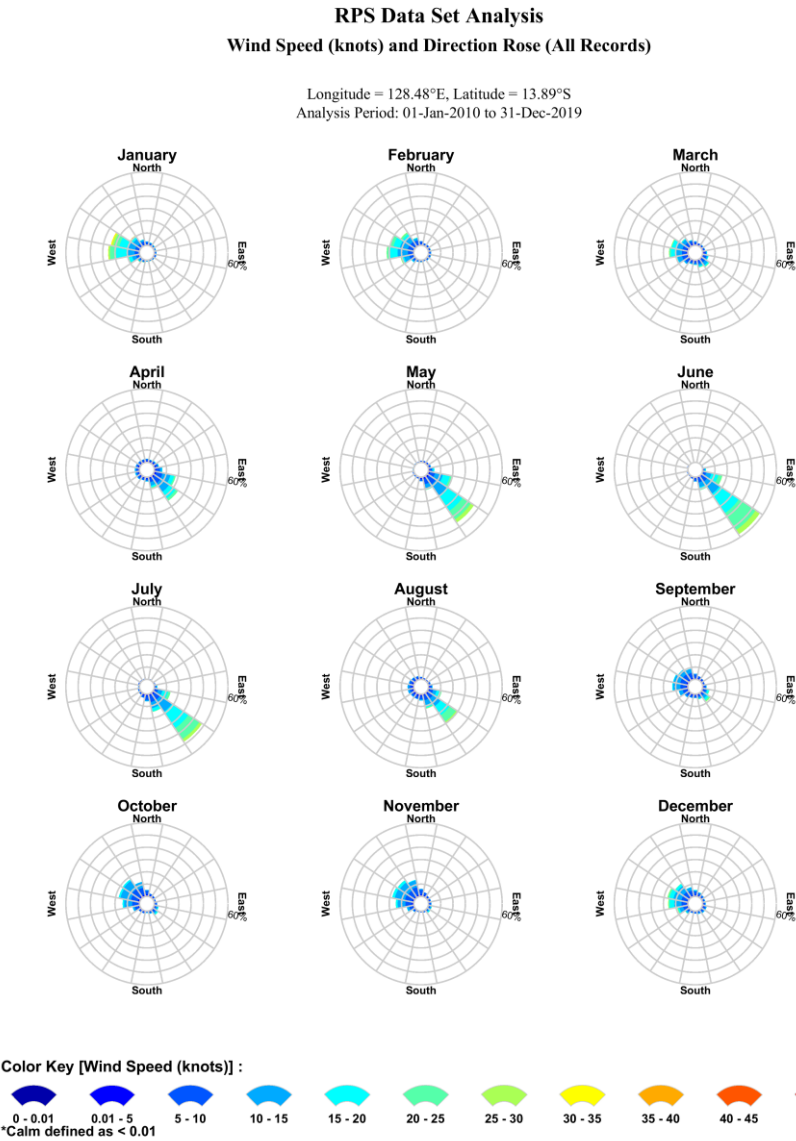


Figure 4-2 Monthly (left) and total (right) wind rose distributions adjacent to the WYE release location derived from the 2010 to 2019 modelled dataset.

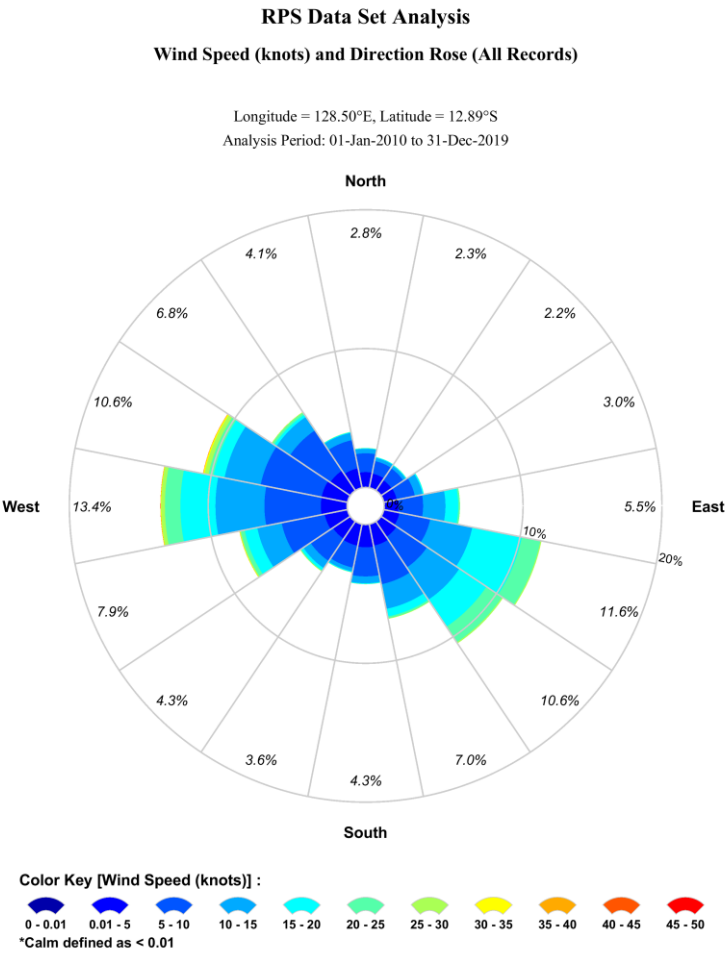
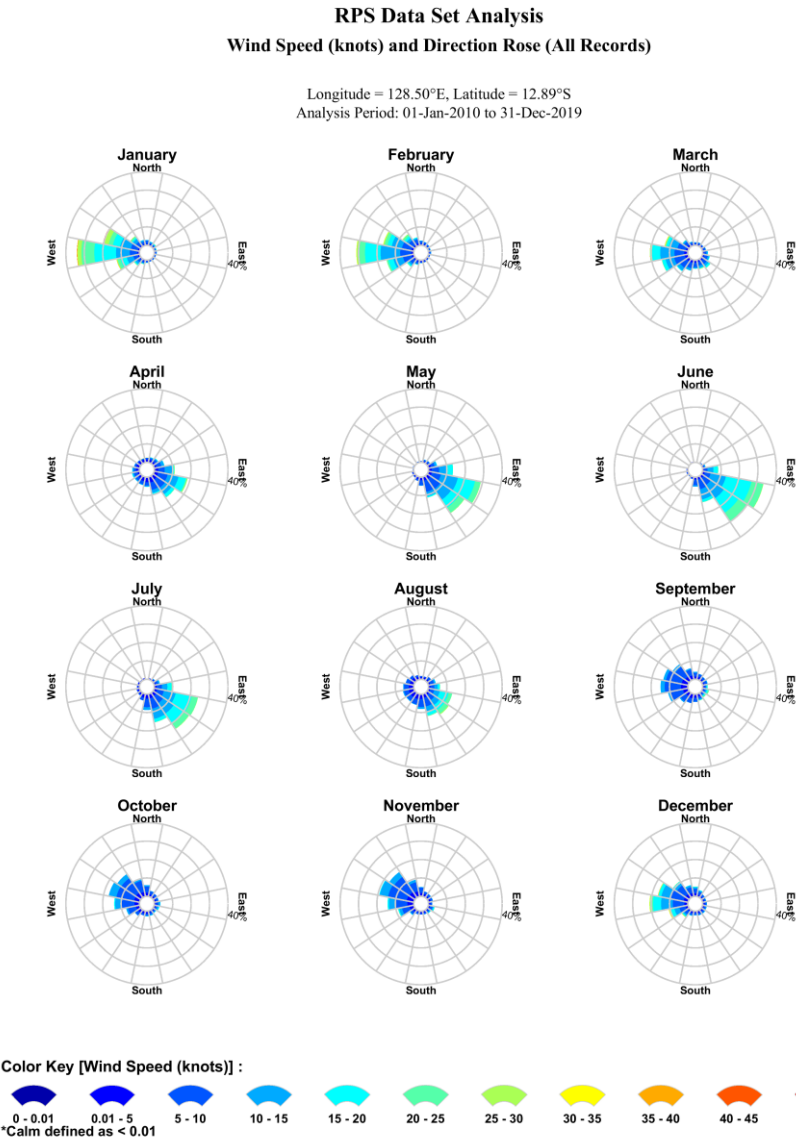
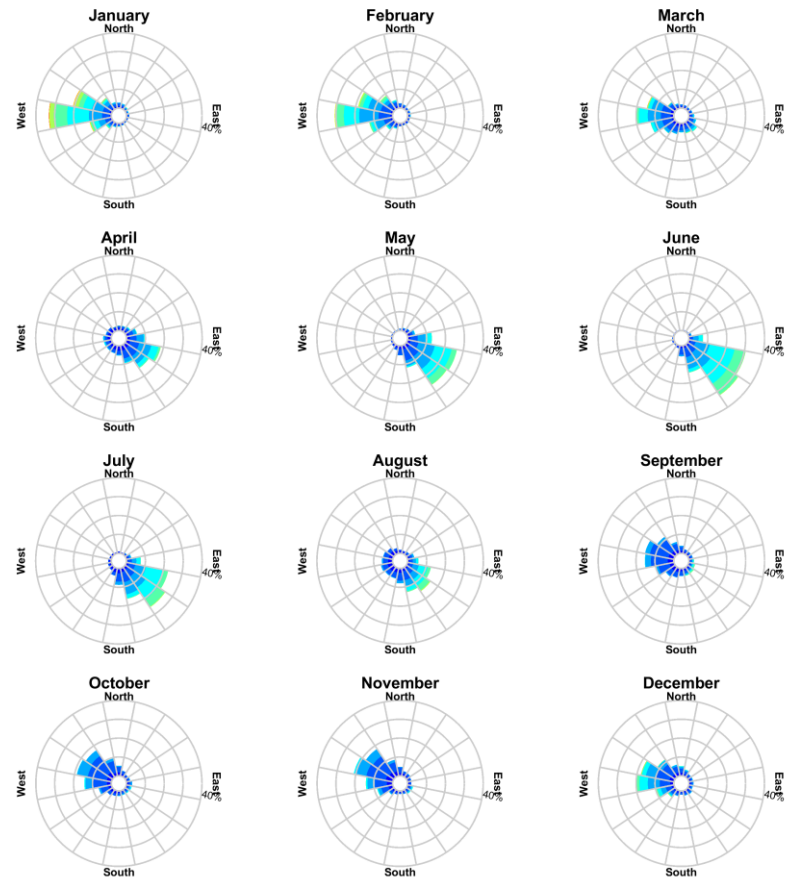


Figure 4-3 Monthly (left) and total (right) wind rose distributions adjacent to the Petrel riser platform release location derived from the 2010 to 2019 modelled dataset.

RPS Data Set Analysis
Wind Speed (knots) and Direction Rose (All Records)

Longitude = 128.50°E, Latitude = 13.39°S



RPS Data Set Analysis
Wind Speed (knots) and Direction Rose (All Records)

Longitude = 128.50°E, Latitude = 13.39°S

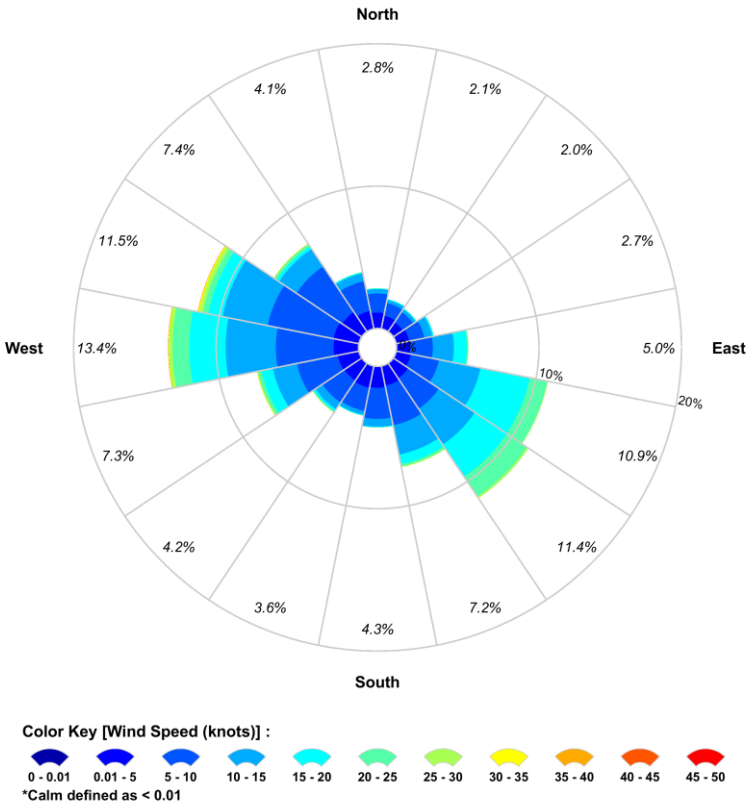


Figure 4-4 Monthly (left) and total (right) wind rose distributions adjacent to the mid-point release location between the WYE and Petrel riser platform derived from the 2010 to 2019 modelled dataset.

5 WATER TEMPERATURE AND SALINITY

The monthly depth-varying water temperature and salinity profiles for the closest point to the release locations were obtained from the World Ocean Atlas 2018 database produced by the National Oceanographic Data Centre (National Oceanic and Atmospheric Administration) and its co-located World Data Center for Oceanography (Levitus et al., 2013). The data are used to inform the weathering, movement and evaporative loss of hydrocarbon spills in the surface and subsurface layers.

Table 5-1 presents the monthly average sea surface (up to 2 m depth) temperatures and salinity adjacent to the WYE release location. Surface water temperatures ranged from 26.2 °C (August) to 30.9 °C (April). Salinity remained consistent throughout the year ranging between 34.4 ppt (May) and 34.8 ppt (December).

Table 5-2 presents the monthly average sea surface (up to 2 m depth) temperatures and salinity adjacent to the Petrel riser platform release location. Surface water temperatures ranged from 24.9 °C (September) to 30.8 °C (March). Salinity remained consistent throughout the year ranging between 34.9 ppt (September) and 35.3 ppt (December–May).

Additionally, Table 5-3 presents the monthly average sea surface (up to 2 m depth) temperatures and salinity adjacent to the mid-point release location between the WYE and Petrel riser platform. Surface water temperatures ranged from 26.9 °C (August) to 30.7 °C (March). Salinity remained consistent throughout the year ranging between 34.5 ppt (January, April and May) and 34.7 ppt (July).

Figure 5-1 to Figure 5-3 illustrate the vertical profiles of water temperature and salinity for each month adjacent to the release locations.

Table 5-1 Monthly average sea surface temperature and salinity in the 0-2 m depth layer adjacent to the WYE release location.

Parameter	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
Temperature (°C)	30.1	30.4	30.8	30.9	29.8	27.9	26.6	26.2	28.1	29.1	29.7	30.3
Salinity (psu)	34.5	34.7	34.6	34.5	34.4	34.6	34.7	34.7	34.6	34.6	34.7	34.8

Table 5-2 Monthly average sea surface temperature and salinity in the 0-2 m depth layer adjacent to the Petrel riser platform release location.

Parameter	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
Temperature (°C)	29.2	29.1	30.8	30.1	28.7	27.1	26.0	25.3	24.9	26.6	27.6	28.7
Salinity (psu)	35.3	35.3	35.3	35.3	35.3	35.2	35.0	35.0	34.9	35.0	35.1	35.3

Table 5-3 Monthly average sea surface temperature and salinity in the 0-2 m depth layer adjacent to the mid-point release location between the WYE and Petrel riser platform.

Parameter	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
Temperature (°C)	29.9	30.2	30.7	30.5	29.7	28.1	27.2	26.9	28.4	29.3	29.8	30.4
Salinity (psu)	34.5	34.6	34.6	34.5	34.5	34.6	34.7	34.6	34.6	34.6	34.6	34.6

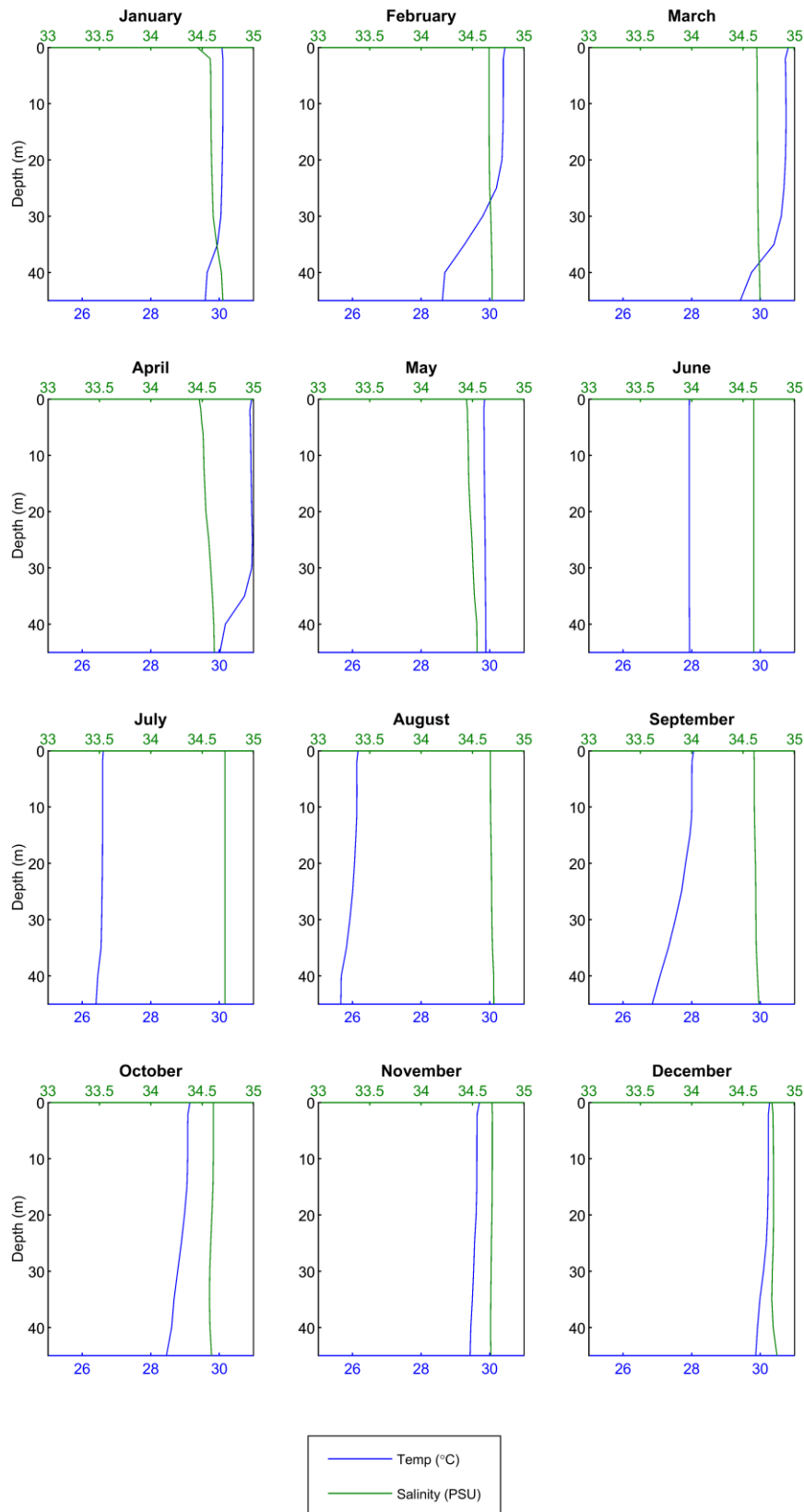


Figure 5-1 Monthly temperature and salinity profiles throughout the water column adjacent to the WYE release location.

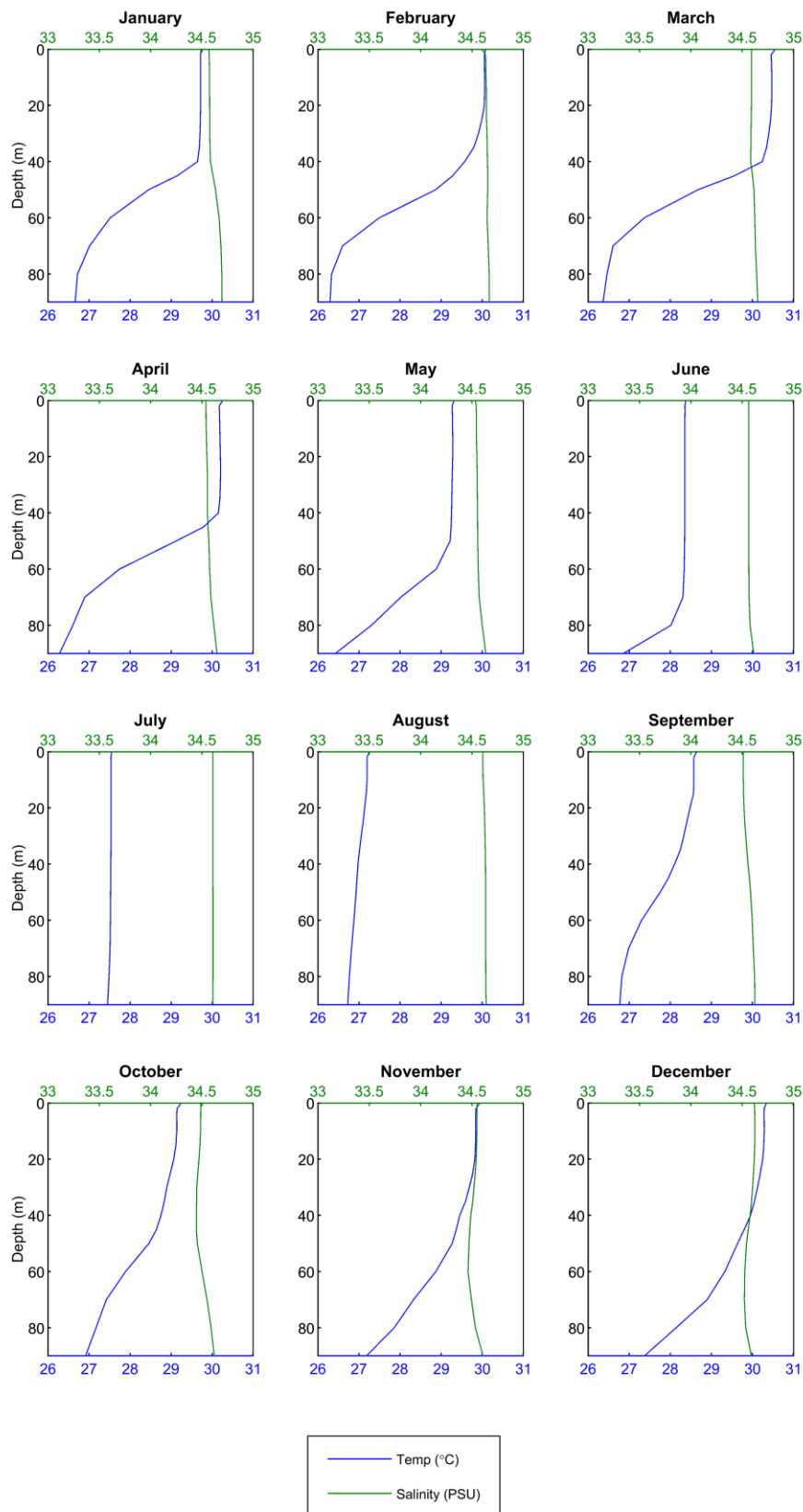


Figure 5-2 Monthly temperature and salinity profiles throughout the water column adjacent to the Petrel riser platform release location.

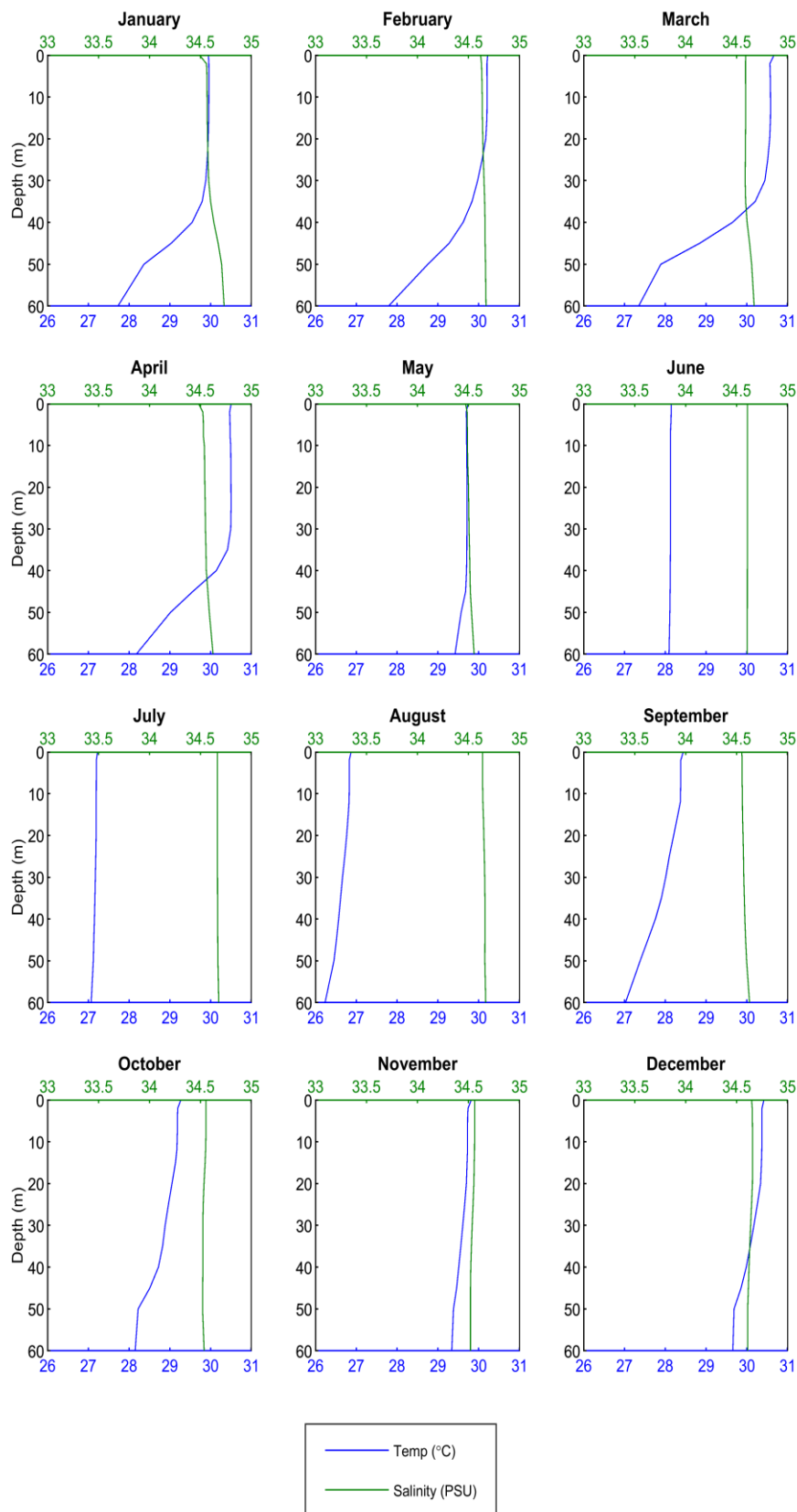


Figure 5-3 Monthly temperature and salinity profiles throughout the water column adjacent to the mid-point release location between the WYE and Petrel riser platform.

6 OIL SPILL MODEL SIMAP

The spill modelling was carried out using a purpose-developed oil spill trajectory and fates model, SIMAP (e.g., French et al., 1999; French-McCay, 2003, 2004; French-McCay et al., 2004; 2021; 2022a; 2022b). This model is designed to simulate the transport and weathering processes that affect the outcomes of hydrocarbon spills to the sea, accounting for the specific oil type, spill scenario, and prevailing wind and current circulation patterns.

SIMAP is the evolution of the United States Environmental Protection Agency (US EPA) Natural Resource Damage Assessment model (French et al., 1999) and is designed to simulate the fate and effects of spilled oils and fuels for both the surface slick and the three-dimensional plume that is generated in the water column. SIMAP includes algorithms to account for both physical transport and weathering processes. The latter are important for accounting for the partitioning of the spilled mass over time between the water surface (surface slick), water column (entrained oil and dissolved compounds), atmosphere (evaporated compounds) and land (stranded oil). The model also accounts for the interaction between weathering and transport processes.

The physical algorithms calculate transport and spreading by physical forces, including surface tension, gravity and wind and current forces for both surface slicks and oil within the water column. The fates algorithms calculate all the weathering processes known to be important for oil spilled to marine waters. These include droplet and slick formation, entrainment by wave action, emulsification, dissolution of soluble components, sedimentation, evaporation, bacterial and photo-chemical decay and shoreline interactions. These algorithms account for the specific oil type being considered.

Entrainment is the physical process where globules of oil are transported from the sea surface into the water column by wind and wave-induced turbulence or be generated subsea by a pressurised discharge at depth. It has been observed that entrained oil is broken into droplets of varying sizes. Small droplets spread and diffuse into the water column, while larger ones rise rapidly back to the surface (Delvigne and Sweeney, 1988; Delvigne, 1991).

Dissolution is the process by which soluble hydrocarbons enter the water from a surface slick or from entrained droplets. The lower molecular weight hydrocarbons tend to be both more volatile and more soluble than those of higher molecular weight.

The formation of water-in-oil emulsions, or mousse, which is termed 'emulsification', depends on oil composition and sea state. Emulsified oil can contain as much as 80% water in the form of micrometre-sized droplets dispersed within a continuous phase of oil (Daling and Brandvik, 1991; Bobra, 1991; Daling et al., 1997; Fingas, 1995; 1997).

Entrainment, dissolution and emulsification rates are correlated to wave energy, which is accounted for by estimating wave heights from the sustained wind speed, direction and fetch (i.e. distance downwind from land barriers) at different locations in the domain. Dissolution rates are dependent upon the proportion of soluble, short-chained hydrocarbon compounds, and the surface area at the oil/water interface of slicks. Dissolution rates are also strongly affected by the level of turbulence. For example, dissolution rates will be relatively high at the site of the release for a deep-sea discharge at high pressure.

Evaporation can result in the transfer of large proportions of spilled oil from the sea surface to the atmosphere, depending on the type of oil. Evaporation rates vary over space and time dependent on the prevailing sea temperatures, wind and current speeds, the surface area of the slick and entrained droplets that are exposed to the atmosphere as well as the state of weathering of the oil. Evaporation rates will decrease over time, depending on the calculated rate of loss of the more volatile compounds. By this process, the model can differentiate between the fates of different oil types.

Decay (degradation) of hydrocarbons may occur as the result of photolysis, which is a chemical process energised by ultraviolet light from the sun, and by biological breakdown, termed biodegradation. Many types of marine organisms ingest, metabolise and utilise oil as a carbon source, producing carbon dioxide and water as by-products.

The SIMAP weathering algorithms include terms to represent these dynamic processes. Technical descriptions of the algorithms used in SIMAP and validations against real spill events are provided in French et al. (1999) and French-McCay (2004).

Input specifications for oil types include density, viscosity, pour-point, distillation curve (volume of oil distilled off versus temperature) and the aromatic/aliphatic component ratios within given boiling point ranges. The model calculates a distribution of the oil by mass into the following components:

- Surface-bound or floating oil;
- Entrained oil (non-dissolved oil droplets that are physically entrained by wave action);
- Dissolved hydrocarbons (principally the aromatic and short-chained aliphatic compounds);
- Evaporated hydrocarbons;
- Sedimented hydrocarbons; and
- Decayed hydrocarbons.

7 THRESHOLDS

The SIMAP model will track oil concentrations to very low levels. Hence, it is useful to define meaningful threshold concentrations for the recording of contact by oil components and determining the probability of exposure at a location (calculated from the number of replicate simulations in which this contact occurred).

The judgement of meaningful levels is complicated and will depend upon the mode of action, sensitivity of the biota contacted, the duration of the contact and the toxicity of the compounds that are represented in the oil. The latter factor is further complicated by the change in the composition of an oil type over time due to weathering processes. Without specific testing of the oil types, at different states of weathering against a wide range of the potential local receptors, such considerations are beyond the scope of this investigation.

It is important to note that the thresholds herein are based on the thresholds outlined in the NOPSEMA Oil Spill Modelling information paper (NOPSEMA, 2025), which are summarised in Table 7-1. Their relationship to exposure for the sea surface, shoreline, and water column (entrained and dissolved hydrocarbons) are presented in Sections 7.1 to 7.3. Supporting justifications of the adopted thresholds applied during the study and additional context relating to the area of exposure are also provided.

Table 7-1 Summary of the thresholds applied in this study.

Floating Oil Concentration (g/m²)	Shoreline Oil Accumulation (g/m²)	Entrained Hydrocarbons Concentration (ppb)	Instantaneous Dissolved Hydrocarbons (ppb)
1	10	10	10
10	100	100	50
50	1,000	1,000	300

7.1 Floating Oil

Floating oil concentrations are relevant to describing the risks of oil coating emergent reefs, vegetation in the littoral zone and shoreline habitats, as well as the risk to wildlife found on the water surface, such as marine mammals, reptiles, and birds. Floating oil is also visible at relatively low concentrations ($> \sim 0.05$ g/m²). Hence, the area affected by visible oil, which might trigger social or economic impacts, will be larger than the area where biological impacts might be expected.

The low threshold for floating oil exposure was set to 1 g/m², which equates approximately to an average thickness of 1 μ m. It represents the practical limit of observing hydrocarbon sheens in the marine environment. This threshold is considered below levels which would cause environmental harm and is more indicative of the areas perceived to be affected due to its visibility on the sea-surface and potential to trigger temporary closures of areas (i.e., fishing grounds) as a precautionary measure.

Oil of this thickness is described as rainbow sheen in appearance, according to the Bonn Agreement Oil Appearance Code (Bonn Agreement, 2009; AMSA, 2014) (see Table 7-2). Figure 7-1 shows photographs highlighting the difference in appearance between a silvery sheen, rainbow sheen and metallic sheen.

Ecological impact has been estimated to occur at 10 g/m² (a film thickness of approximately 10 μ m or 0.01 mm) (French et al., 1996; French-McCay, 2009) as this level of fresh oiling has been observed to mortally impact some birds through adhesion of oil to their feathers, exposing them to secondary effects such as hypothermia. The appearance of oil at this average thickness has been described as a metallic sheen (Bonn Agreement, 2009). Concentrations above 10 g/m² are also considered the lower actionable threshold, where oil may be thick enough for containment and recovery as well as dispersant treatment (AMSA, 2023).

Oil concentrations on the sea surface of 25 g/m² (or greater) would be harmful for all birds that have landed in an oil film due to potential contamination of their feathers, with secondary effects such as loss of temperature regulation and ingestion of oil through preening (Scholten et al., 1996; Koops et al., 2004). The appearance of oil at this thickness is also described as metallic sheen (Bonn Agreement, 2009). For this

study the high exposure threshold was set to 50 g/m² and above based on NOPSEMA (2025). This threshold can also be used to inform response planning. Table 7-3 is a summary of each threshold.

Table 7-2 The Bonn Agreement Oil Appearance Code.

Code	Description Appearance	Layer Thickness Interval (g/m ² or µm)	Litres per km ²
1	Sheen (silvery/grey)	0.04 – 0.30	40 – 300
2	Rainbow	0.30 – 5.0	300 – 5,000
3	Metallic	5.0 – 50	5,000 – 50,000
4	Discontinuous True Oil Colour	50 – 200	50,000 – 200,000
5	Continuous True Oil Colour	≥ 200	≥ 200,000

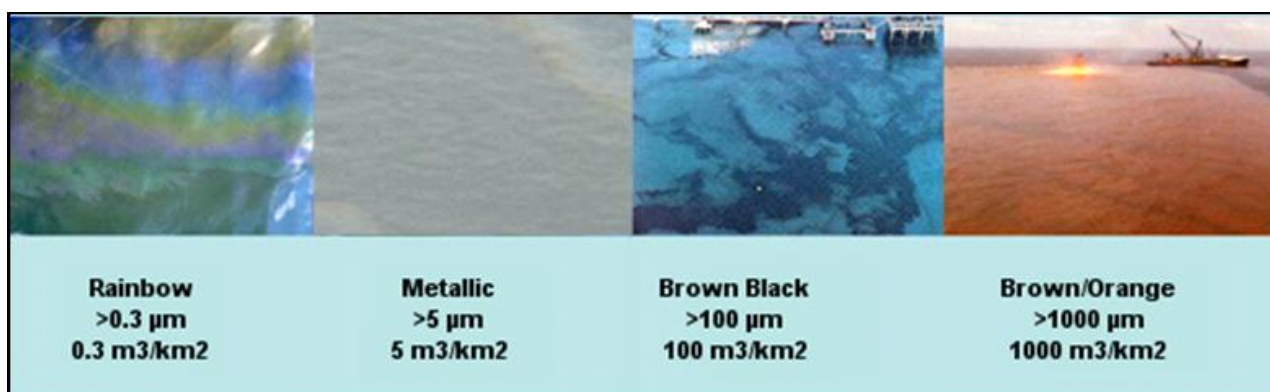


Figure 7-1 Photographs showing the difference between oil colour and thickness on the sea surface (source: adapted from Oil Spill Solutions, 2015).

Table 7-3 Floating oil exposure thresholds used in the oil spill modelling study (in alignment with NOPSEMA, 2025).

Threshold level	Floating oil (g/m ²)	Description
Low	1	Approximates range of socio-economic effects and establishes planning area for scientific monitoring
Moderate	10	Approximates lower limit for harmful exposures to birds and marine mammals
High	50*	Approximates surface oil slick and informs response planning

* 50 g/m² also used to define the threshold for actionable floating oil.

7.2 Shoreline Oil Accumulation

There are many different types of shorelines, ranging from cliffs, rocky beaches, sandy beaches, mud flats and mangroves, and each of these influences the volume of oil that can remain stranded ashore and its thickness before the shoreline saturation point occurs. For instance, a sandy beach may allow oil to percolate through the sand, thus increasing its ability to hold more oil ashore over tidal cycles and various wave actions than an equivalent area of water; hence oil can increase in thickness onshore over time. A sandy beach shoreline was assumed as the default shoreline type for the modelling in this study, as it allows for the highest carrying capacity of oil (of the available open/exposed shoreline types).

In, previous risk assessment studies, a threshold of 10 g/m² was used to assess the potential for shoreline accumulation (French-McCay et al., 2005a; 2005b). This is a conservative threshold used to define regions of socio-economic impact, such as triggering temporary closures of adjoining fisheries or the need for shore clean-up on beaches or man-made features/amenities (breakwaters, jetties, marinas, etc.). It would equate to approximately 2 teaspoons of hydrocarbon per square meter of shoreline accumulation. The appearance is described as a stain/film. On that basis, the 10 g/m² has been selected to define the low threshold.

French et al. (1996) and French-McCay (2009) define a shoreline oil accumulation threshold of 100 g/m², or above, would potentially harm shorebirds and wildlife (fur-bearing aquatic mammals and marine reptiles on or along the shore) based on studies for sub-lethal and lethal impacts. This threshold has been used in previous environmental risk assessment studies (see French-McCay, 2003; French-McCay et al., 2004; French-McCay et al., 2011; 2012; NOAA, 2013). Additionally, this threshold is also recommended in AMSA's foreshore assessment guide as the acceptable minimum thickness that does not inhibit the potential for recovery and is best remediated by natural coastal processes alone (AMSA, 2023). This threshold equates to approximately ½ a cup of oil per square meter of shoreline accumulation and is described as a thin oil coat. The 100 g/m² has been selected to define the moderate threshold.

Observations by Lin and Mendelssohn (1996) demonstrated that loadings of more than 1,000 g/m² of hydrocarbon during the growing season would be required to impact marsh plants significantly. Similar thresholds have been found in studies assessing hydrocarbon impacts on mangroves (Grant et al., 1993; Suprayogi and Murray, 1999). This loading equates to approximately 1 litre of hydrocarbon per square meter of shoreline accumulation and the appearance is described as a hydrocarbon cover. A loading of 1,000 g/m² has been selected to define high threshold.

Table 7-4 is a summary of each threshold.

Table 7-4 Shoreline accumulation thresholds used in oil spill modelling study (in alignment with NOPSEMA, 2025).

Threshold level	Shoreline loading (g/m ²)	Description
Low	10	Predicts potential for some socio-economic impact
Moderate	100*	Loading predicts area likely to require clean-up effort
High	1,000	Loading predicts area likely to require intensive clean-up effort

* 100 g/m² also used to define the threshold for actionable shoreline oil.

7.3 In-water

Oil is a mixture of thousands of hydrocarbons of varying physical, chemical, and toxicological characteristics, and therefore, demonstrates varying fates and impacts on organisms. As such, for in-water exposure, the SIMAP model provides separate outputs for dissolved and entrained hydrocarbons from oil droplets. The consequences of exposure to dissolved and entrained components will differ because they have different modes and magnitudes of effect.

Entrained hydrocarbon concentrations were calculated based on oil droplets that are suspended in the water column, though not dissolved. The composition of this oil would vary with the state of weathering (oil age) and may contain soluble hydrocarbons when the oil is fresh. Calculations for dissolved hydrocarbons specifically calculates oil components which are dissolved in water, which are known to be the primary source of toxicity exerted by oil.

A complicating factor that should be considered when assessing the consequence of dissolved and entrained oil distributions is that there will be some areas where both physically entrained oil droplets and dissolved hydrocarbons co-exist. Higher concentrations of each will tend to occur close to the source where sea conditions can force mixing of relatively unweathered oil into the water column, resulting in more rapid dissolution of soluble compounds.

7.3.1 Dissolved Hydrocarbons

Laboratory studies have shown that dissolved hydrocarbons exert most of the toxic effects of oil on aquatic biota (Carls et al., 2008; Nordtug et al., 2011; Redman, 2015). The mode of action is a narcotic effect, which is positively related to the concentration of soluble hydrocarbons in the body tissues of organisms (French-McCay, 2002). Dissolved hydrocarbons are taken up by organisms directly from the water column by absorption through external surfaces and gills, as well as through the digestive tract. Thus, soluble hydrocarbons are termed “bioavailable”.

Hydrocarbon compounds vary in water-solubility and the toxicity exerted by individual compounds is inversely related to solubility, however bioavailability will be modified by the volatility of individual compounds (Nirmalakhandan and Speece, 1988; Blum and Speece, 1990; McCarty, 1986; McCarty et al., 1992a; 1992b; McCarty and Mackay, 1993; Verhaar et al., 1992; 1999; Swartz et al., 1995; French-McCay, 2002; McGrath & Di Toro, 2009). Of the soluble compounds, the greatest contributor to toxicity for water-column and benthic organisms are the lower-molecular-weight aromatic compounds, which are both volatile and soluble in water. Although they are not the most water-soluble hydrocarbons within most oil types, the polynuclear aromatic hydrocarbons (PAHs) containing 2 – 3 aromatic ring structures typically exert the largest narcotic effects because they are semi-soluble and not highly volatile, so they persist in the environment long enough for significant accumulation to occur (Anderson et al., 1974; 1987; Neff and Anderson, 1981; Malins and Hodgins, 1981; McAuliffe, 1987; NRC, 2003). The monoaromatic hydrocarbons (MAHs), including the BTEX compounds (benzene, toluene, ethylbenzene, and xylenes), and the soluble alkanes (straight chain hydrocarbons) also contribute to toxicity, but these compounds are highly volatile, so that their contribution will be low when oil is exposed to evaporation and higher when oil is discharged at depth where volatilisation does not occur (French-McCay, 2002).

French-McCay (2002) reviewed available toxicity data, where marine biota was exposed to dissolved hydrocarbons prepared from oil mixtures, finding that 95% of species and life stages exhibited 50% population mortality (LC₅₀) between 6 and 400 ppb (with an average of 50 ppb) total PAH concentration after 96 hrs exposure. Therefore, concentrations lower than 6 ppb total PAH value should be protective of 97.5% of species and life stages even with exposure periods of days (at least 96 hours). Early life-history stages of fish appear to be more sensitive than older fish stages and invertebrates.

Exceedances of 10, 50 or 300 ppb over a 1-hour timestep (see Table 7-5) were applied in this study to indicate the increasing potential for sub-lethal to lethal toxic effects (or low to high), based on NOPSEMA (2025).

7.3.2 Entrained Hydrocarbons

Entrained hydrocarbons consist of oil droplets that are suspended in the water column and insoluble. Insoluble compounds in oil cannot be absorbed from the water column by aquatic organisms, therefore they are not bioavailable through absorption of compounds from the water. Exposure to these compounds would require routes of uptake other than absorption of soluble compounds. The route of exposure of organisms to whole oil alone include direct contact with tissues of organisms and uptake of oil by direct consumption, with potential for biomagnification through the food chain (NRC, 2003).

Thresholds of 10 ppb, 100 ppb and 1,000 ppb were applied over a 1-hour time exposure (Table 7-5) as per NOPSEMA Oil Spill Modelling information paper (NOPSEMA, 2025).

Table 7-5 Dissolved and entrained hydrocarbon exposure thresholds assessed over a 1-hour time step used in the oil spill modelling study (in alignment NOPSEMA, 2025).

	Exposure level	In-water threshold (ppb)	Description
Dissolved hydrocarbons	Low	10	Establishes planning area for scientific monitoring based on potential for exceedance of water quality triggers
	Moderate	50	Approximates potential toxic effects, particularly sublethal effects to sensitive species
	High	300	Approximates toxic effects including lethal effects to sensitive species
Entrained hydrocarbons	Low	10	Establishes planning area for scientific monitoring based on potential for exceedance of water quality triggers
	Moderate	100	As appropriate given oil characteristics for informing risk evaluation
	High	1,000	Approximates potential toxic effects, particularly sublethal effects to sensitive species

8 DISPERSION COEFFICIENTS AND MIXED LAYER DEPTH

A horizontal dispersion coefficient of $10 \text{ m}^2/\text{s}$ was used to account for dispersive processes affecting the floating oil on the surface, which are below the resolution scale of the current data. The value is based on a typical value for open waters (Okubo, 1971).

Vertical dispersion coefficients (D_v) were used to represent the turbulent mixing and diffusion processes in the wave-mixed layer in the upper water column with values of $79 \text{ cm}^2/\text{s}$ at WYE release location, $66 \text{ cm}^2/\text{s}$ at the Petrel riser platform release location, and $68 \text{ cm}^2/\text{s}$ at the mid-point release location between the WYE and Petrel riser platform. These are site-specific values computed using the 50th percentile wind speed of 9 knots at the WYE release location and approximately 10 knots at the Petrel riser platform release location and at the mid-point release location, derived from the 10-year dataset (at 10 m above the sea surface, W_{10}) based on French-McCay (2004).

The mixed layer depth corresponds to the top layer of the water column, where vertical mixing is strong enough to cause uniform temperature and salinity, and is influenced by factors including wind, ocean currents and waves. The 50th percentile value at the site was calculated using Copernicus' 10 years (2010 to 2019) monthly averaged mixed layer depth data and were found to be 17 m (WYE), 20 m (Petrel riser platform), and 18 m (mid-point release location between the WYE and Petrel riser platform).

9 HYDROCARBON PROPERTIES

The physical properties and boiling point distributions of the MDO are presented in Table 9-1 and Table 9-2, respectively.

MDO has a density of 890.0 kg/m³ at 15°C (API gravity of 27.5) and a -9.0°C pour point. Its low viscosity of 14.0 cP at 25°C indicates that this oil will spread upon release, forming a thin film on the sea surface, which enhances the rate of evaporation.

MDO is a mixture of volatile and persistent hydrocarbons (see Table 9-2), with 4% of the mass expected to evaporate within the first 12 hours (boiling point (BP) < 180°C); a further 32% should evaporate within the first 24 hours (180°C < BP < 265°C); and an additional 54% is anticipated to evaporate within four weeks (265°C < BP < 380°C). A further 10% of the mass will not evaporate but will decay slowly over time. According to AMSA (2023) classifications, MDO is categorised as a Group II light-persistent oil.

The heavier components, particularly the low volatile and persistent fractions, tend to become entrained in the upper water column due to wind-generated waves, which typically begin to occur under moderate wind conditions (above 10 knots). However, these components can resurface as the wind waves subside under calm conditions (less than 10 knots).

Table 9-1 Physical properties for MDO used as part of the modelling study.

Properties	MDO
Density (kg/m ³) at 15°C	890.0
API	27.5
Dynamic viscosity (cP)	14.0 (at 25°C)
Wax content (%)	1
Pour point (°C)	-9.0
Hydrocarbon property category	Group II
Hydrocarbon property classification	Light persistent

Table 9-2 Boiling point ranges for MDO used as part of the modelling study.

Name	Volatiles (%)	Semi-volatiles (%)	Low volatiles (%)	Residual (%)
Boiling point (°C)	< 180	180-265	265-380	> 380
	Non persistent			Persistent
MDO	4	32	54	10

9.1 MDO Weathering Characteristics

A series of weathering tests were conducted to illustrate the potential behaviour following a 50 m³ instantaneous surface release of MDO when exposed to:

- 5 knot (2.6 m/s) constant wind speed, 27°C water temperature and currents; and
- Variable wind speeds (1 – 12 m/s or 2 to 23 knots), 27°C water temperature and currents.

The first case is indicative of the potential weathering rates under calm conditions that would not generate entrainment, while the second case would be more representative of the moderate winds experienced over the region.

The mass balance forecast for the constant wind case (Figure 9.1) shows that 36.1% of the MDO is predicted to evaporate within 24 hours. The remaining MDO on the water surface will weather at a slower rate and be subject to more gradual decay through biological and photochemical processes.

For the variable wind speed case (Figure 9.2), after 24 hours, 30% of the mass had evaporated, while 65% was expected to have entrained. Approximately, 2.6% of floating oil remains on the water surface. The low volatile and residual compounds are anticipated to entrain beneath the surface under conditions that generate wind waves ($> \sim 12$ knots). While the MDO is entrained, it is forecast to decay at a higher rate of 2.3% per day or 16% after 7 days, attributed to biological and photochemical degradation. This contrasts with a rate of 0.4% per day and a total of $\sim 2.8\%$ after 7 days for the constant-wind case. Given the proportion of entrained MDO and its tendency to remain mixed in the water column, the remaining hydrocarbons are expected to undergo decay over several weeks.

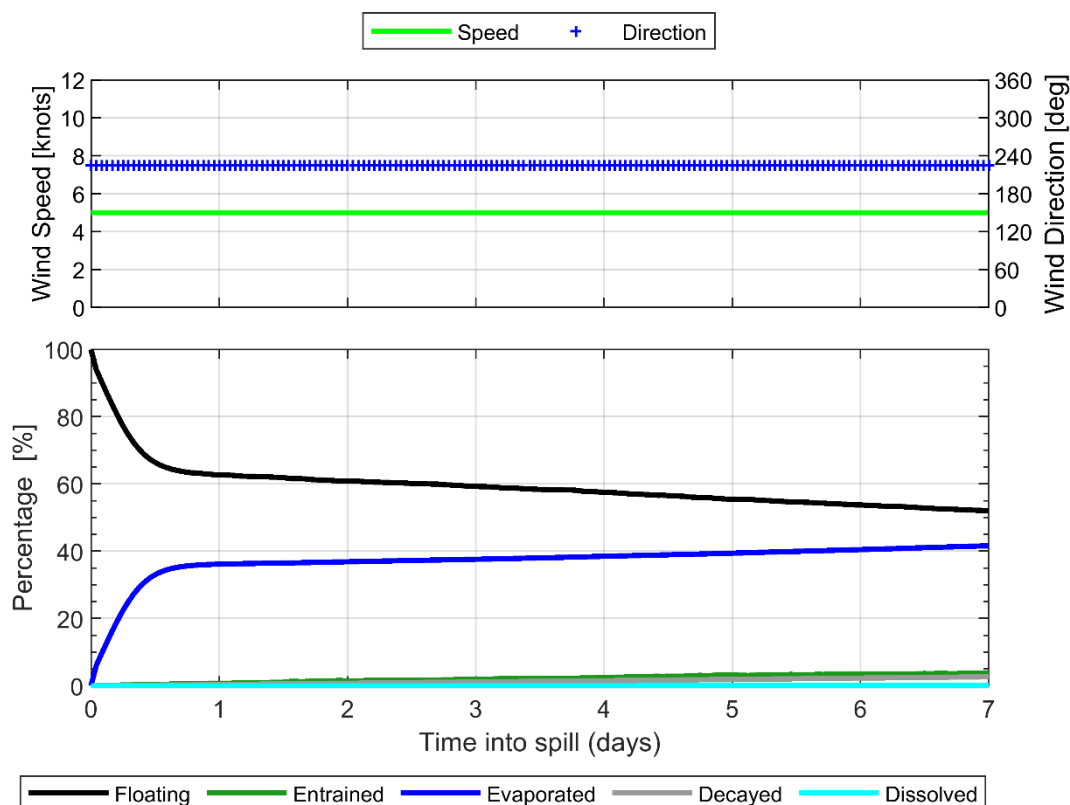


Figure 9.1 Mass balance plot for an instantaneous 50 m³ surface release of MDO subjected to a constant 5 knot (2.6 m/s) wind, currents and 27°C water temperature.

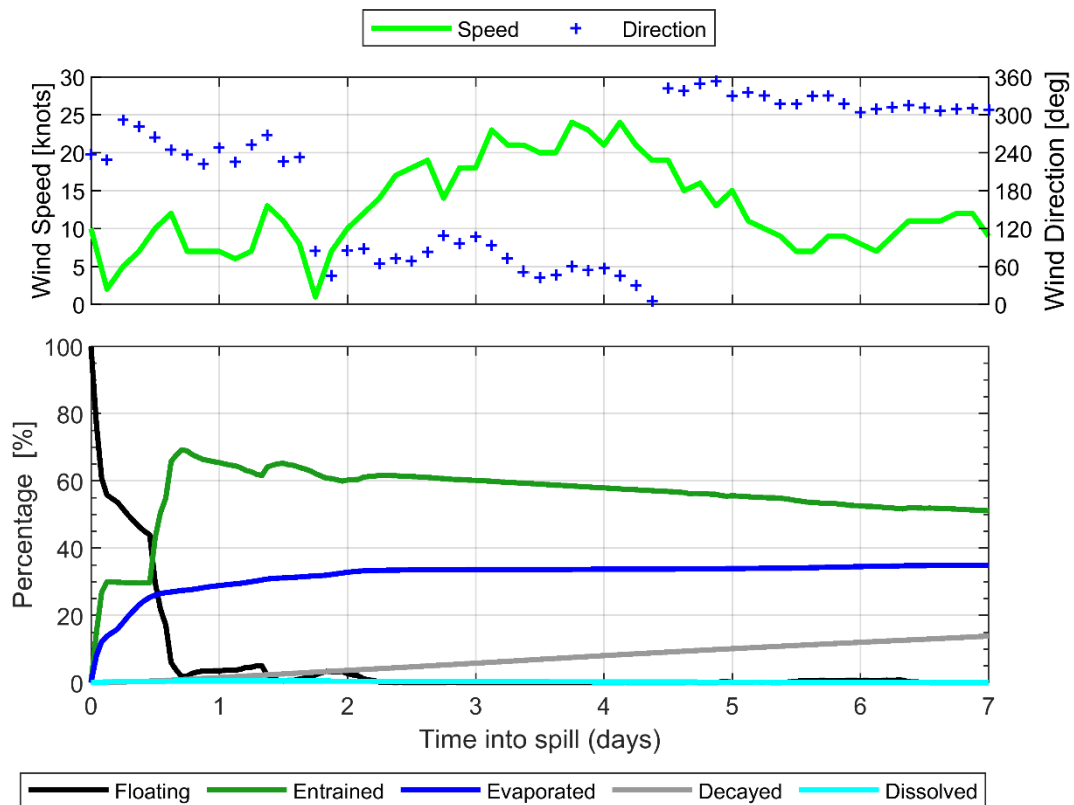


Figure 9.2 Mass balance plot for an instantaneous 50 m³ surface release of MDO subjected to variable wind speeds of 2 to 23 knots (1-12 m/s), currents and 27°C water temperature.

10 RECEPTORS

A comprehensive receptor database was compiled from multiple sources to assess floating oil, in-water column exposure (entrained and dissolved hydrocarbons), and shoreline oil accumulation. These sources include:

- Protected Matters Search Tool (PMST) from Department of Climate Change, Energy, the Environment and Water (<https://pmst.environment.gov.au>);
- Shoreline cells from the Western Australia Marine Oil Pollution Risk Assessment Protection Priorities (<https://www.transport.wa.gov.au/imagine/preparedness-response-resources.asp>); and
- Additional receptors, such as Habitat Critical to Turtles from Department of Climate Change, Energy, the Environment and Water (<https://fed.dcceew.gov.au>).

Table 10-1 summarises the receptors assessed for hydrocarbon exposure and presented in the report. Exposure risks were calculated separately for each receptor, with results presented only for those predicted to exceed the minimum exposure thresholds. The assessment also includes exposure within Western Australian State Waters (WA State Waters) and Northern Territory Waters (NT Waters).

Table 10-2 lists the receptors that the release location falls within, therefore, the results commentary for the given receptor is omitted; however, the results are included in the tables.

Table 10-1 Summary of receptors assessed for hydrocarbon exposure.

Receptor Category	Acronym	Source	Hydrocarbon Exposure Assessment		
			Water Column	Floating oil	Shoreline
5(1)(h) Reserve	S5H	https://fed.dcceew.gov.au	✓	✓	✗
Australian Marine Park	AMP	https://fed.dcceew.gov.au	✓	✓	✗
Botanic Gardens	BG	https://fed.dcceew.gov.au	✓	✓	✗
Coastal Reserve	COR	https://fed.dcceew.gov.au	✓	✓	✗
Commonwealth Heritage Place Historic	CHPH	https://fed.dcceew.gov.au	✓	✓	✗
Commonwealth Heritage Place Natural	CHPN	https://fed.dcceew.gov.au	✓	✓	✗
Conservation Reserve	CR	https://fed.dcceew.gov.au	✓	✓	✗
Habitat Critical to Turtles	TUR	https://fed.dcceew.gov.au	✓	✓	✗
Indigenous Protected Area	IPA	https://fed.dcceew.gov.au	✓	✓	✗
Integrated Marine and Coastal Regionalisation of Australia	IMCRA-MESO ¹ and IMCRA-PROV ²	https://fed.dcceew.gov.au	✓	✓	✗
Interim Biogeographic	IBRA	https://fed.dcceew.gov.au	✓	✓	✗

¹ IMCRA meso-scale bioregions

² IMCRA provincial bioregions

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Regionalisation for Australia					
Key Ecological Feature	KEF	https://fed.dcceew.gov.au	✓	✓	✗
Management Agreement Area	MAA	https://fed.dcceew.gov.au	✓	✓	✗
Marine Park	MP	https://fed.dcceew.gov.au	✓	✓	✗
Marine Region	MR	https://fed.dcceew.gov.au	✓	✓	✗
National Heritage Places Historic	NHPH	https://fed.dcceew.gov.au	✓	✓	✗
National Heritage Places Natural	NHPN	https://fed.dcceew.gov.au	✓	✓	✗
National Marine Reserves	MNP	https://fed.dcceew.gov.au	✓	✓	✗
National Parks	NP	https://fed.dcceew.gov.au	✓	✓	✗
Nationally Important Wetlands	NIW	https://fed.dcceew.gov.au	✓	✓	✗
Natural Resource Management Regions	NRMR	https://fed.dcceew.gov.au	✓	✓	✗
Nature Reserve	NR	https://fed.dcceew.gov.au	✓	✓	✗
Proposed National Parks Act Park or Park Addition	PNPA	https://fed.dcceew.gov.au	✓	✓	✗
Ramsar Wetland	Ramsar	https://fed.dcceew.gov.au	✓	✓	✗
Reefs, Shoals and Banks	RSB	Digital nautical charts	✓	✓	✗
Shipwreck Protection Zones	SPZ	https://fed.dcceew.gov.au	✓	✓	✗
State and Territory Waters	State and Territory Waters	https://www.ga.gov.au/scientific-topics/marine/jurisdiction	✓	✓	✗
Western Australia Marine Oil Pollution Risk Assessment Protection Priorities (WAMOPRA)	Shoreline cells	http://www.transport.wa.gov.au	✓ (Reported as: Nearshore Waters)	✓ (Reported as: Nearshore Waters)	✓ (Reported as: Shoreline Cells)

Table 10-2 Receptors the release location falls, therefore, the results text commentary is omitted, however, the results are included in the tables.

Receptor Category	Name	Location 1 – Vessel collision at the WYE	Location 2 – Vessel collision at Petrel riser platform	Location 3 – Vessel collision at mid-point between the WYE and Petrel riser platform
IMCRA	Bonaparte Gulf	✓	✓	✓
MR	North (Marine)	✗	✓	✓
	North-west (Marine)	✓	✗	✗

11 MODEL SETTINGS

Table 11-1 provides a summary of the oil spill model settings.

The simulation length was carefully determined based on extensive sensitivity testing. During this testing process, sample spill simulations were run for longer than initially intended durations. Upon completion of these spill simulations, the results were carefully assessed to evaluate the persistence of the hydrocarbons. This assessment focussed on when the maximum evaporative loss has been achieved for the period modelled; and whether a substantial volume of hydrocarbons remain in the water column, if any.

Additionally, the extent of floating oil exposure was analysed based on reporting thresholds. Once there was agreement between the two factors, ensuring that the final fate of the hydrocarbons was accounted for, and the full exposure area was identified, the simulation length was deemed appropriate.

Table 11-1 Summary of the oil spill model settings used in this assessment.

Parameter	Location 1 input	Location 2 input	Location 3 input
Description	Vessel collision at the WYE	Vessel collision at the Petrel riser platform	Vessel collision at the mid-point between the WYE and Petrel riser platform
Spill volume	130 m ³		
Oil type	MDO		
Release depth	Surface		
Release duration	1 hour		
Simulation length	20 days		
Number of spill simulations with randomly selected start times	300 total per location (100 per season)		
Seasons	Summer (October to March) Transitional (April and September) Winter (May to August)		
Floating oil (NOPSEMA) thresholds	1 g/m ² , low exposure 10 g/m ² , moderate exposure 50 g/m ² , high exposure		
Shoreline accumulation (NOPSEMA) thresholds	10 g/m ² , low exposure 100 g/m ² , moderate exposure 1,000 g/m ² , high exposure		
Dissolved hydrocarbon (NOPSEMA) thresholds	10 ppb over 1 hour, low exposure 50 ppb over 1 hour, moderate exposure 300 ppb over 1 hour, high exposure		
Entrained hydrocarbon (NOPSEMA) thresholds	10 ppb over 1 hour, low exposure 100 ppb over 1 hour, moderate exposure 1,000 ppb over 1 hour, high exposure		

12 PRESENTATION AND INTERPRETATION OF MODEL RESULTS

12.1 Stochastic Modelling

12.1.1 Calculation of Risk and Potential Exposure

During each simulation, the SIMAP model records the location (by latitude, longitude, and depth) of each particle representing a given mass of oil on, or in, the water column, at regular time intervals. For particles that reach a shoreline, the model records the accumulation of oil mass on each section of the shoreline over time, less any mass that is lost to evaporation and/or removal by currents and winds.

The collective records from all simulations are analysed by dividing the study area into a three-dimensional grid. For oil particles that are classified as being on the water surface (floating oil), the concentration in each grid cell is estimated by summing the mass of all oil particles within that cell (accounting for spreading and dispersion effects) and dividing the cell's area at each time step. For entrained and dissolved hydrocarbon particles, concentrations are calculated at each time step by summing the mass of particles within a grid cell and dividing by the cell's volume.

The concentrations for each grid cell at each time step are then analysed to determine if they exceed defined thresholds over time. The risks are then summarised as follows:

- **Probability of Exposure:** This is calculated by dividing the number of spill simulations where any instantaneous contact occurred above a specified threshold at a given location by the total number of simulations. For example, if exposure occurred at a location during 63 out of 300 simulations, the probability of exposure would be 21%.
- **Minimum Time Before Exposure:** This is determined by the shortest time required for oil at a concentration above a threshold (floating oil, entrained or dissolved or shoreline accumulation) to travel from the source to a specific location in any of the simulations.
- **Maximum Potential Concentration:** This represents the highest mass of oil per square meter predicted to strand at any location along a shoreline receptor during any of the simulations.
- **Average Maximum Concentration:** This is calculated by determining the greatest mass of oil per square meter of shoreline during each simulation and averaging these estimates across all simulations.
- **Entrained and Dissolved Hydrocarbon concentrations:** Similar calculations are performed to calculate maximum and average maximum entrained and dissolved hydrocarbon concentrations.

The minimum time before shoreline oil accumulation and the maximum volume ashore estimates indicate the worst-case simulation for each shoreline receptor. In contrast, the average concentrations provide an estimate of potential outcomes regarding oil stranding.

It is important to note that the shoreline oil accumulation results are derived for individual grid cells, each approximately 1 km in length, rather than for entire shoreline receptor. While receptors may span tens to hundreds of kilometres, we caution against multiplying the maximum concentration estimates by the total length of the receptor, as this would significantly overestimate the total volume expected in that area.

Accumulated concentrations are calculated by summing the mass of oil that arrives at any concentration (including below threshold) over time in a model cell, subtracting any mass lost through evaporation and washing off (i.e., removal) as necessary.

Additionally, oil films arriving on shorelines at concentrations below the threshold may accumulate over the course of a spill event, potentially resulting in concentrations that exceed the threshold. Therefore, the average maximum and maximum concentrations of accumulated oil can surpass the thresholds applied to the probability calculations for floating oil, even if no instantaneous exceedances are predicted.

It is crucial to understand that floating and shoreline concentrations are distinct parameters, calculated differently and representing alternative outcomes. The floating probability estimates and shoreline accumulation estimates should be treated as independent indicators of different exposure outcomes and should not be directly compared.

Lastly, the stochastic modelling results presented in this document reflect predicted outcomes following defined spill events. The probability of the spill scenario occurring is not considered, so the results should be viewed as a guide to the likely outcomes should the spill scenario take place.

12.1.2 Presentation of results

The results detailing the probabilities and minimum times for oil concentrations that equal or exceed defined thresholds for floating oil, shoreline oil accumulation, entrained hydrocarbons, and dissolved hydrocarbons are presented in various tables and figures. These outputs illustrate the predicted risks and exposure to surrounding waters and shorelines, where applicable.

For readers who may not be fully familiar with interpreting stochastic modelling outputs, we recommend consulting the relevant NOPSEMA factsheet (NOPSEMA, 2018) before proceeding with this section of the report.

All stochastic results are presented on an annual basis. To further enhance the understanding of the modelling results, the tailored outputs are provided based on the following calculations:

Areas of exposure - The image depicts the largest spatial extent predicted for each threshold, created by combining all 300 spill simulations according to the defined thresholds for each oil phase as shown in Table 12-1.

Table 12-1 Thresholds for each oil phase used to generate the areas of exposure.

Oil phase	Low	Moderate	High
Floating oil	$\geq 1 \text{ g/m}^2$	$\geq 10 \text{ g/m}^2$	$\geq 50 \text{ g/m}^2$
Shoreline oil accumulation	$\geq 10 \text{ g/m}^2$	$\geq 100 \text{ g/m}^2$	$\geq 1,000 \text{ g/m}^2$
Entrained oil	$\geq 10 \text{ ppb}$	$\geq 100 \text{ ppb}$	$\geq 1,000 \text{ ppb}$
Dissolved hydrocarbons	$\geq 10 \text{ ppb}$	$\geq 50 \text{ ppb}$	$\geq 300 \text{ ppb}$

- Predicted Zones of Potential Exposure and Accumulation** – The maps illustrating zones of floating oil, entrained and dissolved hydrocarbon exposures and shoreline oil accumulation were generated based on the following thresholds:
 - Floating oil zones – 1-10 g/m² (Low threshold), 10-50 g/m² (Moderate threshold) and $\geq 50 \text{ g/m}^2$ (High threshold);
 - Entrained hydrocarbon zones – 10-100 ppb (Low threshold), 100-1,000 ppb (Moderate threshold) and $\geq 1,000 \text{ ppb}$ (high);
 - Dissolved hydrocarbon zones – 10-50 ppb (Low threshold), 50-300 ppb (Moderate threshold) and $\geq 300 \text{ ppb}$ (High threshold); and
 - Shoreline oil accumulation – 10-100 g/m² (Low threshold), 100-1,000 g/m² (Moderate threshold) and $\geq 1,000 \text{ g/m}^2$ (High threshold).
- Cross-Sections of Entrained and Dissolved Hydrocarbon Concentrations** – These images represent the maximum entrained and dissolved hydrocarbon concentrations predicted within the water column, along both east-west and north-south transects in the vicinity of the release location.

13 PROJECT EXPOSURE AREAS

Figure 13-1 illustrates the project exposure areas determined by integrating the results based on the low, moderate and high thresholds (see Section 12.1.1, Table 12-1) from all 900 spill simulations (300 simulations per location).

REPORT

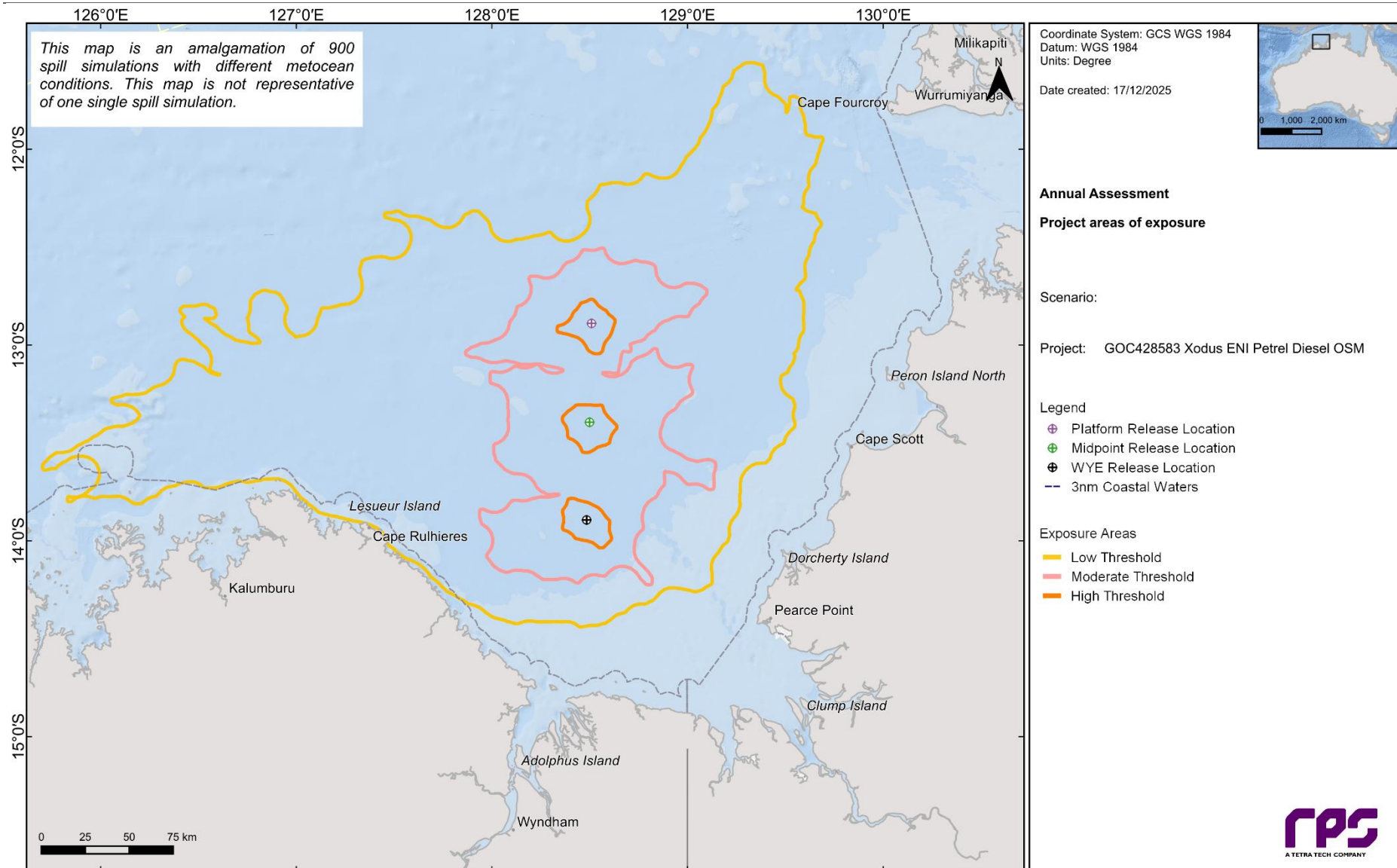


Figure 13-1 Project exposure areas determined by integrating results based on the low, moderate and high thresholds from all 900 spill simulations (300 simulations per location).

14 MODELLING RESULTS: LOCATION 1 - VESSEL COLLISION AT THE WYE

The following section presents the modelling results for a 130 m³ surface release of MDO over 1 hour following a vessel collision at the WYE. The MDO was tracked for a total of 20 days to allow the concentrations to decrease below the lowest reporting thresholds. The modelling assumed no mitigation efforts are undertaken to collect or otherwise affect the natural transport and weathering.

14.1 Stochastic Analysis

14.1.1 Areas of Exposure

Figure 14-1 shows the areas of low, moderate, and high exposure following a vessel collision at the WYE. It depicts the largest spatial extent predicted for each threshold, created by combining all 300 spill simulations according to the defined thresholds for each oil phase (see Section 12, Table 12-1).

REPORT

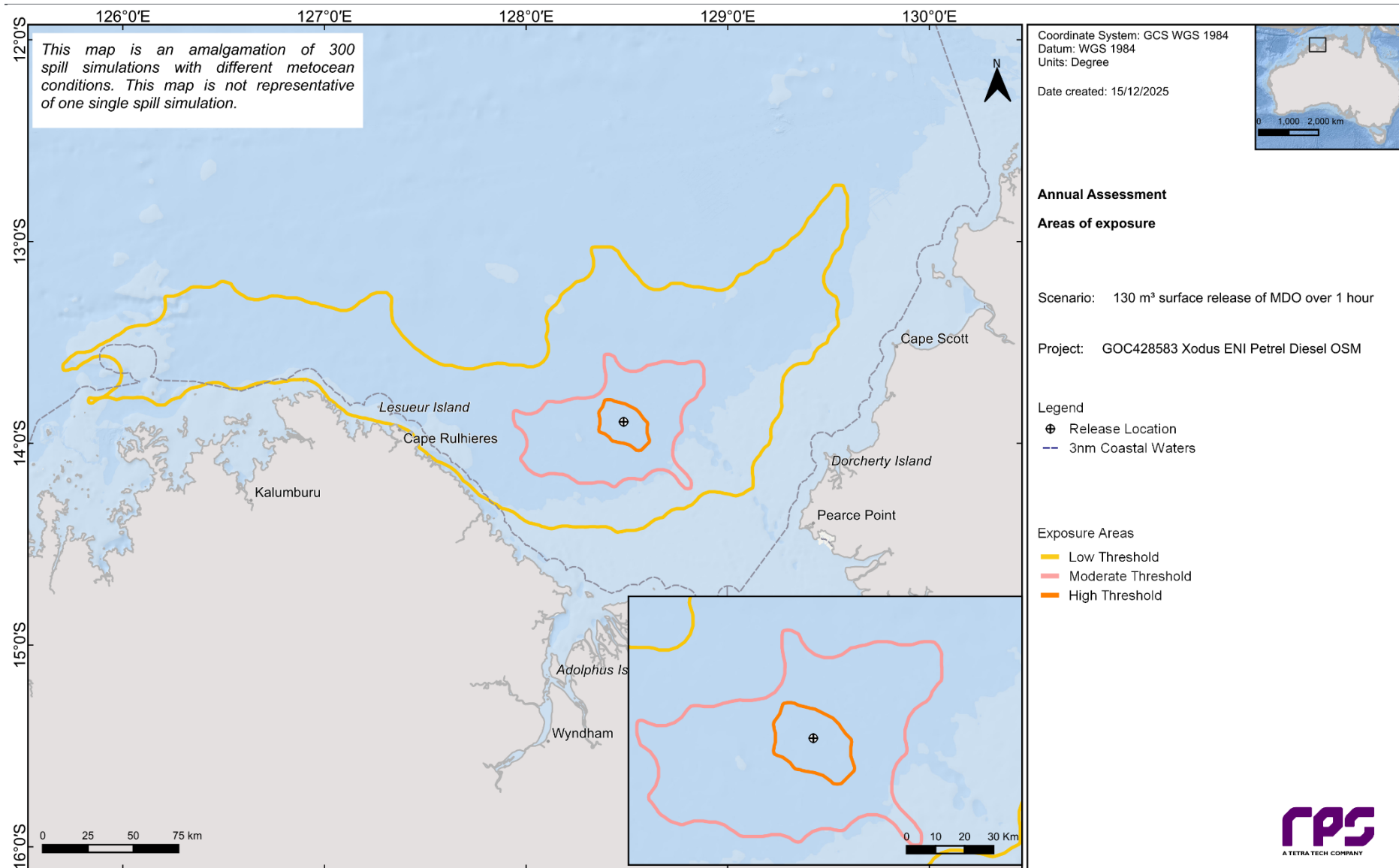


Figure 14-1 Predicted areas of exposure following a vessel collision at the WYE. The results were calculated from all 300 spill simulations and presented as an annual assessment.

14.1.2 Floating Oil Exposure

Table 14-1 shows the maximum distances from the release location to floating oil exposure thresholds for each season. Concentrations exceeding 1 g/m² could extend up to 44 km from the release location, with the distances reducing to 19 km and 9 km as the thresholds increase to 10 g/m² and 50 g/m², respectively.

Table 14-2 to Table 14-4 present the receptors predicted to be exposed by floating oil for each season.

Since the release location falls within the Bonaparte Gulf IMCRA and North-west (Marine) MR, the results commentary for these receptors is omitted; however, the results are included in the table.

The North (Marine) MR receptor recorded the highest probabilities of exposure at, or above, 1 g/m² of 4% during transitional conditions. The same receptor also recorded the fastest time to exposure at 15 hours under transitional conditions.

Figure 14-2 to Figure 14-4 illustrate the for each season, while the probabilities and minimum times before exposure for each threshold are presented in Figure 14-5 to Figure 14-22.

Table 14-1 Maximum distances from the release location to floating oil exposure thresholds following a vessel collision at the WYE. Results were calculated from 100 spill simulations per season.

Season	Distance and direction travelled	Floating oil exposure thresholds		
		≥1 g/m ²	≥10 g/m ²	≥50 g/m ²
Summer	Maximum distance travelled (km) by a spill simulation	38	17	9
	Direction of maximum travel	Southwest	South	Northwest
Transitional	Maximum distance travelled (km) by a spill simulation	44	18	7
	Direction of maximum travel	West	South	Southeast
Winter	Maximum distance travelled (km) by a spill simulation	39	19	5
	Direction of maximum travel	Southeast	Southeast	South

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Table 14-2 Receptors predicted to be exposed by floating oil following a vessel collision at the WYE. The results were calculated from 100 spill simulations and represent summer conditions.

Category	Name	Probability (%) of floating oil at			Minimum times before floating oil exposure at		
		≥ 1 g/m ²	≥ 10 g/m ²	≥ 50 g/m ²	≥ 1 g/m ²	≥ 10 g/m ²	≥ 50 g/m ²
IMCRA-MESO	Bonaparte Gulf ¹	100	100	21	1 hour	1 hour	1 hour
KEF	Carbonate bank and terrace system of the Sahul Shelf	1	NC	NC	1 day, 13 hours	NC	NC
MR	North (Marine)	3	NC	NC	20 hours	NC	NC
	North-west (Marine) ¹	100	100	21	1 hour	1 hour	1 hour
TUR	Cape Domett and Lacrosse Island in the Cambridge Gulf 60 km internersting buffer	1	NC	NC	1 day, 22 hours	NC	NC

NC: No contact to receptor predicted for specified threshold.

¹ Release location falls within the Bonaparte Gulf IMCRA and North-west (Marine) MR

Table 14-3 Receptors predicted to be exposed by floating oil following a vessel collision at the WYE. The results were calculated from 100 spill simulations and represent transitional conditions.

Category	Name	Probability (%) of floating oil at			Minimum times before floating oil exposure at		
		≥ 1 g/m ²	≥ 10 g/m ²	≥ 50 g/m ²	≥ 1 g/m ²	≥ 10 g/m ²	≥ 50 g/m ²
IMCRA-MESO	Bonaparte Gulf ¹	100	100	26	1 hour	1 hour	1 hour
KEF	Carbonate bank and terrace system of the Sahul Shelf	2	NC	NC	1 day, 19 hours	NC	NC
MR	North (Marine)	4	NC	NC	15 hours	NC	NC
	North-west (Marine) ¹	100	100	26	1 hour	1 hour	1 hour

NC: No contact to receptor predicted for specified threshold.

¹ Release location falls within the Bonaparte Gulf IMCRA and North-west (Marine) MR

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Table 14-4 Receptors predicted to be exposed by floating oil following a vessel collision at the WYE. The results were calculated from 100 spill simulations and represent winter conditions.

Category	Name	Probability (%) of floating oil at			Minimum times before floating oil exposure at		
		$\geq 1 \text{ g/m}^2$	$\geq 10 \text{ g/m}^2$	$\geq 50 \text{ g/m}^2$	$\geq 1 \text{ g/m}^2$	$\geq 10 \text{ g/m}^2$	$\geq 50 \text{ g/m}^2$
IMCRA-MESO	Bonaparte Gulf ¹	100	100	34	1 hour	1 hour	1 hour
KEF	Carbonate bank and terrace system of the Sahul Shelf	2	NC	NC	1 days, 23 hours	NC	NC
MR	North (Marine)	1	NC	NC	1 day, 3 hours	NC	NC
	North-west (Marine) ¹	100	100	34	1 hour	1 hour	1 hour
TUR	Cape Domett and Lacrosse Island in the Cambridge Gulf 60 km internersting buffer	1	NC	NC	2 days, 12 hours	NC	NC

NC: No contact to receptor predicted for specified threshold.

¹ Release location falls within the Bonaparte Gulf IMCRA and North-west (Marine) MR

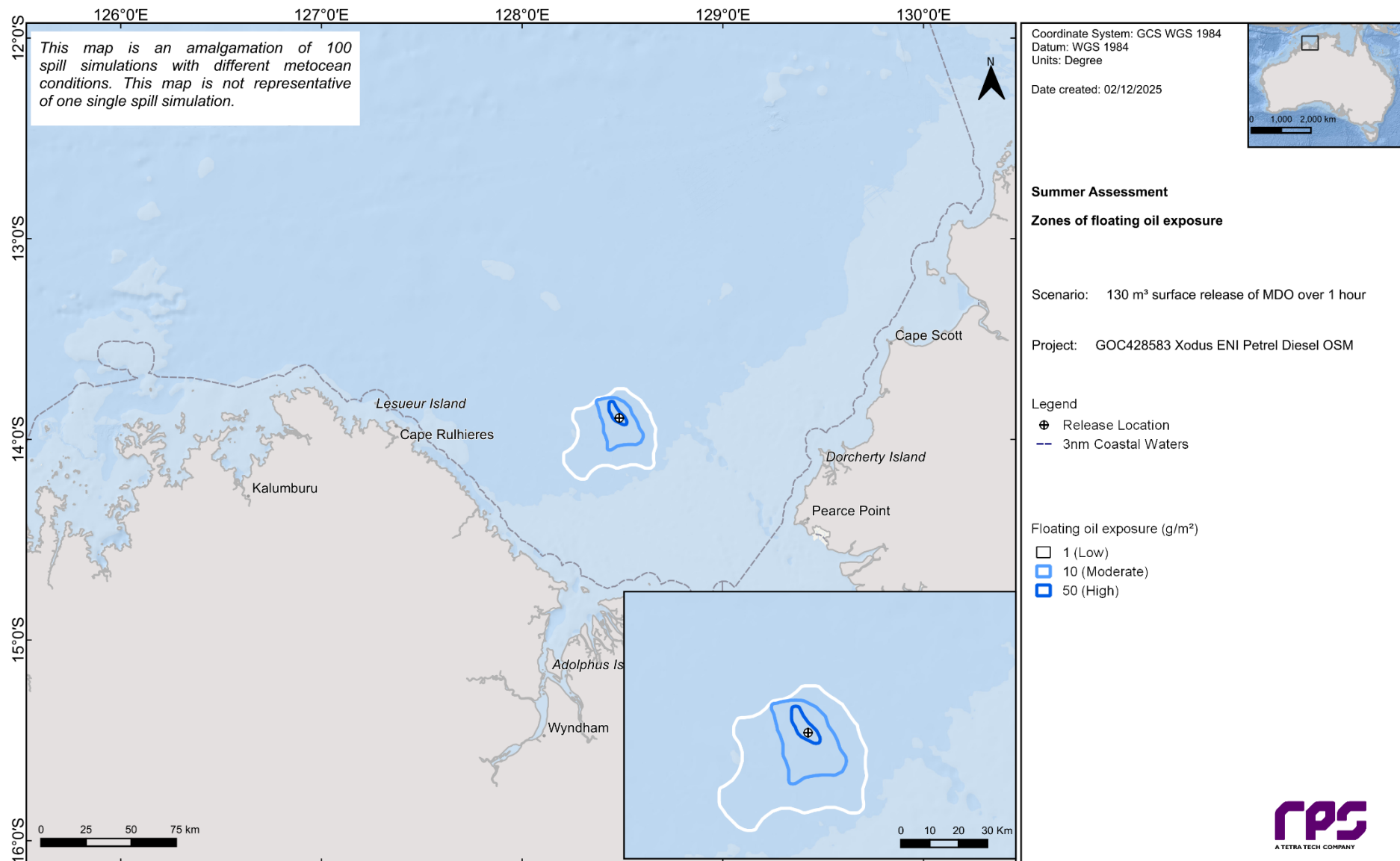


Figure 14-2 Predicted zones of floating oil exposure following a vessel collision at the WYE. The results were calculated from 100 spill simulations and represent summer conditions.

REPORT

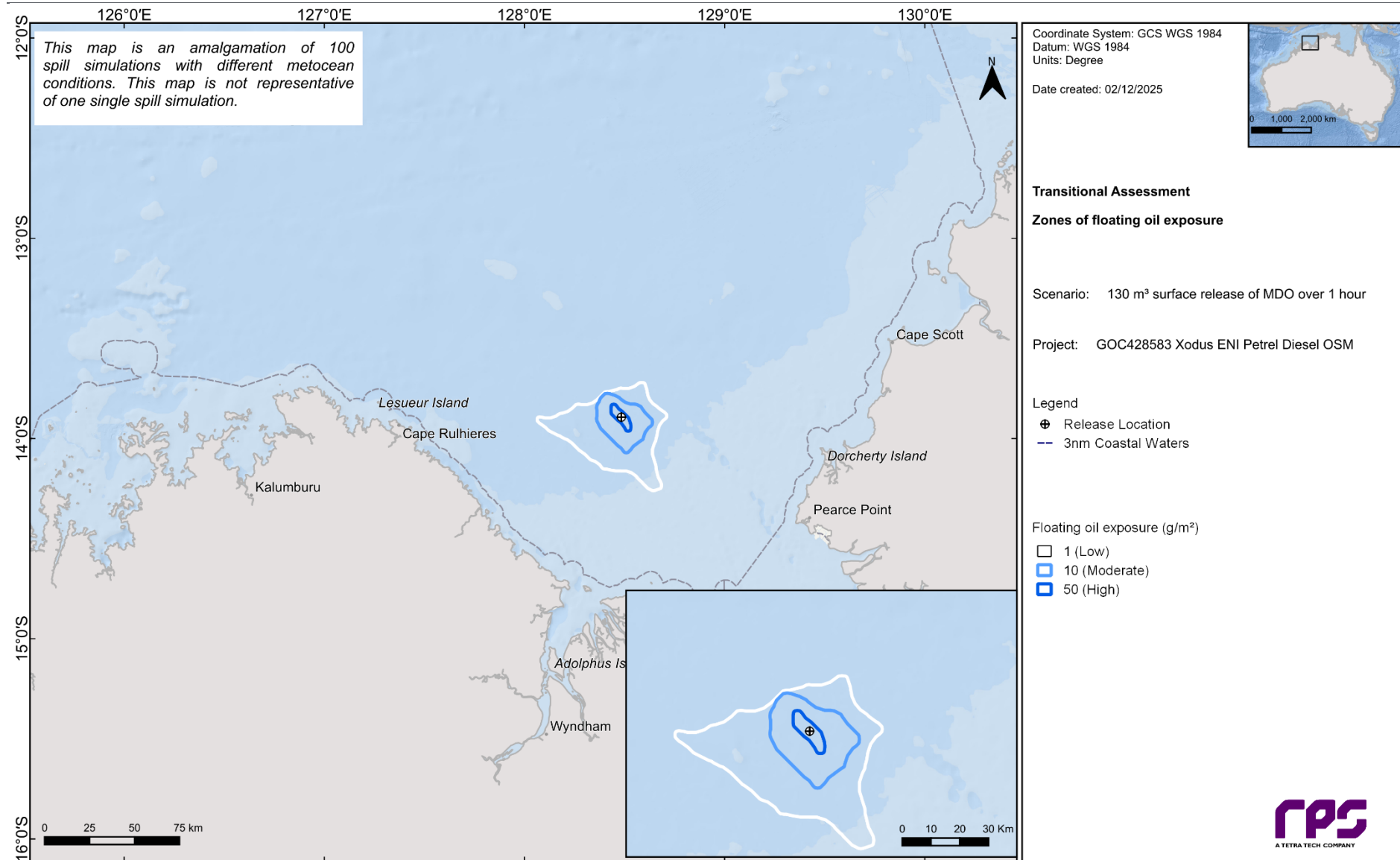


Figure 14-3 Predicted zones of floating oil exposure following a vessel collision at the WYE. The results were calculated from 100 spill simulations and represent transitional conditions.

REPORT

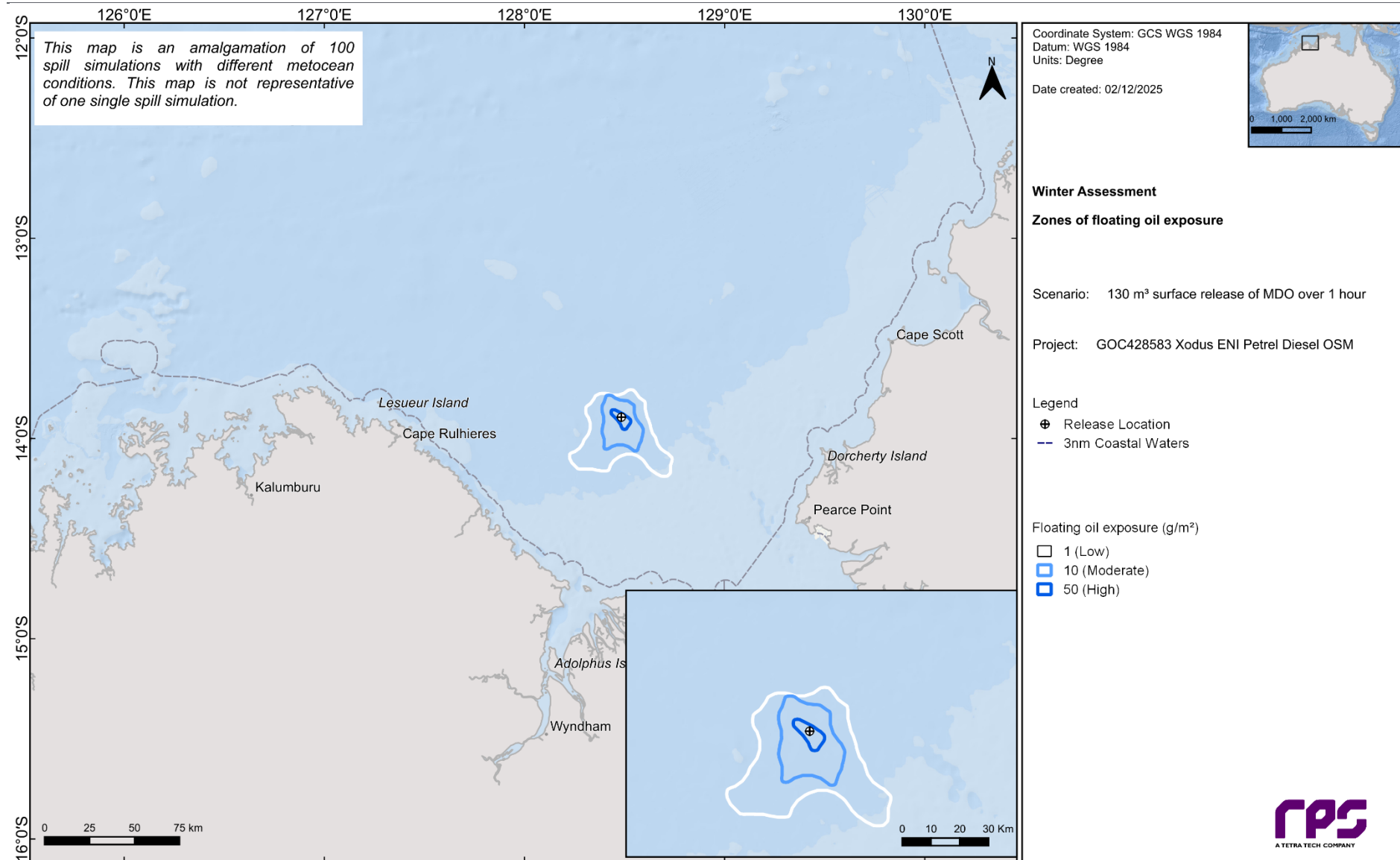


Figure 14-4 Predicted zones of floating oil exposure following a vessel collision at the WYE. The results were calculated from 100 spill simulations and represent winter conditions.

REPORT

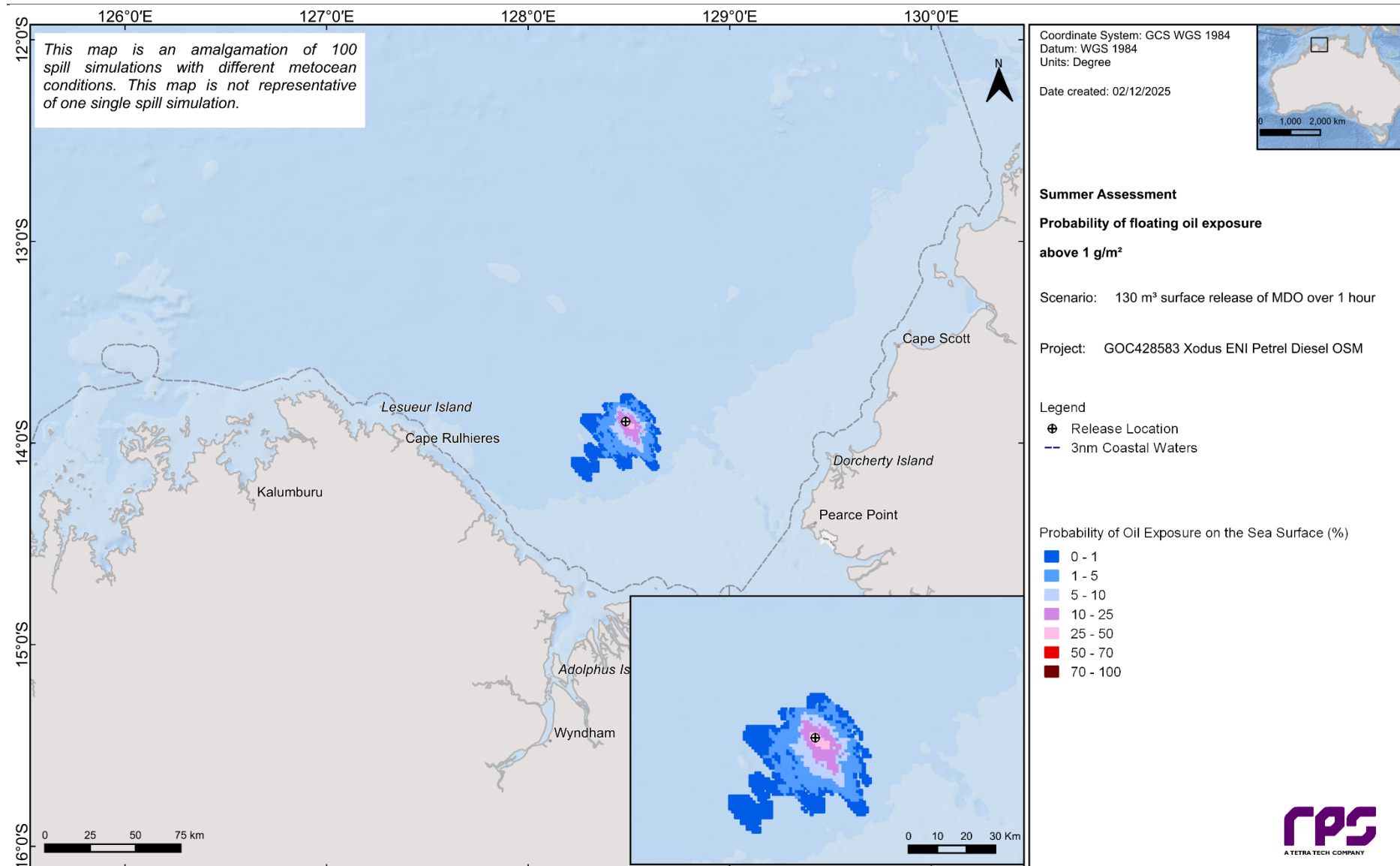


Figure 14-5 Probability of floating oil exposure at, or above, 1 g/m² following a vessel collision at the WYE. The results were calculated from 100 spill simulations and represent summer conditions.

REPORT

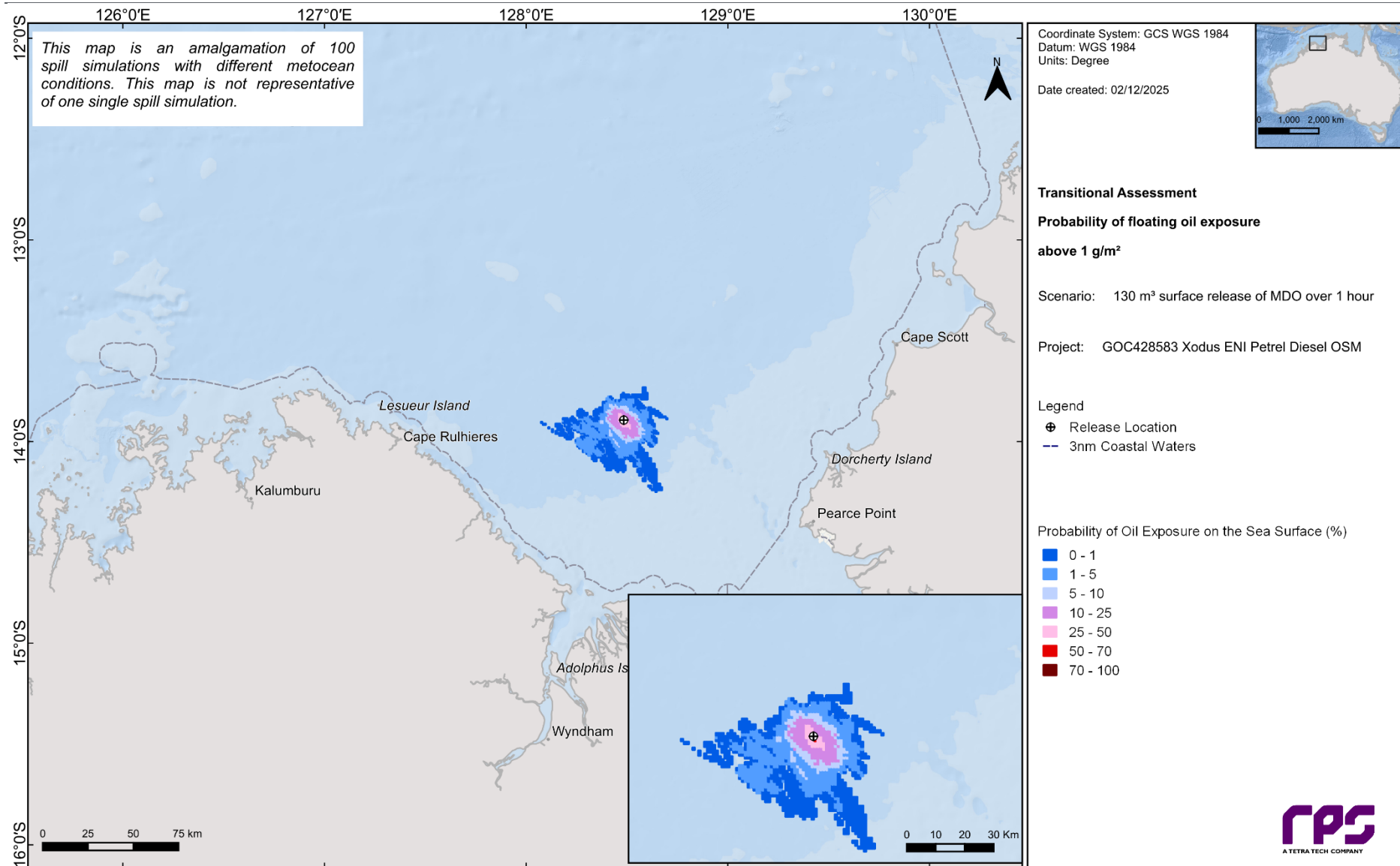


Figure 14-6 Probability of floating oil exposure at, or above, 1 g/m² following a vessel collision at the WYE. The results were calculated from 100 spill simulations and represent transitional conditions.

REPORT

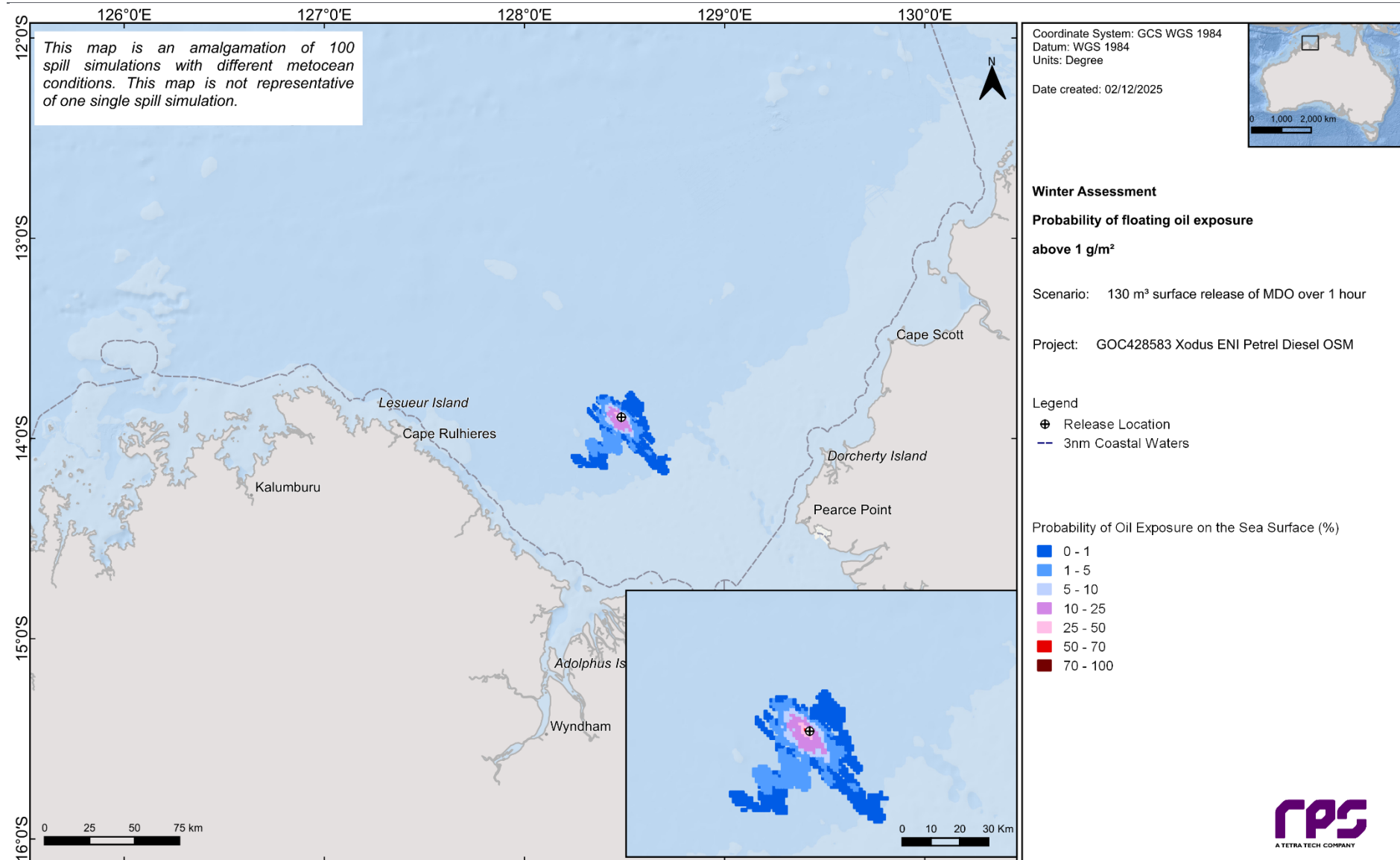


Figure 14-7 Probability of floating oil exposure at, or above, 1 g/m² following a vessel collision at the WYE. The results were calculated from 100 spill simulations and represent winter conditions.

REPORT

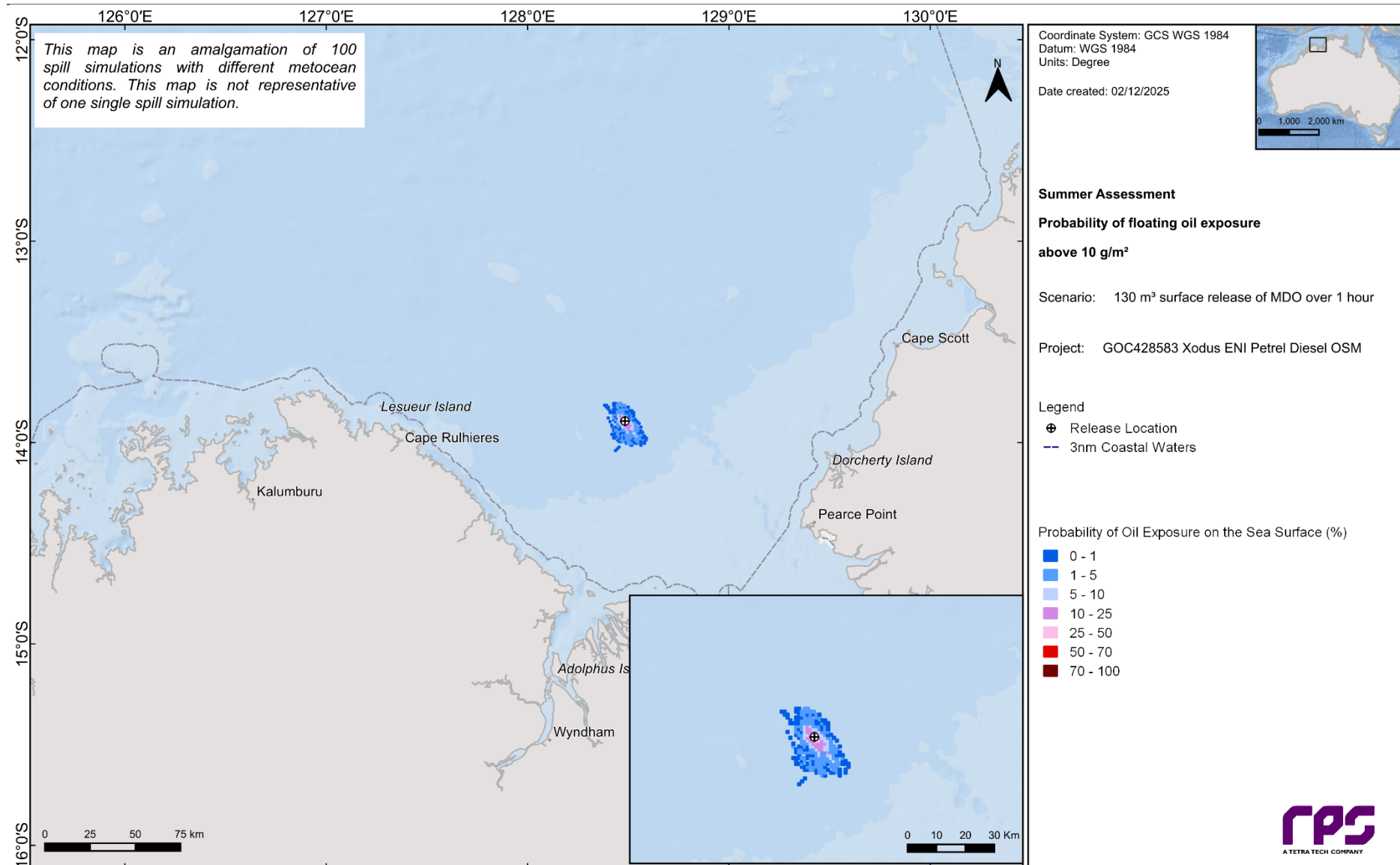


Figure 14-8 Probability of floating oil exposure at, or above, 10 g/m² following a vessel collision at the WYE. The results were calculated from 100 spill simulations and represent summer conditions.

REPORT

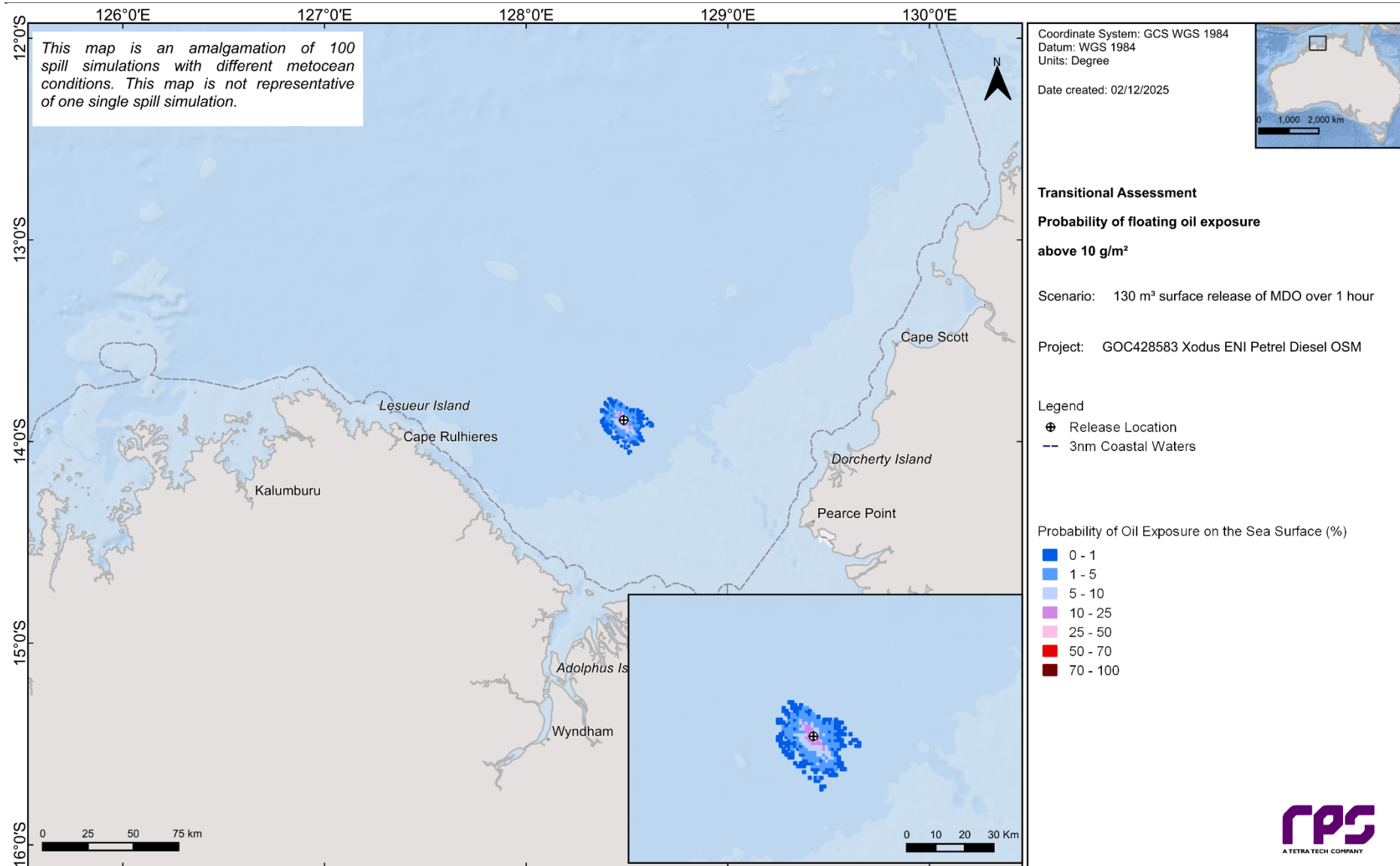


Figure 14-9 Probability of floating oil exposure at, or above, 10 g/m² following a vessel collision at the WYE. The results were calculated from 100 spill simulations and represent transitional conditions.

REPORT

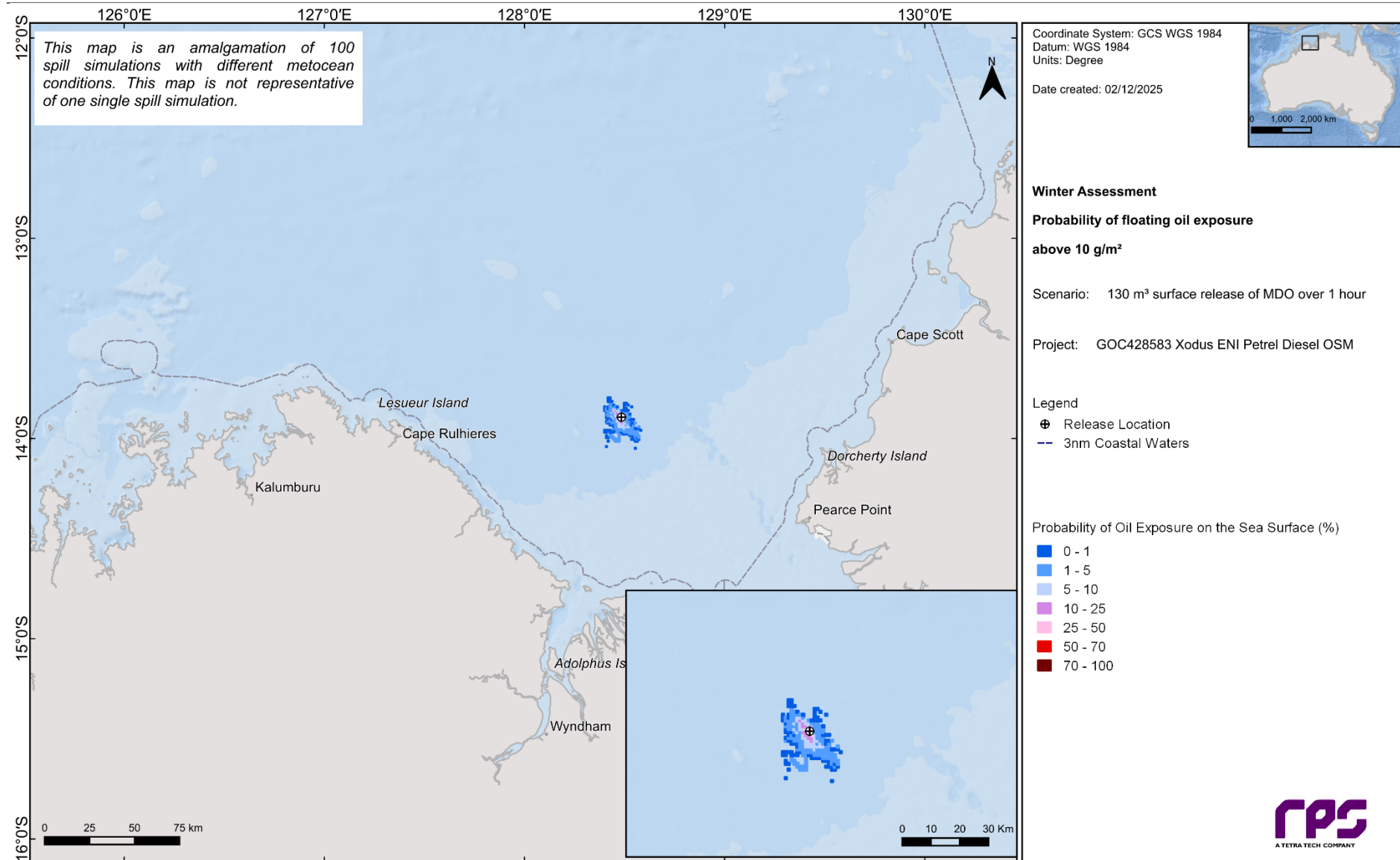


Figure 14-10 Probability of floating oil exposure at, or above, 10 g/m² following a vessel collision at the WYE. The results were calculated from 100 spill simulations and represent winter conditions.

REPORT

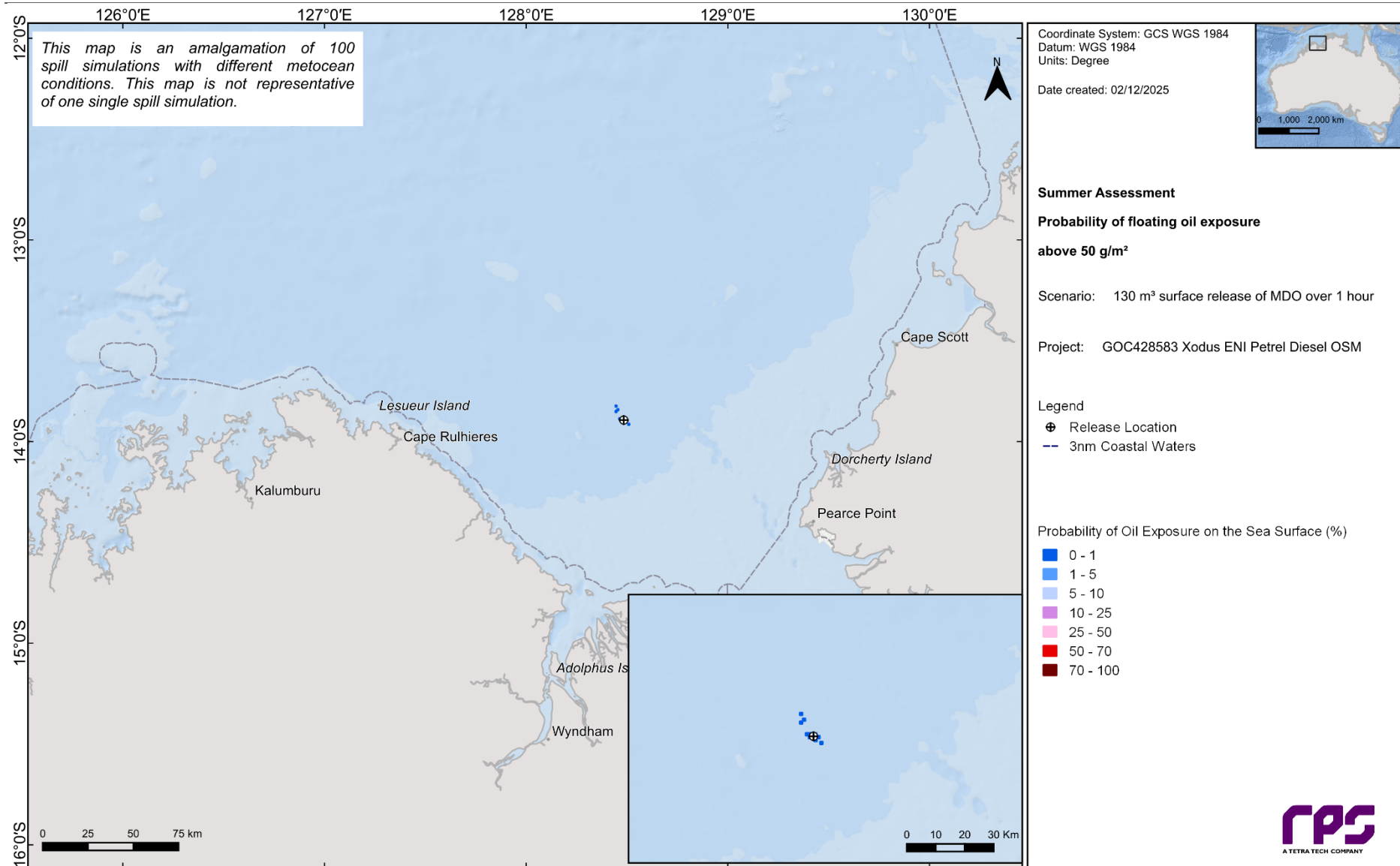


Figure 14-11 Probability of floating oil exposure at, or above, 50 g/m² following a vessel collision at the WYE. The results were calculated from 100 spill simulations and represent summer conditions.

REPORT

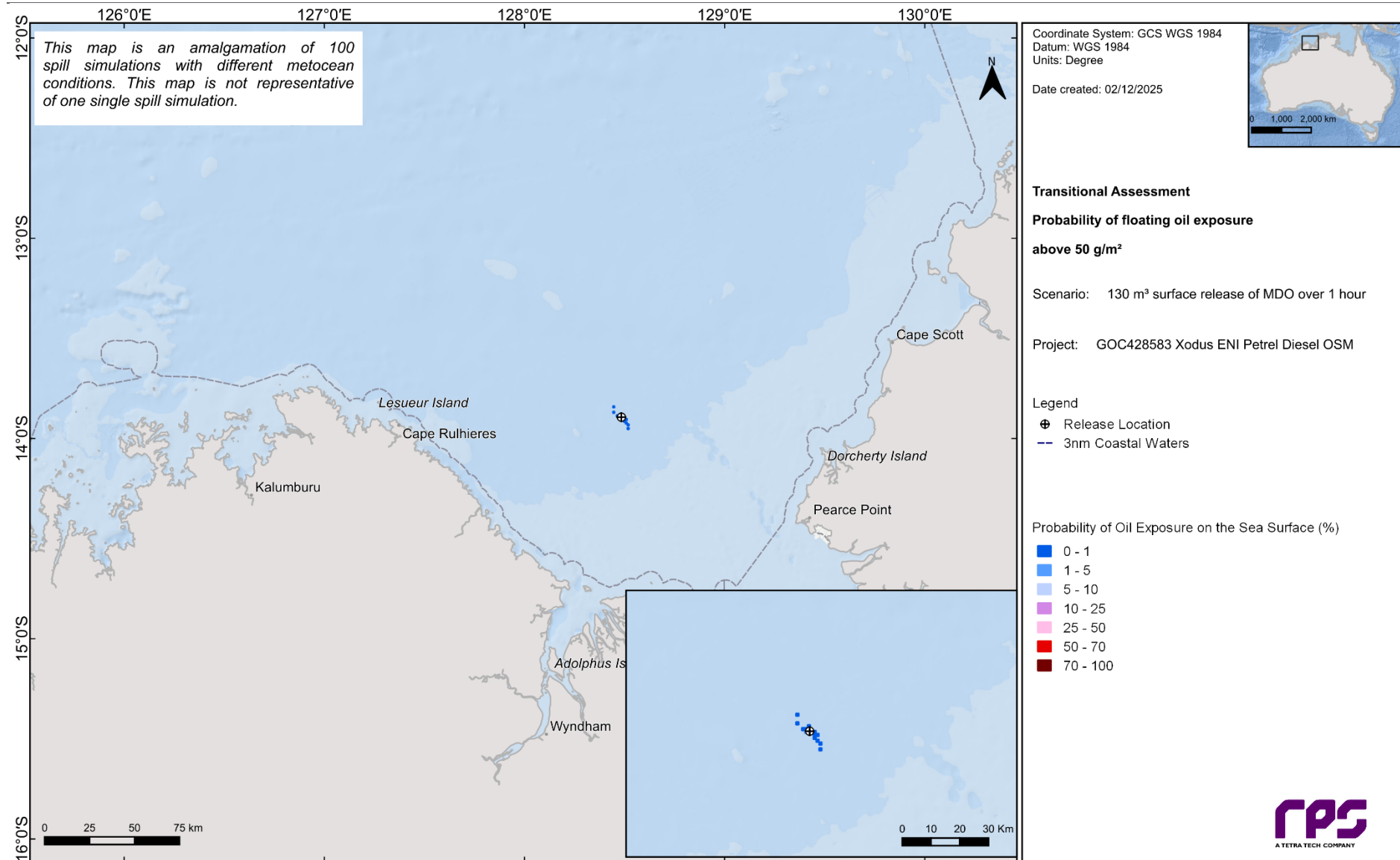


Figure 14-12 Probability of floating oil exposure at, or above, 50 g/m² following a vessel collision at the WYE. The results were calculated from 100 spill simulations and represent transitional conditions.

REPORT

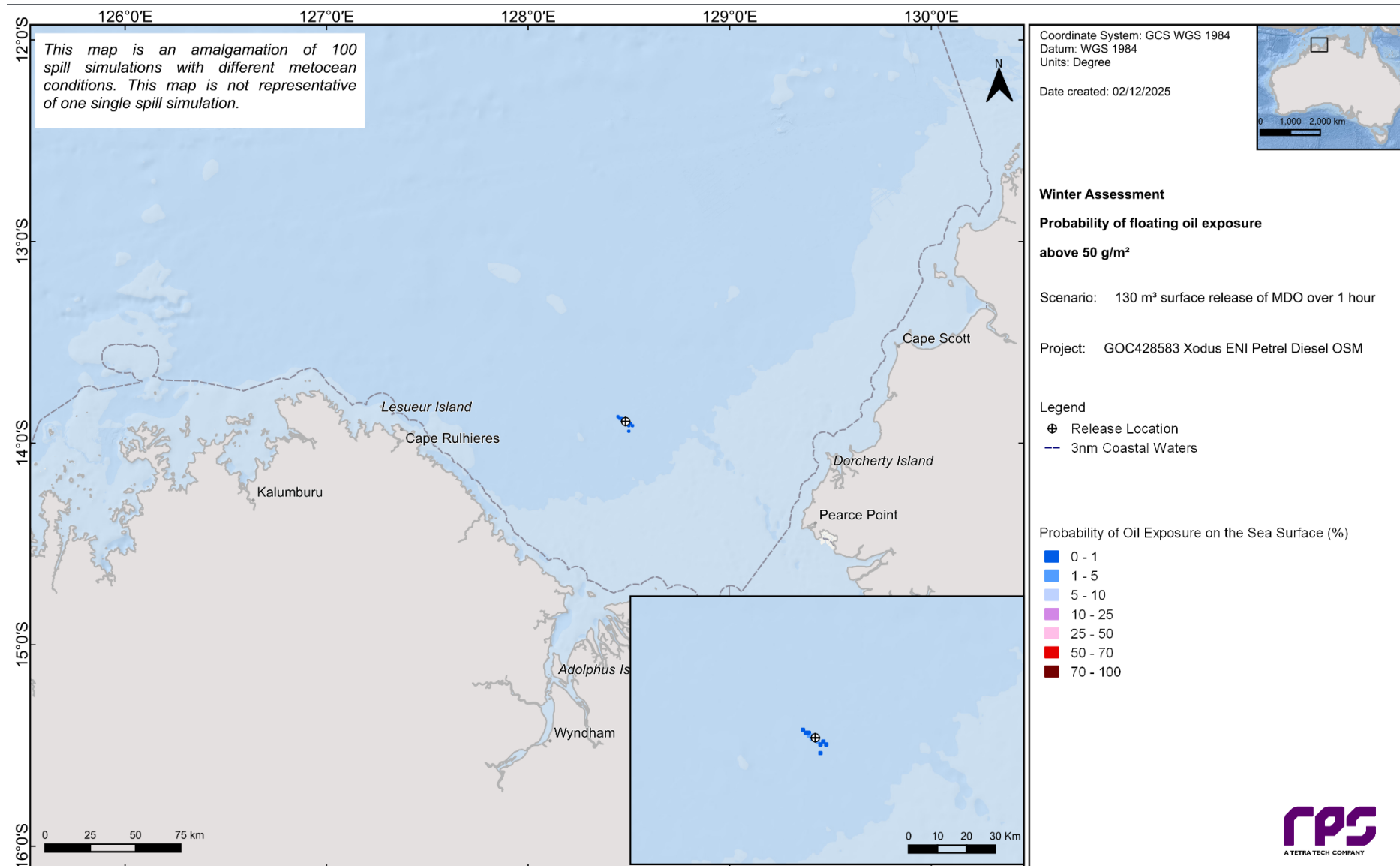


Figure 14-13 Probability of floating oil exposure at, or above, 50 g/m² following a vessel collision at the WYE. The results were calculated from 100 spill simulations and represent winter conditions.

REPORT

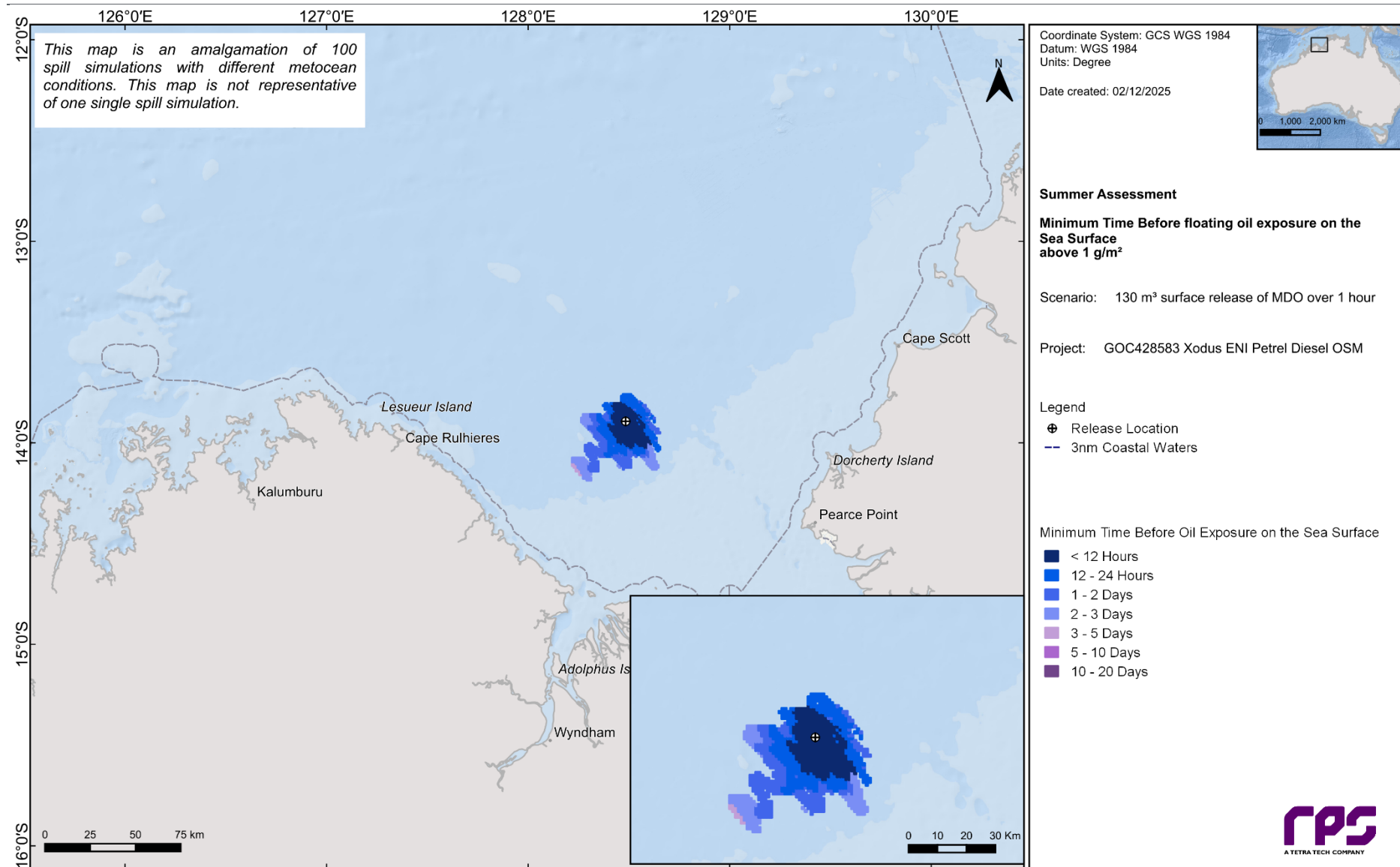


Figure 14-14 Minimum times before floating oil exposure at, or above, 1 g/m² following a vessel collision at the WYE. The results were calculated from 100 spill simulations and represent summer conditions.

REPORT

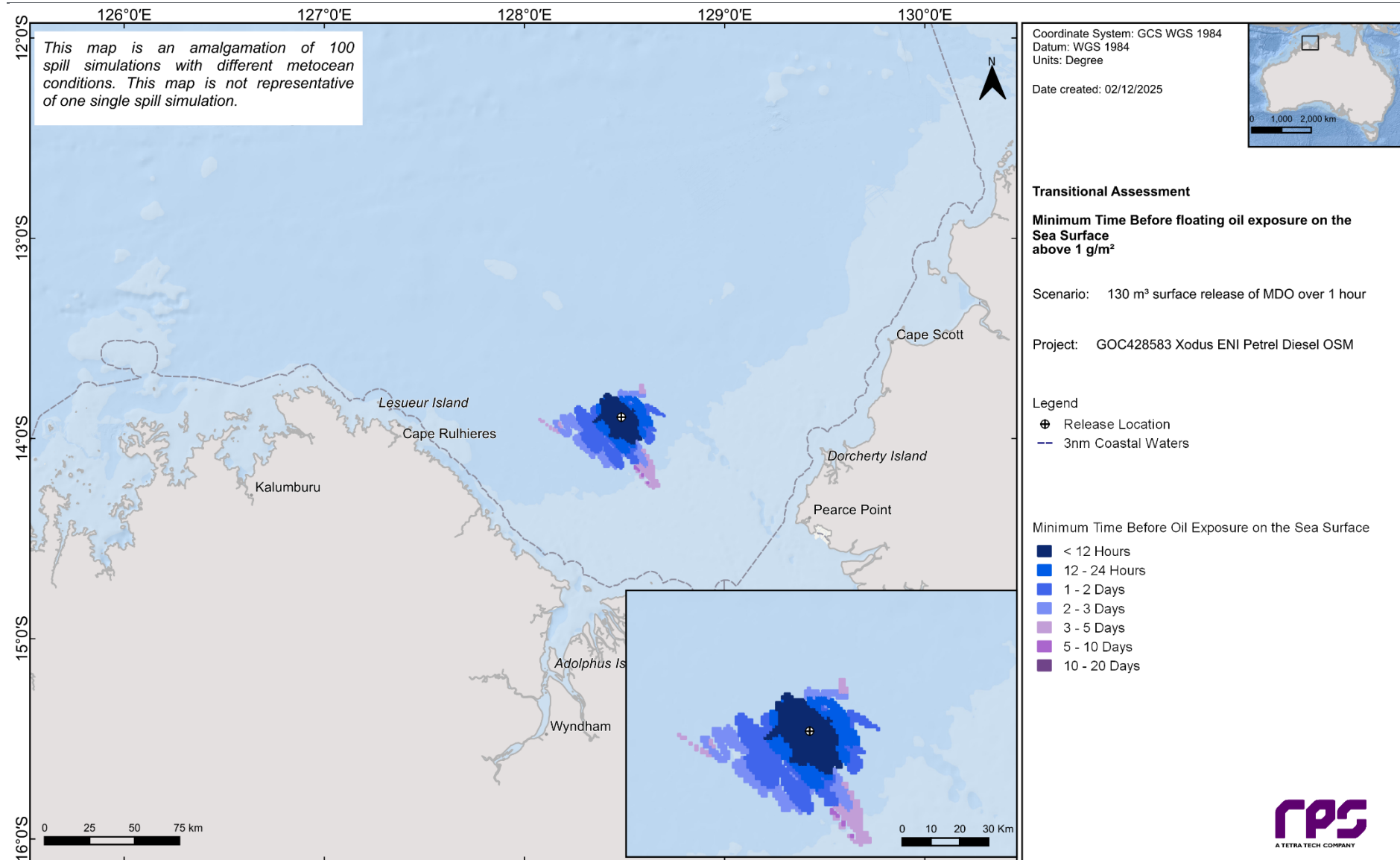


Figure 14-15 Minimum times before floating oil exposure at, or above, 1 g/m² following a vessel collision at the WYE. The results were calculated from 100 spill simulations and represent transitional conditions.

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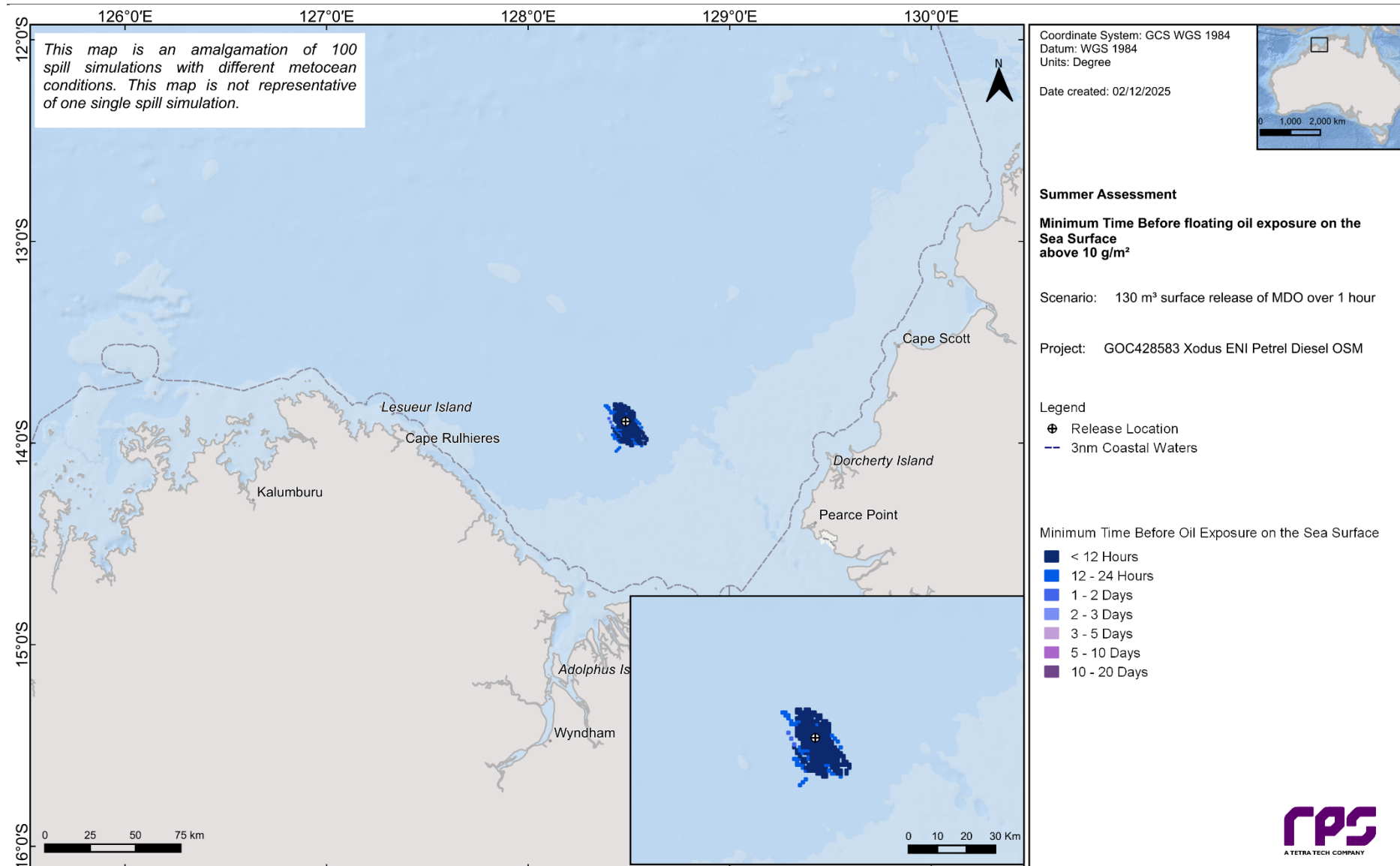


Figure 14-17 Minimum times before floating oil exposure at, or above, 10 g/m² following a vessel collision at the WYE. The results were calculated from 100 spill simulations and represent summer conditions.

REPORT

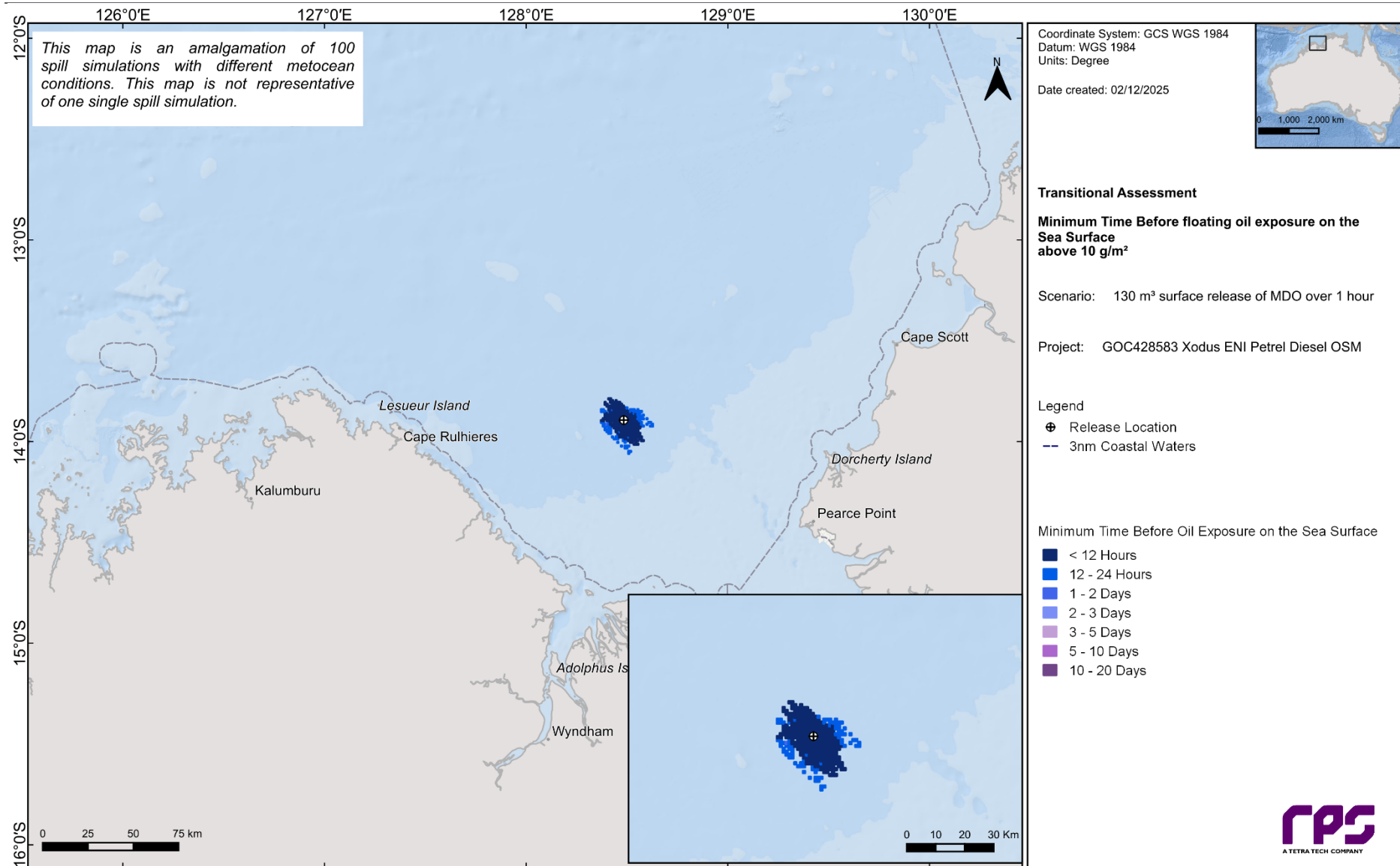


Figure 14-18 Minimum times before floating oil exposure at, or above, 10 g/m² following a vessel collision at the WYE. The results were calculated from 100 spill simulations and represent transitional conditions.

REPORT

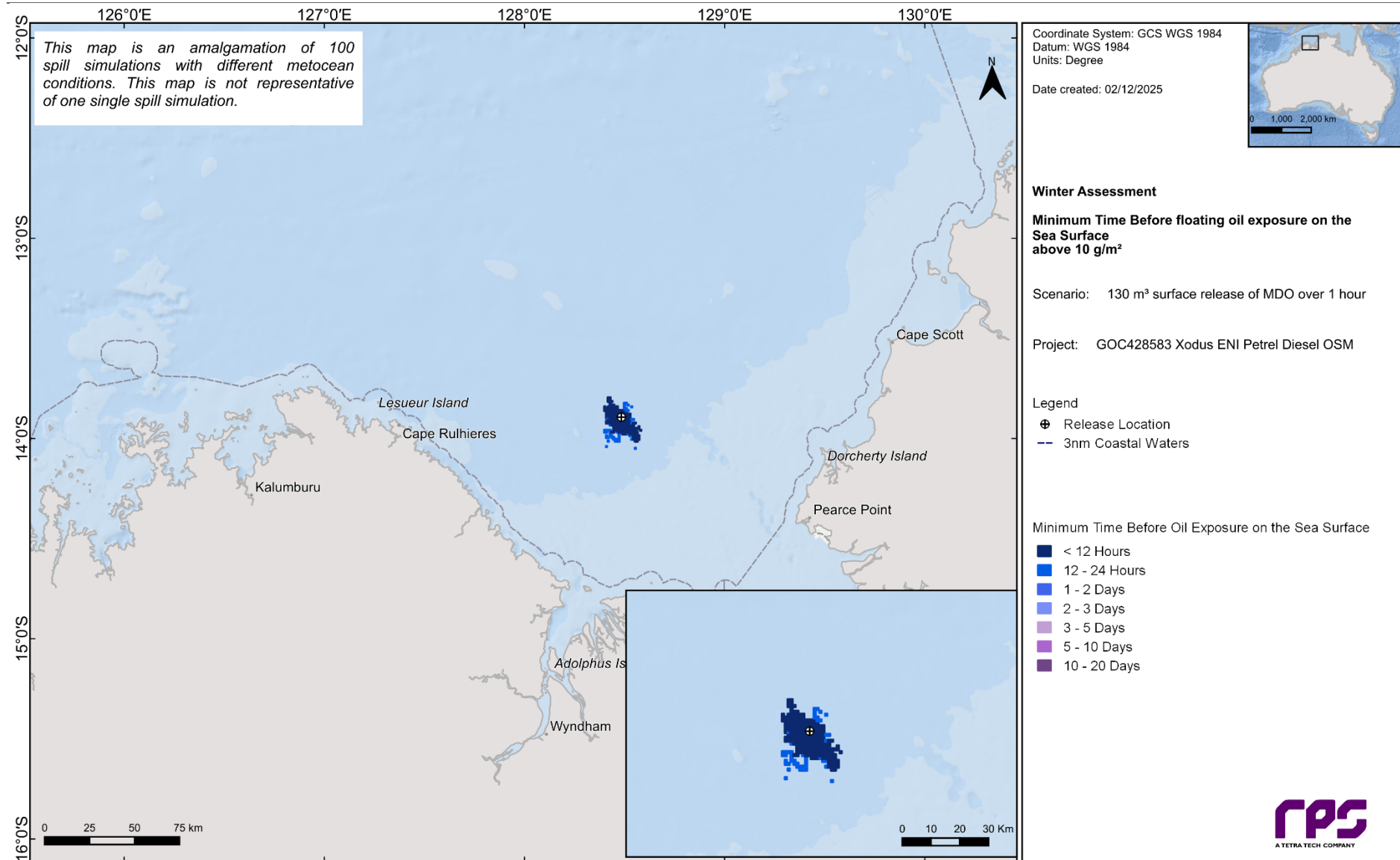


Figure 14-19 Minimum times before floating oil exposure at, or above, 10 g/m² following a vessel collision at the WYE. The results were calculated from 100 spill simulations and represent winter conditions.

REPORT

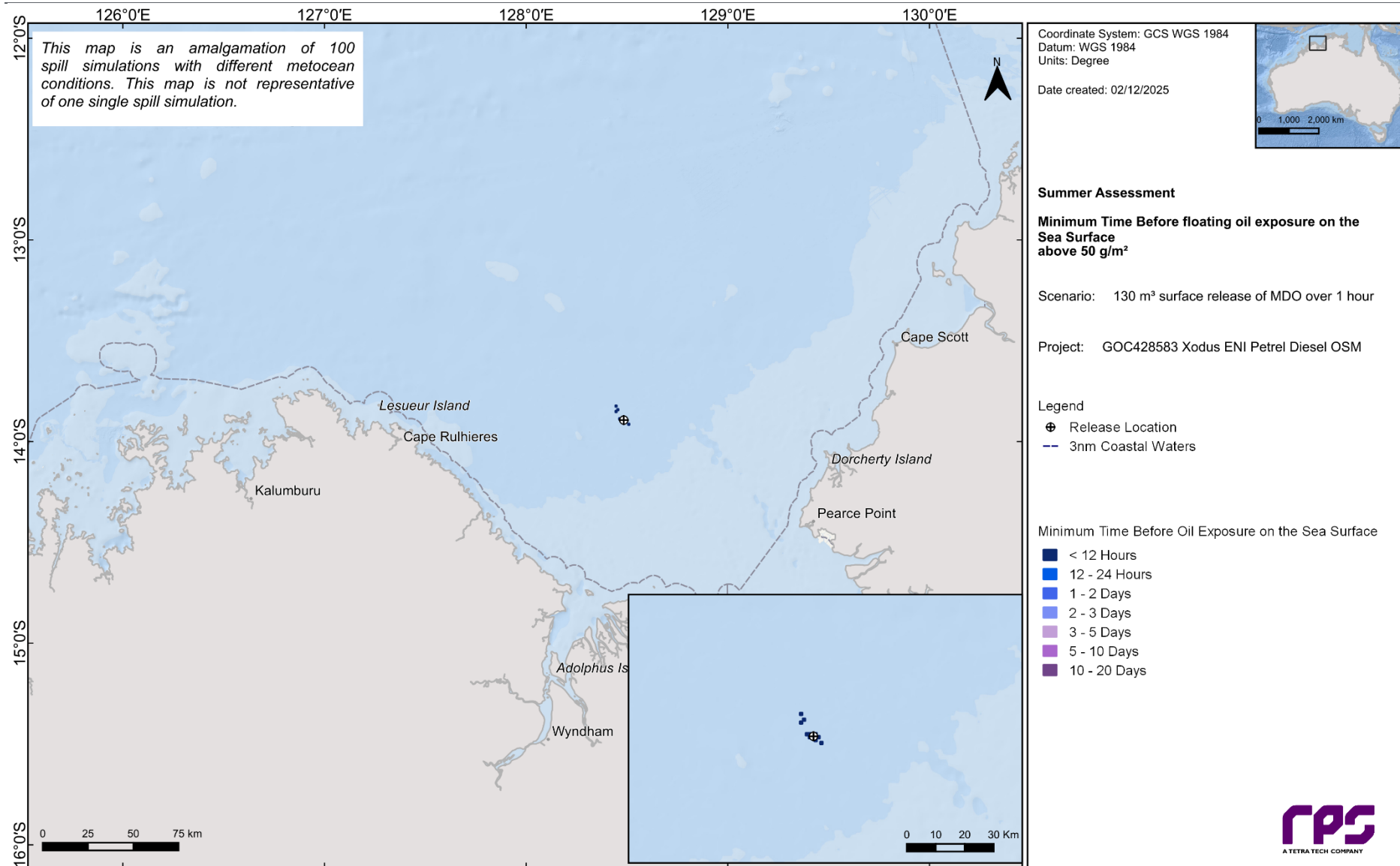


Figure 14-20 Minimum times before floating oil exposure at, or above, 50 g/m² following a vessel collision at the WYE. The results were calculated from 100 spill simulations and represent summer conditions.

REPORT

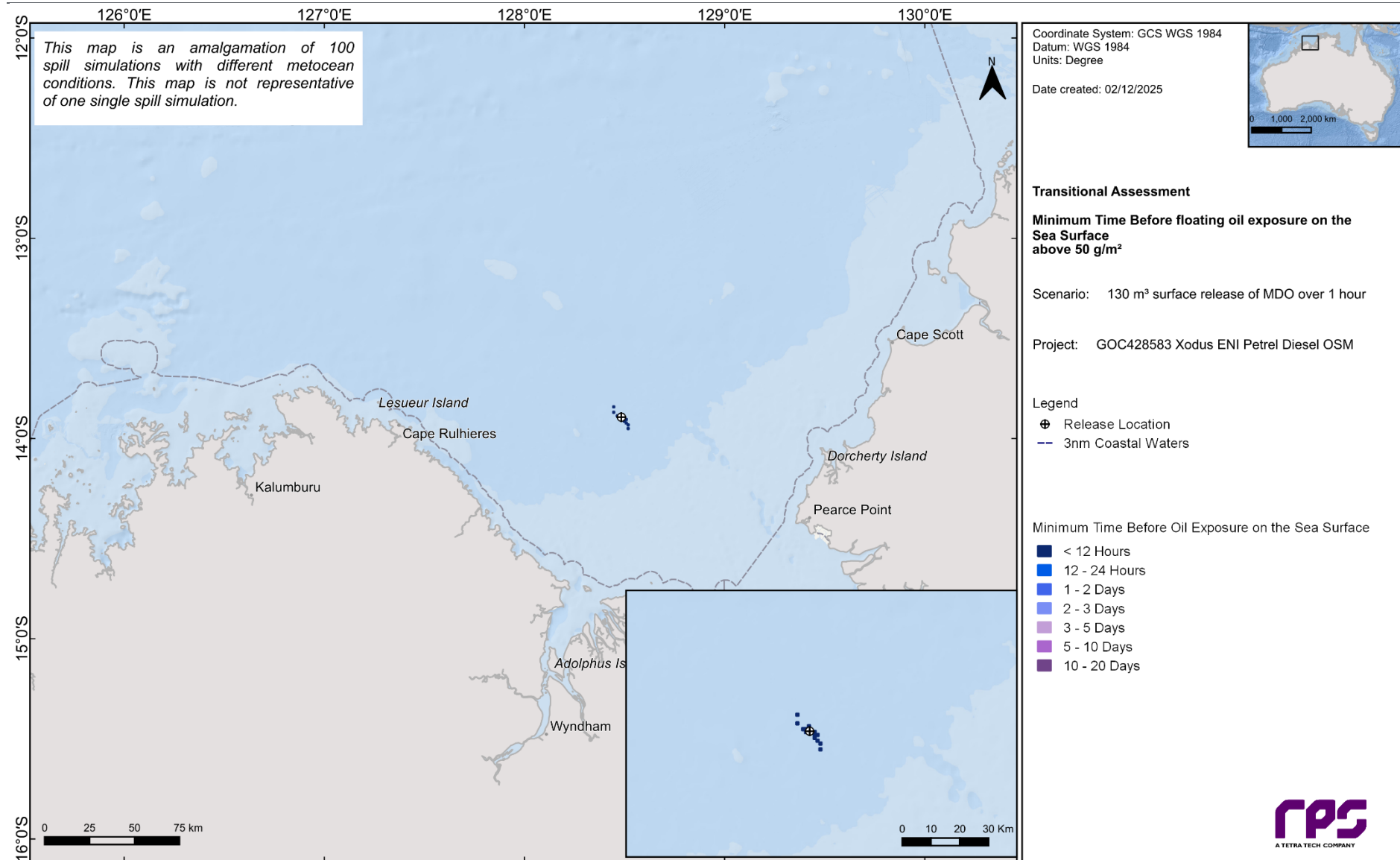


Figure 14-21 Minimum times before floating oil exposure at, or above, 50 g/m² following a vessel collision at the WYE. The results were calculated from 100 spill simulations and represent transitional conditions.

REPORT

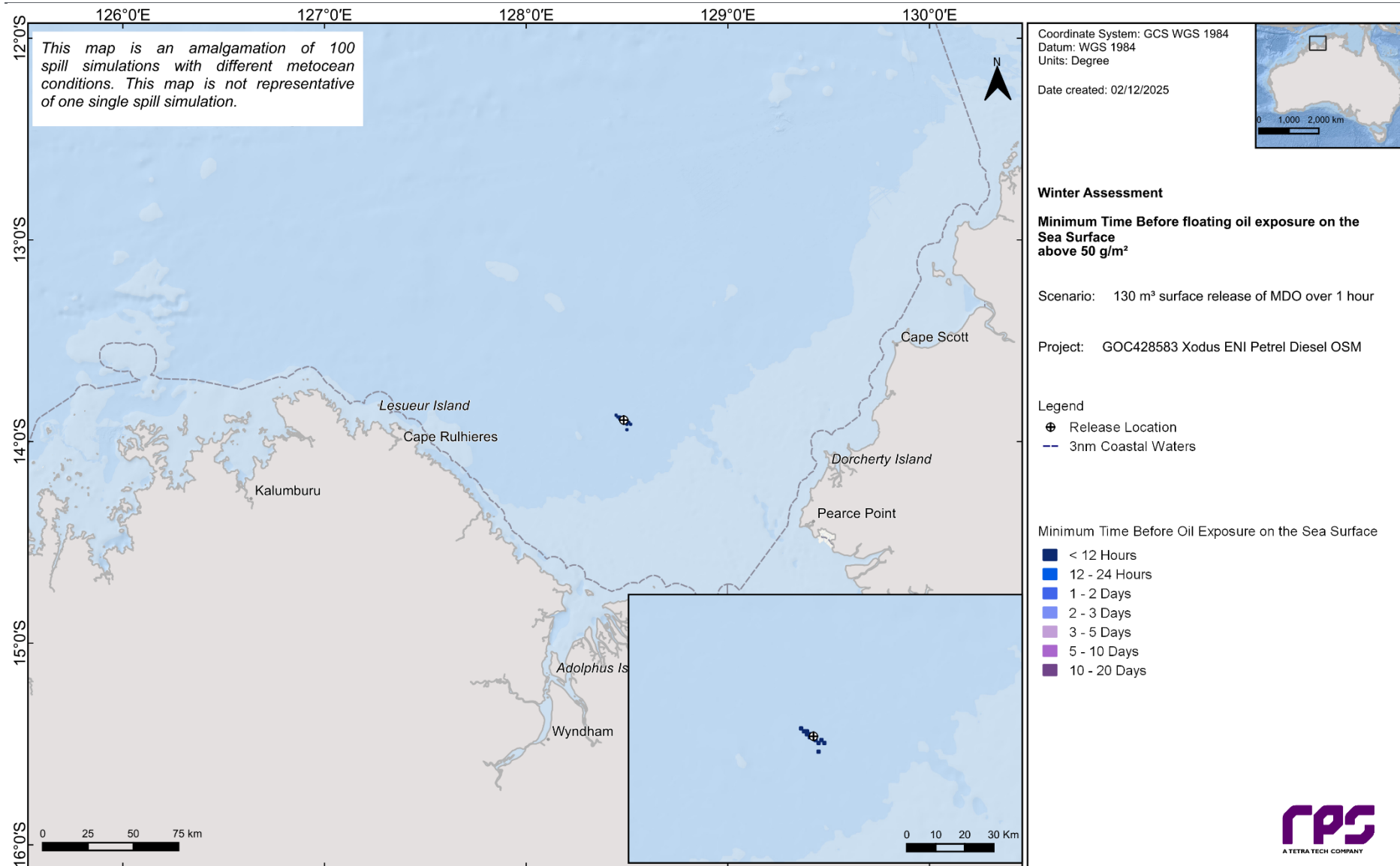


Figure 14-22 Minimum times before floating oil exposure at, or above, 50 g/m² following a vessel collision at the WYE. The results were calculated from 100 spill simulations and represent winter conditions.

14.1.3 Shoreline Oil Accumulation

No oil accumulation on any shorelines was predicted to occur at, or above, the low threshold of 10 g/m² from the 300 spill simulations, and consequently, no results are reported.

14.1.4 Water Column Exposure

14.1.4.1 Dissolved Hydrocarbons

Table 14-5 summarises the maximum distances from the release location to dissolved hydrocarbon exposure thresholds for each season. Concentrations exceeding 10 ppb may potentially extend up to 43 km from the release location, decreasing to 4 km for concentrations exceeding 50 ppb. No exposure was predicted at, or above, 300 ppb.

Table 14-6 to Table 14-8 summarise the predicted dissolved hydrocarbon exposure to receptors (either at receptor depth, or above receptors in the overlying water column). Since the release location falls within the Bonaparte Gulf IMCRA and North-west (Marine) MR, the results commentary for these receptors is omitted; however, the results are included in the table.

The highest probability of exposure at, or above, the 10 ppb threshold was 4% recorded at North (Marine) MR during summer conditions. The same receptor recorded the quickest time before exposure at 13 hours and the highest concentration at 29 ppb also during summer conditions.

Figure 14-23 to Figure 14-25 present the zones for each season, while the probabilities and minimum times before exposure are presented in Figure 14-26 to Figure 14-35 for the 10 ppb and 50 ppb thresholds.

Cross-sectional transects (north-south and east-west) of the maximum dissolved hydrocarbons in the vicinity of the release site for summer, transitional and winter conditions are presented in Figure 14-36 to Figure 14-41.

Table 14-5 Maximum distances from the release location to dissolved hydrocarbon exposure thresholds following a vessel collision at the WYE. Results were calculated from 100 spill simulations per season.

Season	Distance and direction travelled	Dissolved hydrocarbon exposure thresholds		
		≥10 ppb	≥50 ppb	≥300 ppb
Summer	Maximum distance travelled (km) by a spill simulation	43	4	-
	Direction of maximum travel	Northeast	Northeast	-
Transitional	Maximum distance travelled (km) by a spill simulation	30	-	-
	Direction of maximum travel	West	-	-
Winter	Maximum distance travelled (km) by a spill simulation	36	1	-
	Direction of maximum travel	Southwest	North	-

REPORT

Table 14-6 Receptors predicted to be exposed by dissolved hydrocarbons following a vessel collision at the WYE. The results were calculated from 100 spill simulations and represent summer conditions.

Category	Name	Probability (%) of dissolved hydrocarbon exposure at			Minimum time before dissolved hydrocarbon exposure at			Maximum dissolved hydrocarbon concentrations (ppb)	
		≥ 10 ppb	≥ 50 ppb	≥ 300 ppb	≥ 10 ppb	≥ 50 ppb	≥ 300 ppb	averaged over all simulations	for the worst simulation
KEF	Carbonate bank and terrace system of the Sahul Shelf	1	NC	NC	1 days, 20 hours	NC	NC	<1	12
IMCRA-MESO	Bonaparte Gulf ¹	16	2	NC	1 hour	2 hours	NC	6	60
MR	North (Marine)	4	NC	NC	13 hours	NC	NC	<1	29
	North-west (Marine) ¹	16	2	NC	1 hours	2 hours	NC	6	60

NC: No contact to receptor predicted for specified threshold.

¹Release location falls within the Bonaparte Gulf IMCRA and North-west (Marine) MR

Table 14-7 Receptors predicted to be exposed by dissolved hydrocarbons following a vessel collision at the WYE. The results were calculated from 100 spill simulations and represent transitional conditions.

Category	Name	Probability (%) of dissolved hydrocarbon exposure at			Minimum time before dissolved hydrocarbon exposure at			Maximum dissolved hydrocarbon concentrations (ppb)	
		≥ 10 ppb	≥ 50 ppb	≥ 300 ppb	≥ 10 ppb	≥ 50 ppb	≥ 300 ppb	averaged over all simulations	for the worst simulation
KEF	Carbonate bank and terrace system of the Sahul Shelf	1	NC	NC	1 days, 23 hours	NC	NC	<1	14
IMCRA-MESO	Bonaparte Gulf ¹	7	NC	NC	1 hour	NC	NC	3	43
MR	North-west (Marine) ¹	7	NC	NC	1 hour	NC	NC	3	43

NC: No contact to receptor predicted for specified threshold.

¹Release location falls within the Bonaparte Gulf IMCRA and North-west (Marine) MR

REPORT

Table 14-8 Receptors predicted to be exposed by dissolved hydrocarbons following a vessel collision at the WYE. The results were calculated from 100 spill simulations and represent winter conditions.

Category	Name	Probability (%) of dissolved hydrocarbon exposure at			Minimum time before dissolved hydrocarbon exposure at			Maximum dissolved hydrocarbon concentrations (ppb)	
		≥ 10 ppb	≥ 50 ppb	≥ 300 ppb	≥ 10 ppb	≥ 50 ppb	≥ 300 ppb	averaged over all simulations	for the worst simulation
KEF	Carbonate bank and terrace system of the Sahul Shelf	1	NC	NC	1 days, 20 hours	NC	NC	<1	14
IMCRA-MESO	Bonaparte Gulf ¹	22	2	NC	1 hour	1 hours	NC	8	60
MR	North-west (Marine) ¹	22	2	NC	1 hours	1 hours	NC	8	60

NC: No contact to receptor predicted for specified threshold.

¹Release location falls within the Bonaparte Gulf IMCRA and North-west (Marine) MR

REPORT

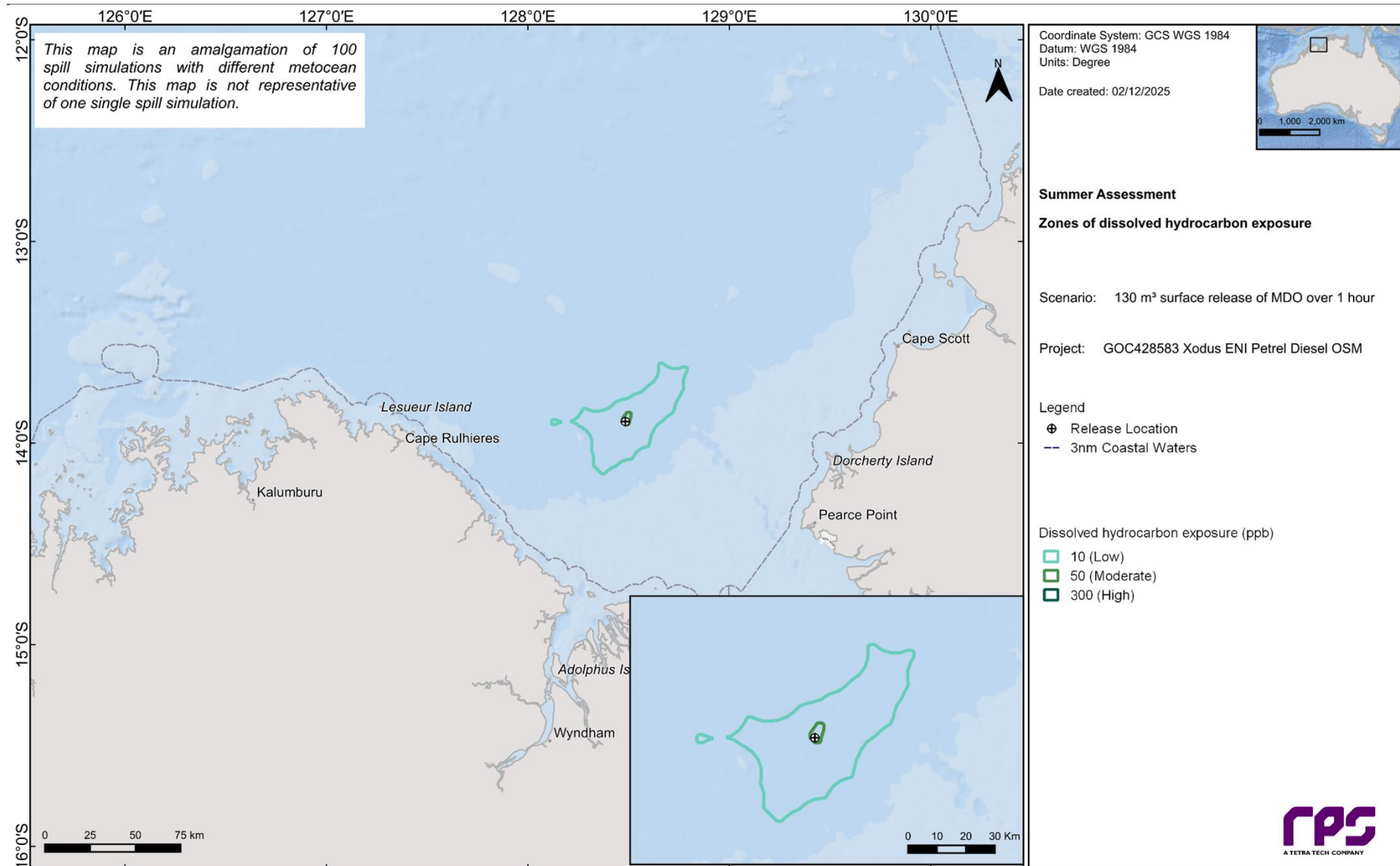


Figure 14-23 Predicted zones of dissolved hydrocarbon exposure following a vessel collision at the WYE. The results were calculated from 100 spill simulations and represent summer conditions.

REPORT

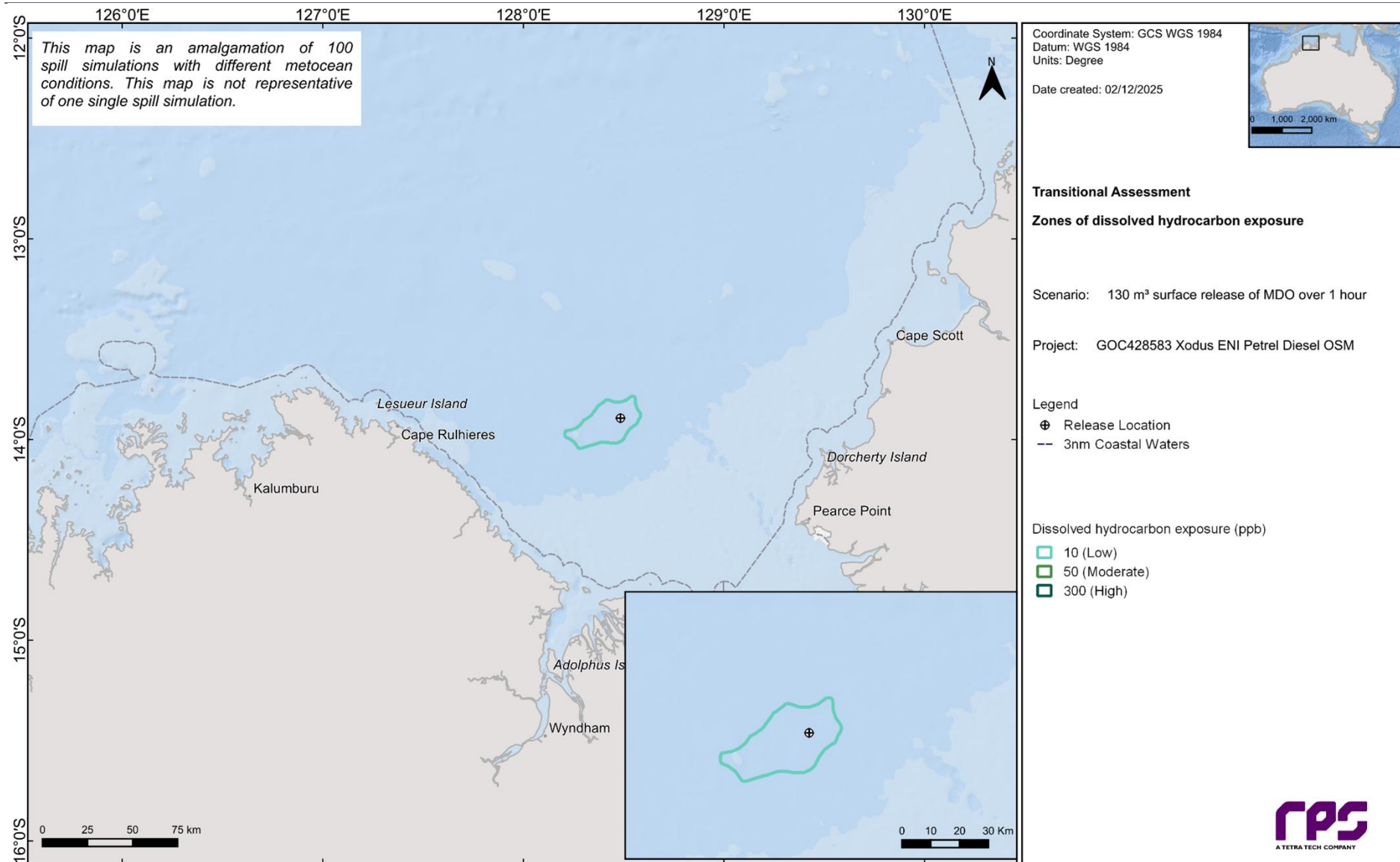


Figure 14-24 Predicted zones of dissolved hydrocarbon exposure following a vessel collision at the WYE. The results were calculated from 100 spill simulations and represent transitional conditions.

REPORT

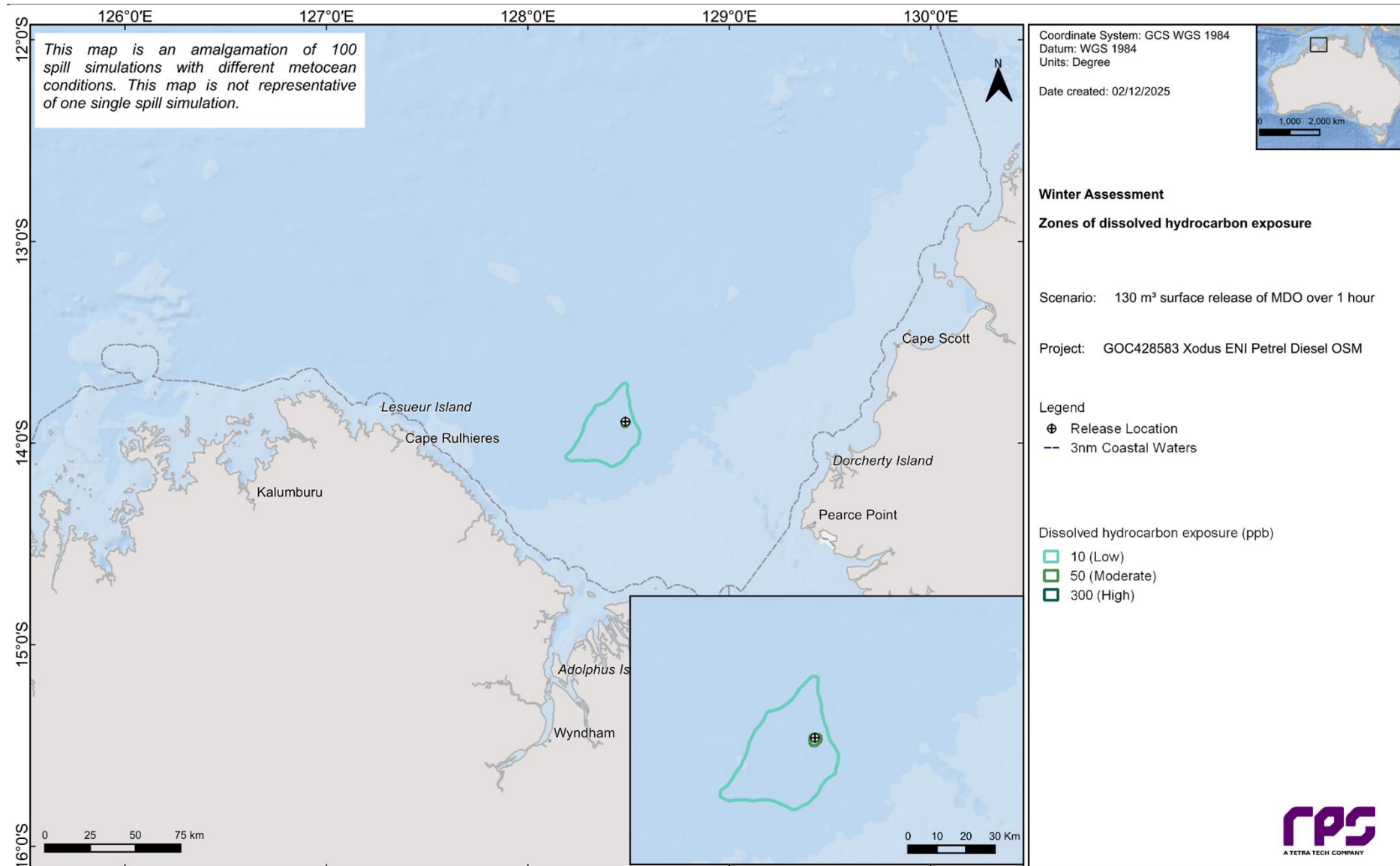


Figure 14-25 Predicted zones of dissolved hydrocarbon exposure following a vessel collision at the WYE. The results were calculated from 100 spill simulations and represent winter conditions.

REPORT

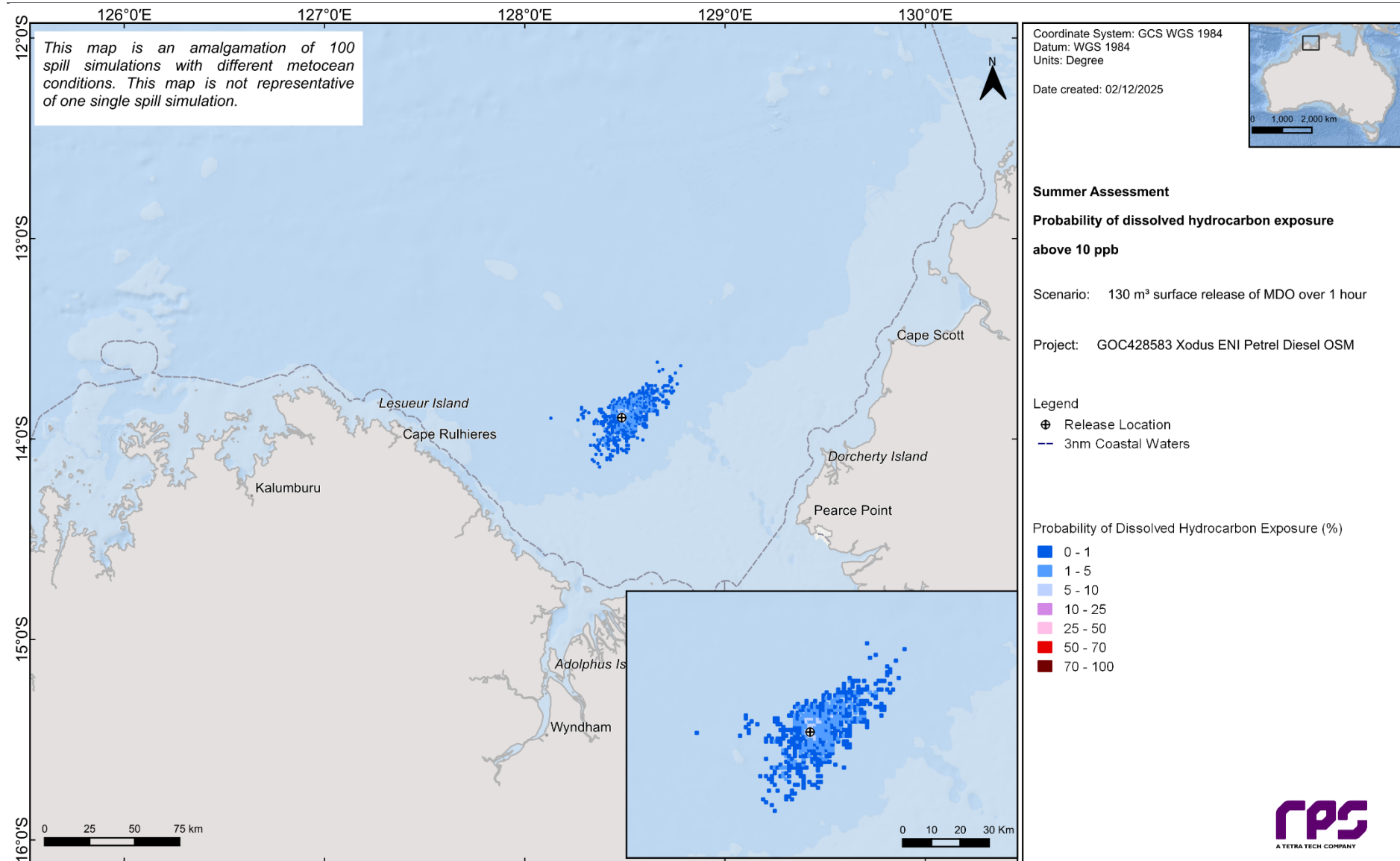


Figure 14-26 Probability of dissolved hydrocarbon exposure at, or above, 10 ppb following a vessel collision at the WYE. The results were calculated from 100 spill simulations and represent summer conditions.

REPORT

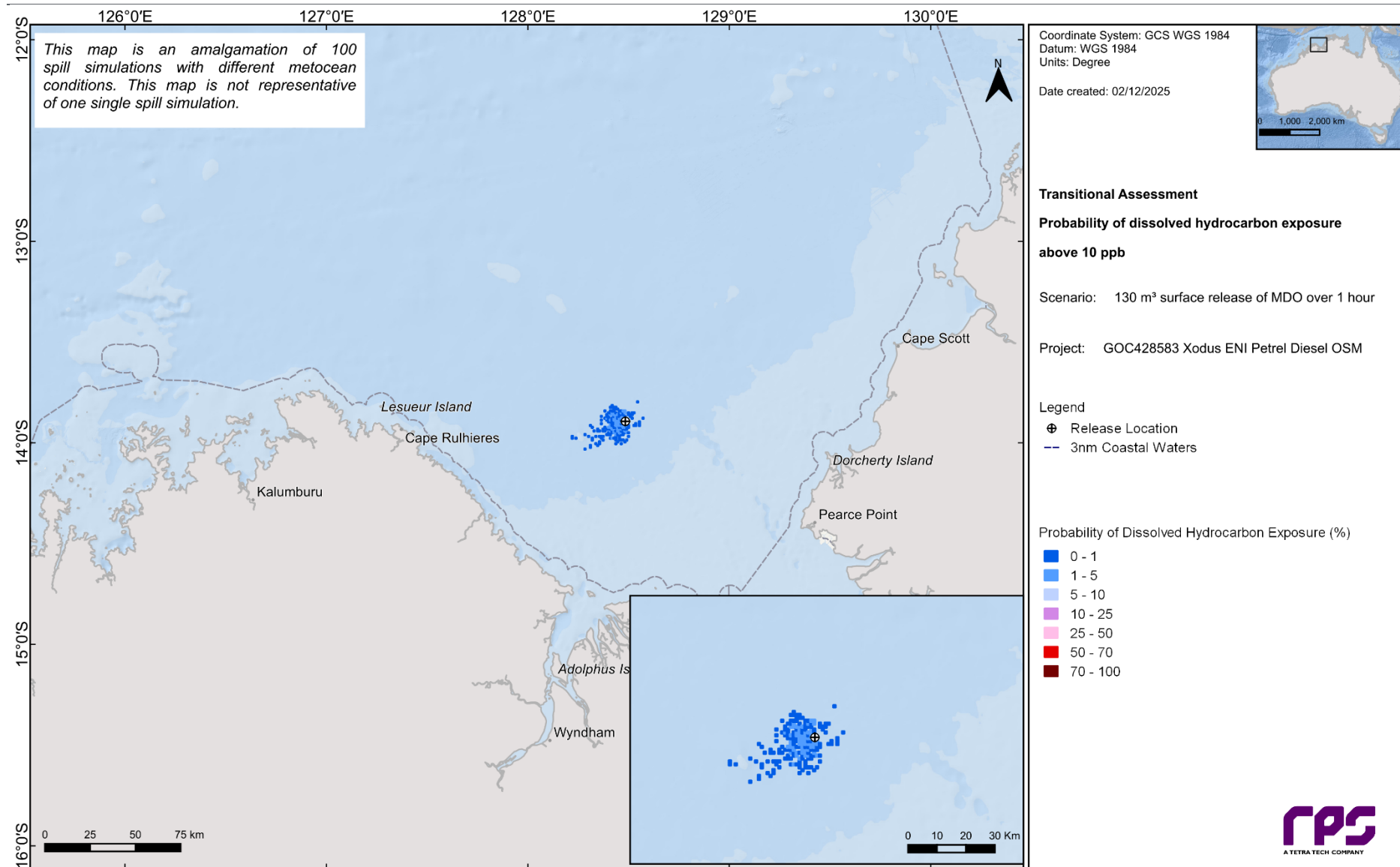


Figure 14-27 Probability of dissolved hydrocarbon exposure at, or above, 10 ppb following a vessel collision at the WYE. The results were calculated from 100 spill simulations and represent transitional conditions.

REPORT

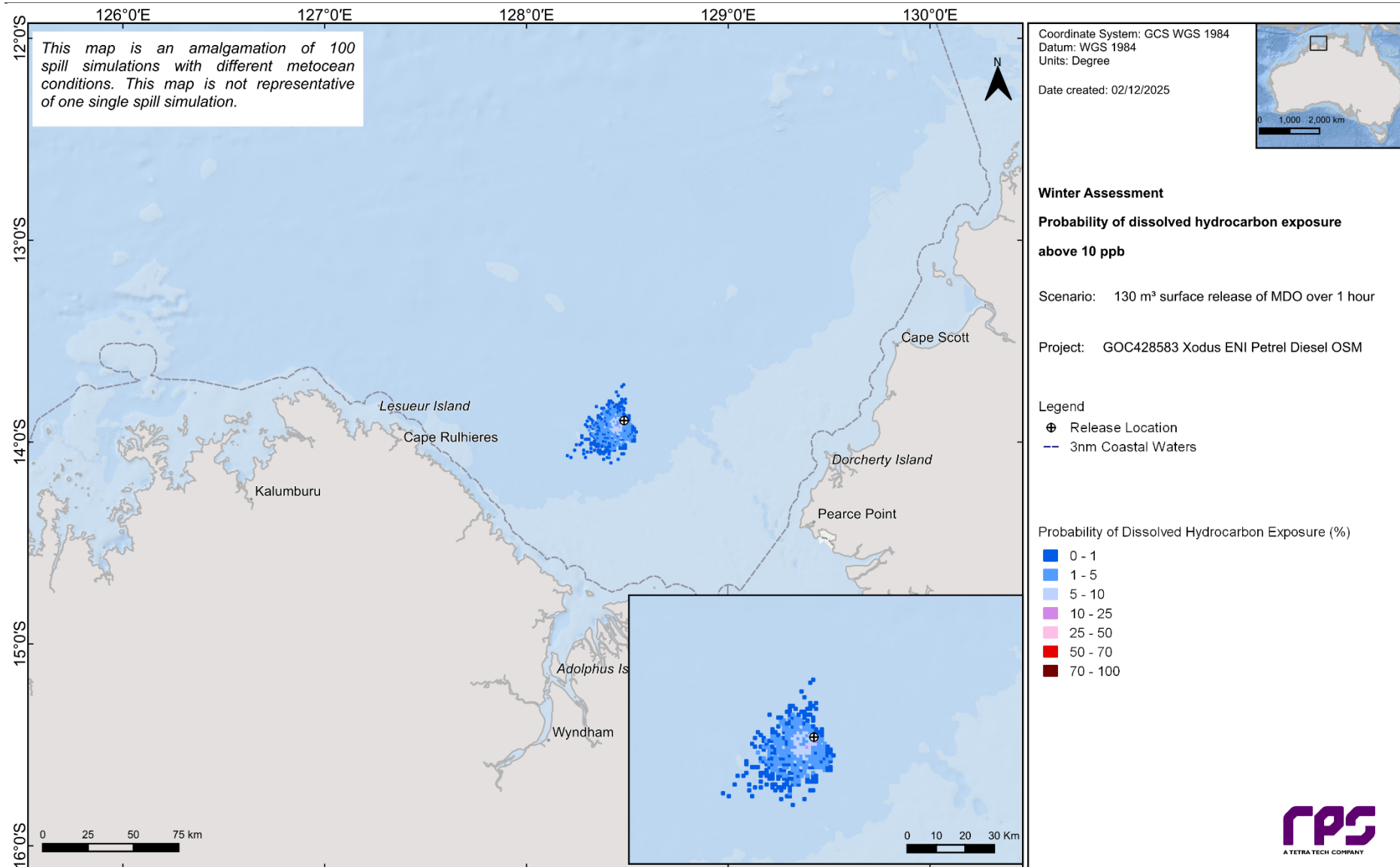


Figure 14-28 Probability of dissolved hydrocarbon exposure at, or above, 10 ppb following a vessel collision at the WYE. The results were calculated from 100 spill simulations and represent winter conditions.

REPORT

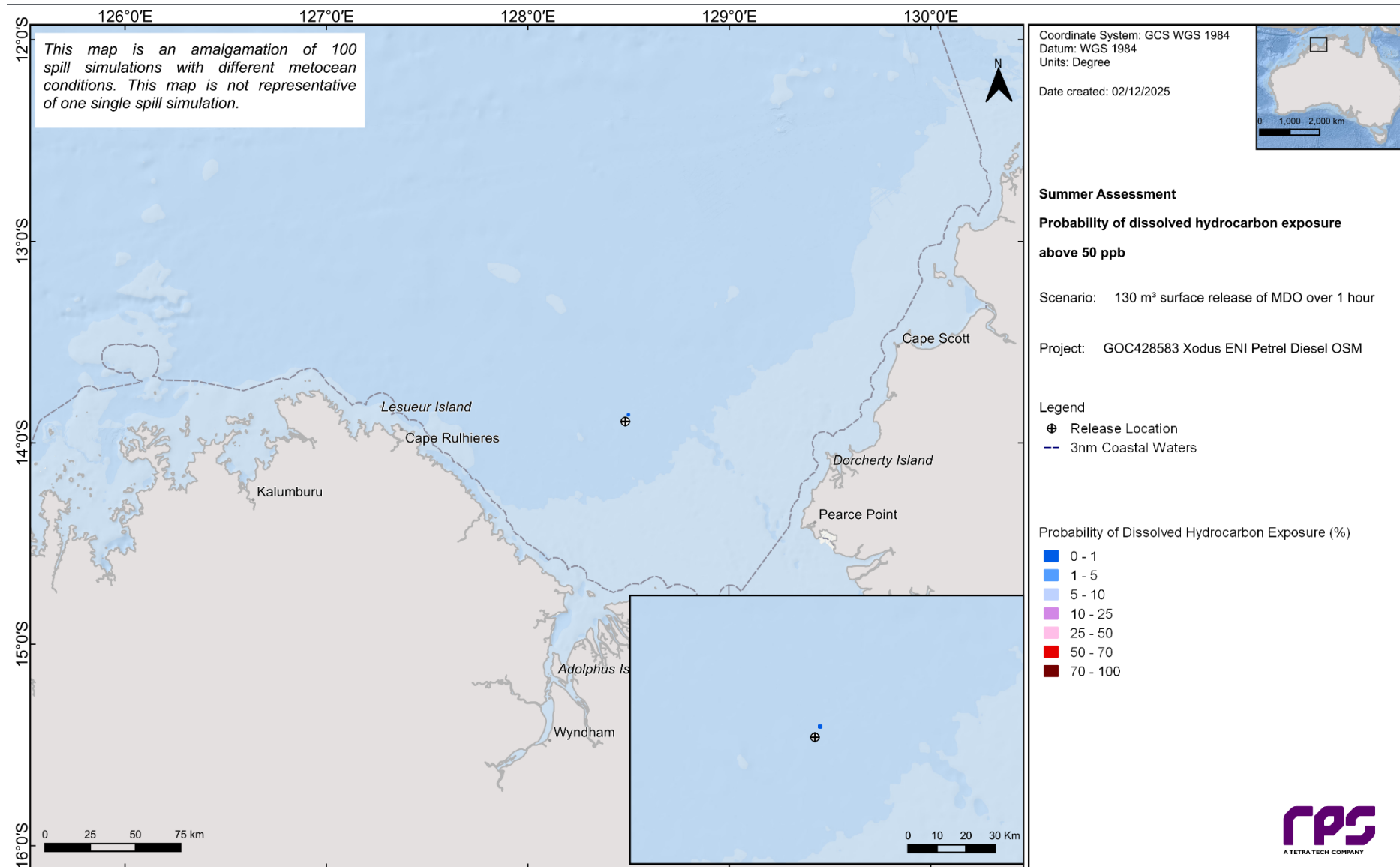


Figure 14-29 Probability of dissolved hydrocarbon exposure at, or above, 50 ppb following a vessel collision at the WYE. The results were calculated from 100 spill simulations and represent summer conditions.

REPORT

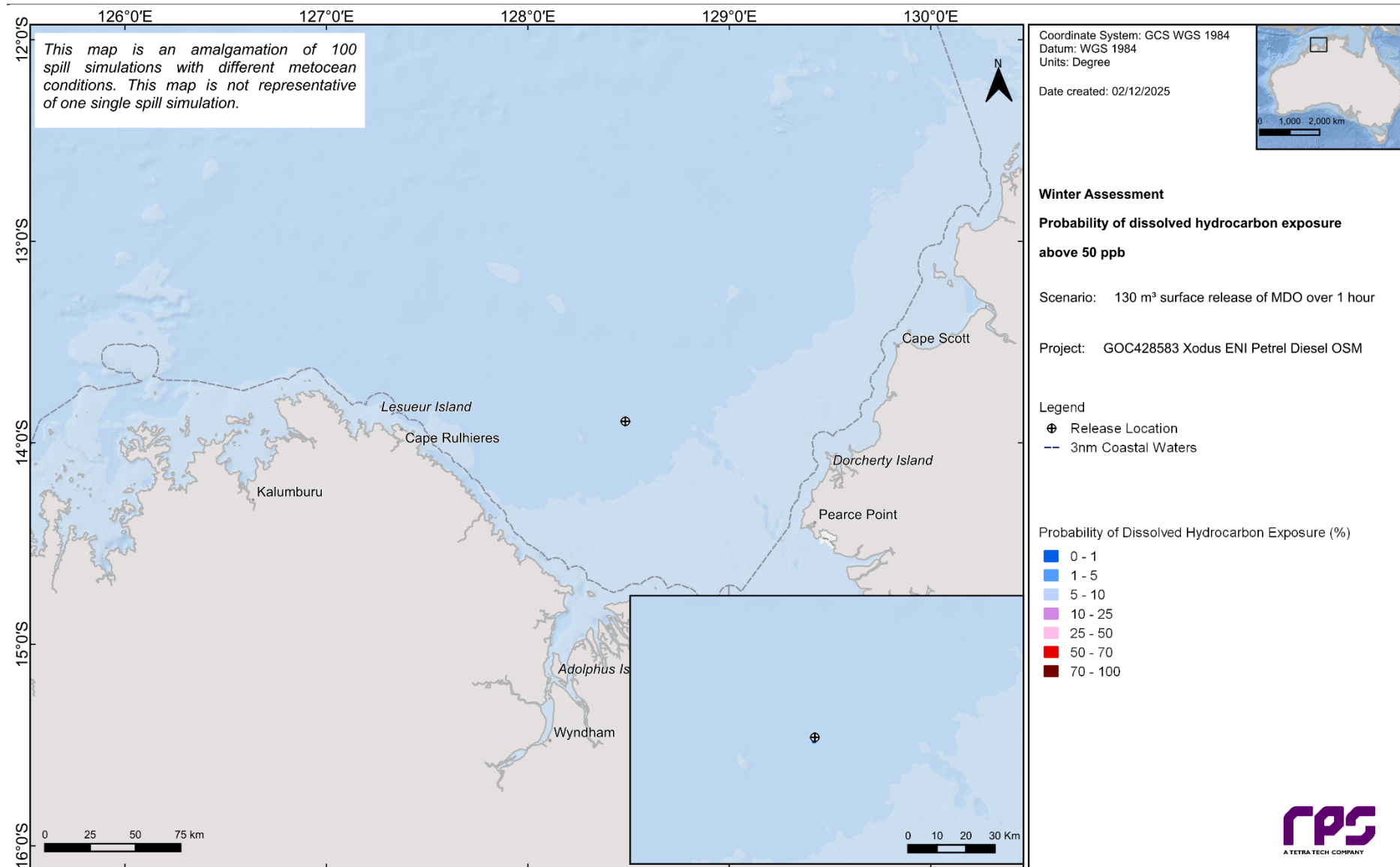


Figure 14-30 Probability of dissolved hydrocarbon exposure at, or above, 50 ppb following a vessel collision at the WYE. The results were calculated from 100 spill simulations and represent winter conditions. Note the exposure is immediately adjacent to the release location.

REPORT

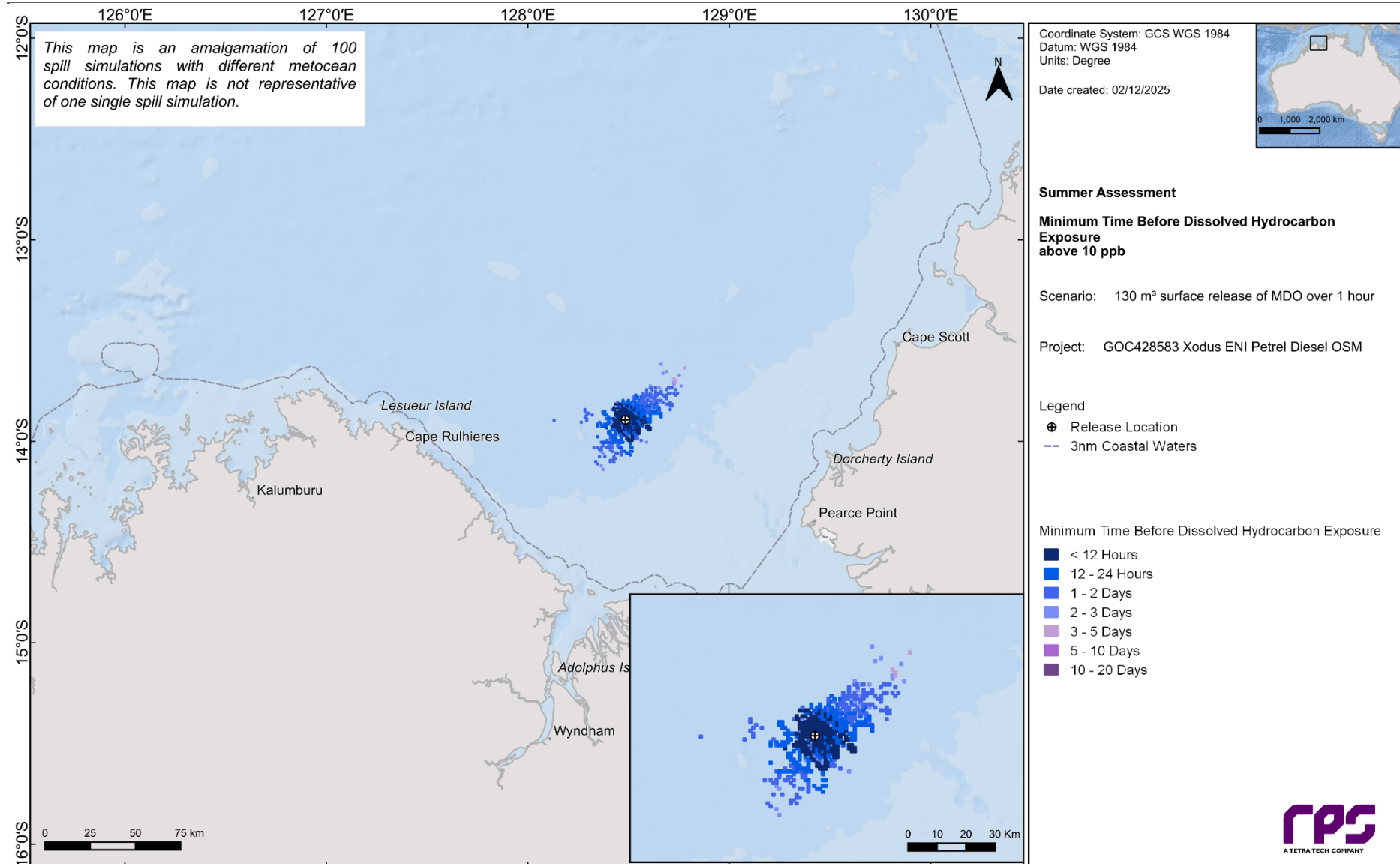


Figure 14-31 Minimum times before dissolved hydrocarbon exposure at, or above, 10 ppb following a vessel collision at the WYE. The results were calculated from 100 spill simulations and represent summer conditions.

REPORT

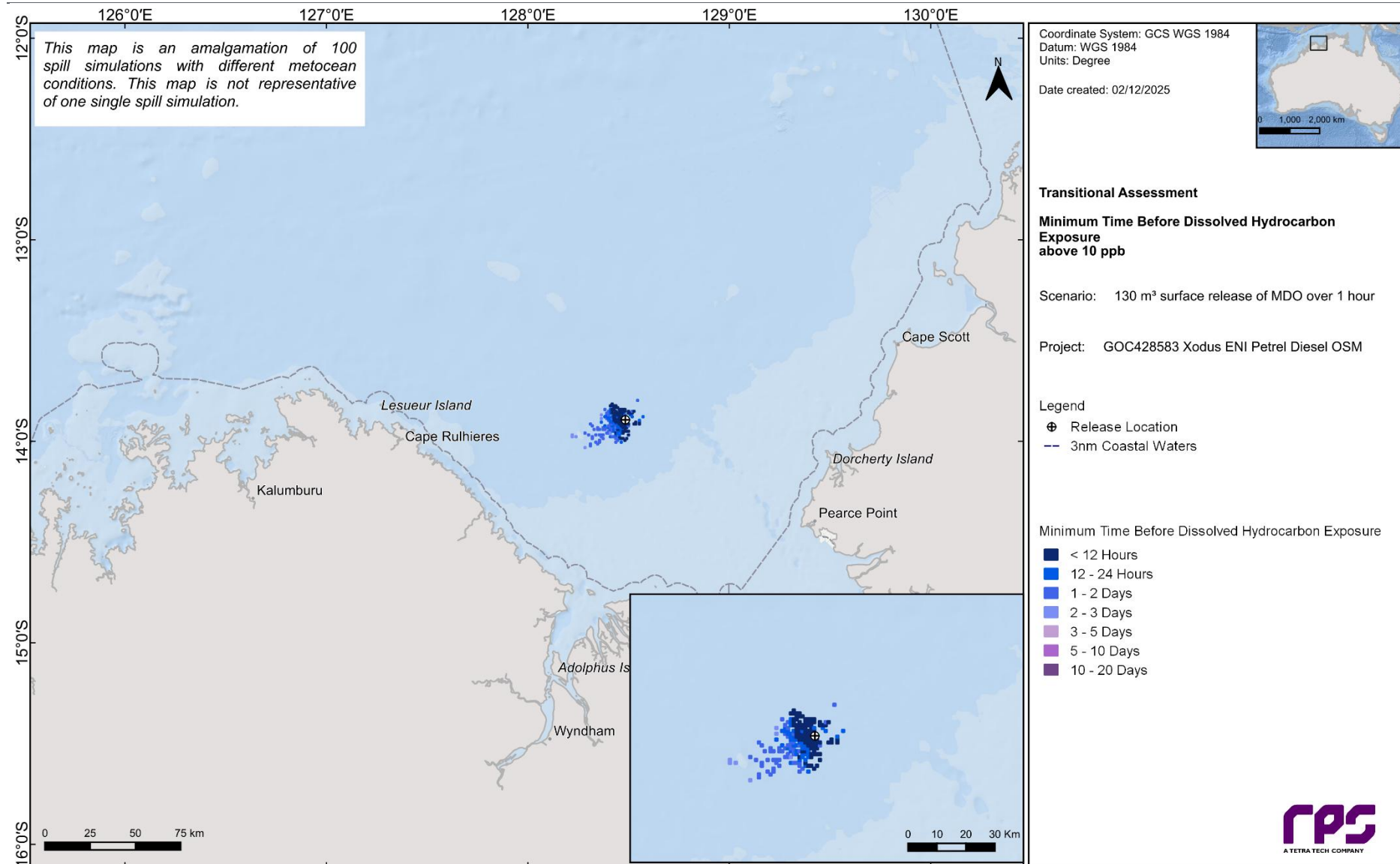


Figure 14-32 Minimum times before dissolved hydrocarbon exposure at, or above, 10 ppb following a vessel collision at the WYE. The results were calculated from 100 spill simulations and represent transitional conditions.

REPORT

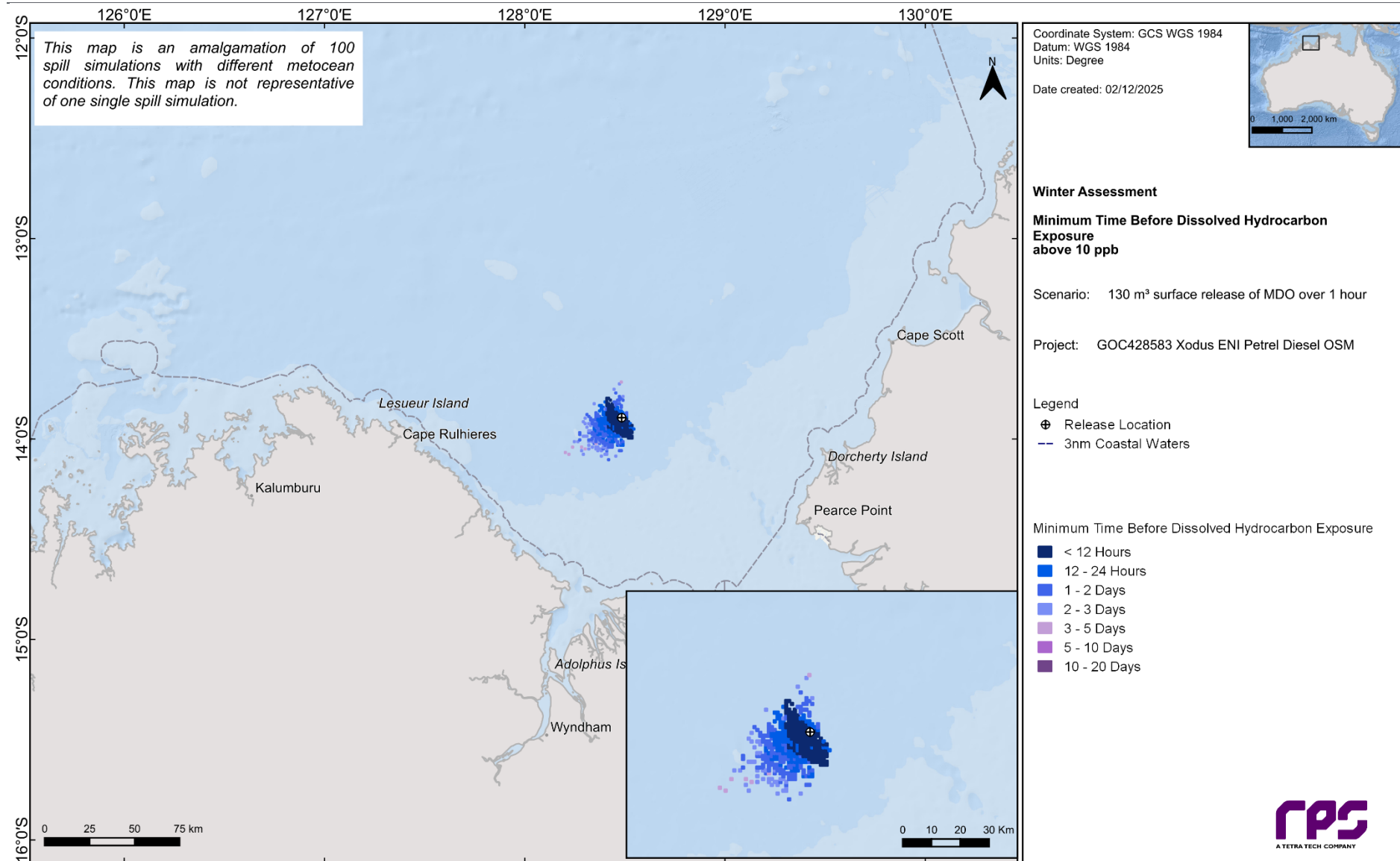


Figure 14-33 Minimum times before dissolved hydrocarbon exposure at, or above, 10 ppb following a vessel collision at the WYE. The results were calculated from 100 spill simulations and represent winter conditions.

REPORT

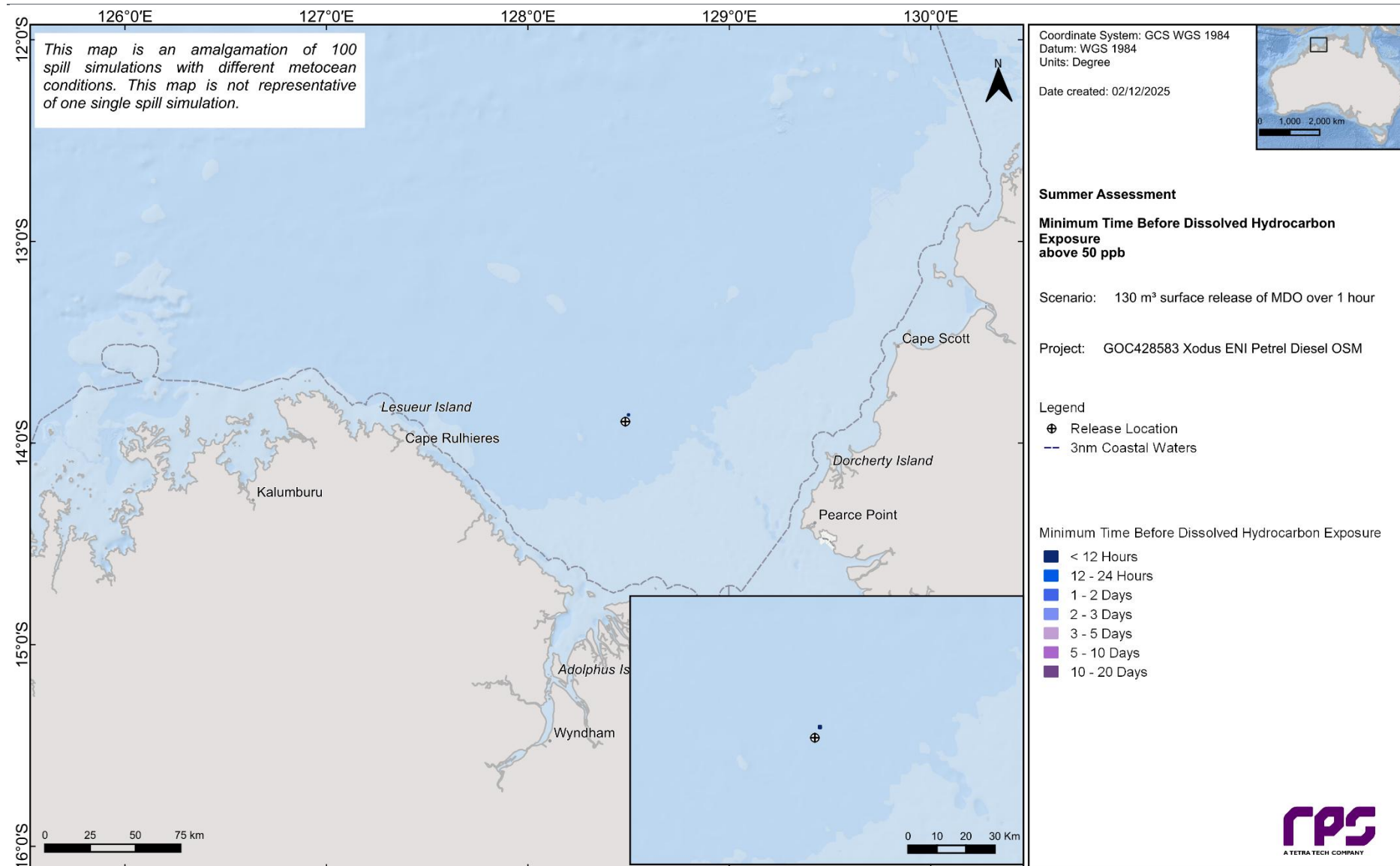


Figure 14-34 Minimum times before dissolved hydrocarbon exposure at, or above, 50 ppb following a vessel collision at the WYE. The results were calculated from 100 spill simulations and represent summer conditions.

REPORT

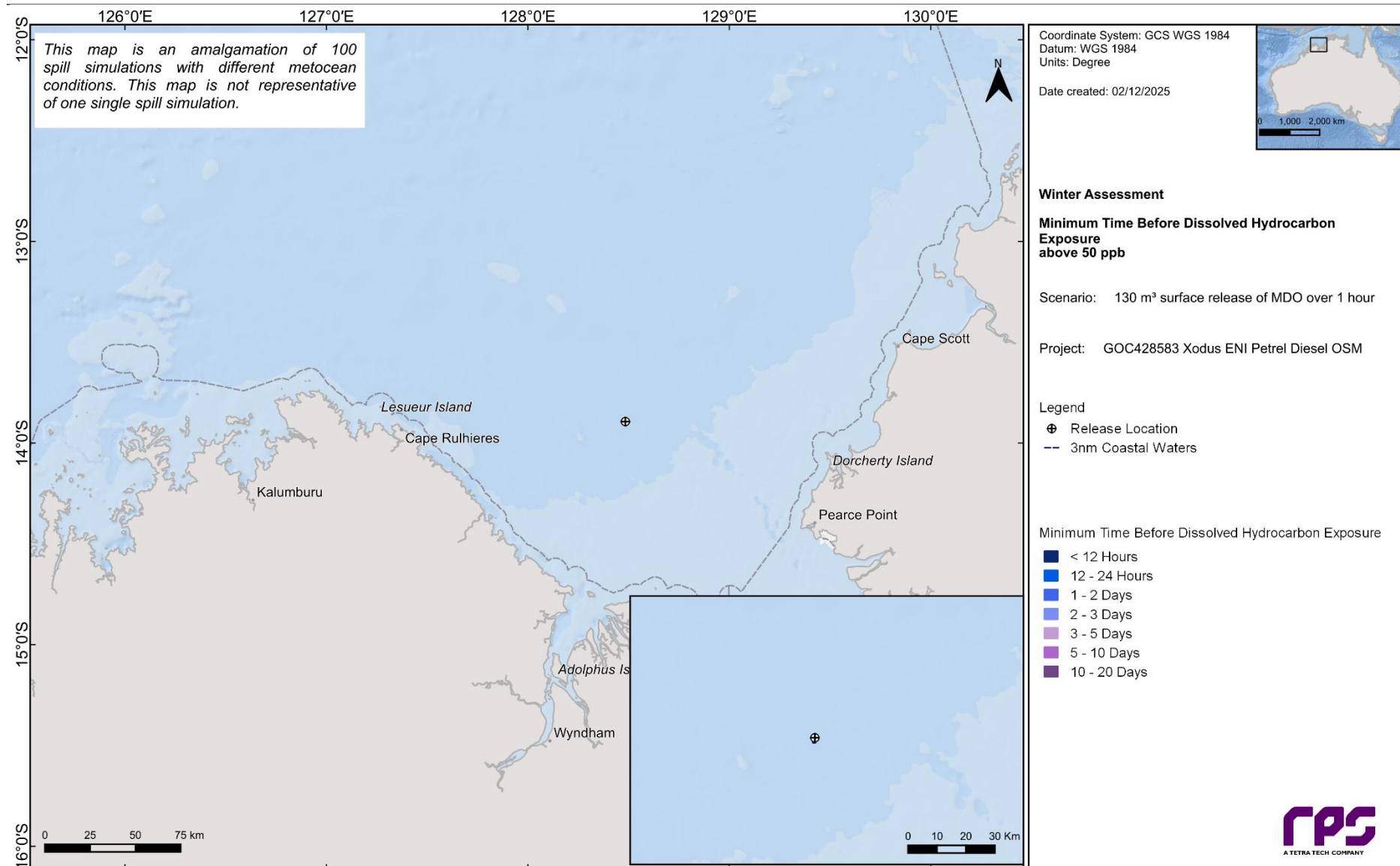


Figure 14-35 Minimum times before dissolved hydrocarbon exposure at, or above, 50 ppb following a vessel collision at the WYE. The results were calculated from 100 spill simulations and represent winter conditions. Note the exposure is immediately adjacent to the release location.

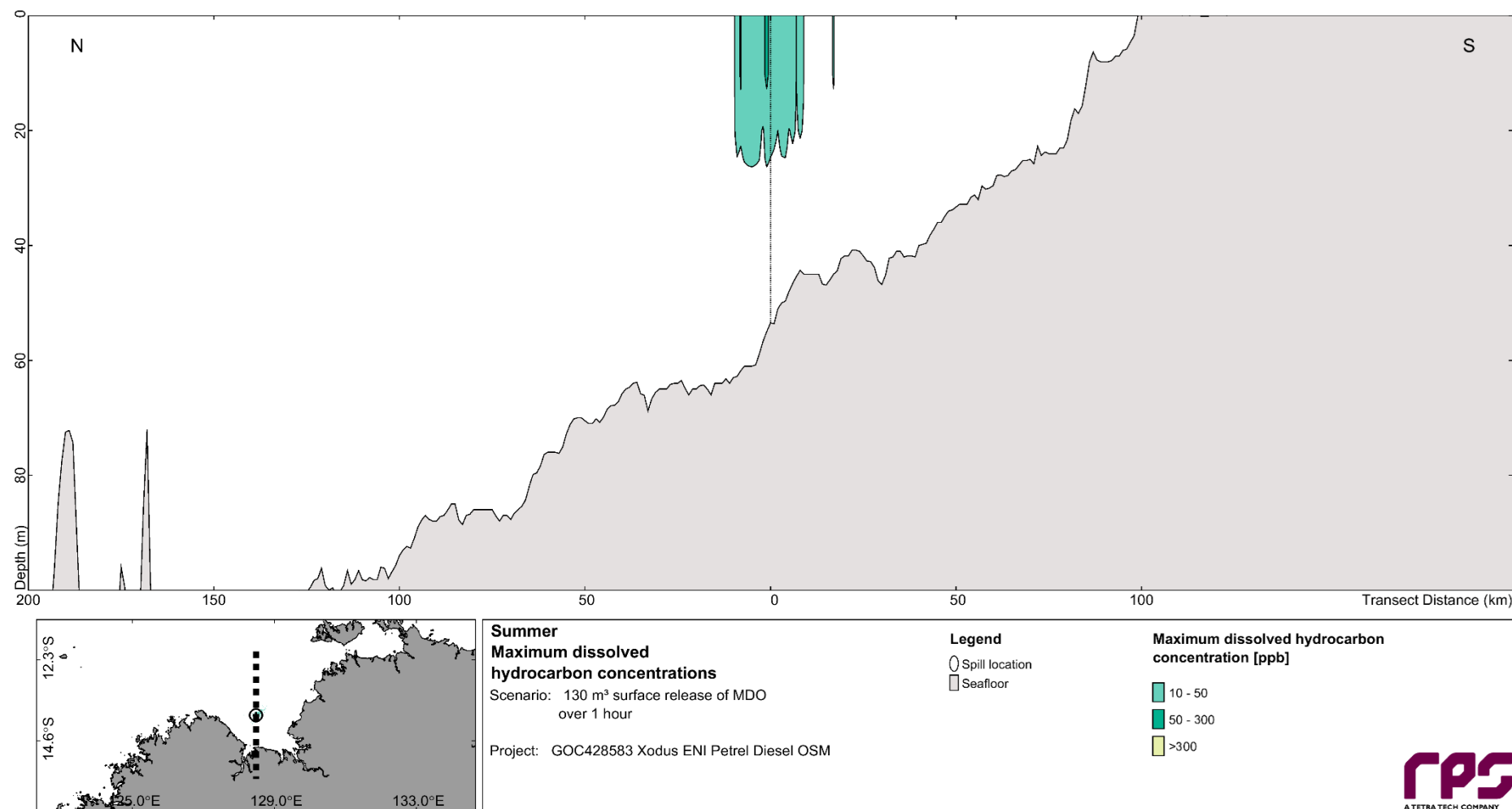


Figure 14-36 North-south cross-section transect of dissolved hydrocarbon concentrations following a vessel collision at the WYE. The results were calculated from 100 spill simulations and represent summer conditions.

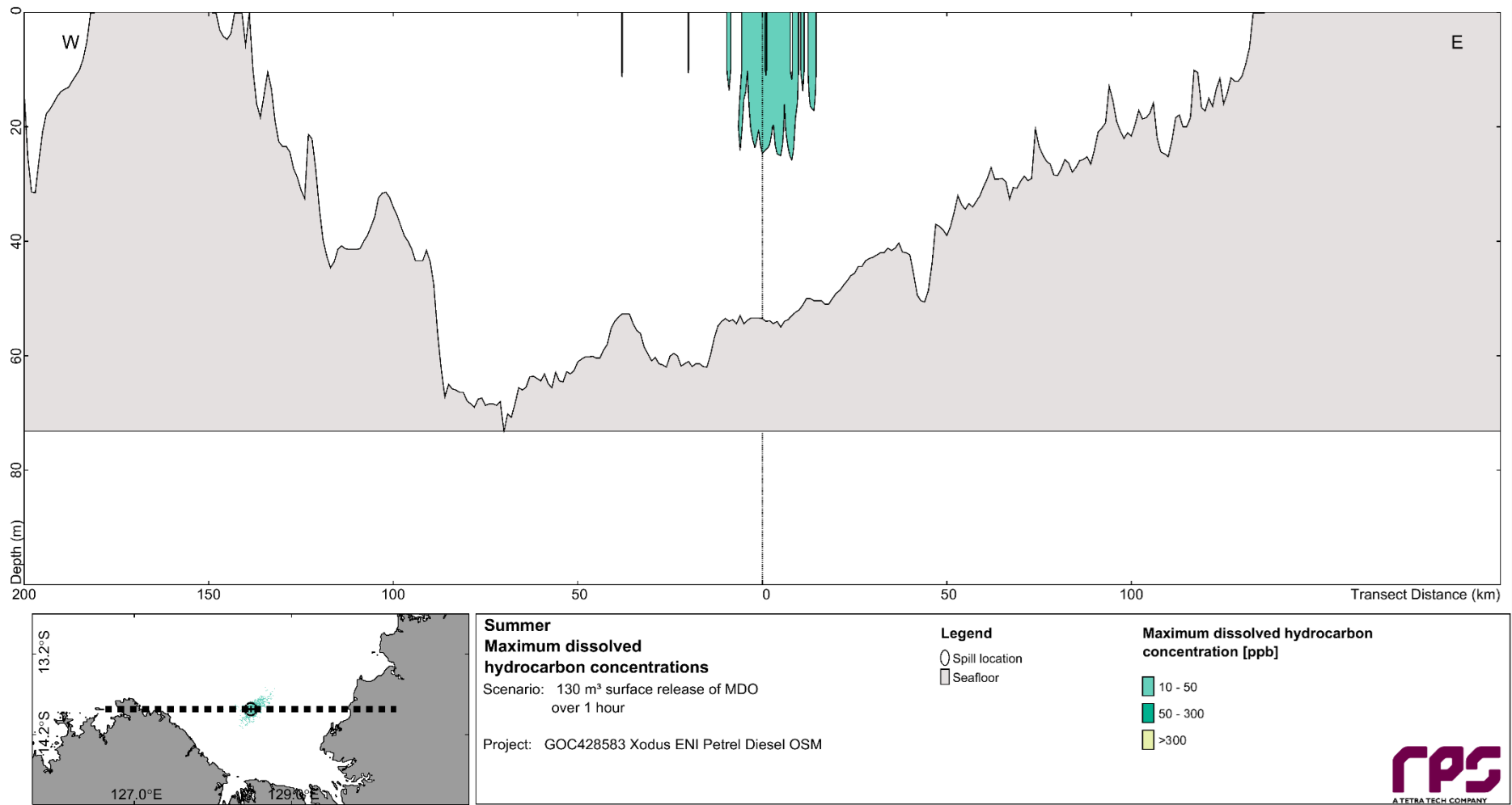


Figure 14-37 East-west cross-section transect of dissolved hydrocarbon concentrations following a vessel collision at the WYE. The results were calculated from 100 spill simulations and represent summer conditions.

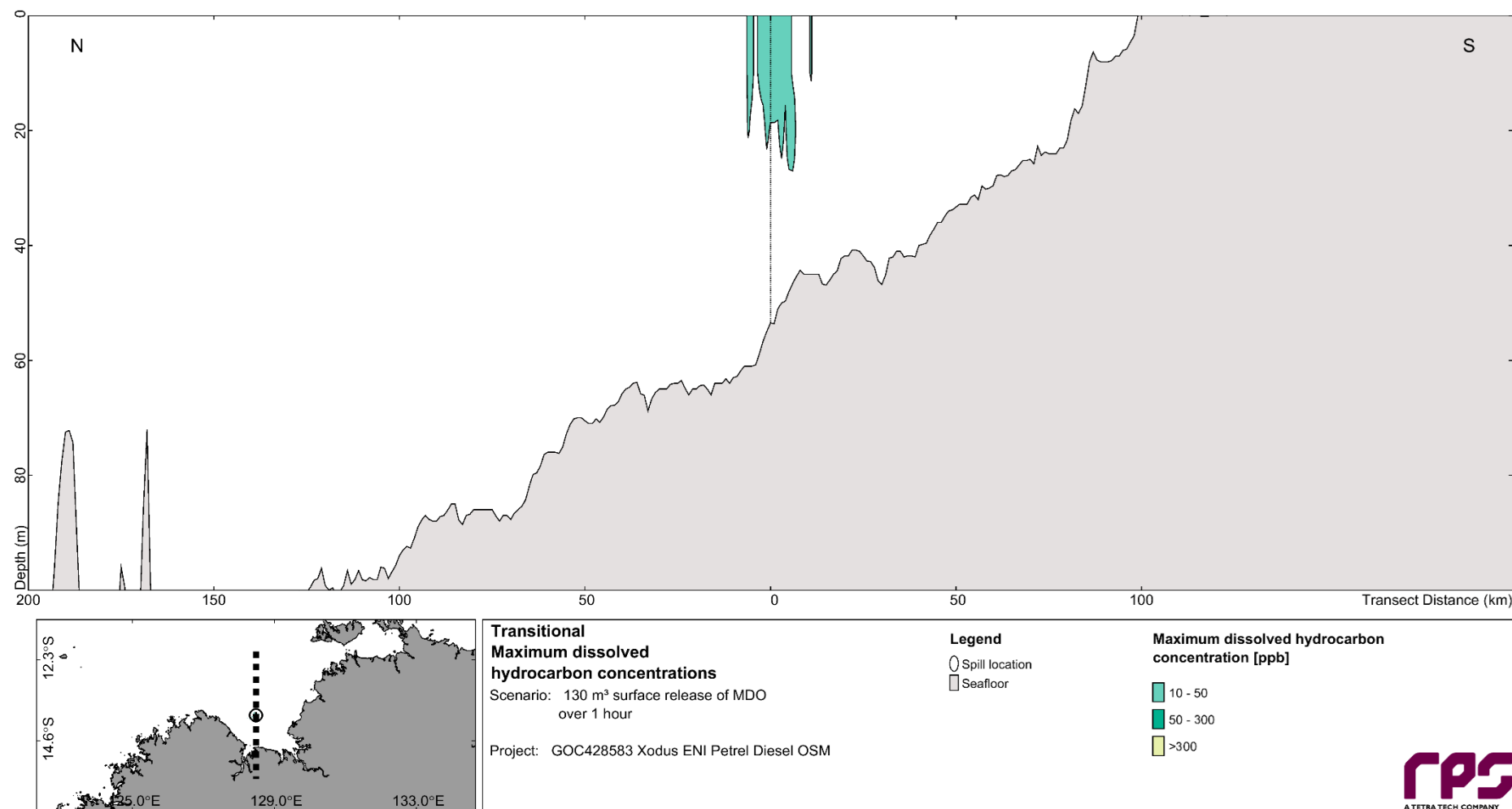


Figure 14-38 North-south cross-section transect of dissolved hydrocarbon concentrations following a vessel collision at the WYE. The results were calculated from 100 spill simulations and represent transitional conditions.

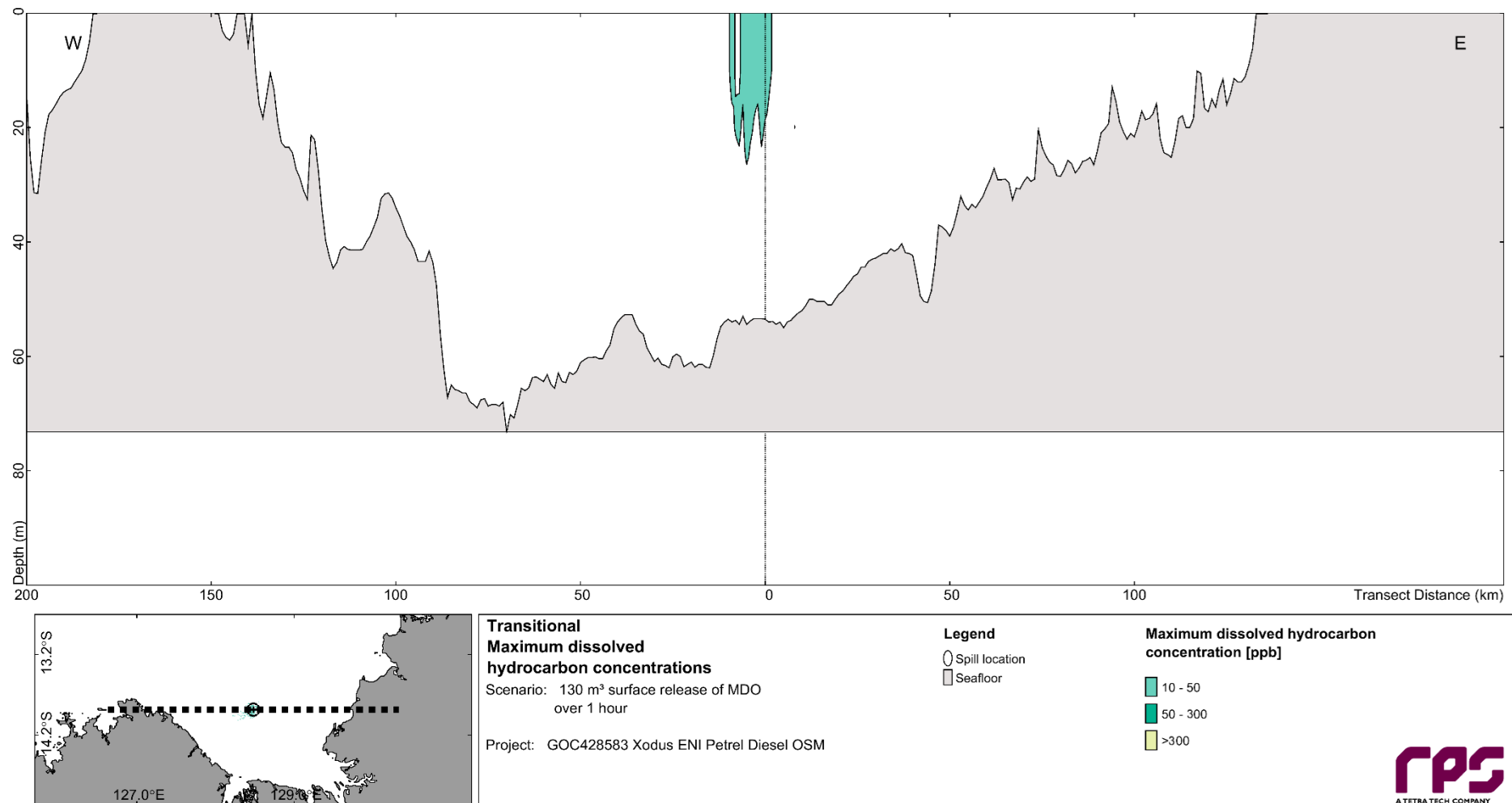


Figure 14-39 East-west cross-section transect of dissolved hydrocarbon concentrations following a vessel collision at the WYE. The results were calculated from 100 spill simulations and represent transitional conditions.

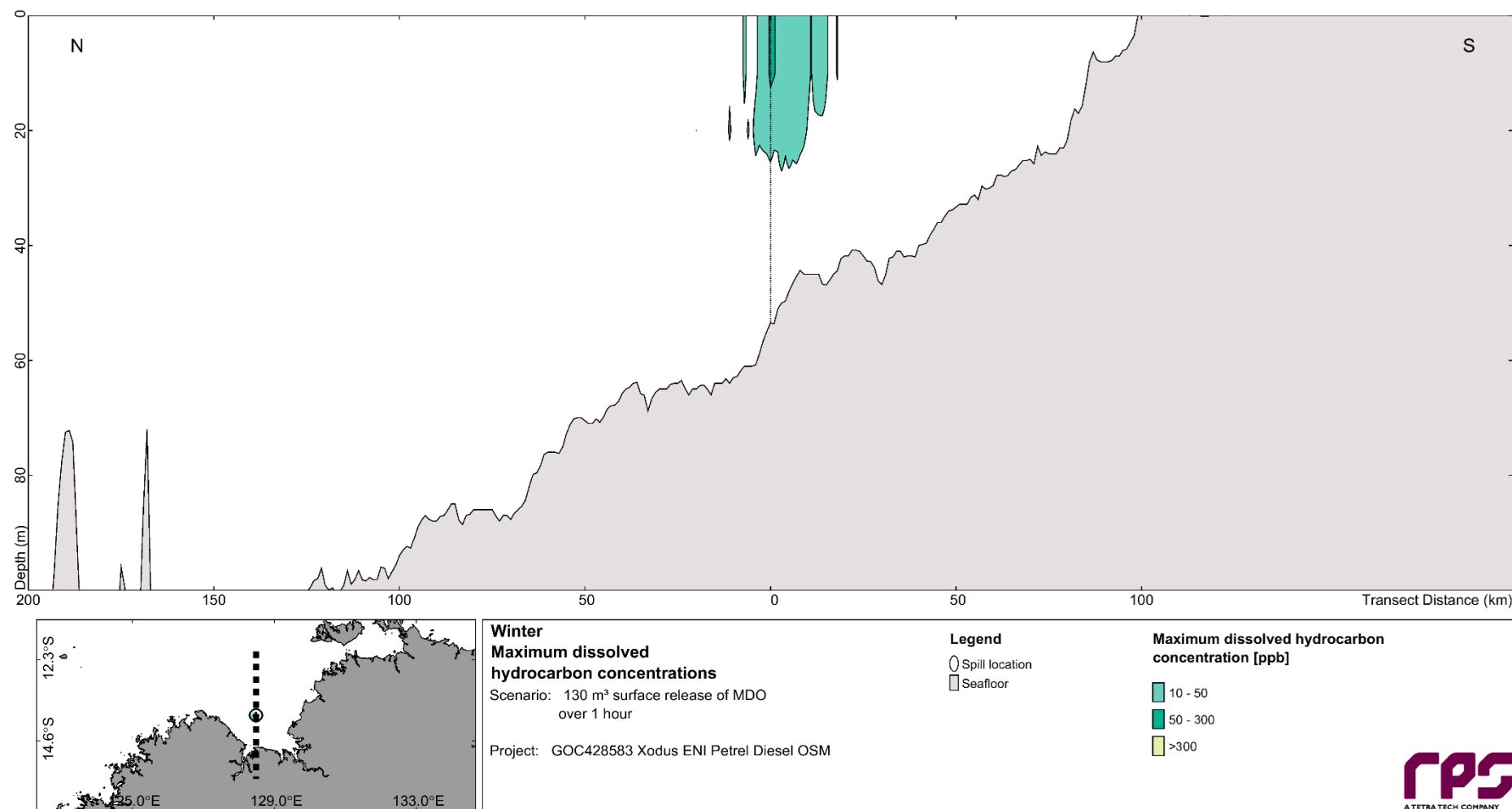


Figure 14-40 North-south cross-section transect of dissolved hydrocarbon concentrations following a vessel collision at the WYE. The results were calculated from 100 spill simulations and represent winter conditions.

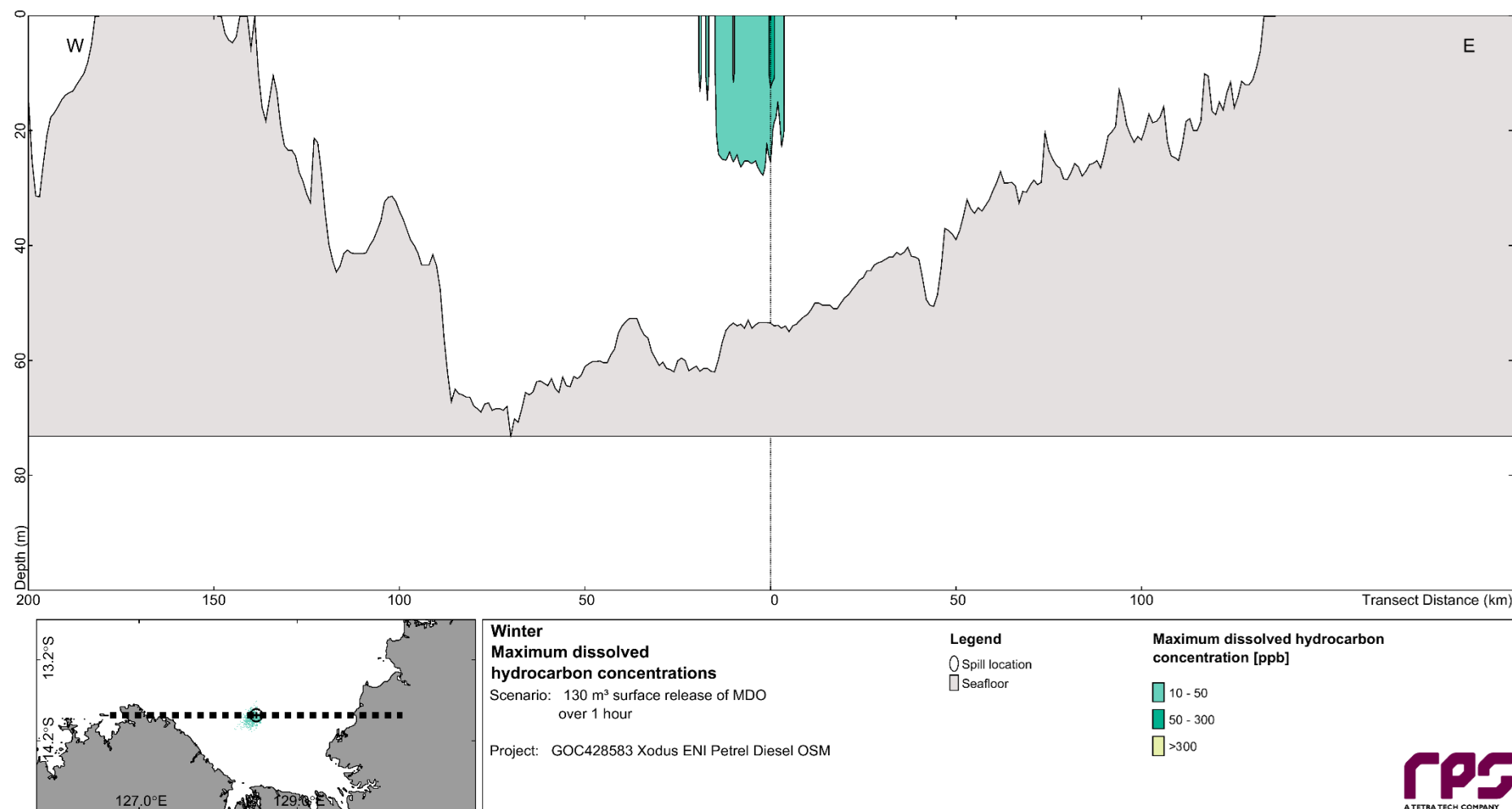


Figure 14-41 East-west cross-section transect of dissolved hydrocarbon concentrations following a vessel collision at the WYE. The results were calculated from 100 spill simulations and represent winter conditions.

14.1.4.2 Entrained Hydrocarbons

Table 14-9 summarises the maximum distances from the release location to entrained hydrocarbon thresholds for each season. Concentrations exceeding 10 ppb may potentially extend up to 300 km from the release location. As the threshold increases to 100 ppb and 1,000 ppb, the maximum distance decreases to 58 km and 17 km, respectively.

Table 14-10 to Table 14-12 summarise the receptors exposed to entrained hydrocarbons (either at receptor depth, or above receptors in the overlying water column). Since the release location falls within the Bonaparte Gulf IMCRA and North-west (Marine) MR, the results commentary for these receptors is omitted; however, the results are included in the table.

Carbonate bank and terrace system of the Sahul Shelf KEF recorded the highest probability of exposure at, or above, 10 ppb with 67% during winter conditions. During summer conditions, the North (Marine) MR receptor recorded the earliest time before exposure at 10 hours after the spill commencement. Additionally, the same receptor recorded the highest concentration at 646 ppb also during summer conditions.

Figure 14-42 to Figure 14-44 illustrate the zones of exposure to entrained hydrocarbons for each season, whilst Figure 14-45 to Figure 14-62 display the probability of exposure and minimum exposure times for each threshold.

Cross-sectional transects (north-south and east-west) of the maximum entrained hydrocarbons in the vicinity of the release site for summer, transitional and winter conditions are presented in Figure 14-63 to Figure 14-68.

Table 14-9 Maximum distance from the release location to entrained hydrocarbon exposure threshold following a vessel collision at the WYE. Results were calculated from 100 spill simulations per season.

Season	Distance and direction travelled	Entrained hydrocarbon exposure threshold		
		≥10 ppb	≥100 ppb	≥1,000 ppb
Summer	Maximum distance travelled (km) by a spill simulation	285	58	17
	Direction of maximum travel	West	West	Southeast
Transitional	Maximum distance travelled (km) by a spill simulation	300	47	12
	Direction of maximum travel	West	West	Southeast
Winter	Maximum distance travelled (km) by a spill simulation	234	49	15
	Direction of maximum travel	West	Southeast	Southeast

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Table 14-10 Receptors predicted to be exposed by entrained hydrocarbons following a vessel collision at the WYE. The results were calculated from 100 spill simulations and represent summer conditions.

Category	Name	Probability (%) of entrained hydrocarbon exposure at			Minimum time before entrained exposure at			Maximum entrained hydrocarbon concentrations (ppb)	
		≥ 10 ppb	≥ 100 ppb	≥ 1,000 ppb	≥ 10 ppb	≥ 100 ppb	≥ 1,000 ppb	averaged over all simulations	for the worst simulation
AMP	Joseph Bonaparte Gulf	13	NC	NC	3 d, 15 hours	NC	NC	4	63
	Kimberley	2	NC	NC	7 d, 4 hours	NC	NC	<1	21
IMCRA-MESO	Anson Beagle	6	NC	NC	7 d, 3 hours	NC	NC	2	27
	Bonaparte Gulf ¹	73	53	16	1 hour	1 hour	1 hour	553	7,186
	Cambridge-Bonaparte	13	NC	NC	4 d, 12 hours	NC	NC	4	38
	Kimberley	2	NC	NC	5 d, 4 hours	NC	NC	<1	33
KEF	Carbonate bank and terrace system of the Sahul Shelf	20	2	NC	19 hours	21 hours	NC	11	395
MP	North Kimberley	2	NC	NC	7 d, 19 hours	NC	NC	<1	16
MR	North (Marine)	51	29	NC	10 hours	11 hours	NC	81	646
	North-west (Marine) ¹	73	53	16	1 hours	1 hours	1 hours	553	7,186
NHPN	The West Kimberley	2	NC	NC	7 d, 19 hours	NC	NC	<1	16
RSB	Holothuria Banks	1	NC	NC	10 d, 1 hours	NC	NC	<1	12
State Waters	Western Australia	2	NC	NC	7 d, 19 hours	NC	NC	<1	16
TUR	Cape Domett and Lacrosse Island in the Cambridge Gulf. 60km internesting buffer	20	1	NC	1 d, 15 hours	1 d, 17 hours	NC	8	125
	Mainland east of Mary Island to mainland adjacent to Murrara Island including all offshore islands. 20km internesting buffer	2	NC	NC	7 d, 17 hours	NC	NC	<1	18
	Waigait Beach to south of Point Blaze, including all offshore islands. 60km internesting buffer	1	NC	NC	10 d, 21 hours	NC	NC	<1	12

NC: No contact to receptor predicted for specified threshold.

¹Release location falls within the Bonaparte Gulf IMCRA and North-west (Marine) MR

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Table 14-11 Receptors predicted to be exposed by entrained hydrocarbons following a vessel collision at the WYE. The results were calculated from 100 spill simulations and represent transitional conditions.

Category	Name	Probability (%) of entrained hydrocarbon exposure at			Minimum time before entrained exposure at			Maximum entrained hydrocarbon concentrations (ppb)	
		≥ 10 ppb	≥ 100 ppb	≥ 1,000 ppb	≥ 10 ppb	≥ 100 ppb	≥ 1,000 ppb	averaged over all simulations	for the worst simulation
AMP	Joseph Bonaparte Gulf	6	NC	NC	4 days, 11 hours	NC	NC	2	34
	Kimberley	3	NC	NC	10 days, 13 hours	NC	NC	<1	16
IMCRA-MESO	Anson Beagle	2	NC	NC	10 days, 2 hours	NC	NC	<1	16
	Bonaparte Gulf ¹	77	45	7	1 hour	1 hour	1 hour	286	4,096
	Cambridge-Bonaparte	5	NC	NC	5 days, 21 hours	NC	NC	2	22
	Kimberley	7	NC	NC	6 days, 11 hours	NC	NC	2	35
KEF	Carbonate bank and terrace system of the Sahul Shelf	40	12	NC	1 days, 1 hours	1 days, 2 hours	NC	30	288
MP	North Kimberley	2	NC	NC	11 days, 4 hours	NC	NC	<1	16
MR	North (Marine)	28	18	NC	16 hours	17 hours	NC	40	547
	North-west (Marine) ¹	77	45	7	1 hour	1 hour	1 hour	286	4,096
NHPN	The West Kimberley	2	NC	NC	11 days, 4 hours	NC	NC	<1	15
RSB	East Holothuria Reef	2	NC	NC	12 days, 23 hours	NC	NC	<1	2
	Holothuria Banks	2	NC	NC	12 days, 10 hours	NC	NC	<1	16
State Waters	Western Australia	2	NC	NC	11 days, 4 hours	NC	NC	<1	16

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Category	Name	Probability (%) of entrained hydrocarbon exposure at			Minimum time before entrained exposure at			Maximum entrained hydrocarbon concentrations (ppb)	
		≥ 10 ppb	≥ 100 ppb	≥ 1,000 ppb	≥ 10 ppb	≥ 100 ppb	≥ 1,000 ppb	averaged over all simulations	for the worst simulation
TUR	Cape Domett and Lacrosse Island in the Cambridge Gulf. 60km internersting buffer	18	NC	NC	2 days, 12 hours	NC	NC	6	100
	Mainland east of Mary Island to mainland adjacent to Murrara Island including all offshore islands. 20km internersting buffer	2	NC	NC	12 days, 23 hours	NC	NC	<1	16

NC: No contact to receptor predicted for specified threshold.

¹Release location falls within the Bonaparte Gulf IMCRA and North-west (Marine) MR

Table 14-12 Receptors predicted to be exposed by entrained hydrocarbons following a vessel collision at the WYE. The results were calculated from 100 spill simulations and represent winter conditions.

Category	Name	Probability (%) of entrained hydrocarbon exposure at			Minimum time before entrained exposure at			Maximum entrained hydrocarbon concentrations (ppb)	
		≥ 10 ppb	≥ 100 ppb	≥ 1,000 ppb	≥ 10 ppb	≥ 100 ppb	≥ 1,000 ppb	averaged over all simulations	for the worst simulation
AMP	Joseph Bonaparte Gulf	2	NC	NC	3 days, 10 hours	NC	NC	<1	27
	Kimberley	1	NC	NC	17 days, 14 hours	NC	NC	<1	12
IMCRA-MESO	Bonaparte Gulf ¹	87	73	26	1 hour	1 hour	1 hour	983	7,038
	Cambridge-Bonaparte	9	NC	NC	4 days, 9 hours	NC	NC	3	43
	Kimberley	9	NC	NC	11 days, 14 hours	NC	NC	3	24

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Category	Name	Probability (%) of entrained hydrocarbon exposure at			Minimum time before entrained exposure at			Maximum entrained hydrocarbon concentrations (ppb)	
		≥ 10 ppb	≥ 100 ppb	≥ 1,000 ppb	≥ 10 ppb	≥ 100 ppb	≥ 1,000 ppb	averaged over all simulations	for the worst simulation
KEF	Carbonate bank and terrace system of the Sahul Shelf	67	24	NC	1 days, 7 hours	1 days, 12 hours	NC	59	236
MP	North Kimberley	19	NC	NC	8 days, 7 hours	NC	NC	5	50
MR	North (Marine)	8	3	NC	15 hours	16 hours	NC	8	306
	North-west (Marine) ¹	87	73	26	1 hour	1 hour	1 hour	983	7,038
NHPN	The West Kimberley	19	NC	NC	8 days, 7 hours	NC	NC	5	50
State Waters	Western Australia	19	NC	NC	8 days, 7 hours	NC	NC	5	50
TUR	Cape Domett and Lacrosse Island in the Cambridge Gulf. 60km internersting buffer	31	2	NC	2 days, 10 hours	2 days, 16 hours	NC	14	171

NC: No contact to receptor predicted for specified threshold.

¹Release location falls within the Bonaparte Gulf IMCRA and North-west (Marine) MR

REPORT

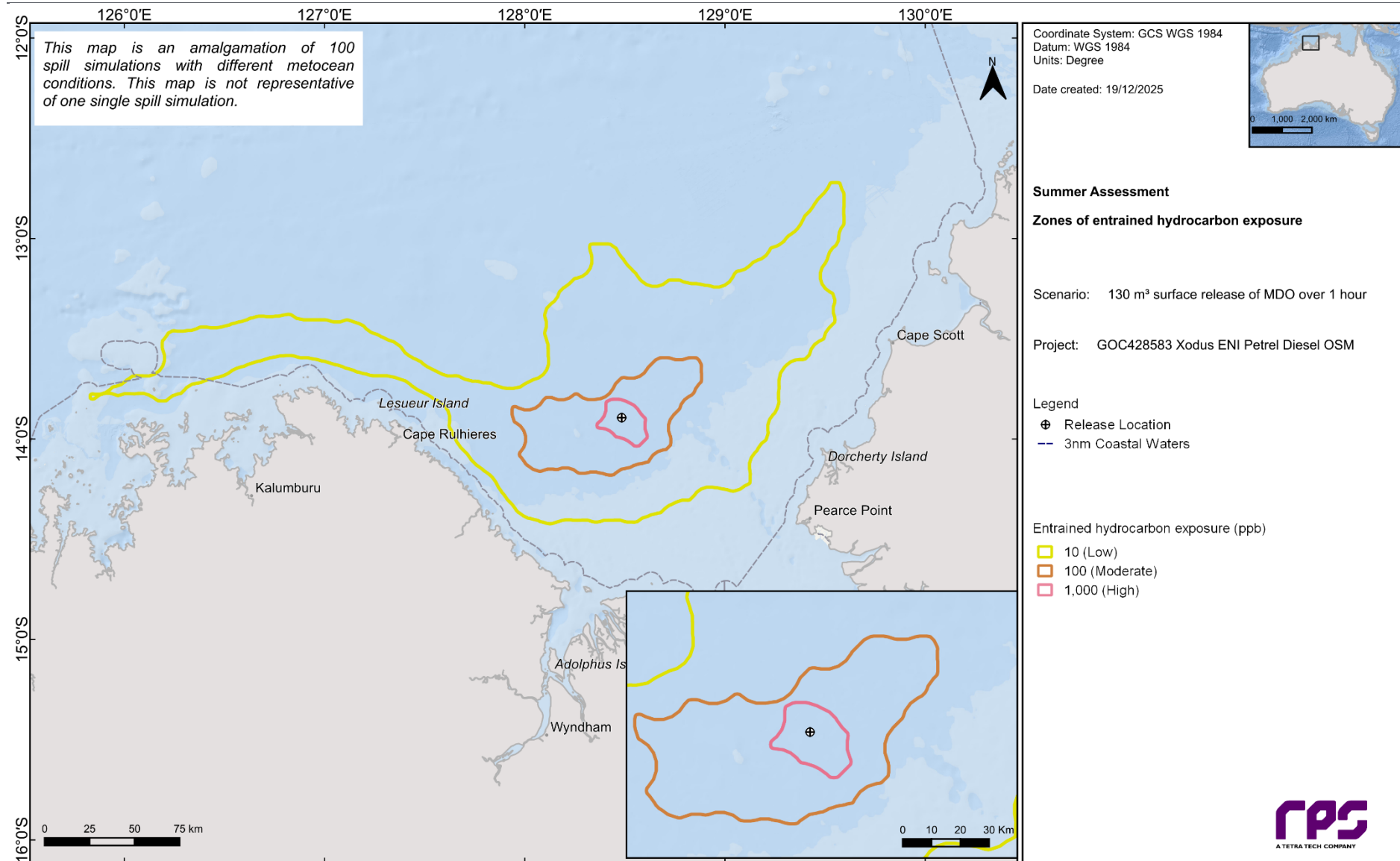


Figure 14-42 Zone of entrained hydrocarbon exposure following a vessel collision at the WYE. The results were calculated from 100 spill simulations and represent summer conditions.

REPORT

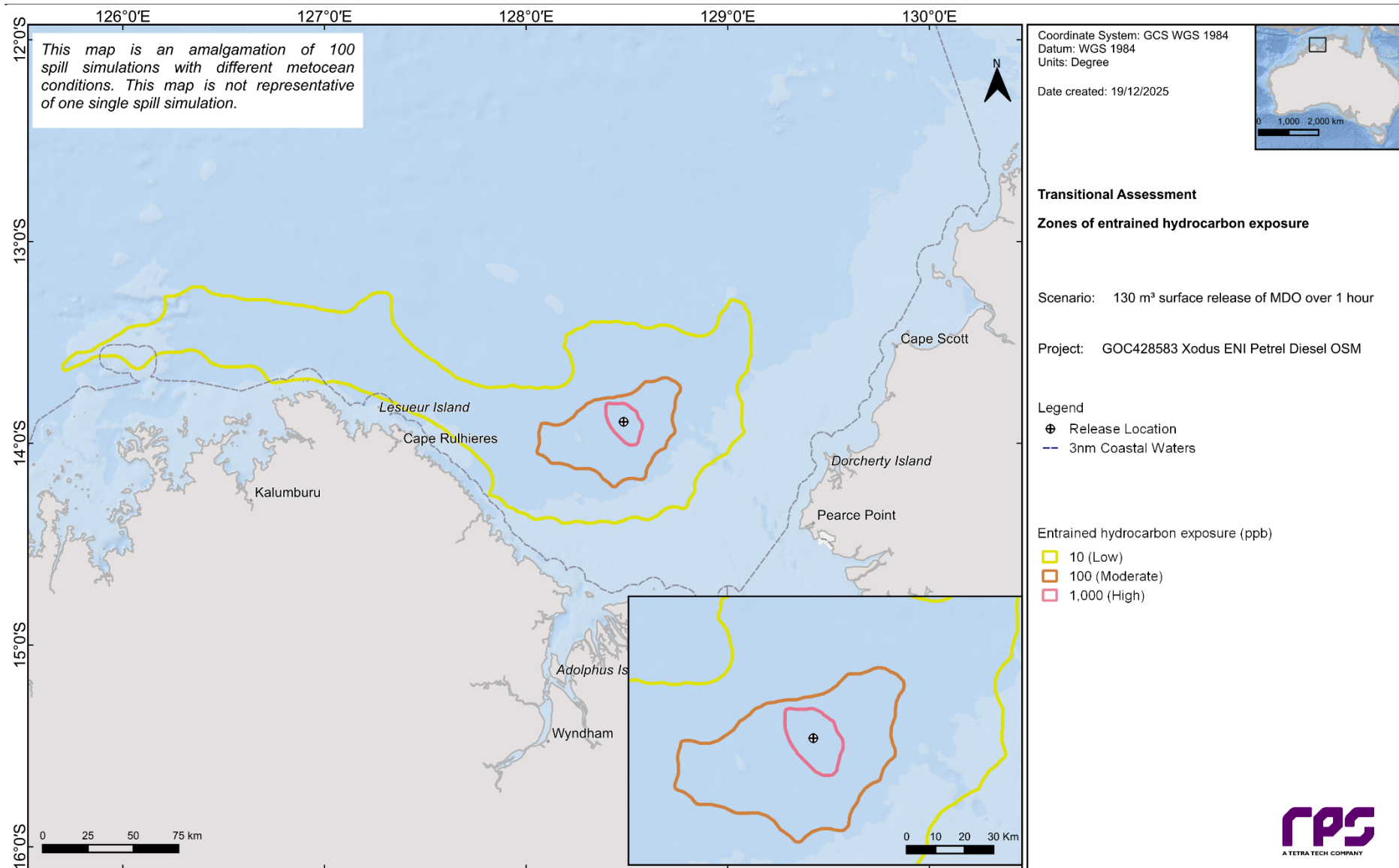


Figure 14-43 Zone of entrained hydrocarbon exposure following a vessel collision at the WYE. The results were calculated from 100 spill simulations and represent transitional conditions.

REPORT

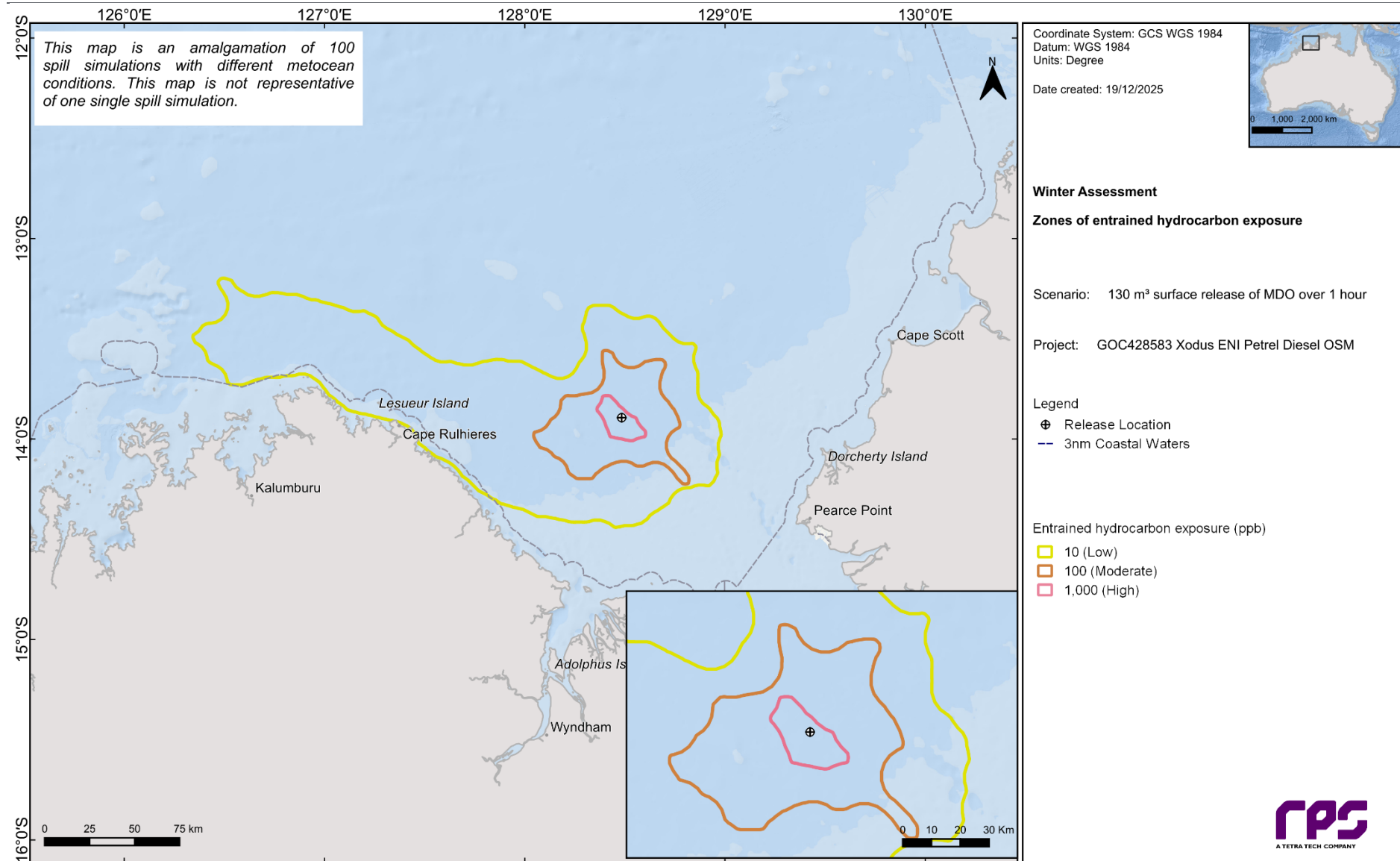


Figure 14-44 Zone of entrained hydrocarbon exposure following a vessel collision at the WYE. The results were calculated from 100 spill simulations and represent winter conditions.

REPORT

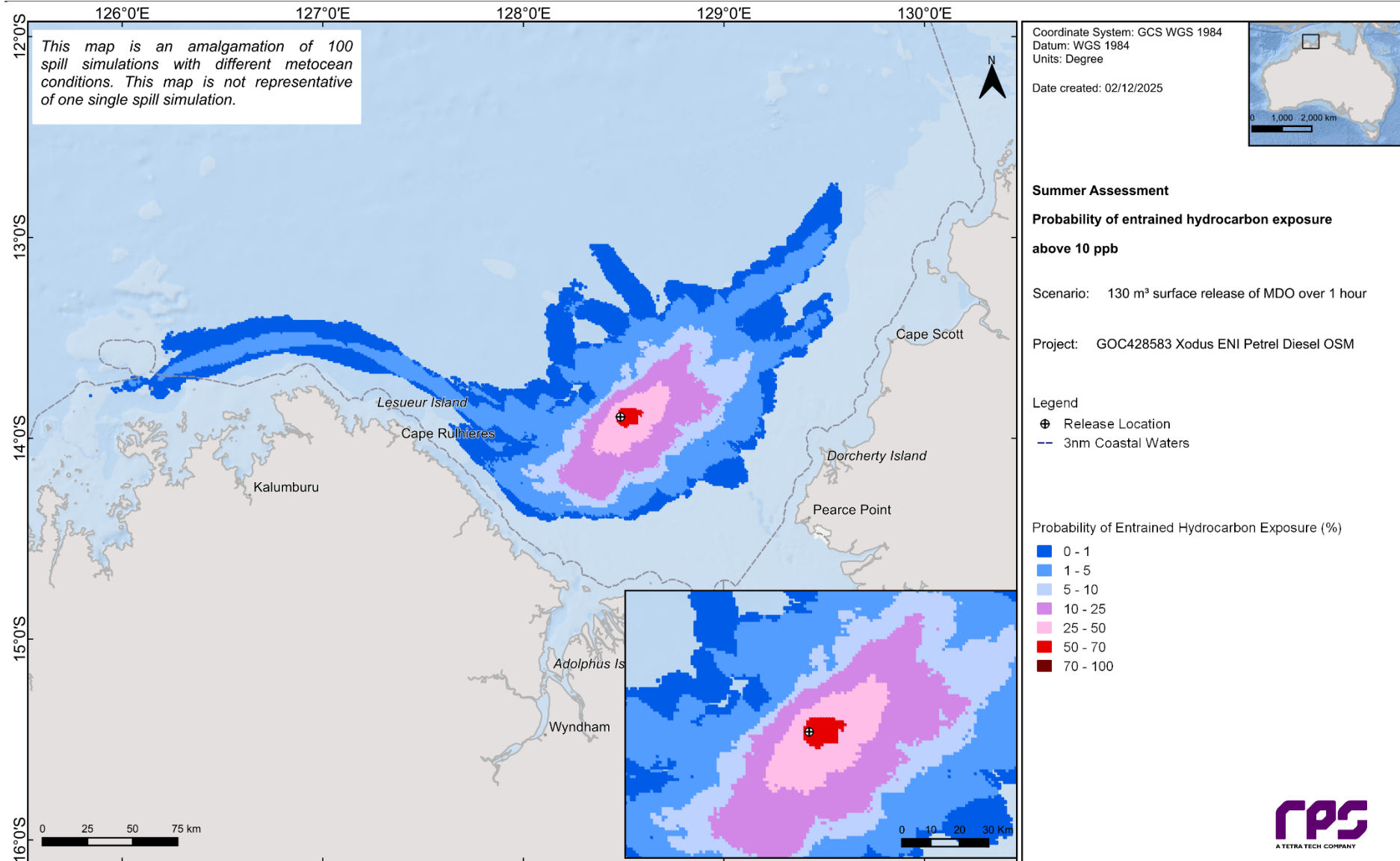


Figure 14-45 Probability of entrained hydrocarbon exposure at, or above, 10 ppb following a vessel collision at the WYE. The results were calculated from 100 spill simulations and represent summer conditions.

REPORT

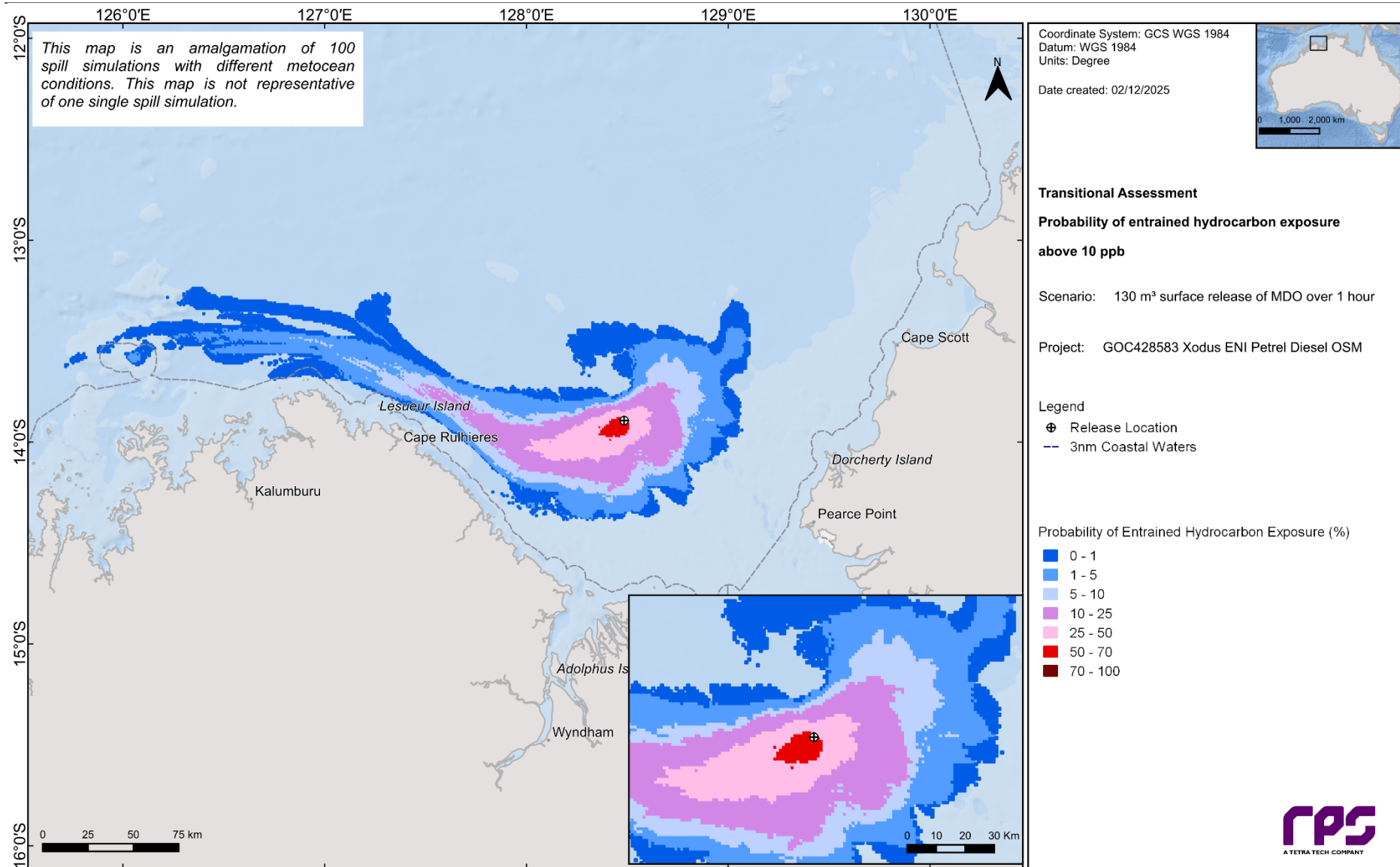


Figure 14-46 Probability of entrained hydrocarbon exposure at, or above, 10 ppb following a vessel collision at the WYE. The results were calculated from 100 spill simulations and represent transitional conditions.

REPORT

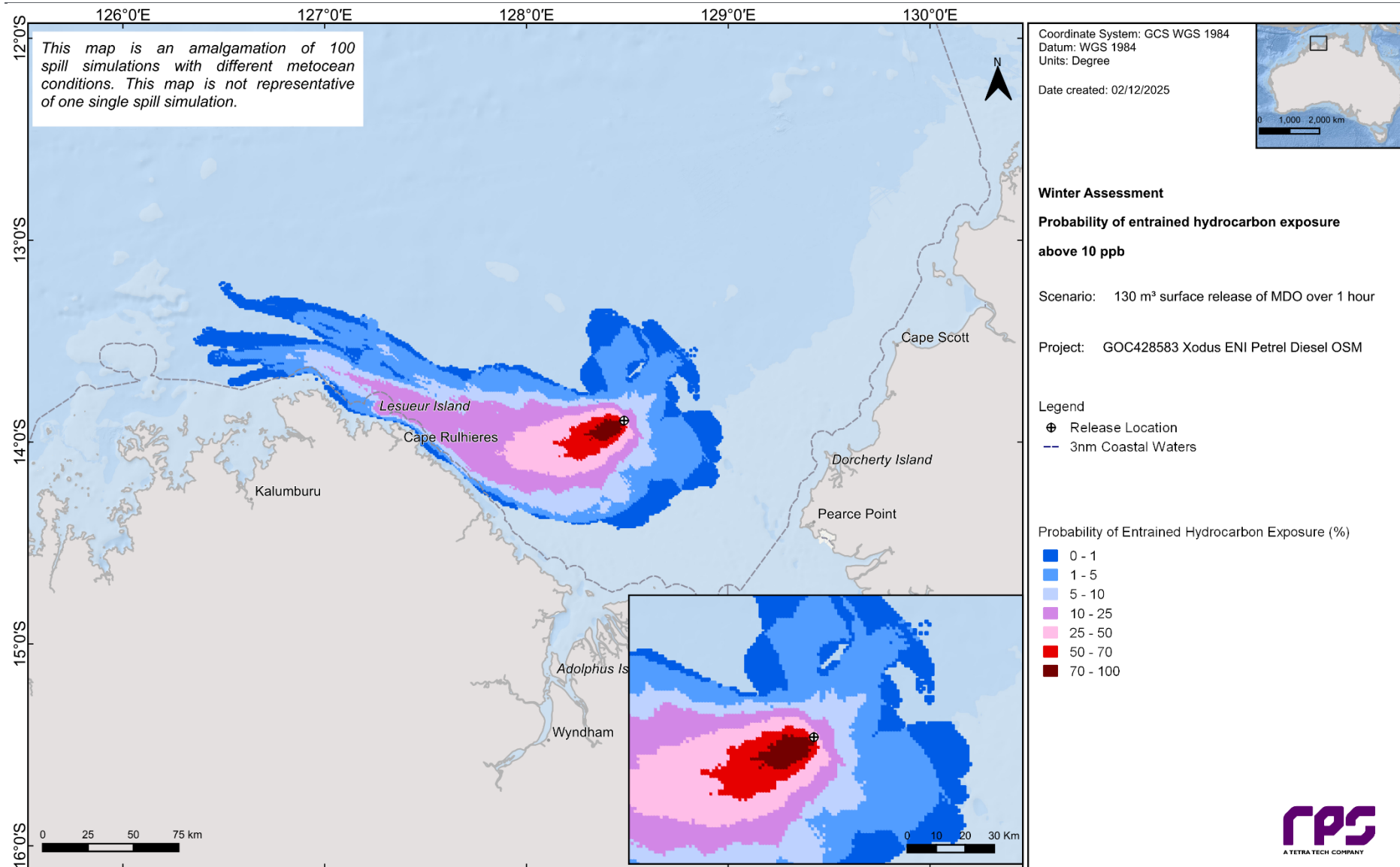


Figure 14-47 Probability of entrained hydrocarbon exposure at, or above, 10 ppb following a vessel collision at the WYE. The results were calculated from 100 spill simulations and represent winter conditions.

REPORT

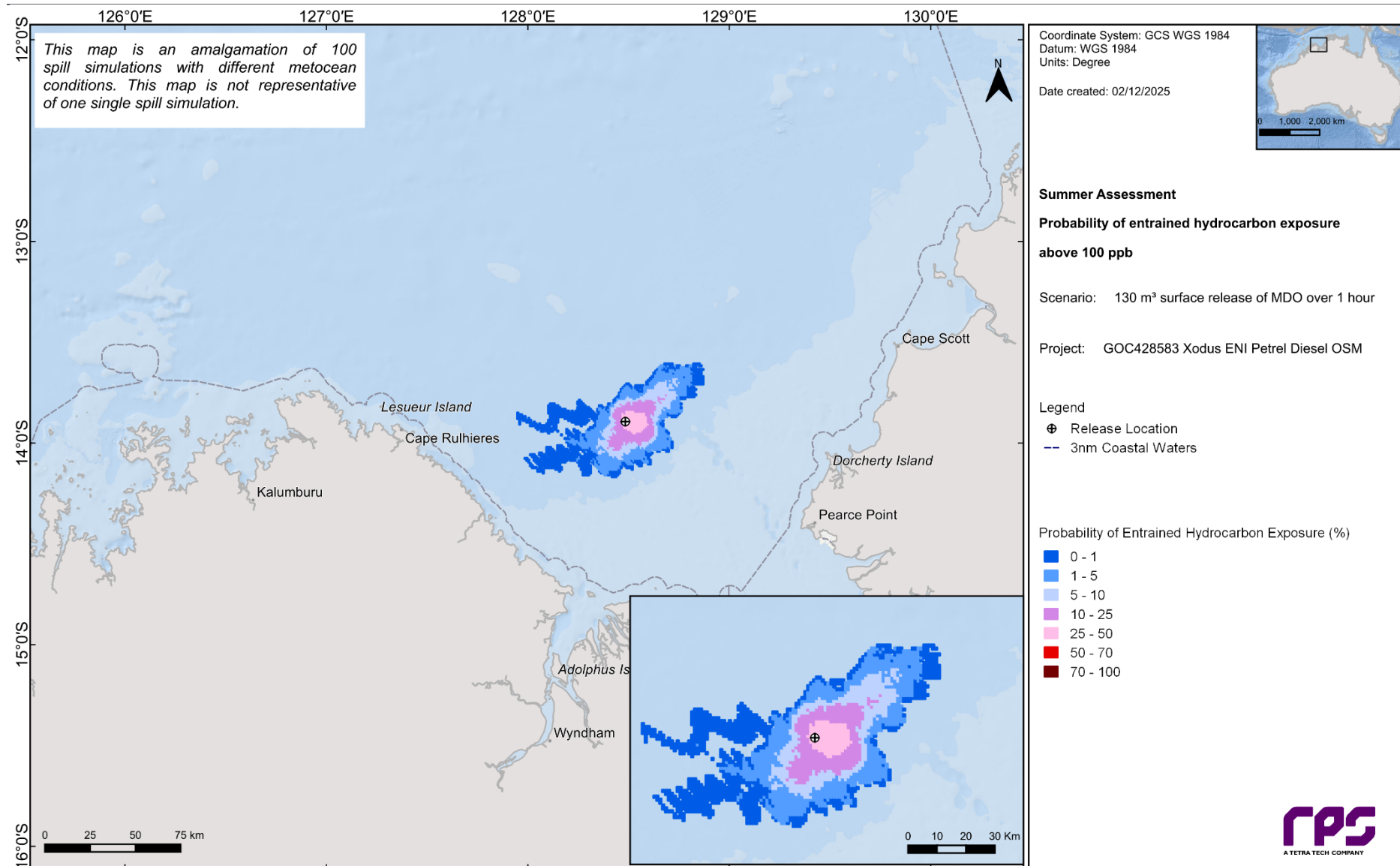


Figure 14-48 Probability of entrained hydrocarbon exposure at, or above, 100 ppb following a vessel collision at the WYE. The results were calculated from 100 spill simulations and represent summer conditions.

REPORT

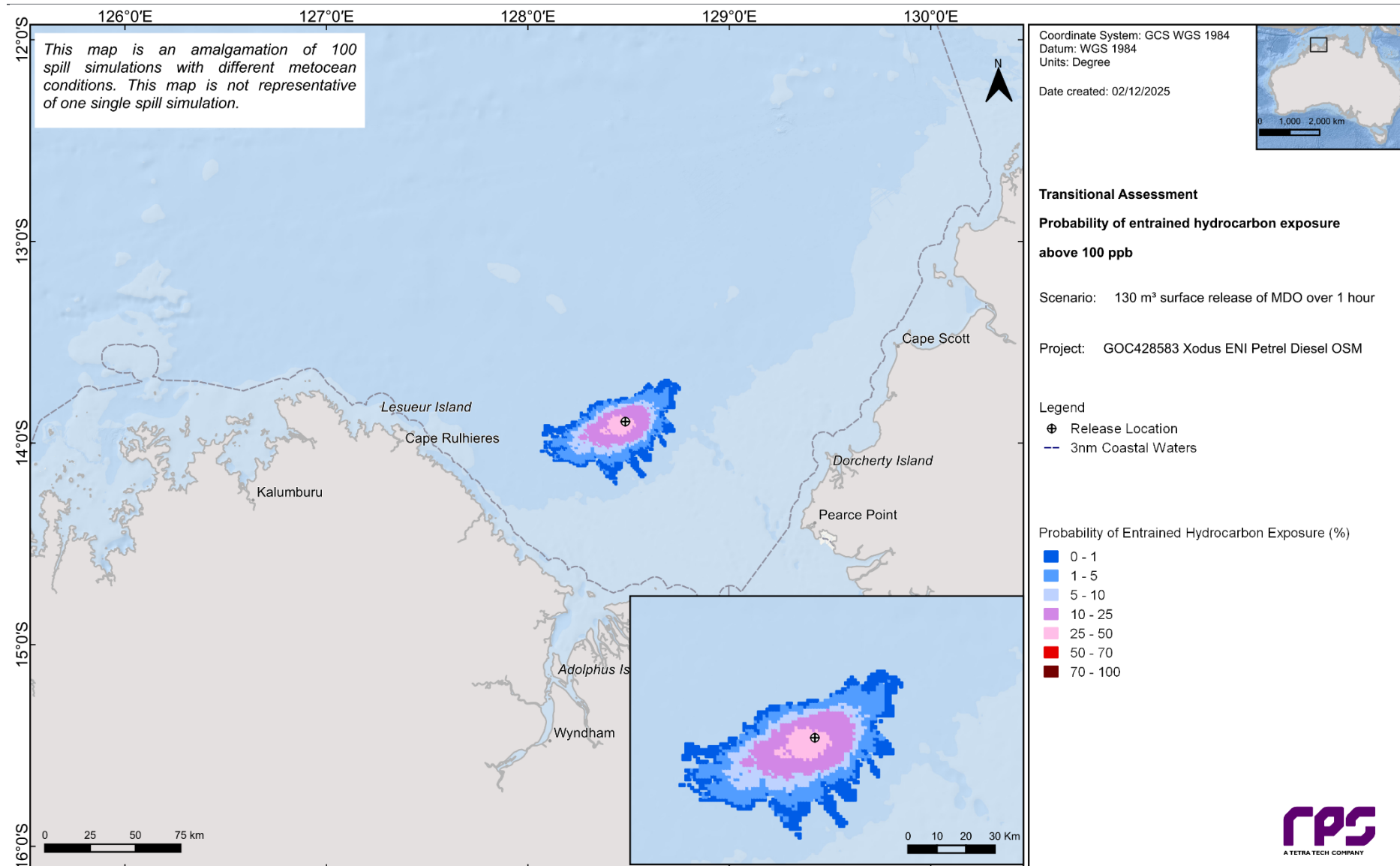


Figure 14-49 Probability of entrained hydrocarbon exposure at, or above, 100 ppb following a vessel collision at the WYE. The results were calculated from 100 spill simulations and represent transitional conditions.

REPORT

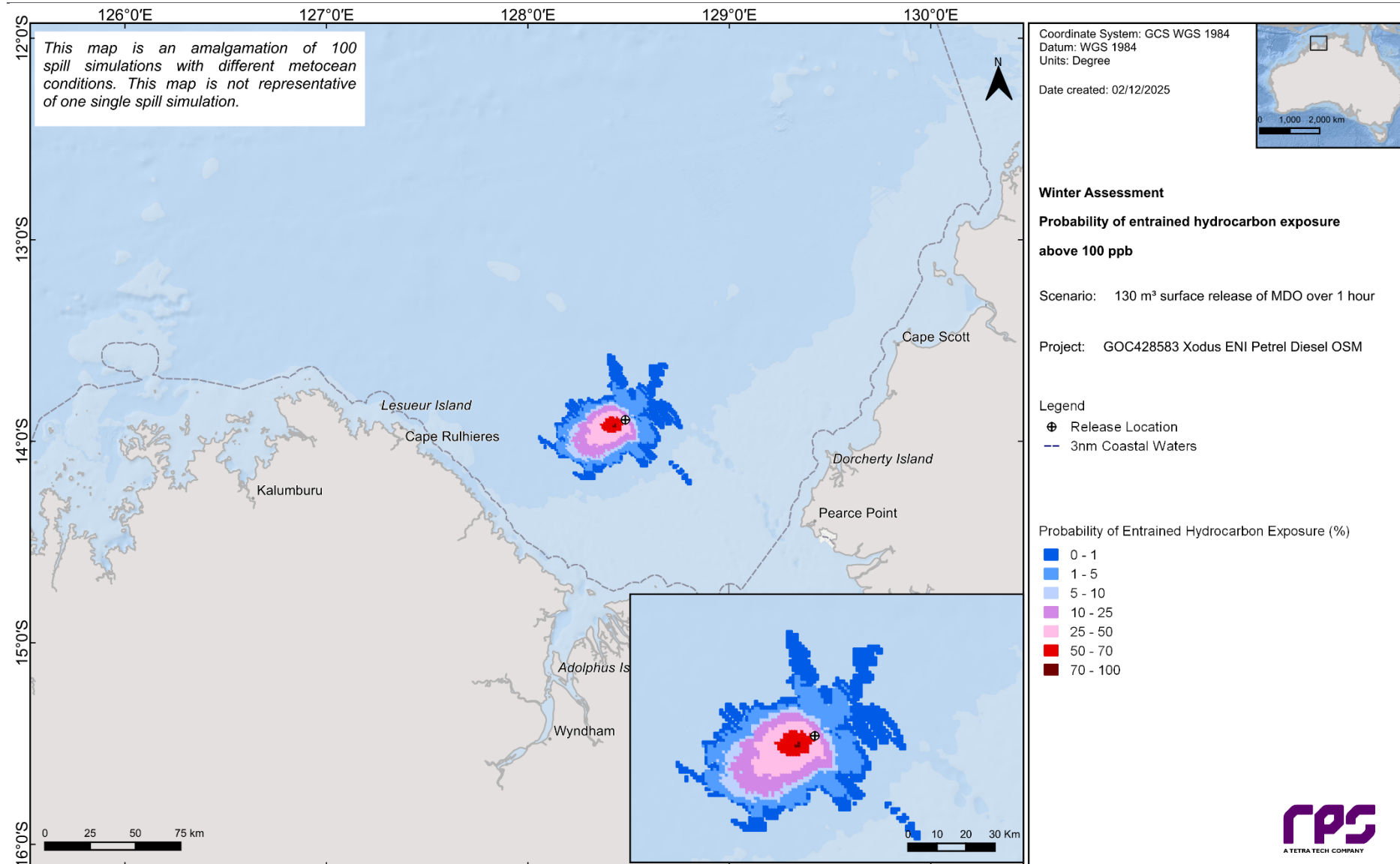


Figure 14-50 Probability of entrained hydrocarbon exposure at, or above, 100 ppb following a vessel collision at the WYE. The results were calculated from 100 spill simulations and represent winter conditions.

REPORT

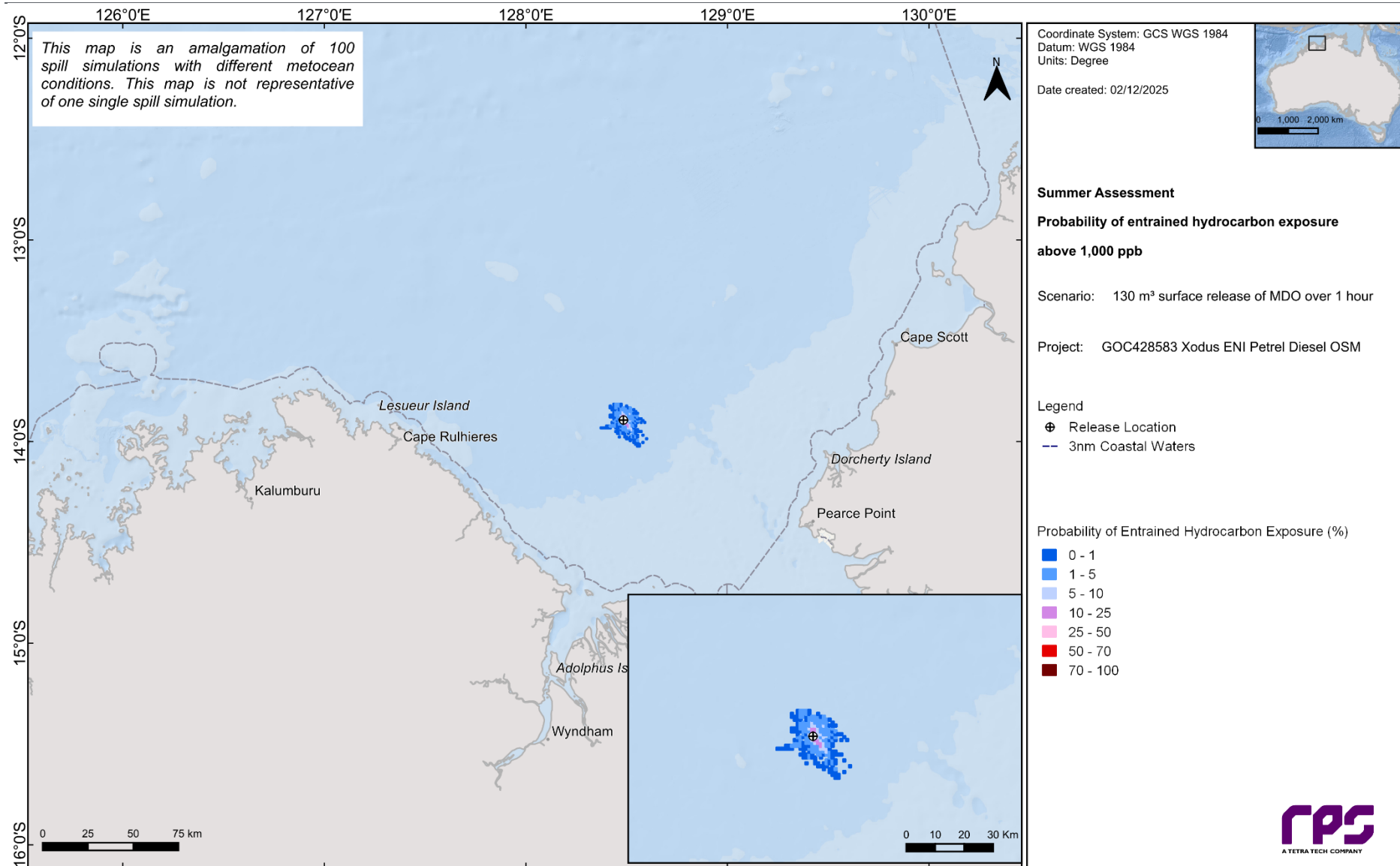


Figure 14-51 Probability of entrained hydrocarbon exposure at, or above, 1,000 ppb following a vessel collision at the WYE. The results were calculated from 100 spill simulations and represent summer conditions.

REPORT

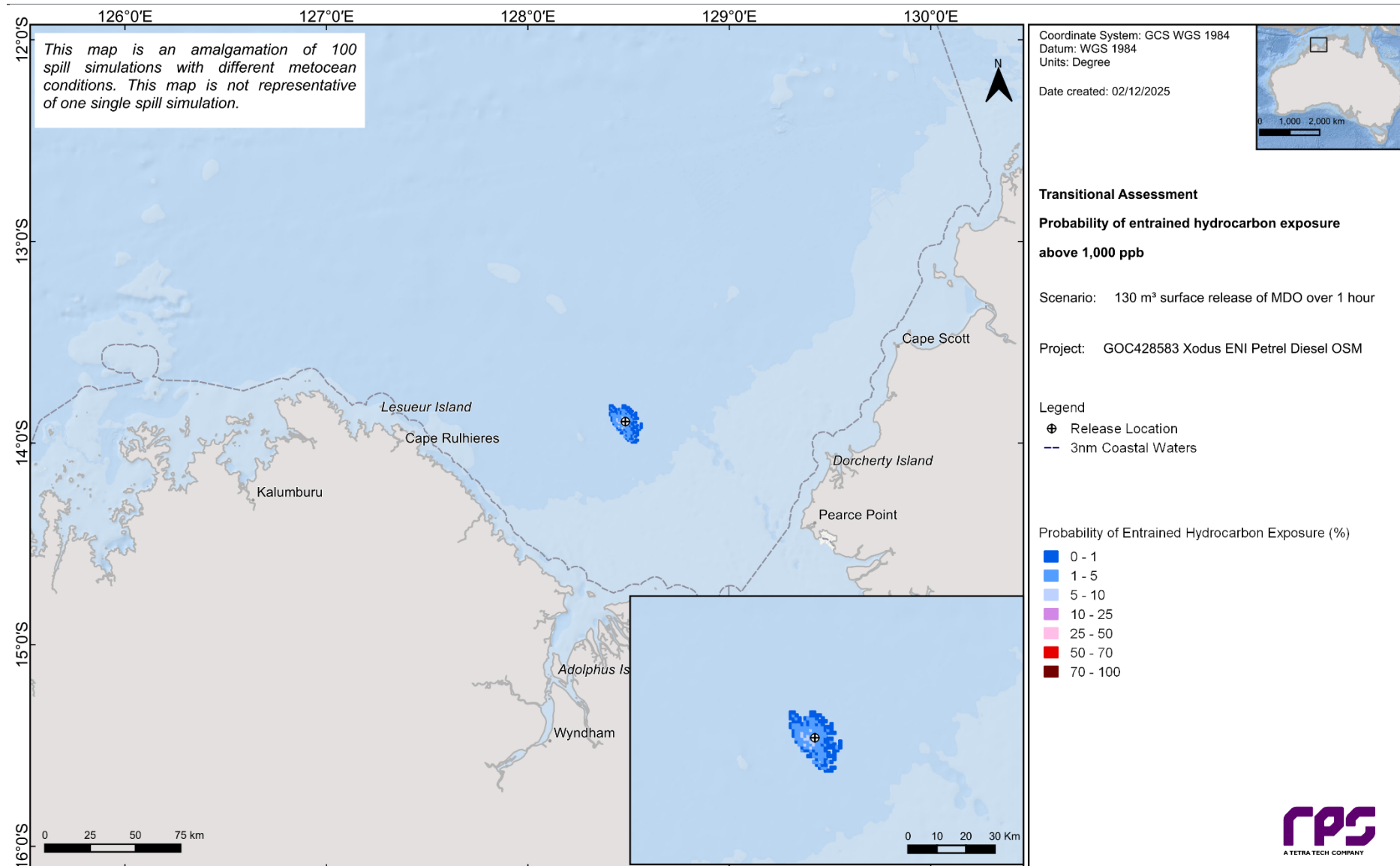


Figure 14-52 Probability of entrained hydrocarbon exposure at, or above, 1,000 ppb following a vessel collision at the WYE. The results were calculated from 100 spill simulations and represent transitional conditions.

REPORT

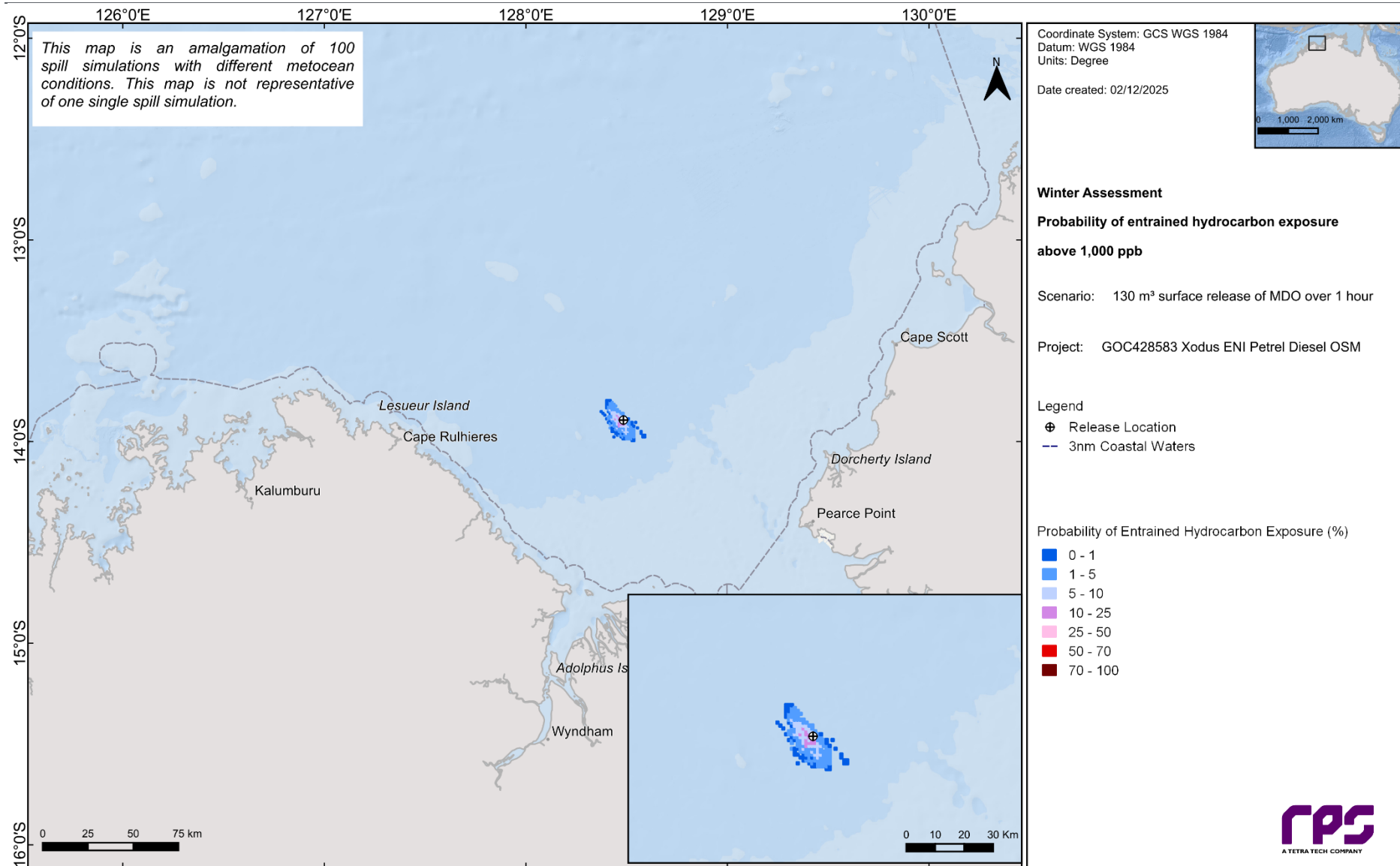


Figure 14-53 Probability of entrained hydrocarbon exposure at, or above, 1,000 ppb following a vessel collision at the WYE. The results were calculated from 100 spill simulations and represent winter conditions.

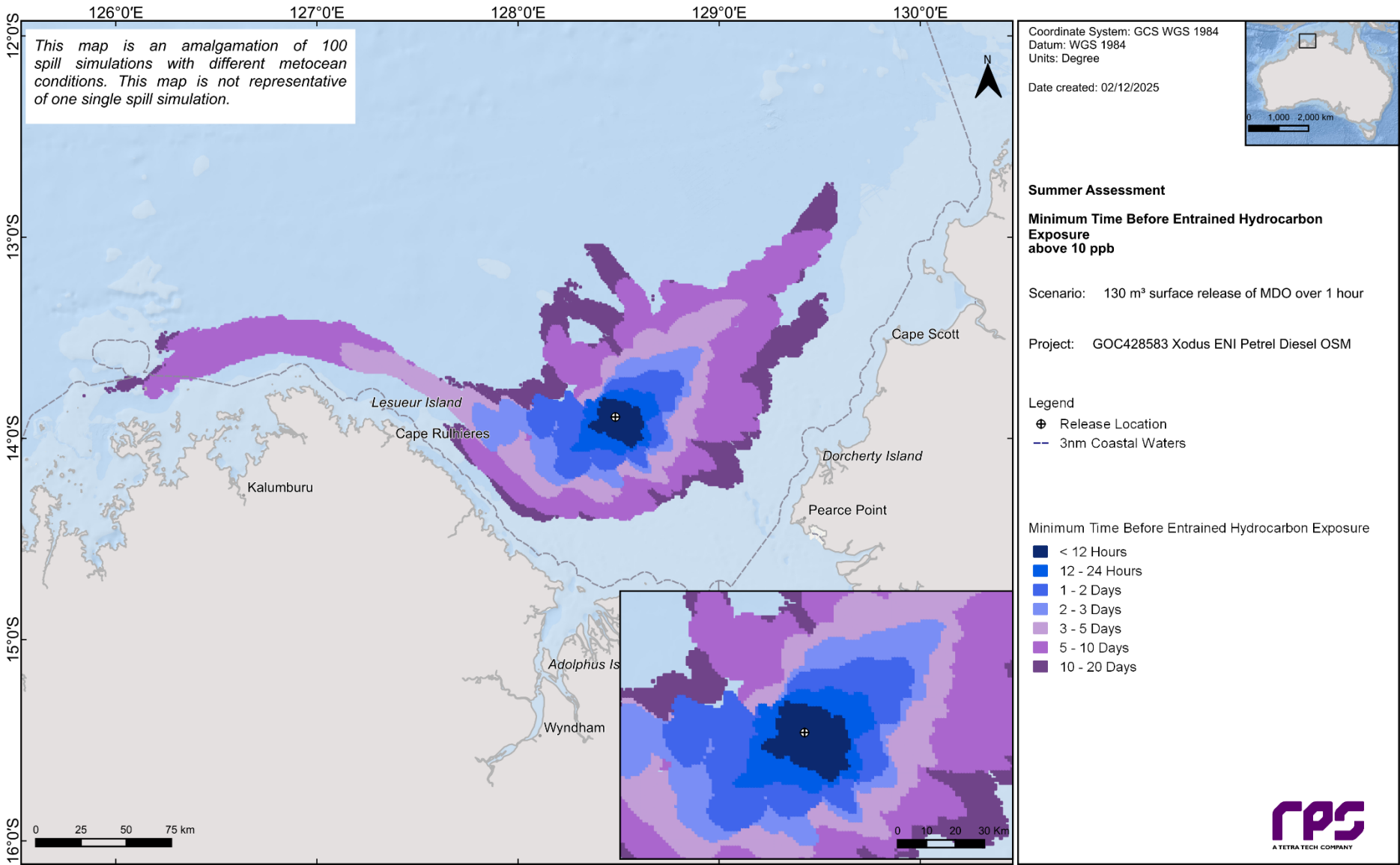


Figure 14-54 Minimum times before entrained hydrocarbon exposure at, or above, 10 ppb following a vessel collision at the WYE. The results were calculated from 100 spill simulations and represent summer conditions.

REPORT

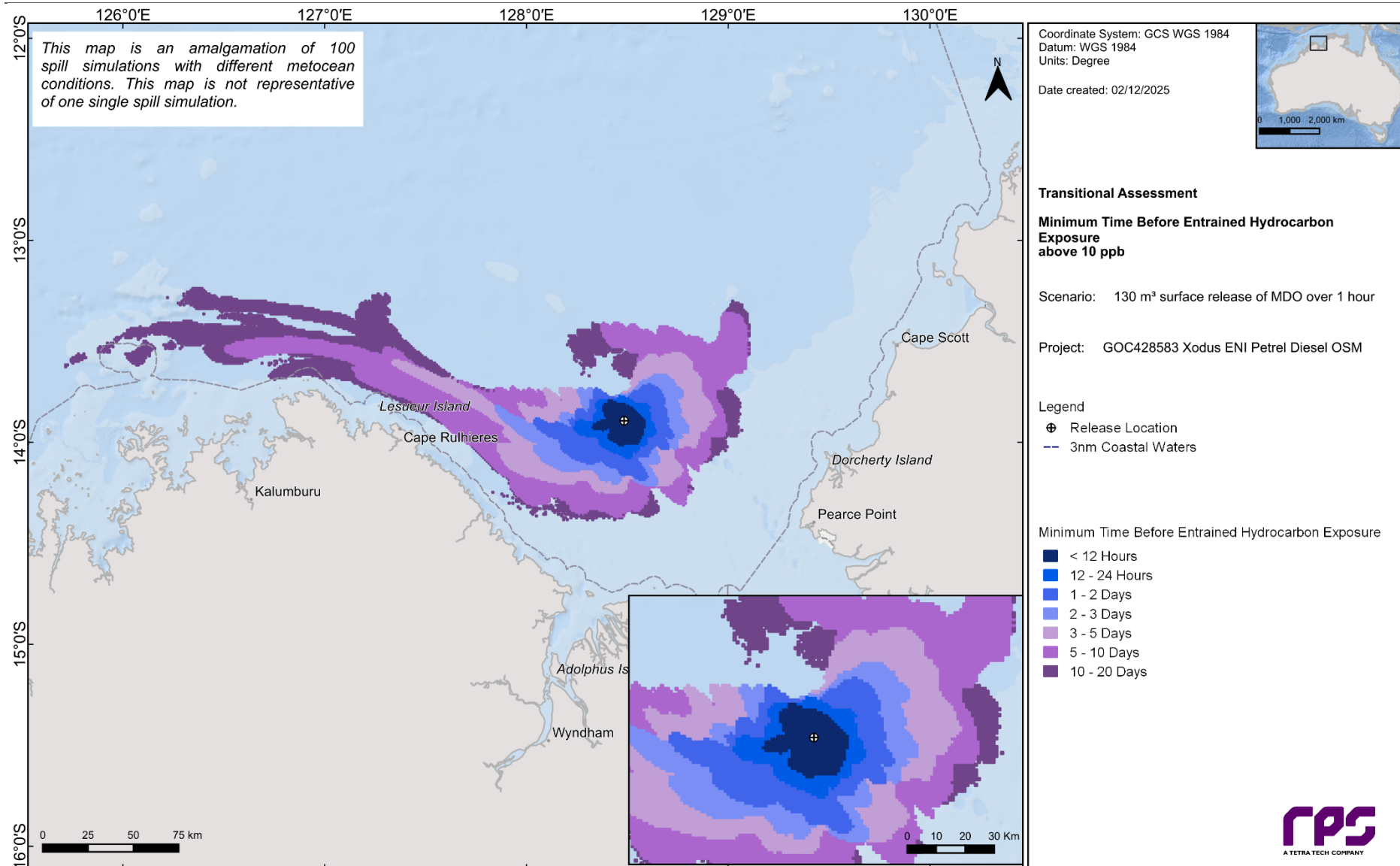


Figure 14-55 Minimum times before entrained hydrocarbon exposure at, or above, 10 ppb following a vessel collision at the WYE. The results were calculated from 100 spill simulations and represent transitional conditions.

REPORT

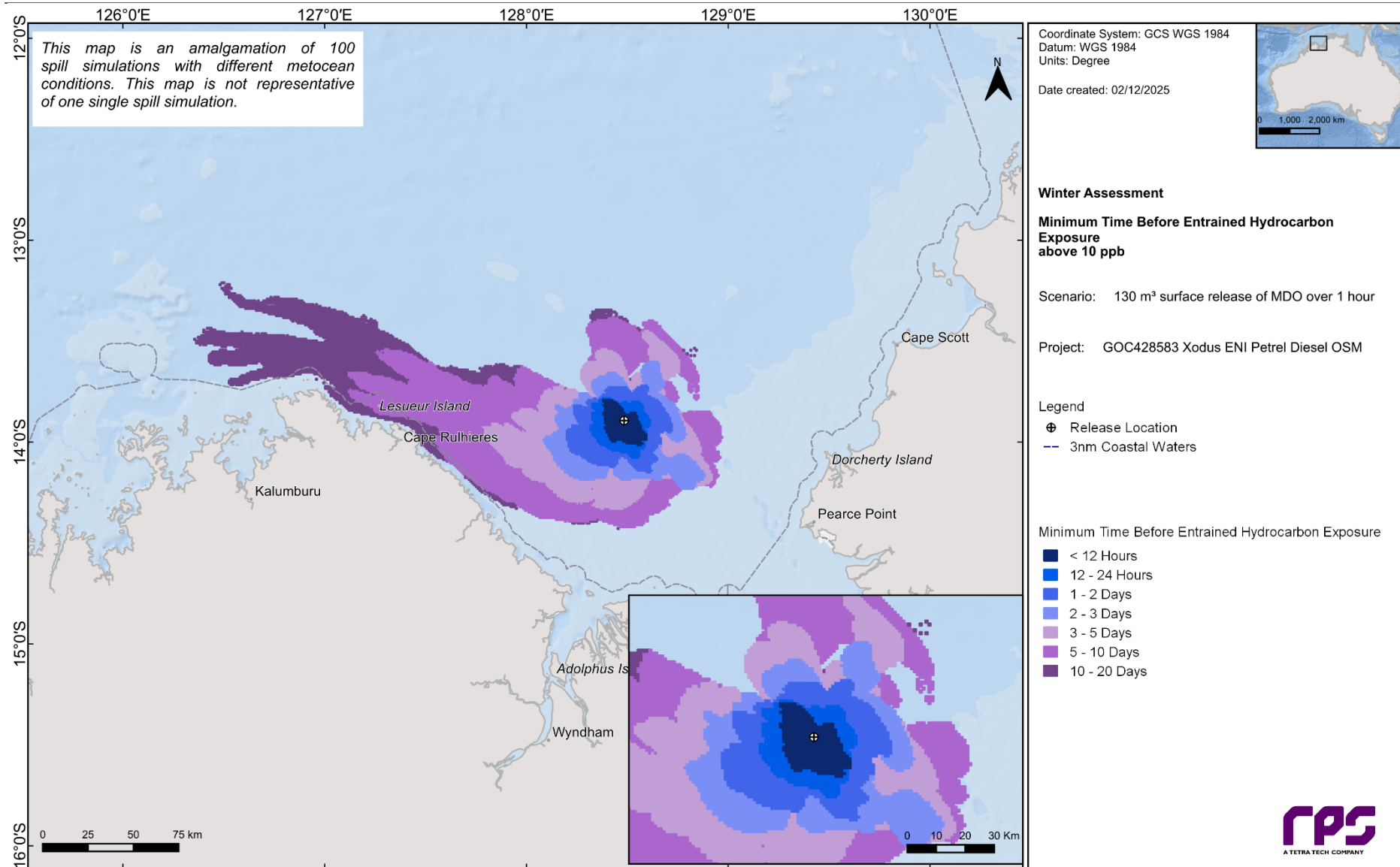


Figure 14-56 Minimum times before entrained hydrocarbon exposure at, or above, 10 ppb following a vessel collision at the WYE. The results were calculated from 100 spill simulations and represent winter conditions.

REPORT

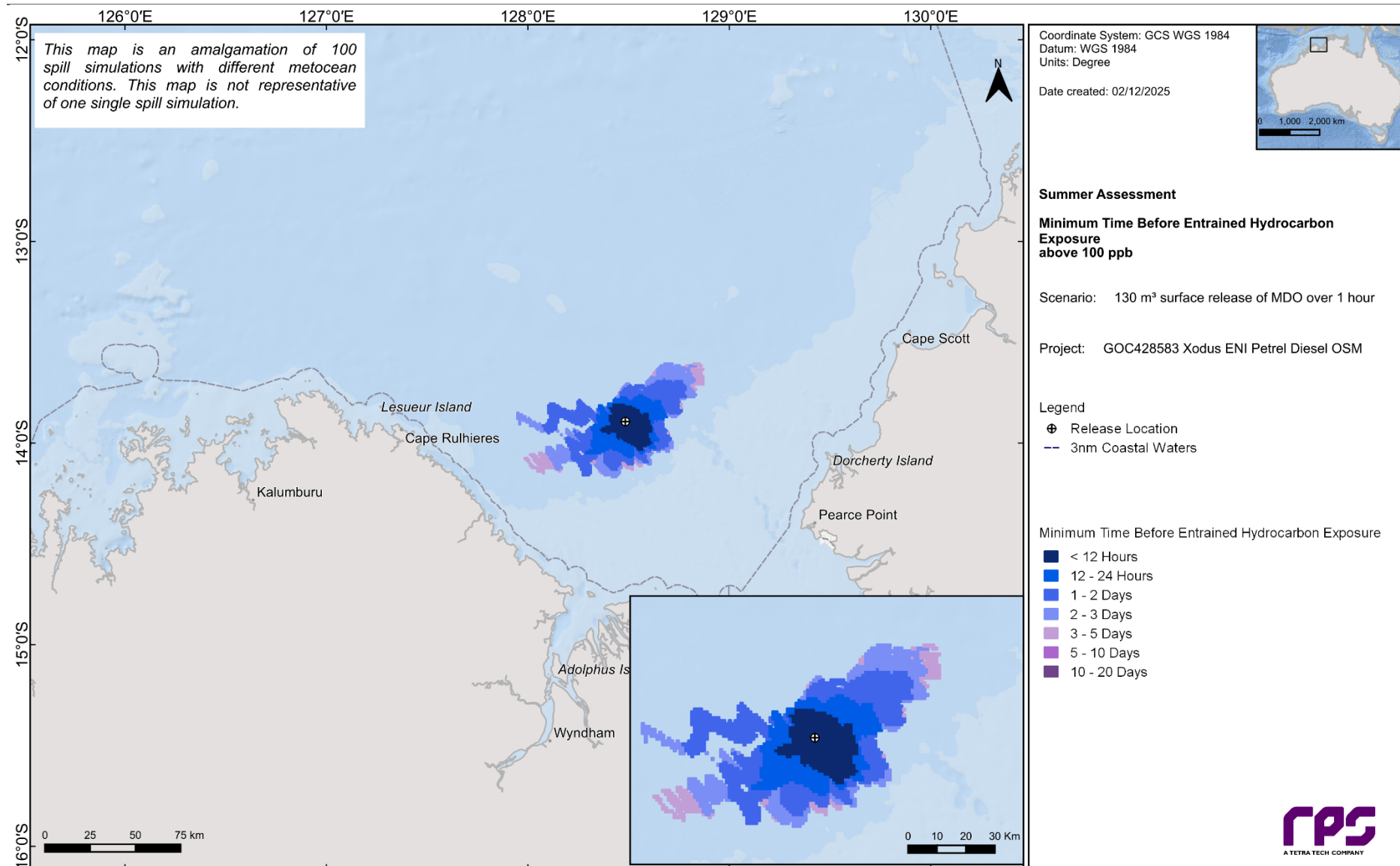


Figure 14-57 Minimum times before entrained hydrocarbon exposure at, or above, 100 ppb following a vessel collision at the WYE. The results were calculated from 100 spill simulations and represent summer conditions.

REPORT

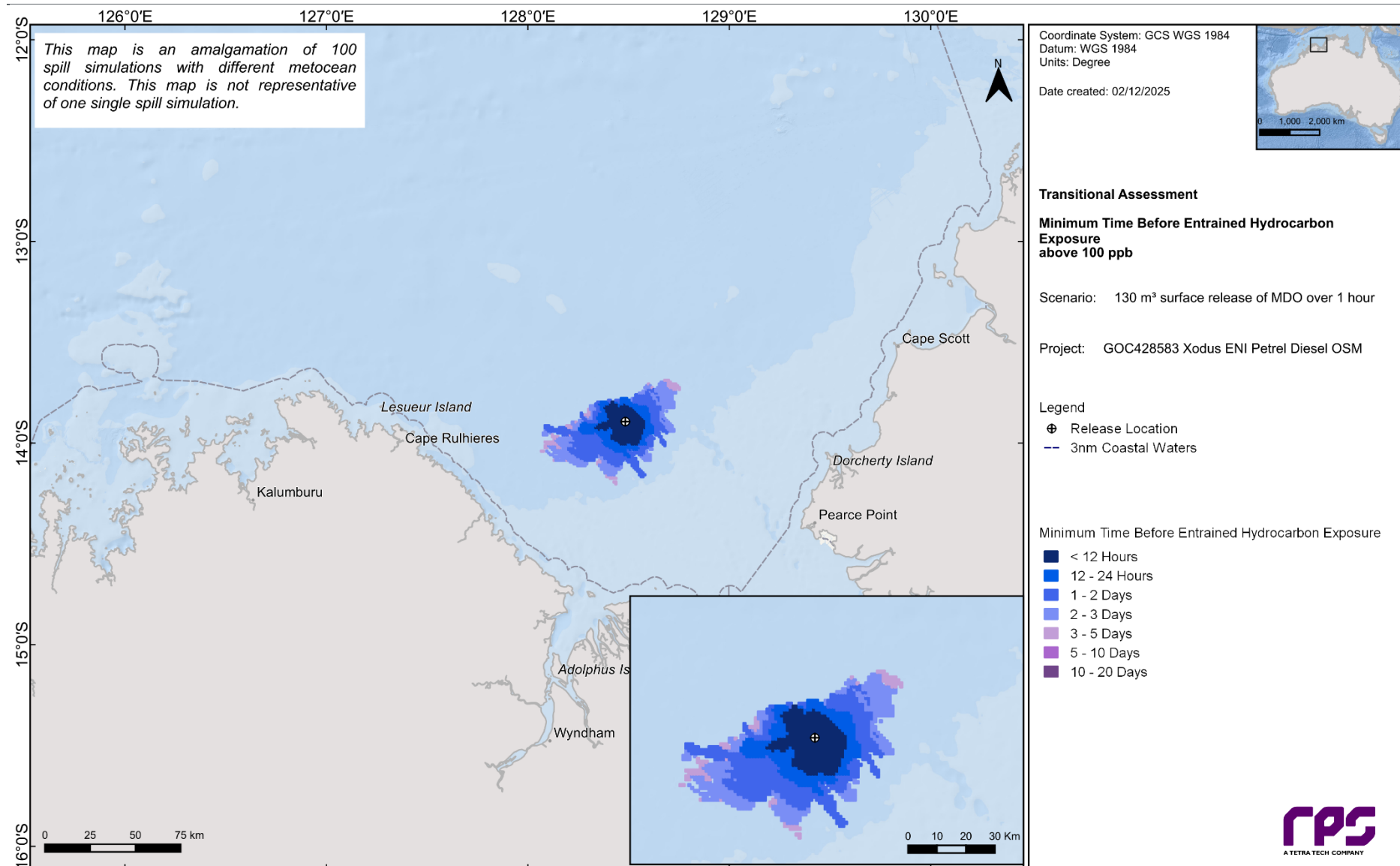


Figure 14-58 Minimum times before entrained hydrocarbon exposure at, or above, 100 ppb following a vessel collision at the WYE. The results were calculated from 100 spill simulations and represent transitional conditions.

REPORT

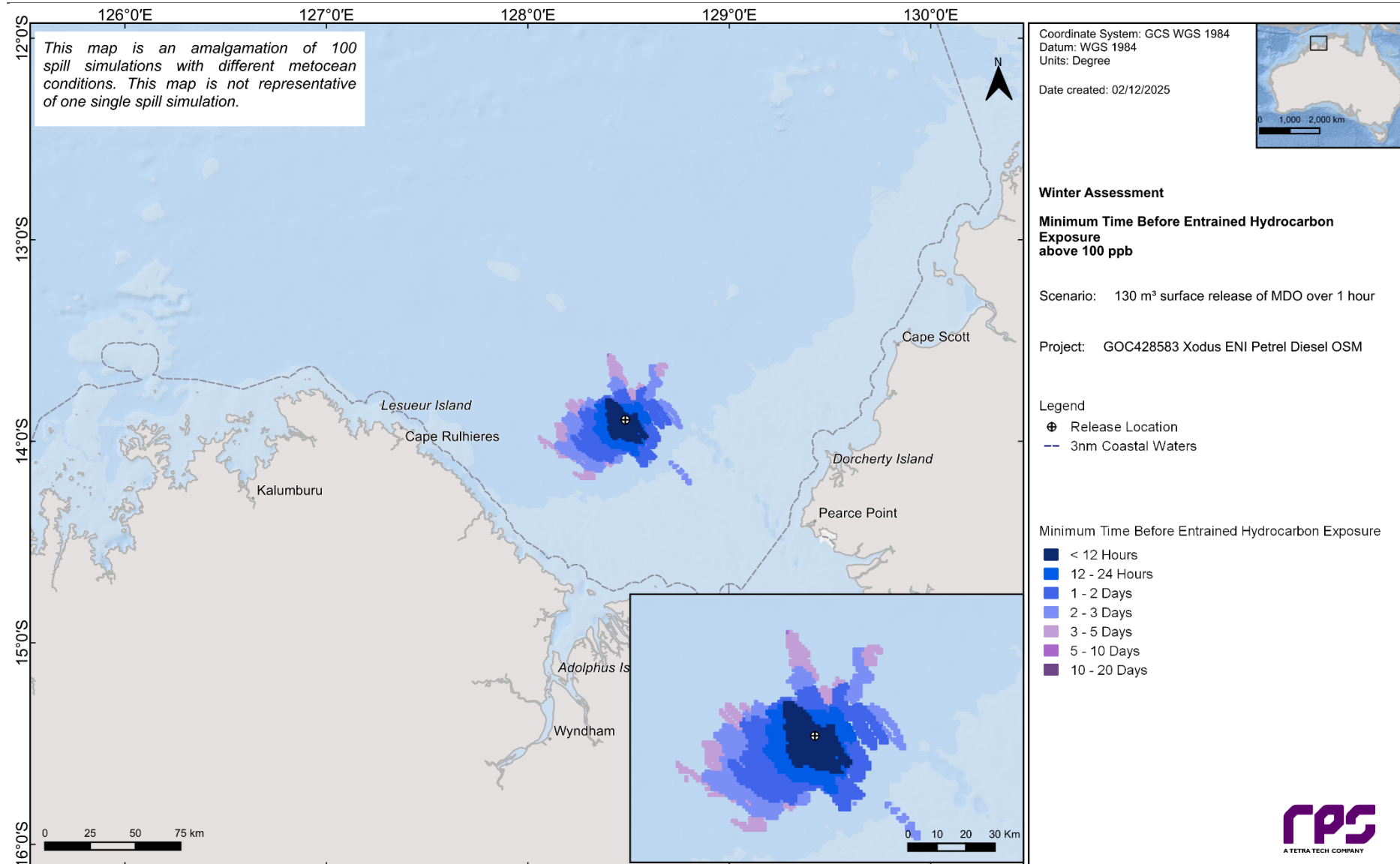


Figure 14-59 Minimum times before entrained hydrocarbon exposure at, or above, 100 ppb following a vessel collision at the WYE. The results were calculated from 100 spill simulations and represent winter conditions.

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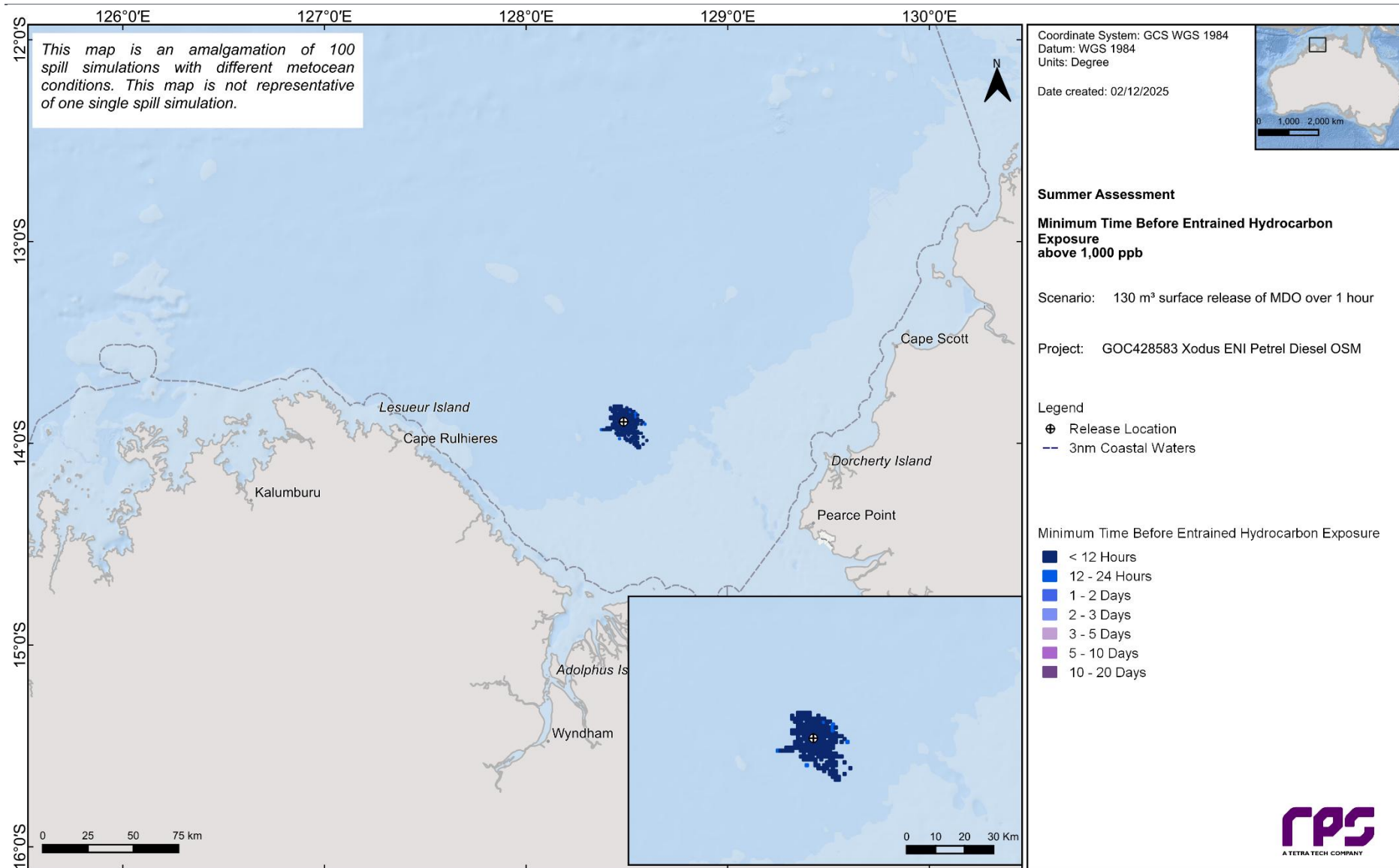


Figure 14-60 Minimum times before entrained hydrocarbon exposure at, or above, 1,000 ppb following a vessel collision at the WYE. The results were calculated from 100 spill simulations and represent summer conditions.

REPORT

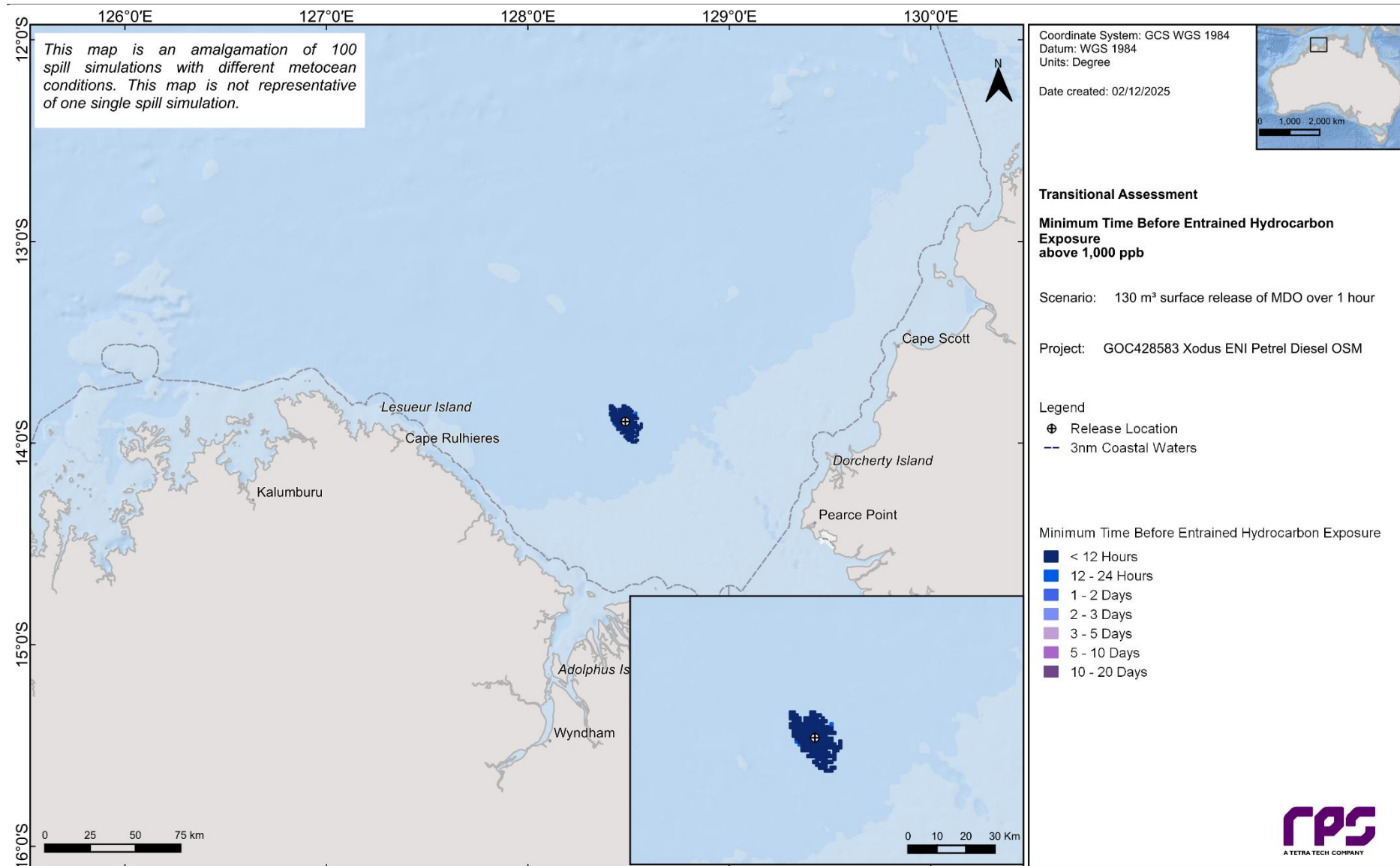


Figure 14-61 Minimum times before entrained hydrocarbon exposure at, or above, 1,000 ppb following a vessel collision at the WYE. The results were calculated from 100 spill simulations and represent transitional conditions.

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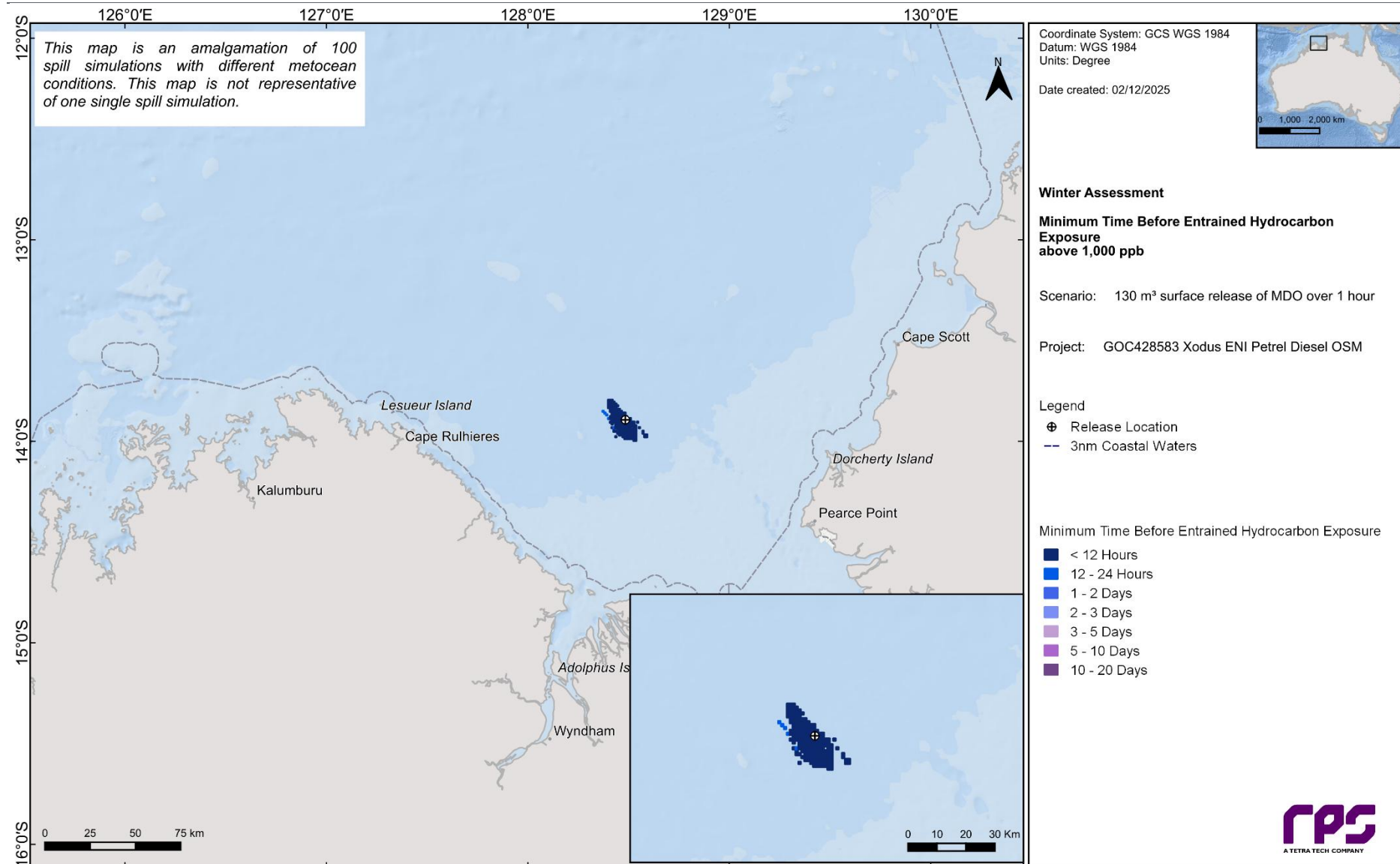


Figure 14-62 Minimum times before entrained hydrocarbon exposure at, or above, 1,000 ppb following a vessel collision at the WYE. The results were calculated from 100 spill simulations and represent winter conditions.

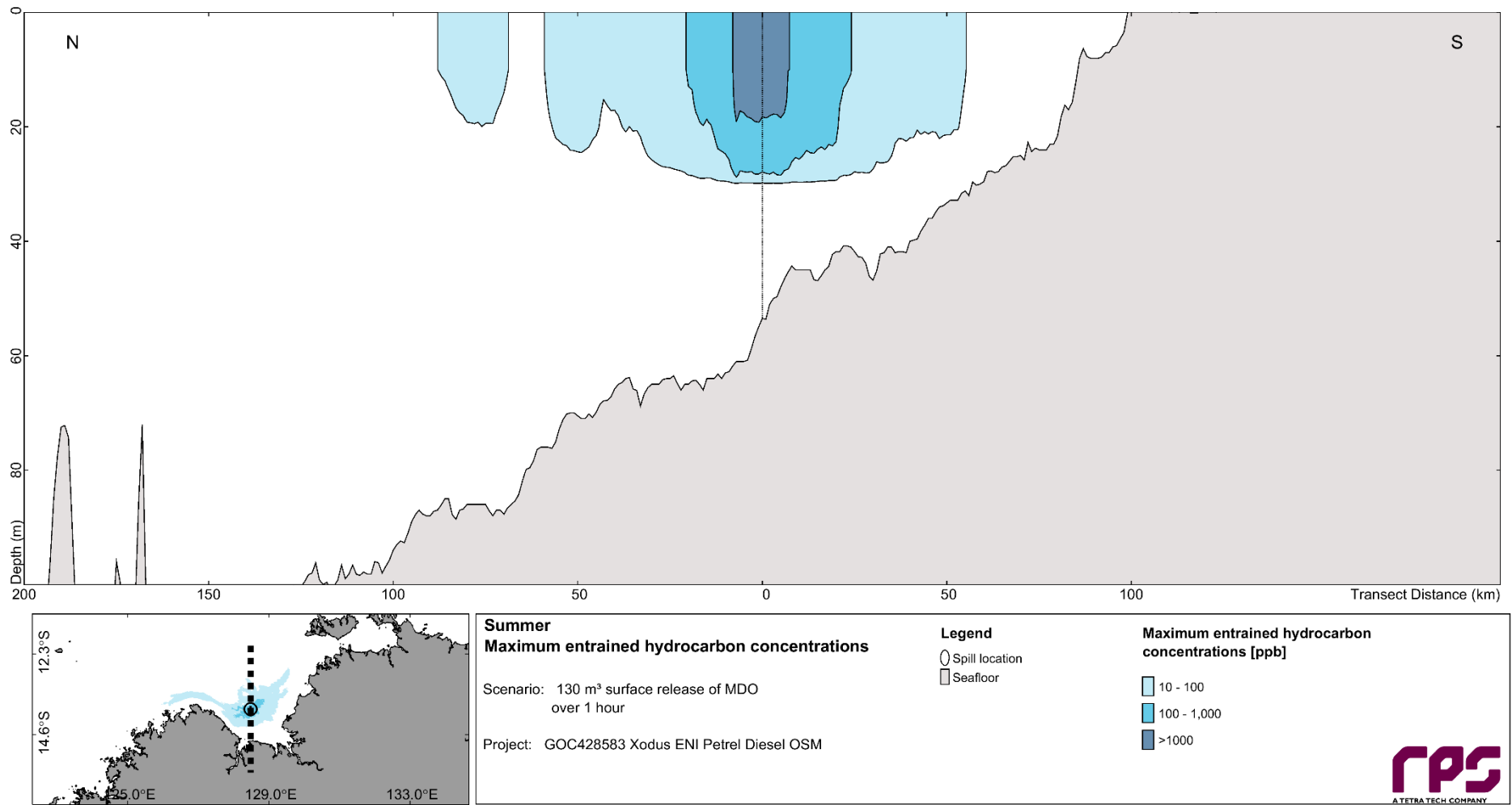


Figure 14-63 North-south cross-section transect of entrained hydrocarbon concentrations following a vessel collision at the WYE. The results were calculated from 100 spill simulations and represent summer conditions.

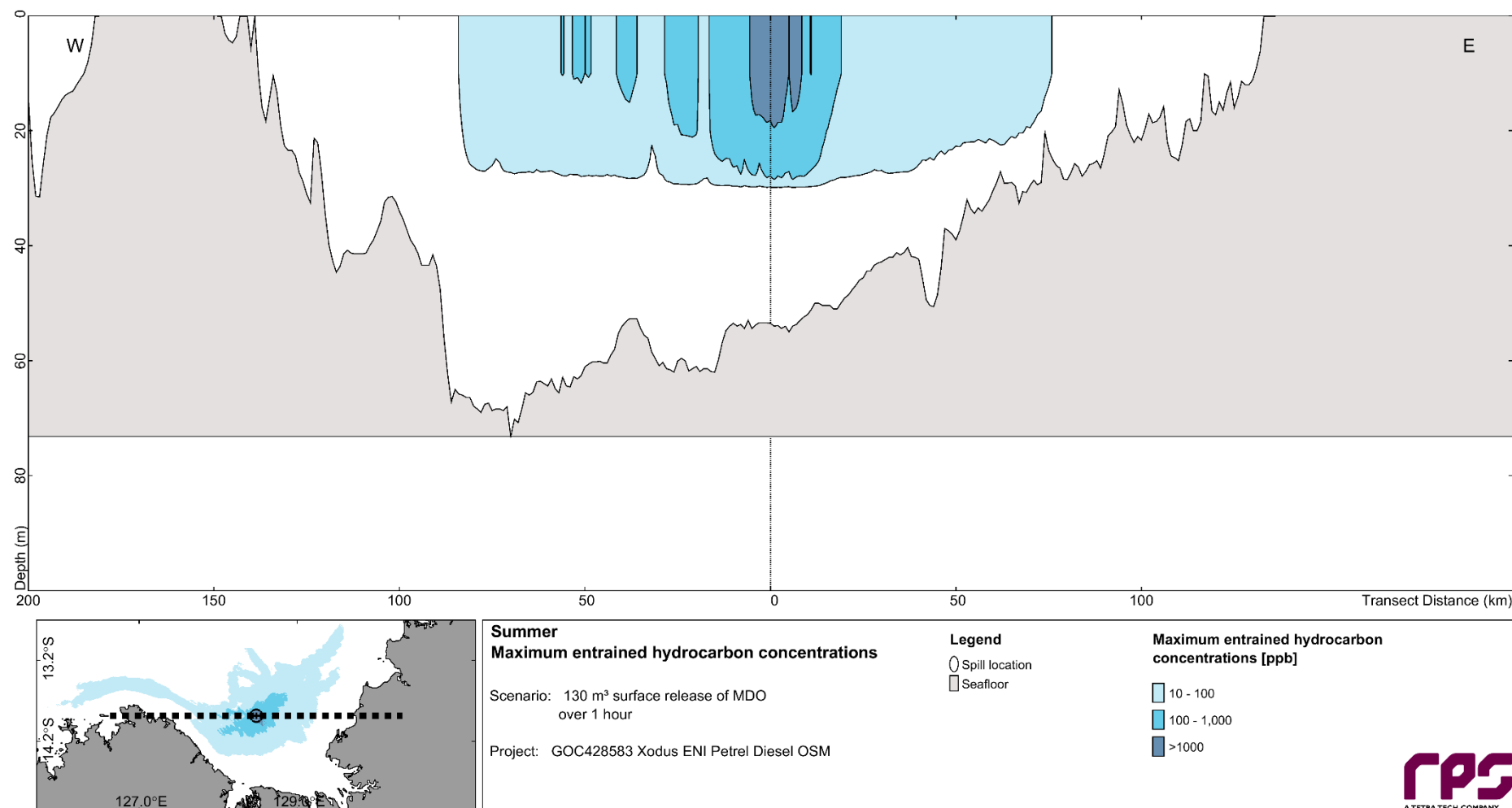


Figure 14-64 East-west cross-section transect of entrained hydrocarbon concentrations following a vessel collision at the WYE. The results were calculated from 100 spill simulations and represent summer conditions.

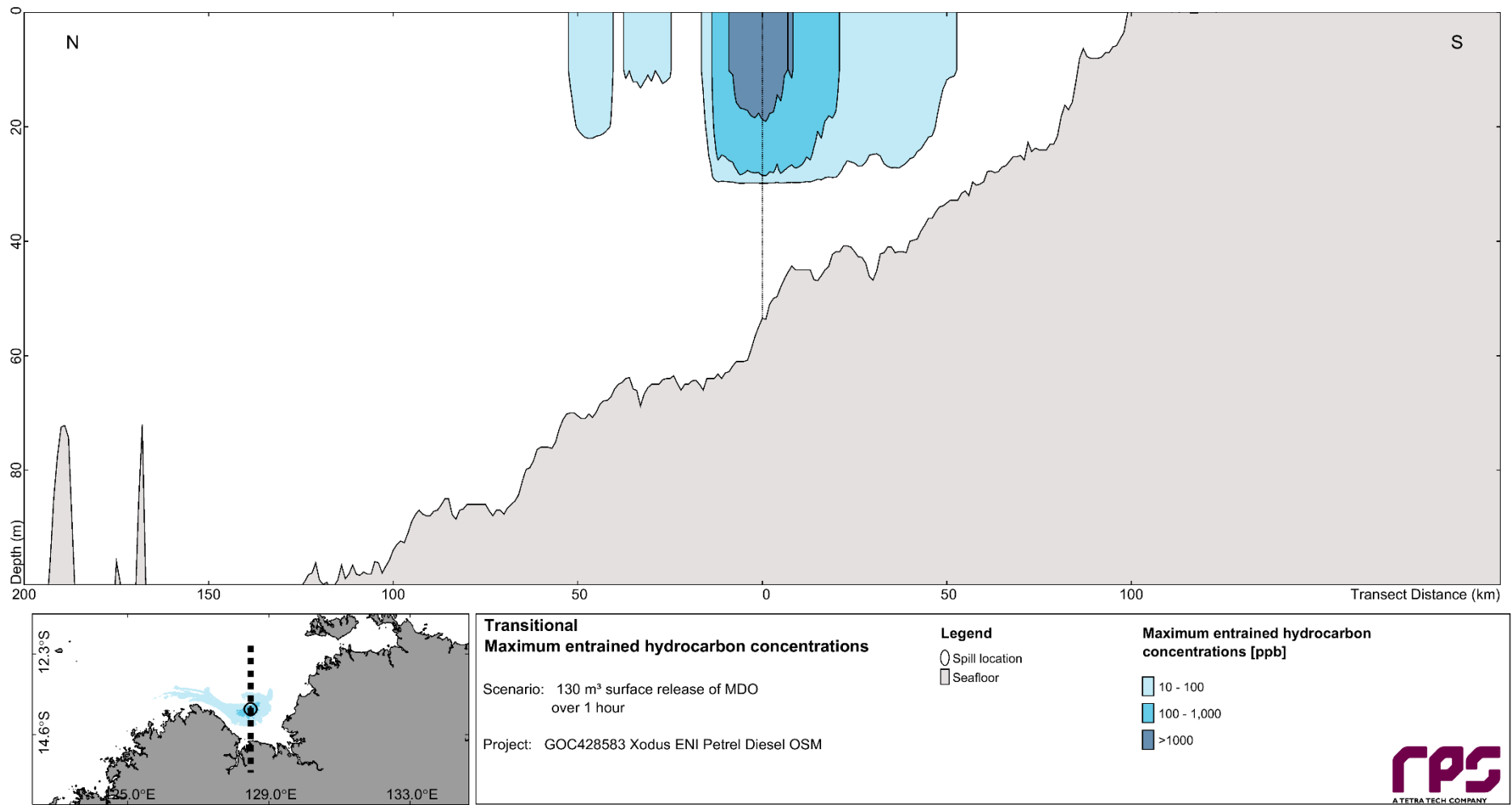


Figure 14-65 North-south cross-section transect of entrained hydrocarbon concentrations following a vessel collision at the WYE. The results were calculated from 100 spill simulations and represent transitional conditions.

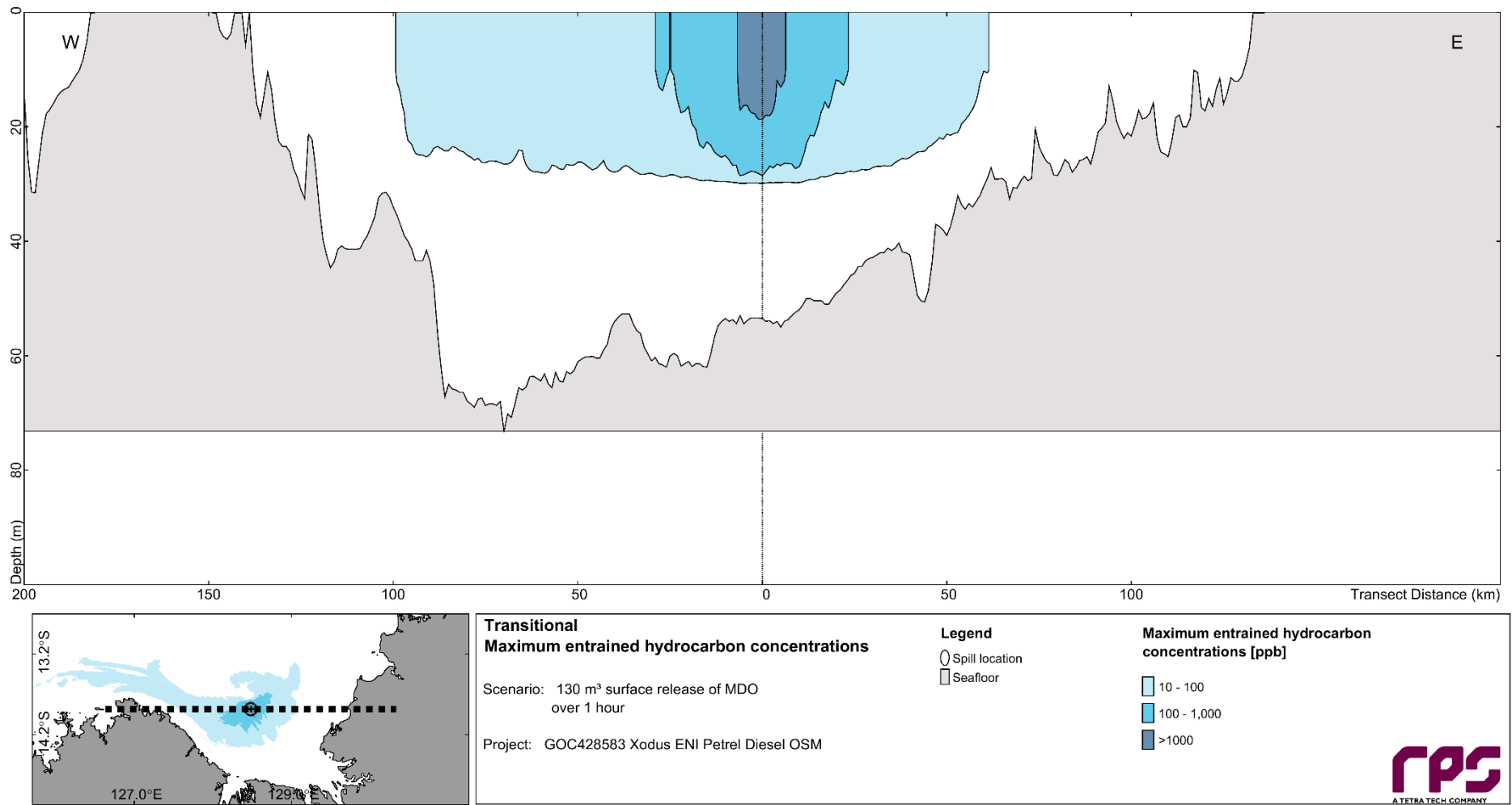


Figure 14-66 East-west cross-section transect of entrained hydrocarbon concentrations following a vessel collision at the WYE. The results were calculated from 100 spill simulations and represent transitional conditions.

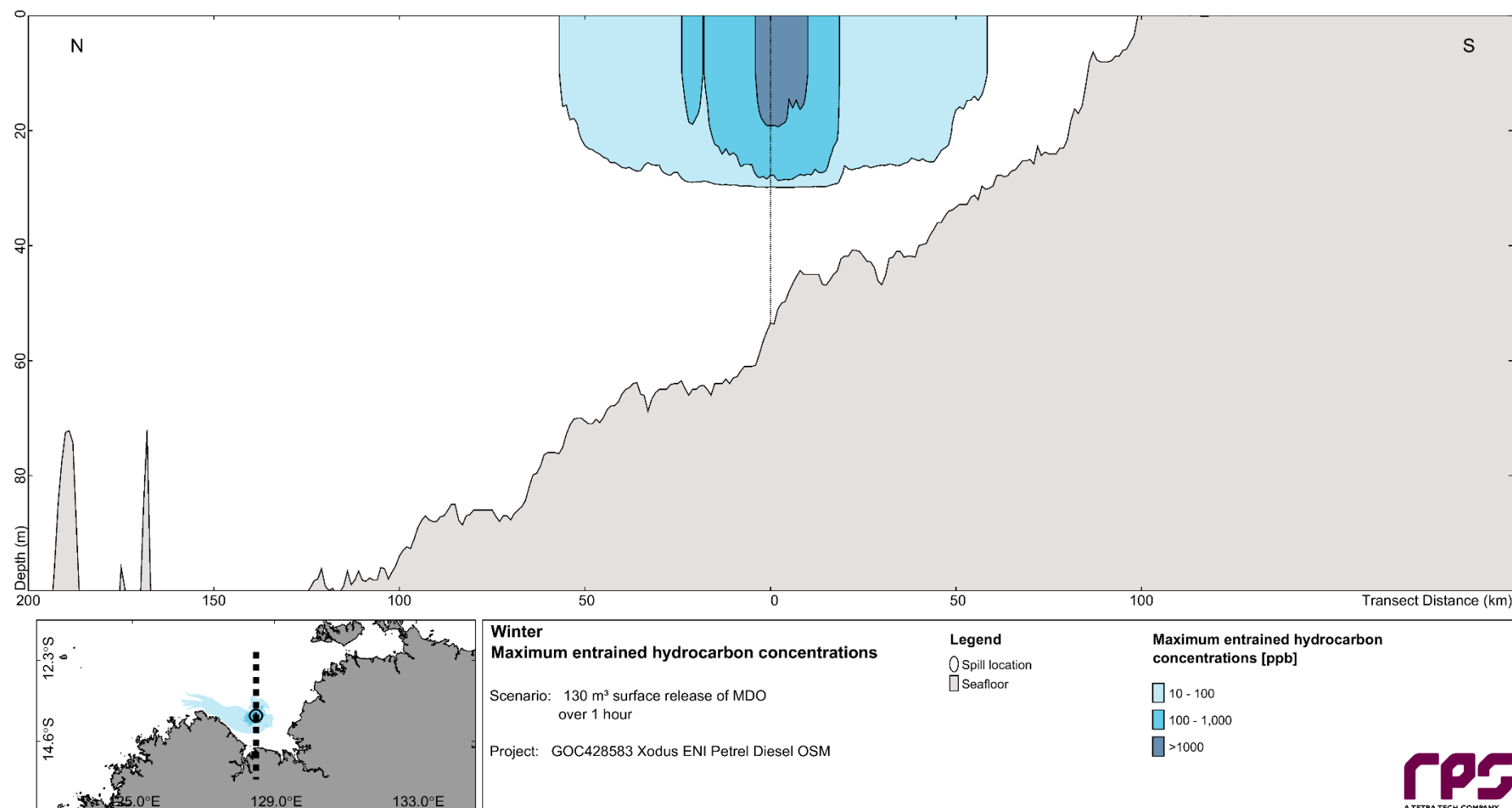


Figure 14-67 North-south cross-section transect of entrained hydrocarbon concentrations following a vessel collision at the WYE. The results were calculated from 100 spill simulations and represent winter conditions.

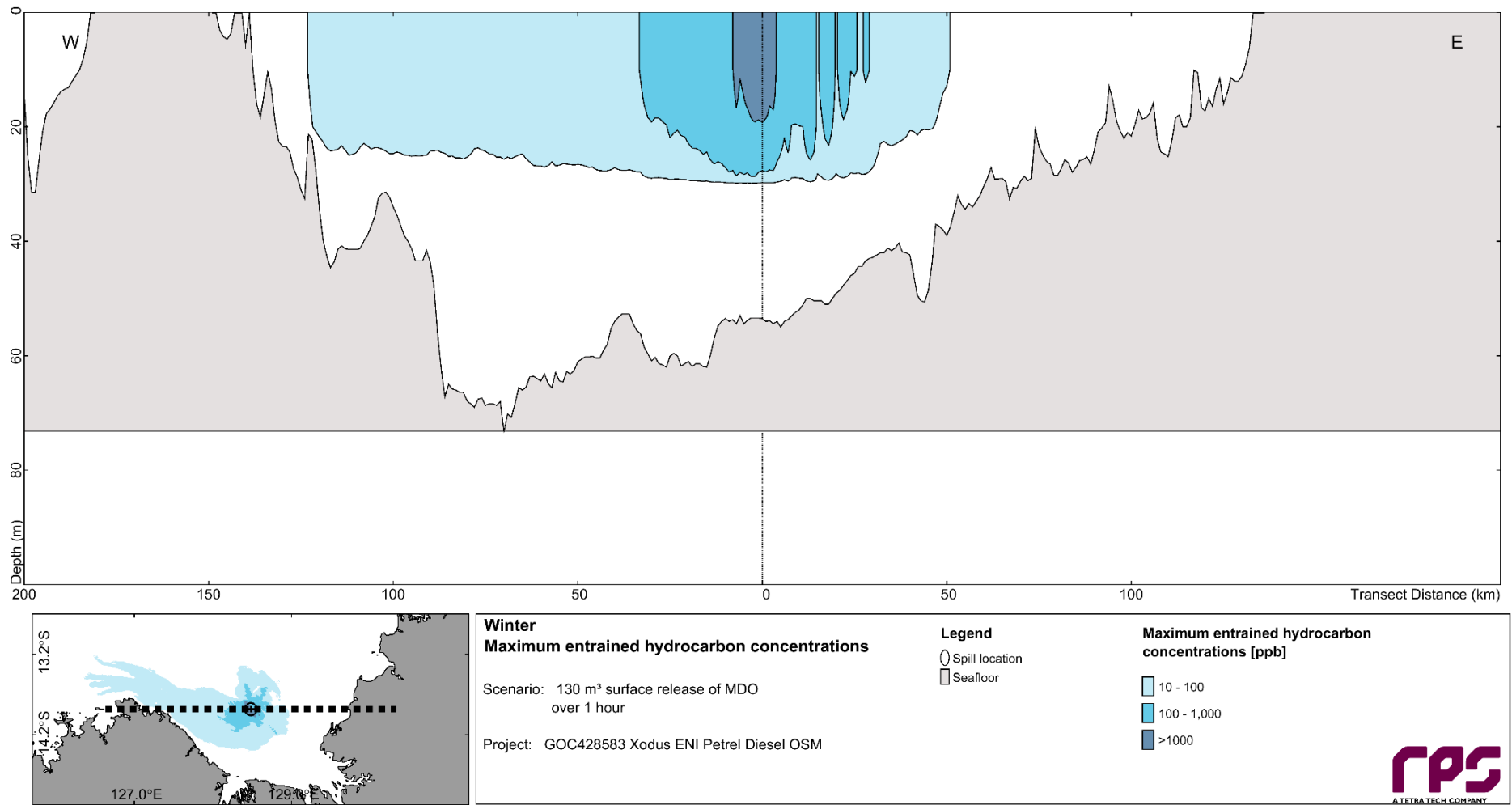


Figure 14-68 East-west cross-section transect of entrained hydrocarbon concentrations following a vessel collision at the WYE. The results were calculated from 100 spill simulations and represent winter conditions.

15 MODELLING RESULTS: LOCATION 2 - VESSEL COLLISION AT THE PETREL RISER PLATFORM

The following section presents the modelling results for a 130 m³ surface release of MDO over 1 hour following a vessel collision at the Petrel riser platform. The MDO was tracked for a total of 20 days to allow the concentrations to decrease below the lowest reporting thresholds. The modelling assumed no mitigation efforts are undertaken to collect or otherwise affect the natural transport and weathering.

15.1 Stochastic Analysis

15.1.1 Areas of Exposure

Figure 15-1 shows the areas of low, moderate, and high exposure following a vessel collision at the Petrel riser platform. It depicts the largest spatial extent predicted for each threshold, created by combining all 300 spill simulations according to the defined thresholds for each oil phase (see Section 12, Table 12-1).

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15.1.2 Floating Oil Exposure

Table 15-1 shows the maximum distances from the release location to floating oil exposure thresholds for each season. Concentrations exceeding 1 g/m² could extend up to 83 km from the release location, with the distances reducing to 25 km and 8 km as the thresholds increase to 10 g/m² and 50 g/m², respectively.

Table 15-2 to Table 15-4 present the receptors predicted to be exposed by floating oil. Since the release location falls within the Bonaparte Gulf IMCRA and North (Marine) MR, the results commentary for these receptors is omitted; however, the results are included in the table.

The North-west (Marine) MR was the only receptor to record floating oil exposure at, or above, 1 g/m² and 10 g/m², with the highest probability of exposure at each threshold of 20% (transitional and winter conditions) and 12% (transitional conditions), respectively. The fastest time before exposure at, or above, 1 g/m² was recorded for the same receptor at 3 hours during summer, transitional and winter conditions, and 3 hours before exposure at, or above, 10 g/m² during transitional conditions.

Figure 15-2 to Figure 15-4 illustrate the zones of floating oil exposure for each season, while the probabilities and minimum times before exposure for each threshold are presented in Figure 15-5 to Figure 15-22.

Table 15-1 Maximum distances from the release location to floating oil exposure thresholds following a vessel collision at the Petrel riser platform. Results were calculated from 100 spill simulations per season.

Season	Distance and direction travelled	Floating oil exposure thresholds		
		≥1 g/m ²	≥10 g/m ²	≥50 g/m ²
Summer	Maximum distance travelled (km) by a spill simulation	54	20	5
	Direction of maximum travel	Southwest	Northwest	Northwest
Transitional	Maximum distance travelled (km) by a spill simulation	83	20	8
	Direction of maximum travel	West	Southeast	Southeast
Winter	Maximum distance travelled (km) by a spill simulation	45	25	6
	Direction of maximum travel	Southwest	Southeast	Southeast

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Table 15-2 Receptors predicted to be exposed by floating oil following a vessel collision at the Petrel riser platform. The results were calculated from 100 spill simulations and represent summer conditions.

Category	Name	Probability (%) of floating oil at			Minimum times before floating oil exposure at		
		≥ 1 g/m ²	≥ 10 g/m ²	≥ 50 g/m ²	≥ 1 g/m ²	≥ 10 g/m ²	≥ 50 g/m ²
IMCRA-MESO	Bonaparte Gulf ¹	100	100	54	1 hour	1 hour	1 hour
MR	North (Marine) ¹	100	100	54	1 hour	1 hour	1 hour
	North-west (Marine)	7	3	NC	3 hours	4 hours	NC

NC: No contact to receptor predicted for specified threshold.

¹ Release location falls within the Bonaparte Gulf IMCRA and North (Marine) MR

Table 15-3 Receptors predicted to be exposed by floating oil following a vessel collision at the Petrel riser platform. The results were calculated from 100 spill simulations and represent transitional conditions.

Category	Name	Probability (%) of floating oil at			Minimum times before floating oil exposure at		
		≥ 1 g/m ²	≥ 10 g/m ²	≥ 50 g/m ²	≥ 1 g/m ²	≥ 10 g/m ²	≥ 50 g/m ²
IMCRA-MESO	Bonaparte Gulf ¹	100	100	45	1 hour	1 hour	1 hour
KEF	Pinnacles of the Bonaparte Basin	1	NC	NC	4 days, 17 hours	NC	NC
MR	North (Marine) ¹	100	100	45	1 hour	1 hour	1 hour
	North-west (Marine)	20	12	NC	3 hours	3 hours	NC

NC: No contact to receptor predicted for specified threshold.

¹ Release location falls within the Bonaparte Gulf IMCRA and North (Marine) MR

Table 15-4 Receptors predicted to be exposed by floating oil following a vessel collision at the Petrel riser platform. The results were calculated from 100 spill simulations and represent winter conditions.

Category	Name	Probability (%) of floating oil at			Minimum times before floating oil exposure at		
		≥ 1 g/m ²	≥ 10 g/m ²	≥ 50 g/m ²	≥ 1 g/m ²	≥ 10 g/m ²	≥ 50 g/m ²
IMCRA-MESO	Bonaparte Gulf ¹	100	100	42	1 hour	1 hour	1 hour
MR	North (Marine) ¹	100	100	42	1 hour	1 hour	1 hour
	North-west (Marine)	20	8	NC	3 hours	4 hours	NC

NC: No contact to receptor predicted for specified threshold.

¹ Release location falls within the Bonaparte Gulf IMCRA and North (Marine) MR

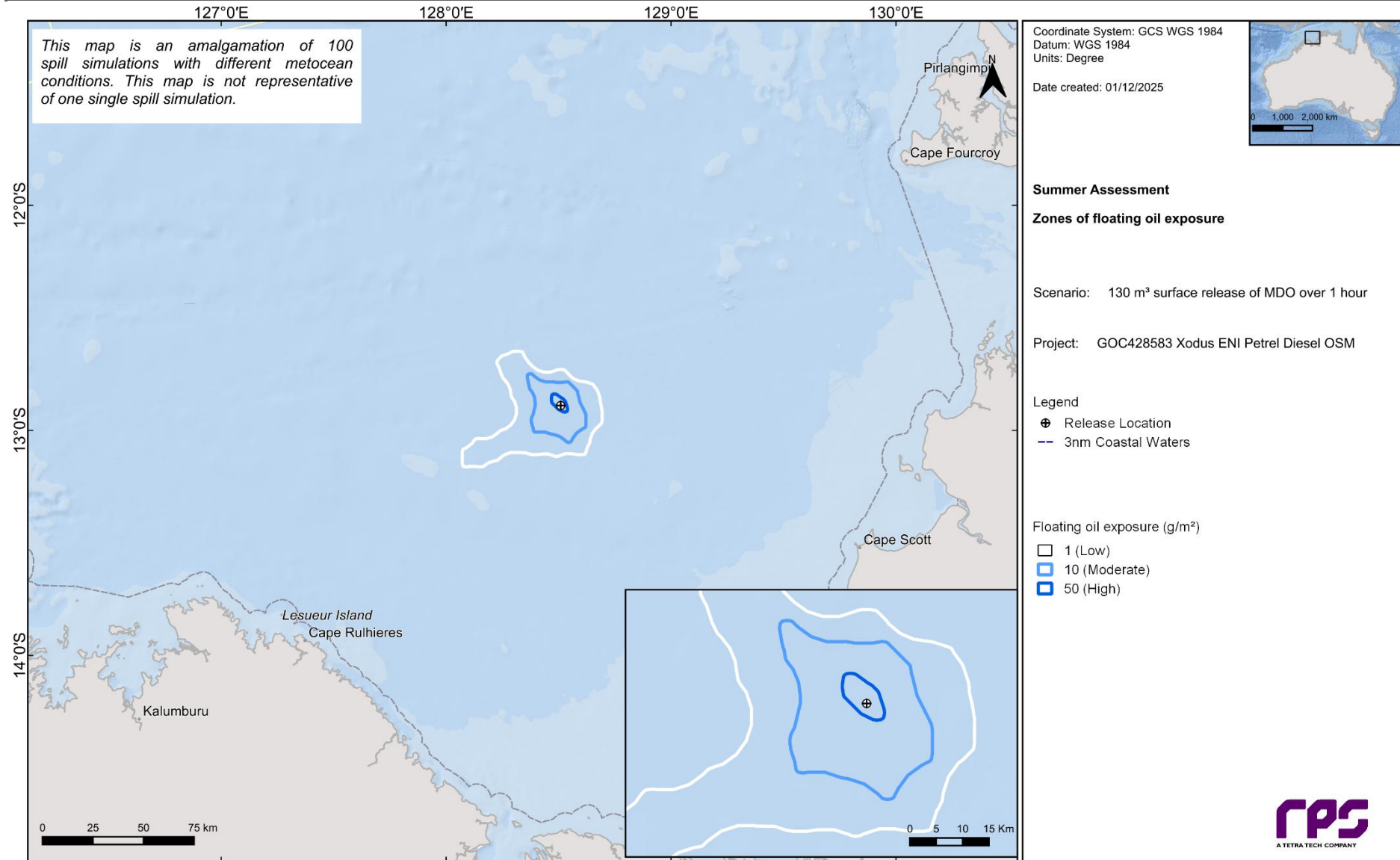


Figure 15-2 Predicted zones of floating oil exposure following a vessel collision at the Petrel riser platform. The results were calculated from 100 spill simulations and represent summer conditions.

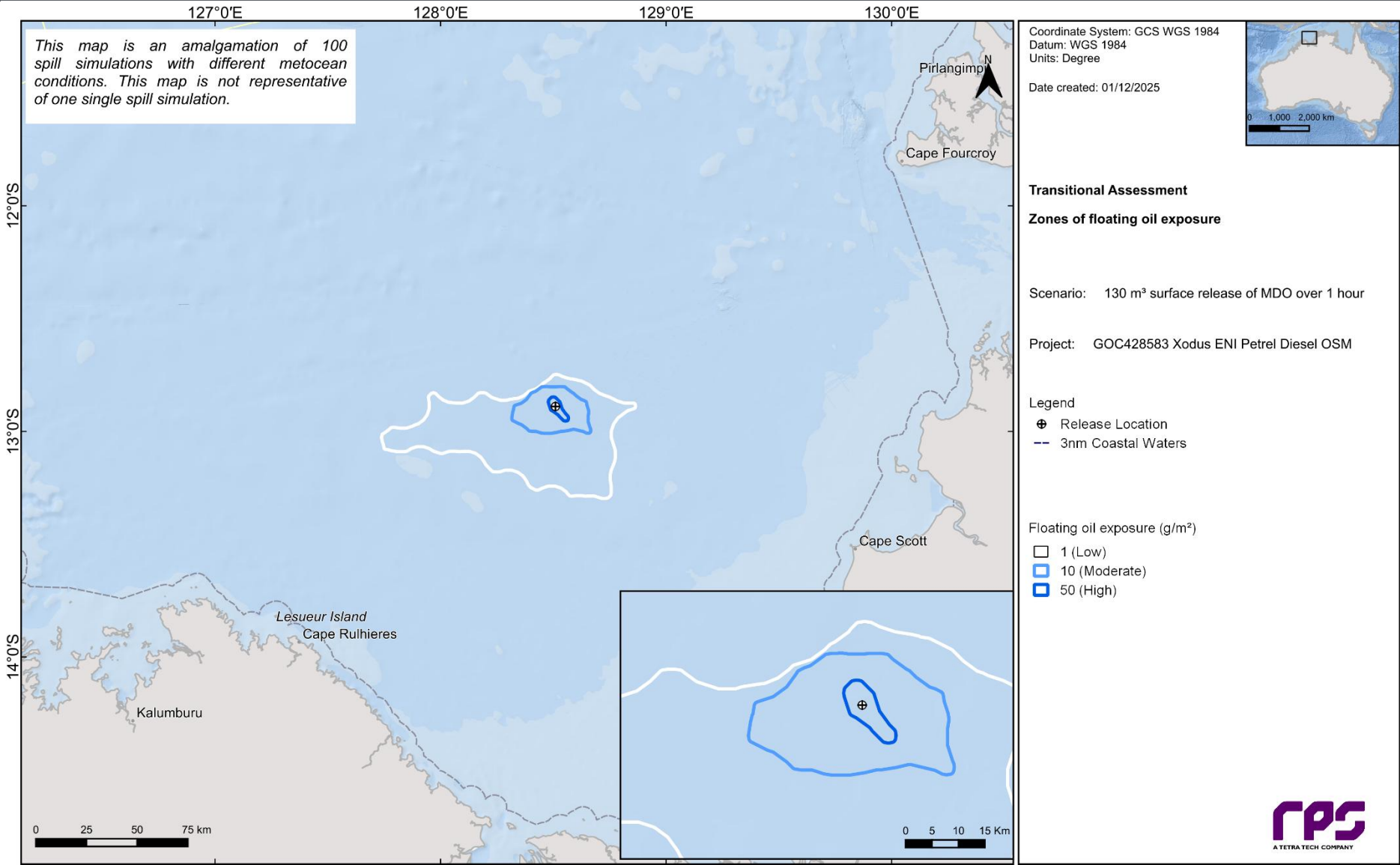


Figure 15-3 Predicted zones of floating oil exposure following a vessel collision at the Petrel riser platform. The results were calculated from 100 spill simulations and represent transitional conditions.

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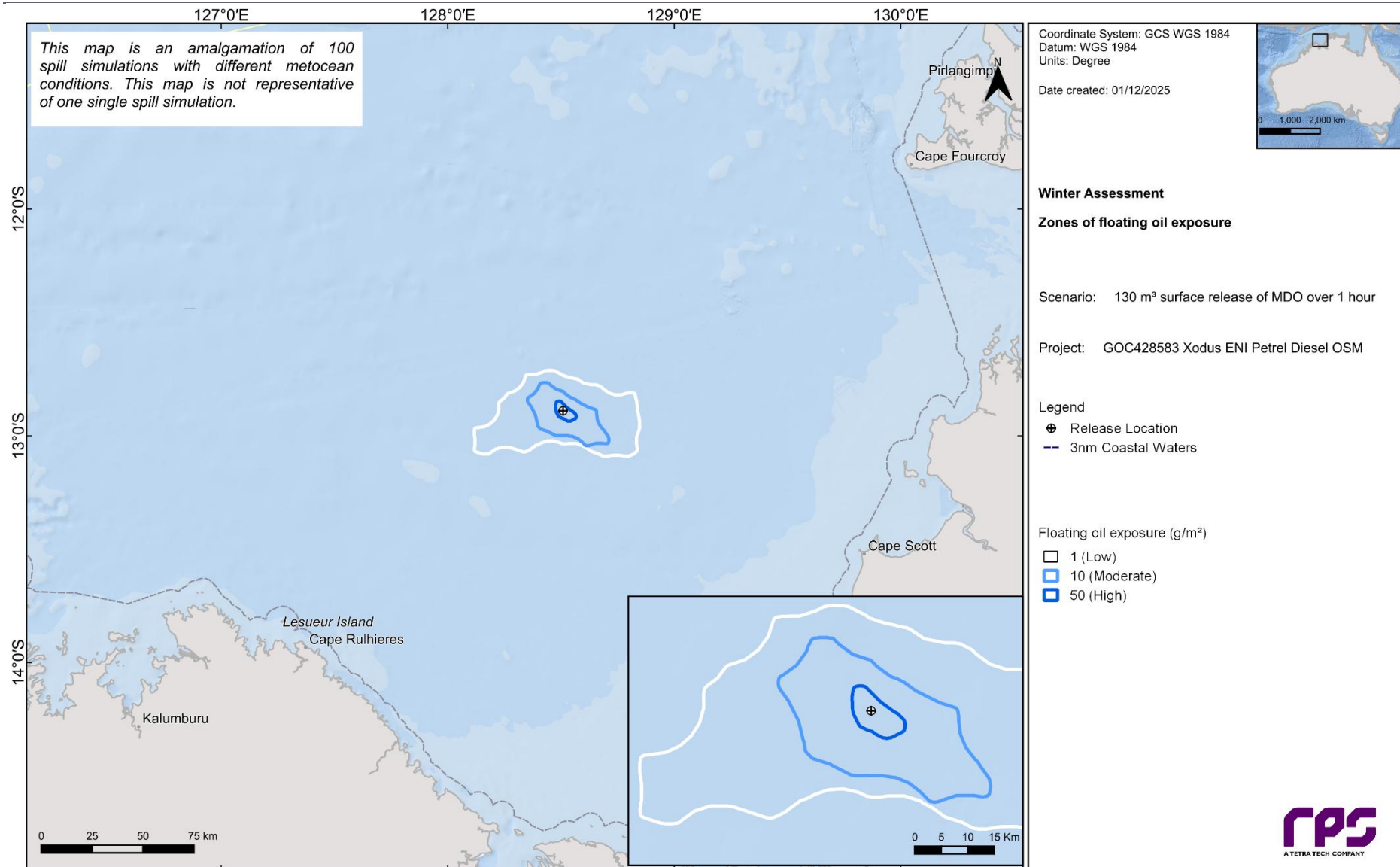


Figure 15-4 Predicted zones of floating oil exposure following a vessel collision at the Petrel riser platform. The results were calculated from 100 spill simulations and represent winter conditions.

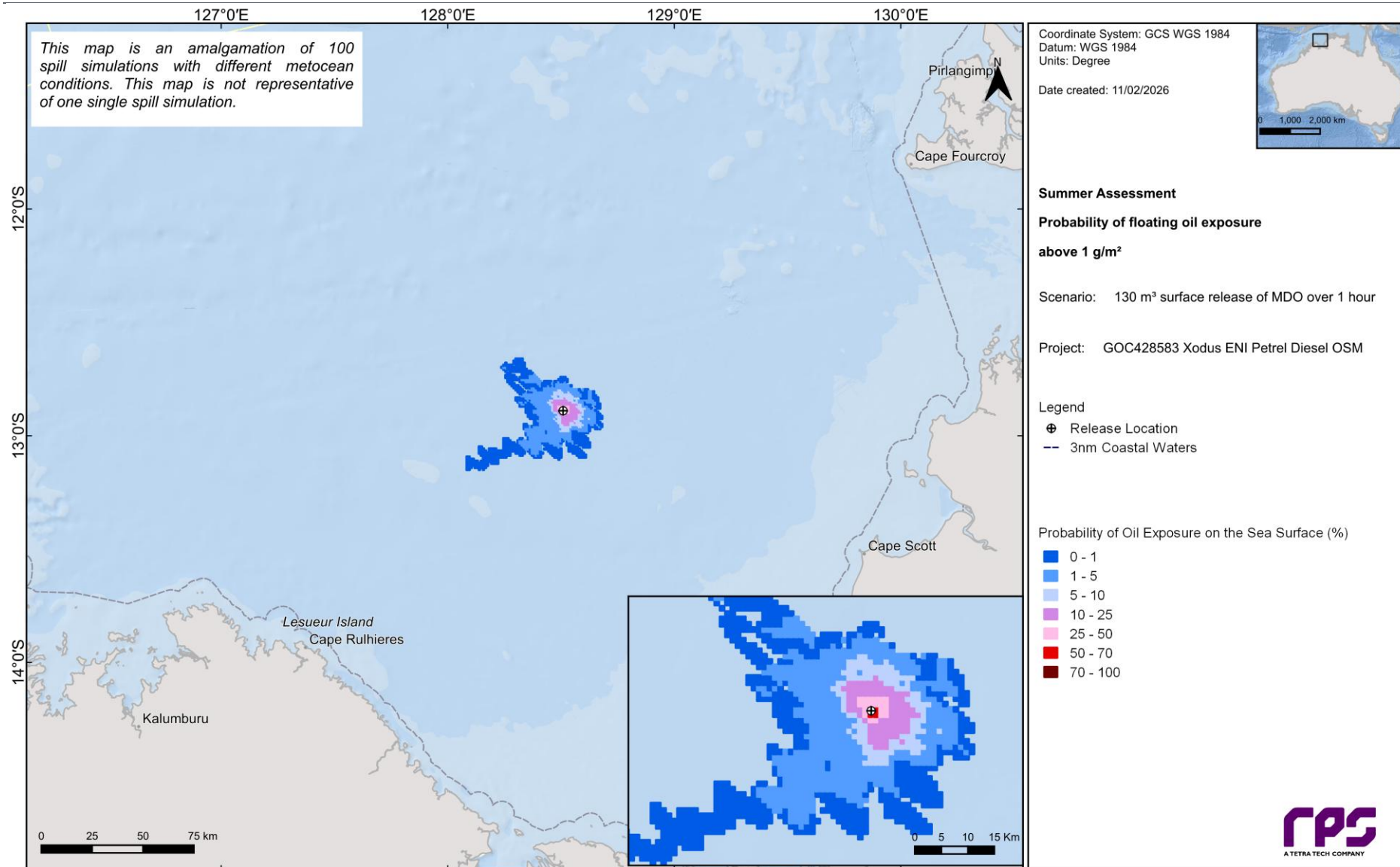


Figure 15-5 Probability of floating oil exposure at, or above, 1 g/m² following a vessel collision at the Petrel riser platform. The results were calculated from 100 spill simulations and represent summer conditions.

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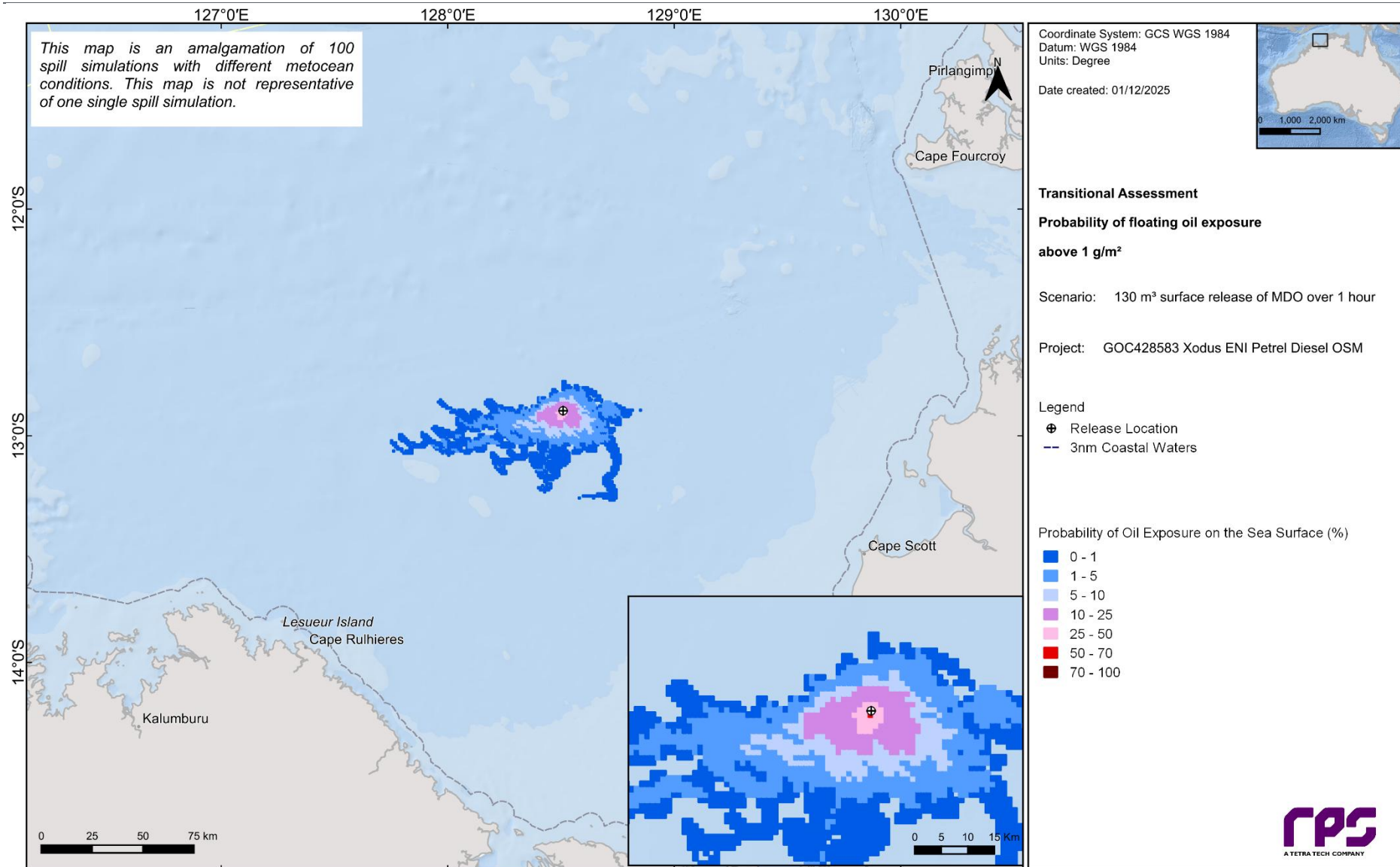


Figure 15-6 Probability of floating oil exposure at, or above, 1 g/m² following a vessel collision at the Petrel riser platform. The results were calculated from 100 spill simulations and represent transitional conditions.

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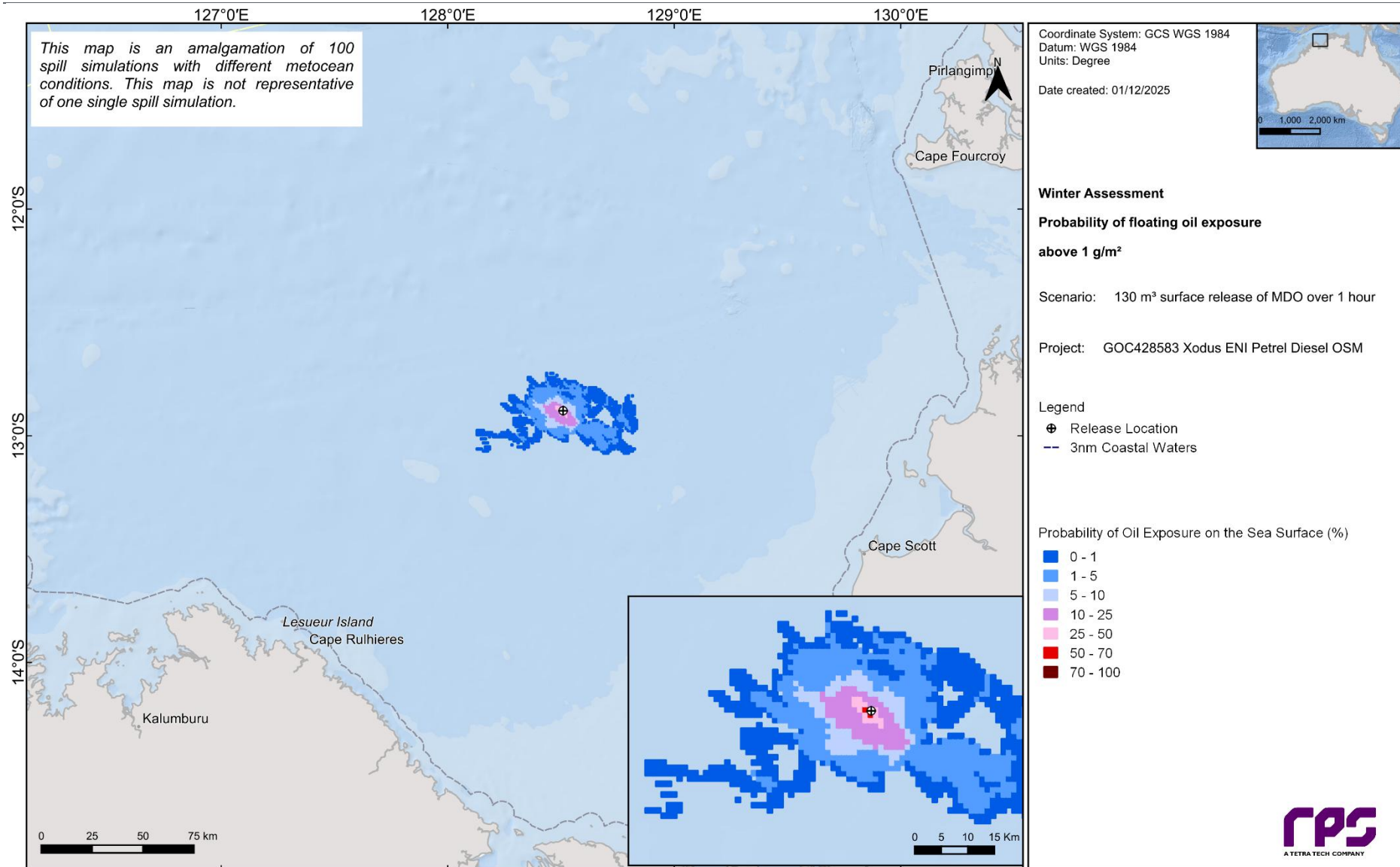


Figure 15-7 Probability of floating oil exposure at, or above, 1 g/m² following a vessel collision at the Petrel riser platform. The results were calculated from 100 spill simulations and represent winter conditions.

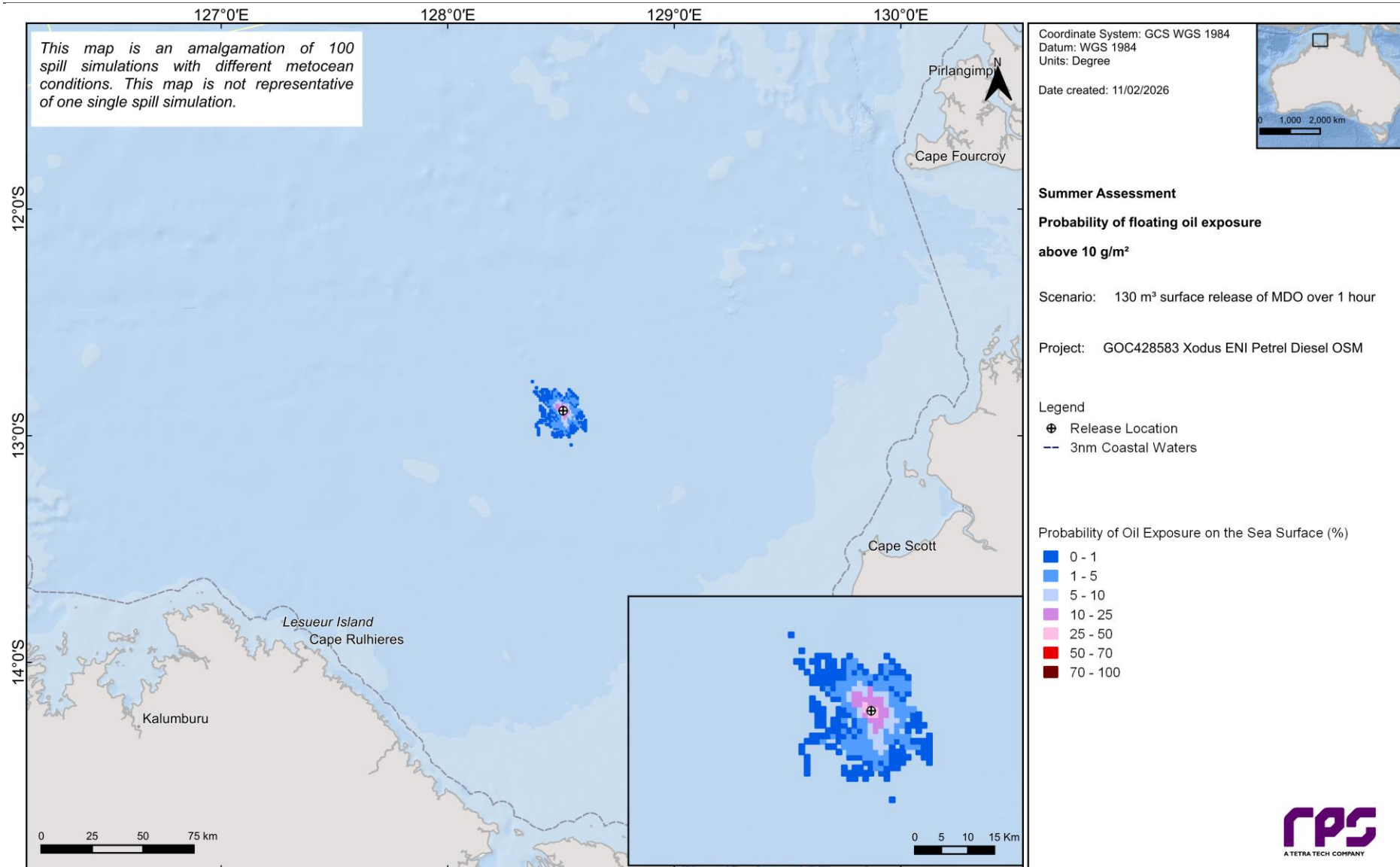


Figure 15-8 Probability of floating oil exposure at, or above, 10 g/m² following a vessel collision at the Petrel riser platform. The results were calculated from 100 spill simulations and represent summer conditions.

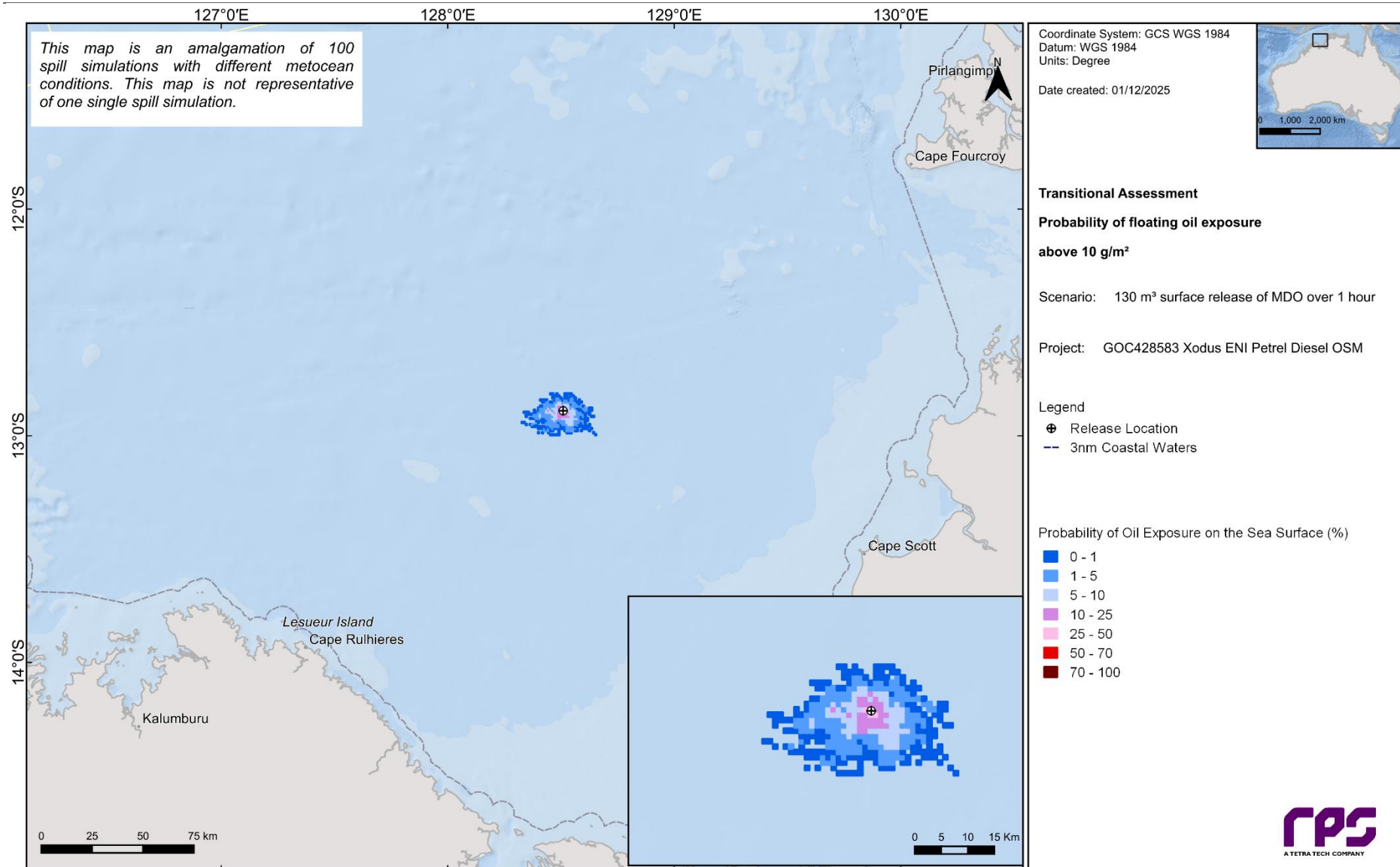


Figure 15-9 Probability of floating oil exposure at, or above, 10 g/m² following a vessel collision at the Petrel riser platform. The results were calculated from 100 spill simulations and represent transitional conditions.

REPORT

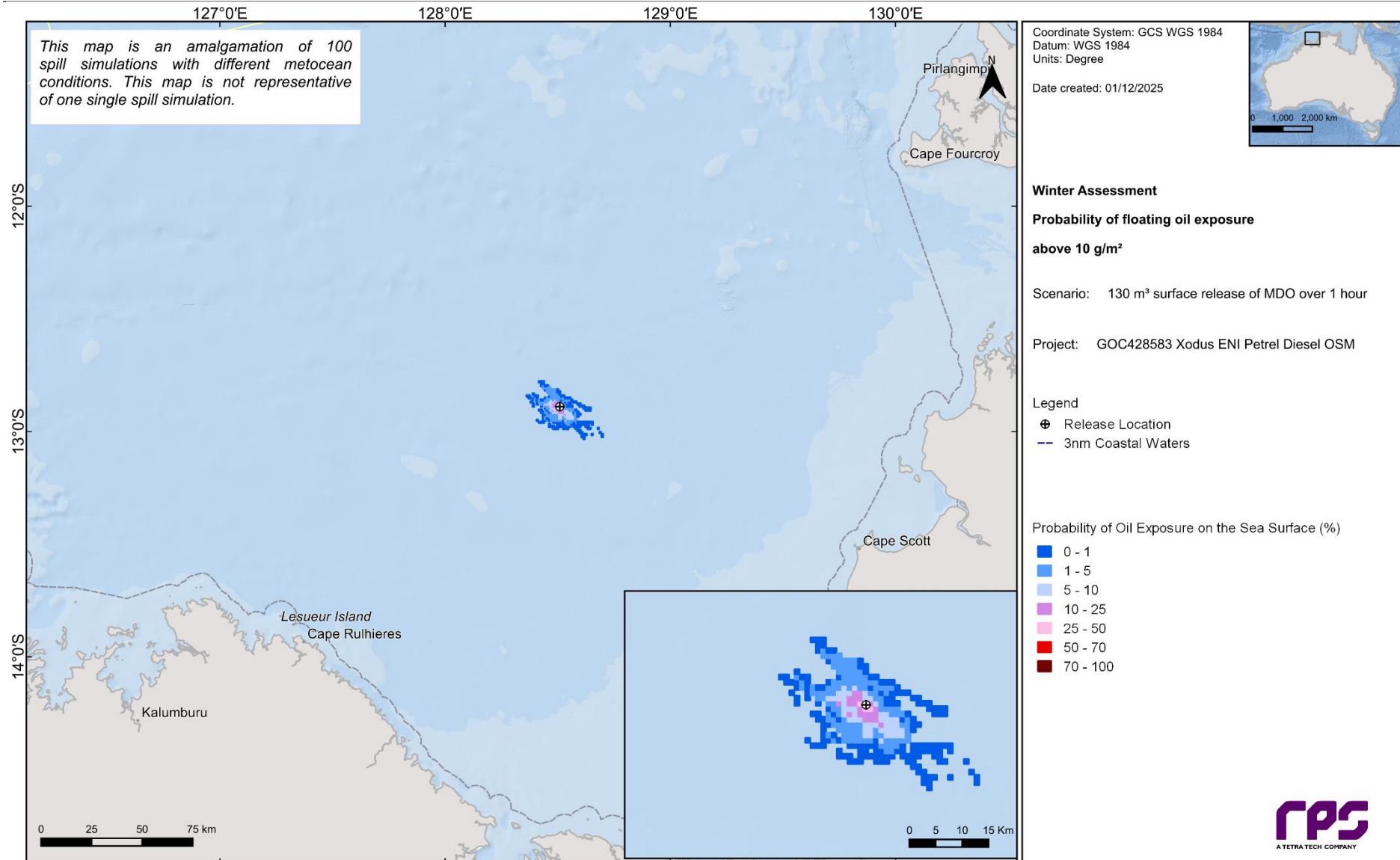


Figure 15-10 Probability of floating oil exposure at, or above, 10 g/m² following a vessel collision at the Petrel riser platform. The results were calculated from 100 spill simulations and represent winter conditions.

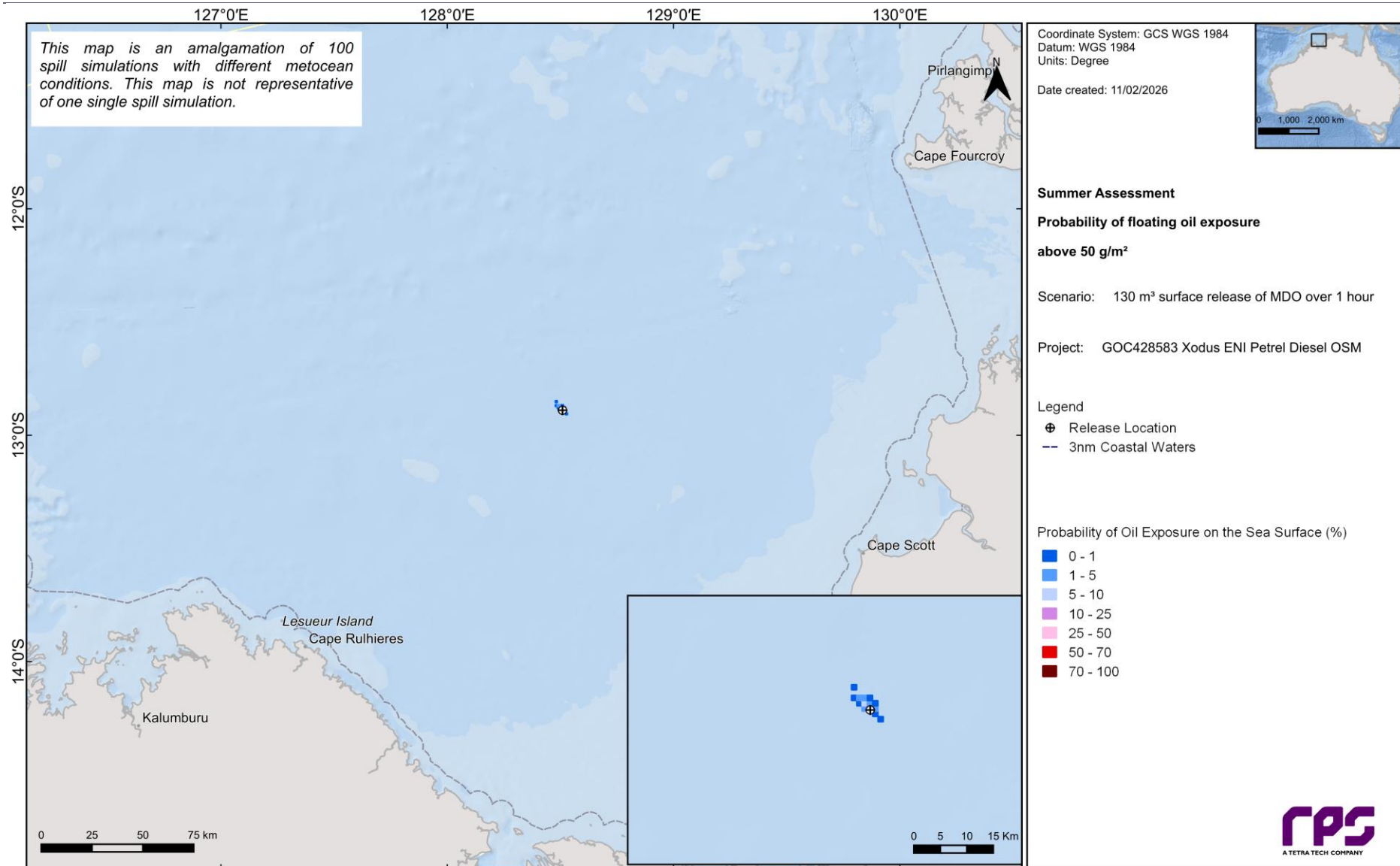


Figure 15-11 Probability of floating oil exposure at, or above, 50 g/m² following a vessel collision at the Petrel riser platform. The results were calculated from 100 spill simulations and represent summer conditions.

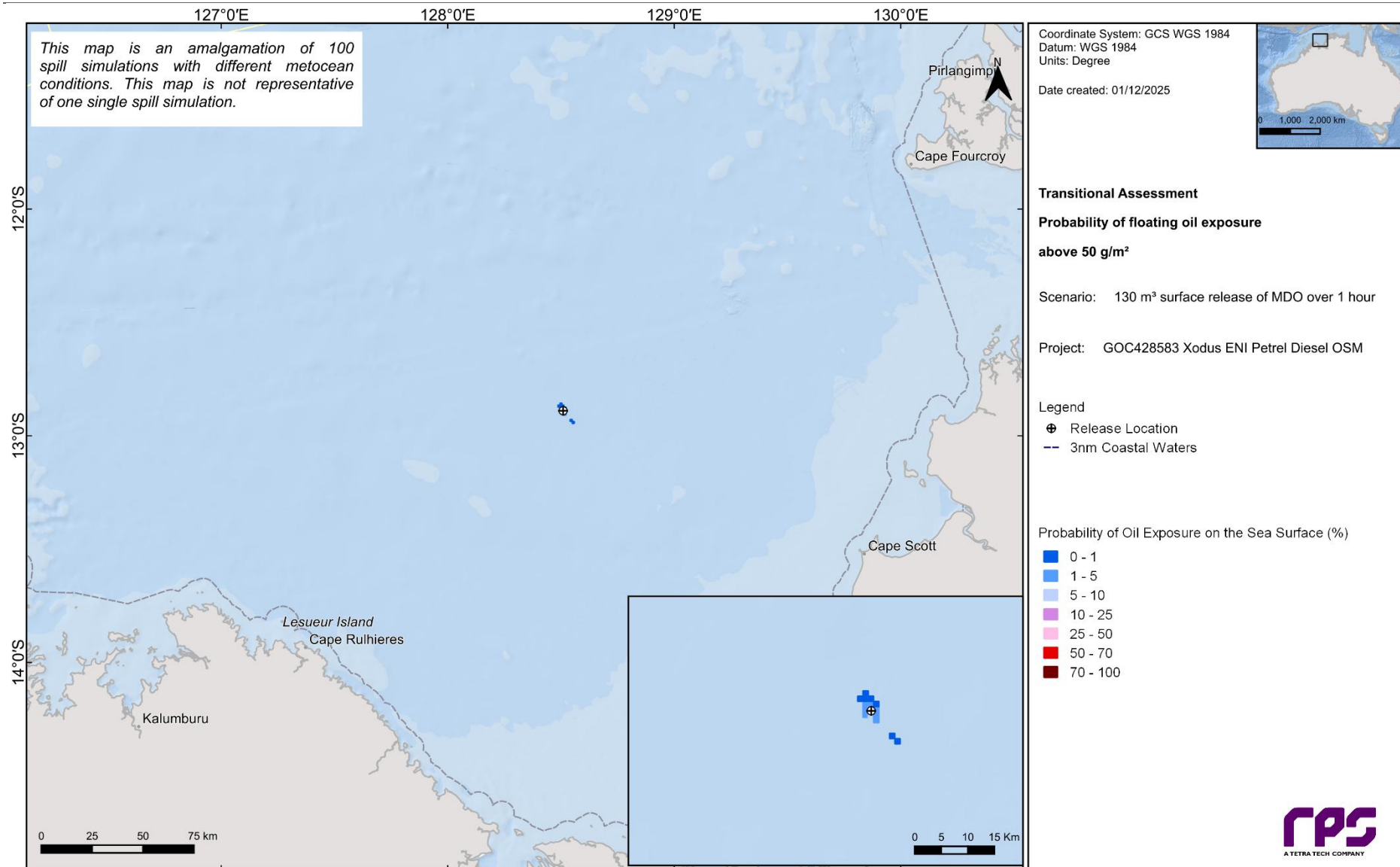


Figure 15-12 Probability of floating oil exposure at, or above, 50 g/m² following a vessel collision at the Petrel riser platform. The results were calculated from 100 spill simulations and represent transitional conditions.

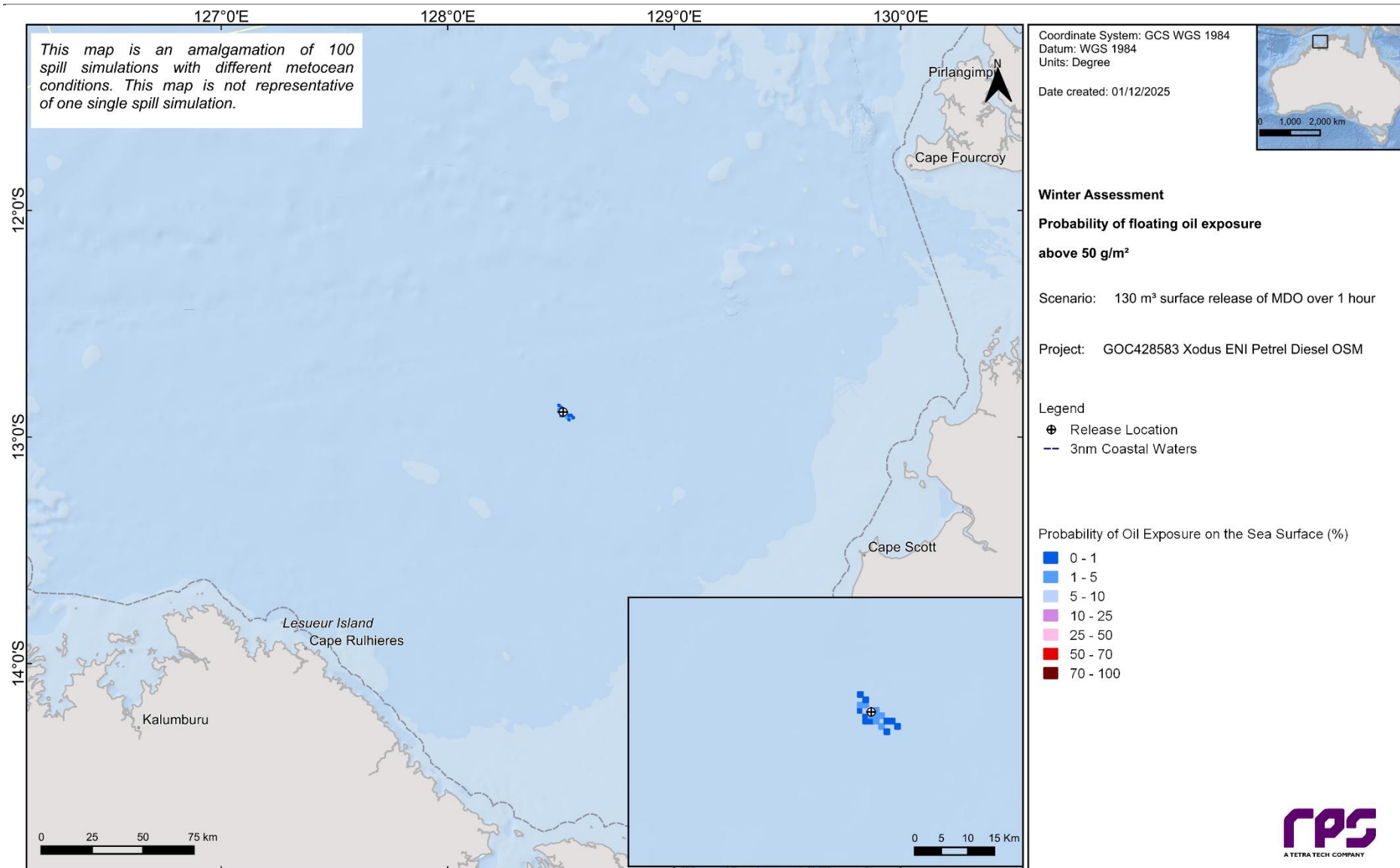


Figure 15-13 Probability of floating oil exposure at, or above, 50 g/m² following a vessel collision at the Petrel riser platform. The results were calculated from 100 spill simulations and represent winter conditions.

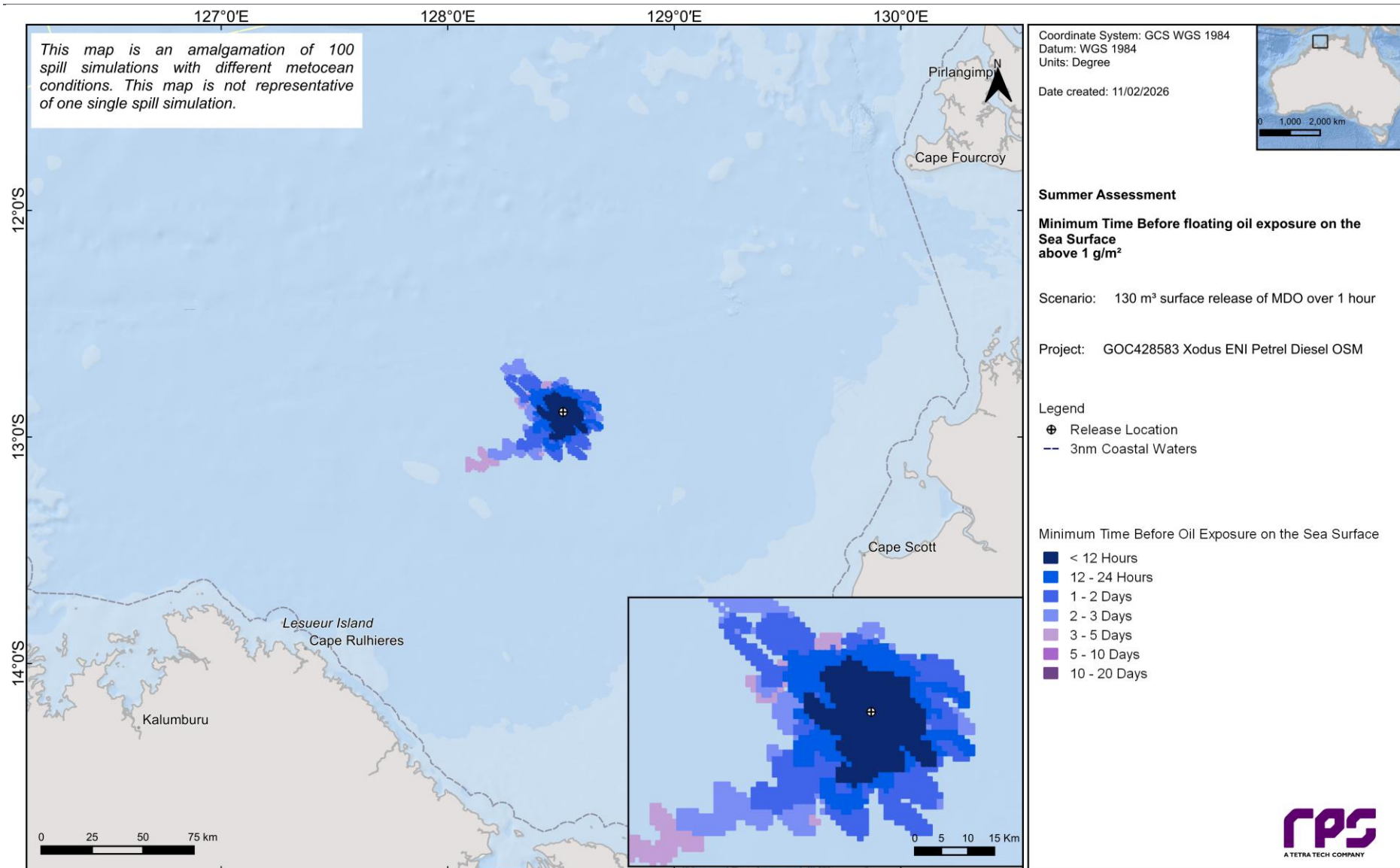


Figure 15-14 Minimum times before floating oil exposure at, or above, 1 g/m² following a vessel collision at the Petrel riser platform. The results were calculated from 100 spill simulations and represent summer conditions.

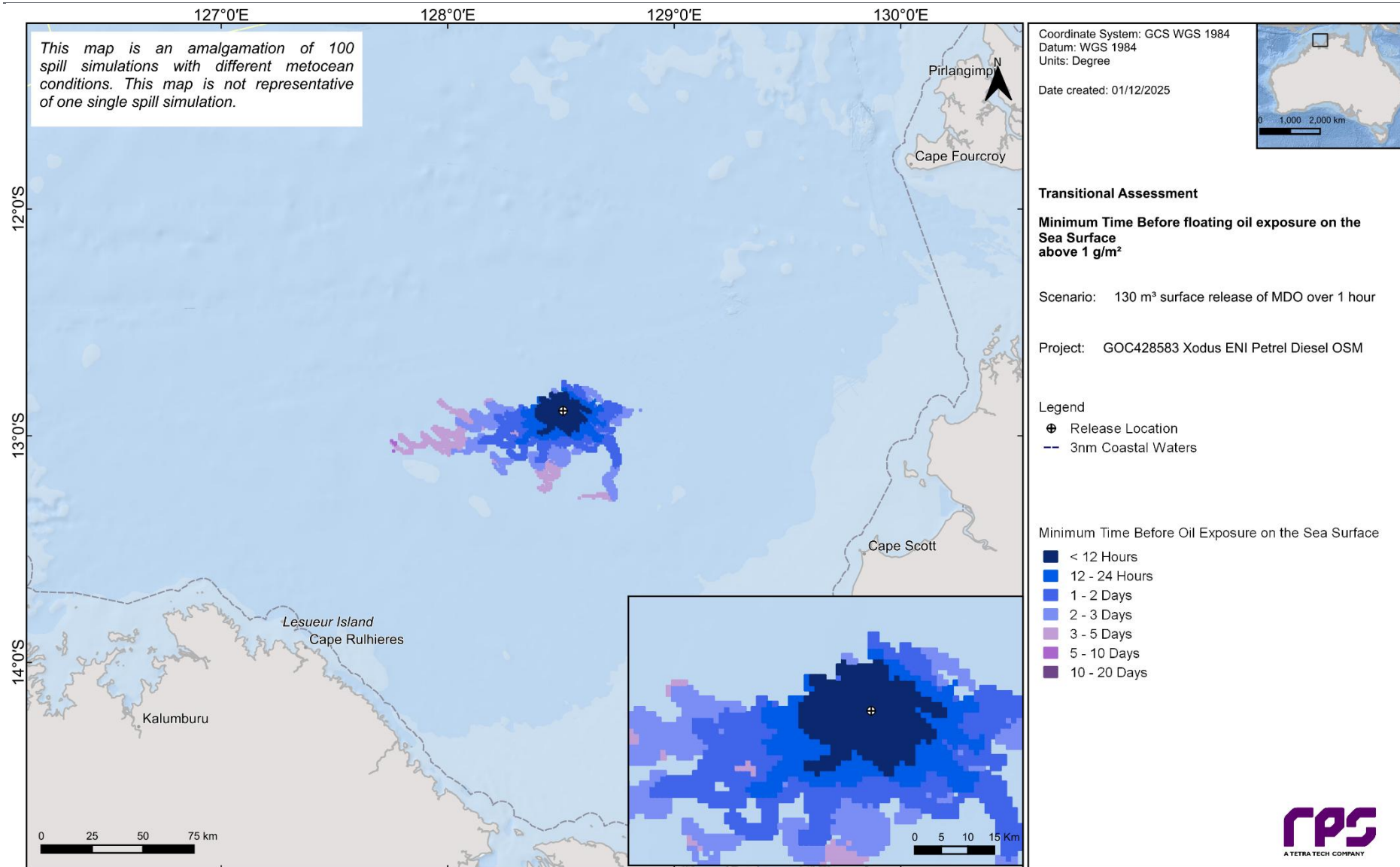


Figure 15-15 Minimum times before floating oil exposure at, or above, 1 g/m² following a vessel collision at the Petrel riser platform. The results were calculated from 100 spill simulations and represent transitional conditions.

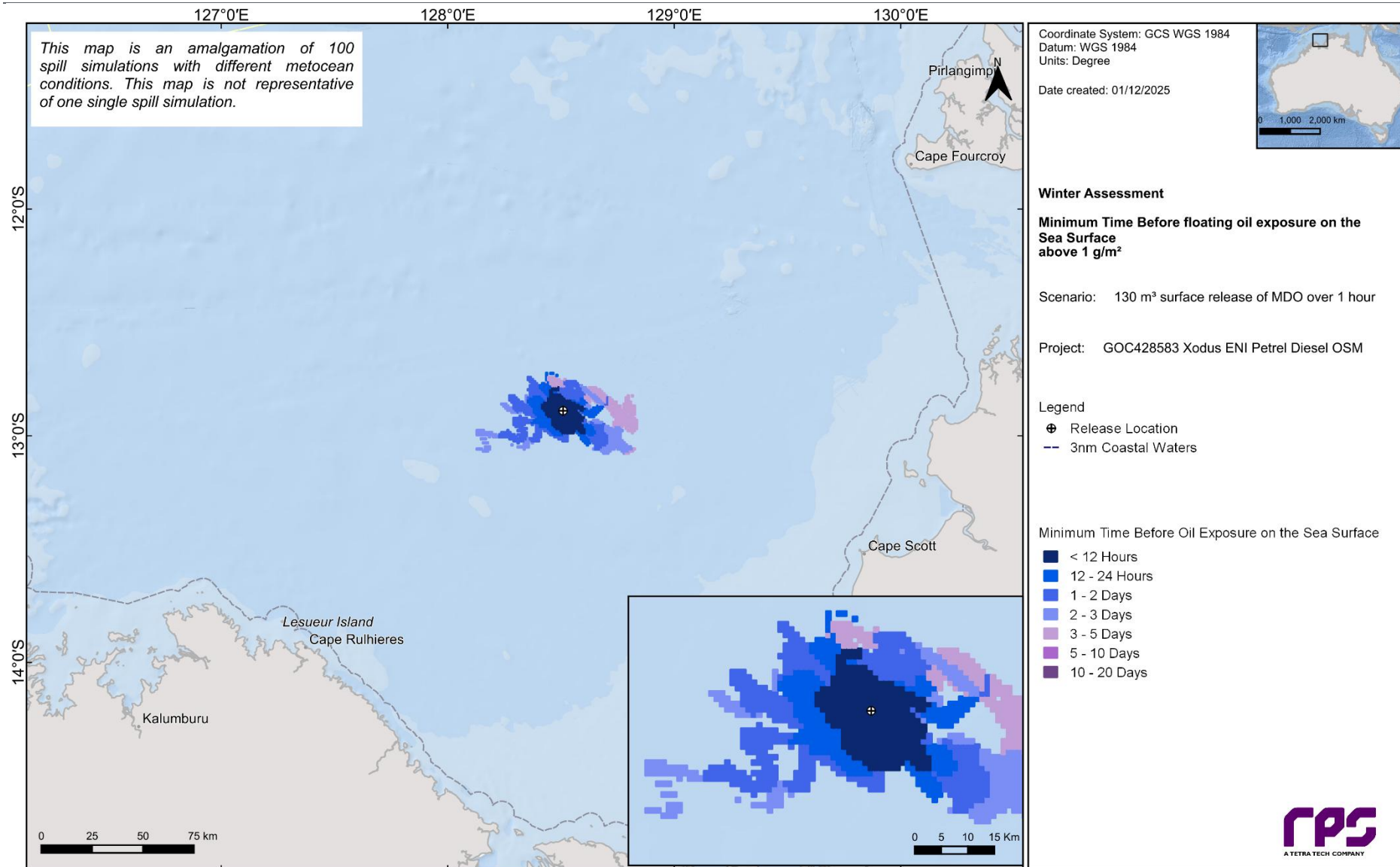


Figure 15-16 Minimum times before floating oil exposure at, or above, 1 g/m² following a vessel collision at the Petrel riser platform. The results were calculated from 100 spill simulations and represent winter conditions.

REPORT

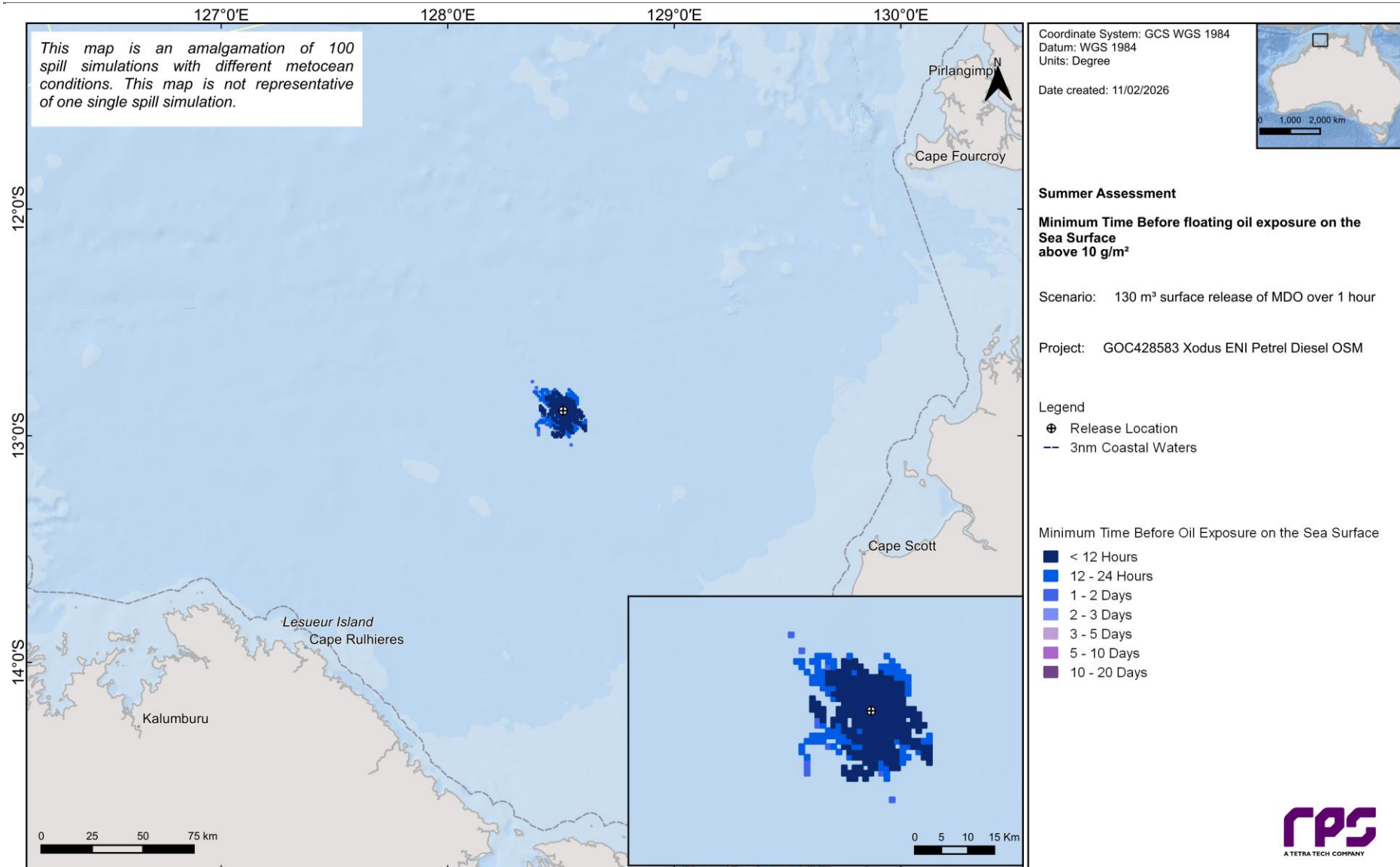


Figure 15-17 Minimum times before floating oil exposure at, or above, 10 g/m² following a vessel collision at the Petrel riser platform. The results were calculated from 100 spill simulations and represent summer conditions.

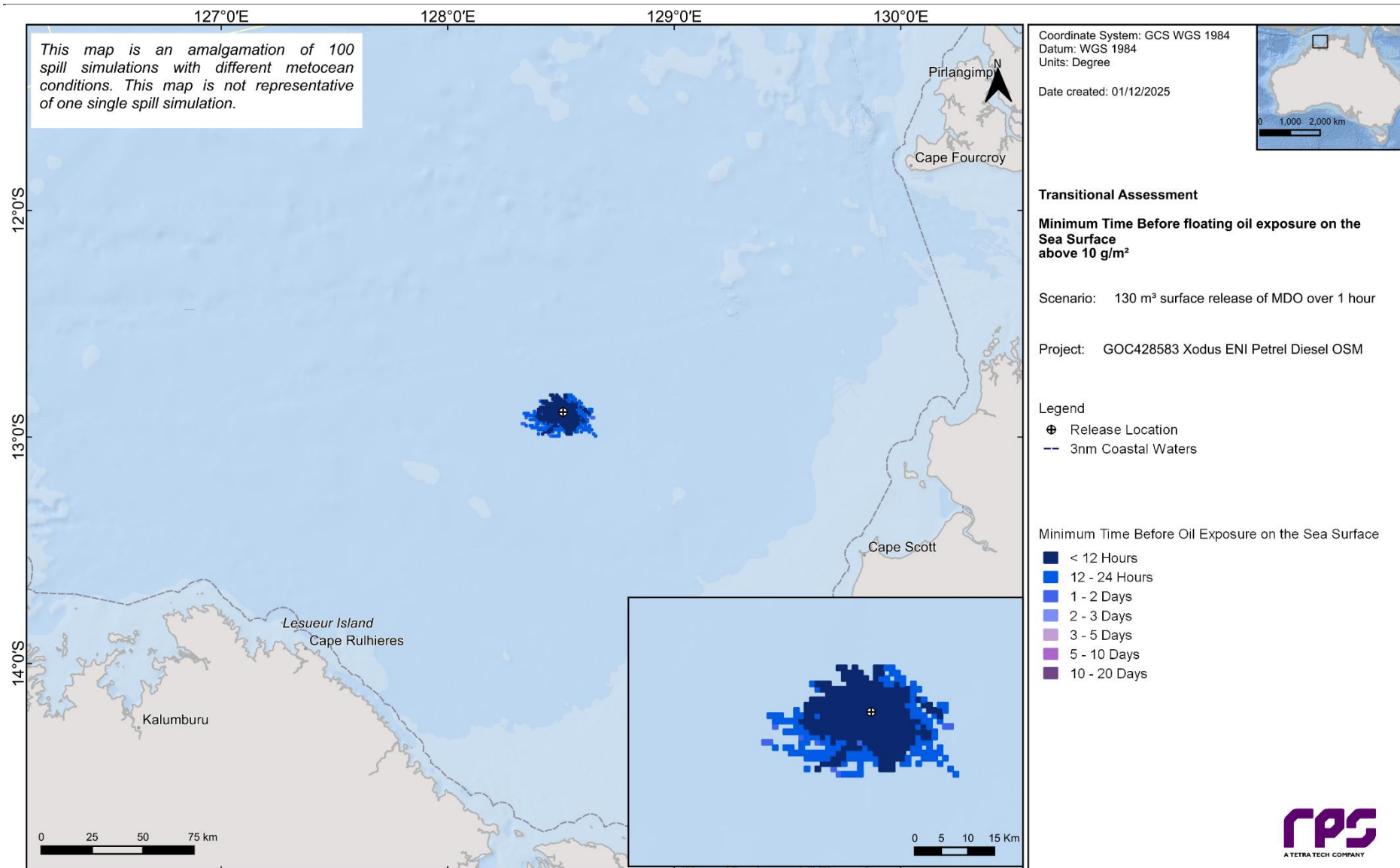


Figure 15-18 Minimum times before floating oil exposure at, or above, 10 g/m² following a vessel collision at the Petrel riser platform. The results were calculated from 100 spill simulations and represent transitional conditions.

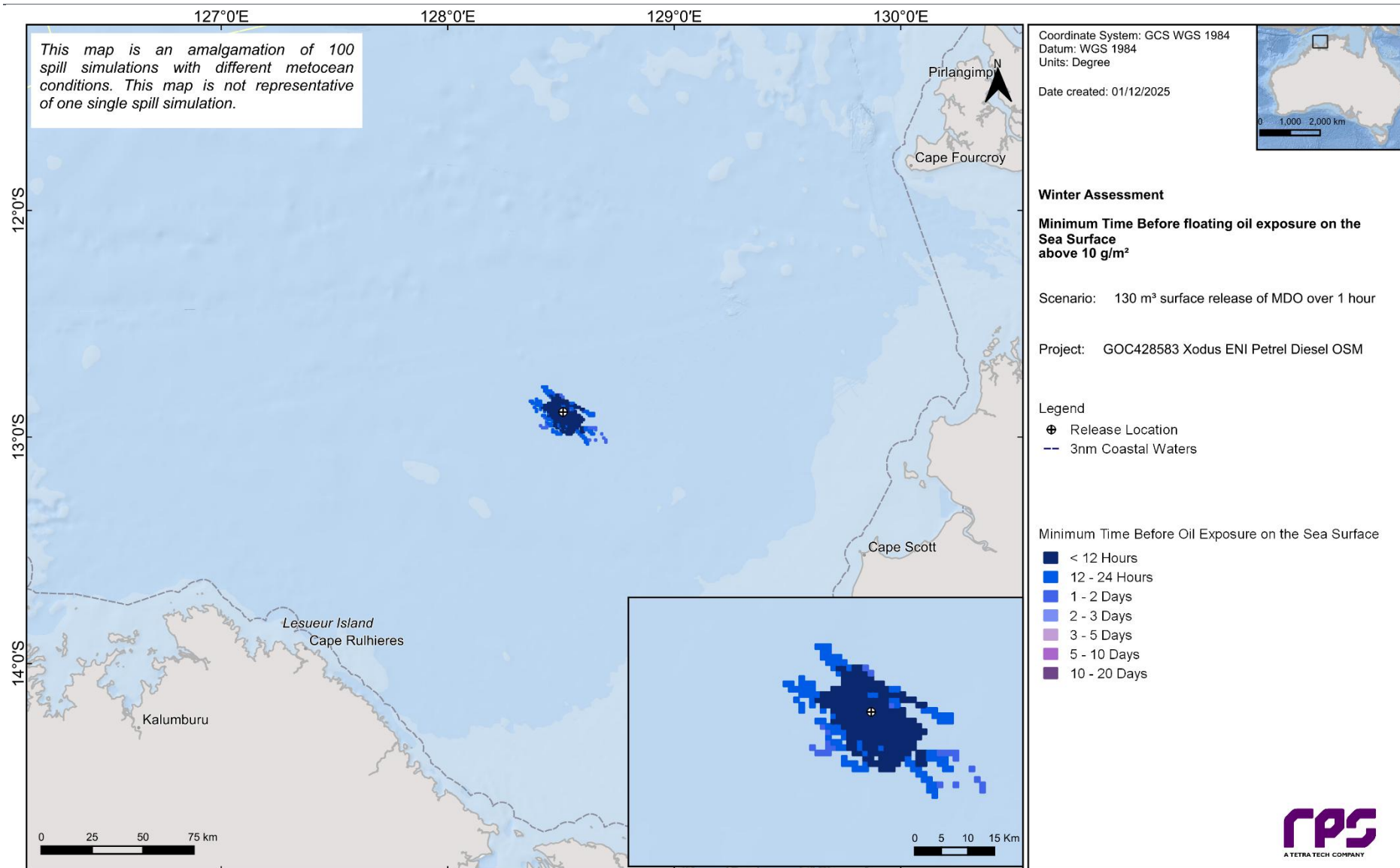


Figure 15-19 Minimum times before floating oil exposure at, or above, 10 g/m² following a vessel collision at the Petrel riser platform. The results were calculated from 100 spill simulations and represent winter conditions.

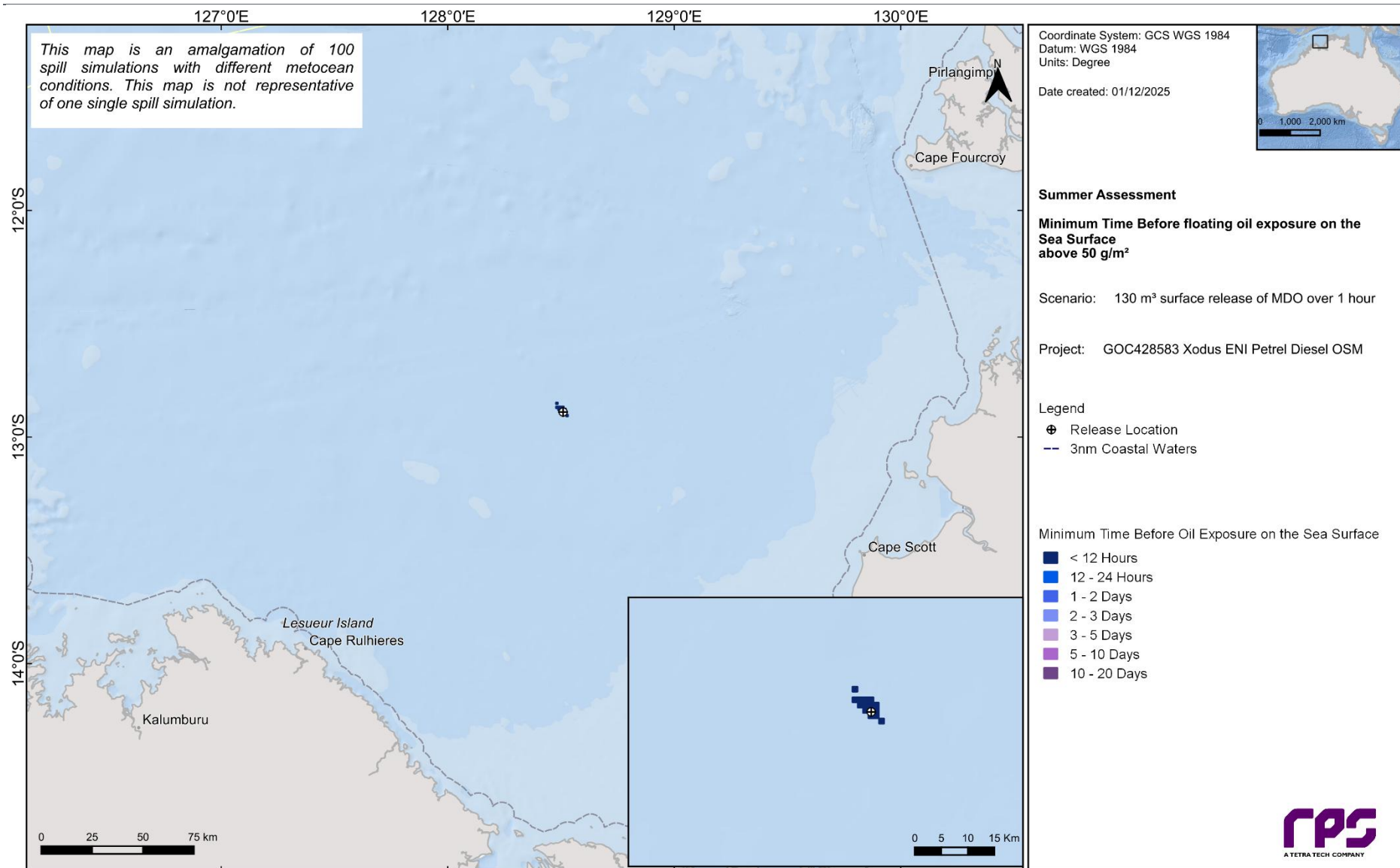


Figure 15-20 Minimum times before floating oil exposure at, or above, 50 g/m² following a vessel collision at the Petrel riser platform. The results were calculated from 100 spill simulations and represent summer conditions.

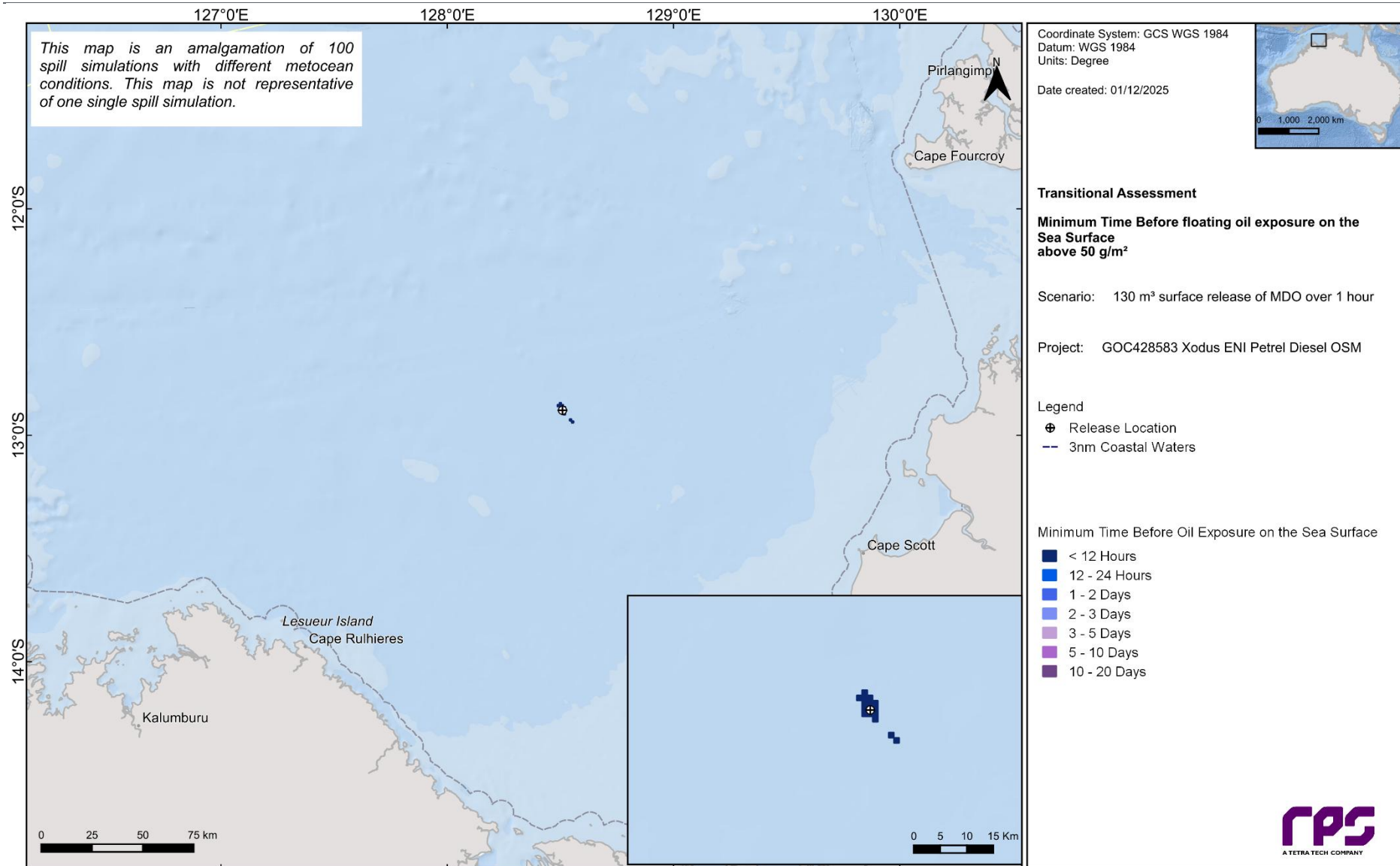


Figure 15-21 Minimum times before floating oil exposure at, or above, 50 g/m² following a vessel collision at the Petrel riser platform. The results were calculated from 100 spill simulations and represent transitional conditions.

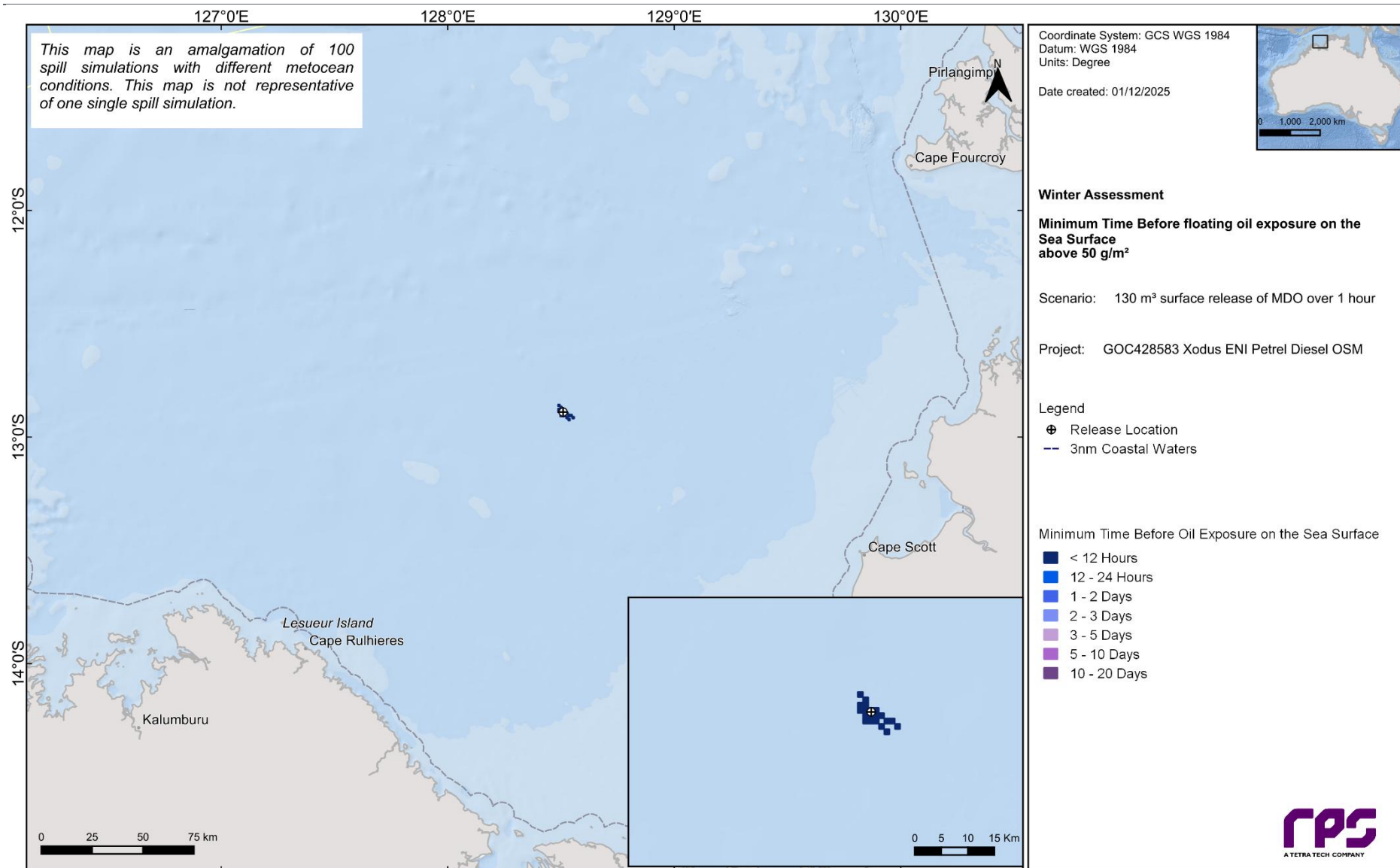


Figure 15-22 Minimum times before floating oil exposure at, or above, 50 g/m² following a vessel collision at the Petrel riser platform. The results were calculated from 100 spill simulations and represent winter conditions.

15.1.3 Shoreline Oil Accumulation

No oil accumulation on any shorelines was predicted to occur at, or above, the low threshold of 10 g/m² from the 300 spill simulations, and consequently, no results are reported.

15.1.4 Water Column Exposure

15.1.4.1 Dissolved Hydrocarbons

Table 15-5 summarises the maximum distances from the release location to dissolved hydrocarbon exposure thresholds for each season. Concentrations exceeding 10 ppb may potentially extend up to 41 km from the release location, decreasing to 1 km for concentrations exceeding 50 ppb. No exposure was predicted at, or above, 300 ppb.

Table 15-6 to Table 15-8 summarise the predicted dissolved hydrocarbon exposure to receptors (either at receptor depth, or above receptors in the overlying water column). Since the release location falls within the Bonaparte Gulf IMCRA and North (Marine) MR, the results commentary for these receptors is omitted; however, the results are included in the table.

The highest probability of exposure at, or above, the 10 ppb threshold was 11% recorded at North-west (Marine) MR during winter conditions. The same receptor recorded the quickest time before exposure at 4 hours and the highest concentration at 43 ppb during transitional conditions.

Figure 15-23 to Figure 15-25 present the zones of dissolved hydrocarbon exposure for each season, while the probabilities and minimum times before exposure are presented in Figure 15-26 to Figure 15-34.

Cross-sectional transects (north-south and east-west) of the maximum dissolved hydrocarbons in the vicinity of the release site for summer, transitional and winter conditions are presented in Figure 15-35 to Figure 15-40.

Table 15-5 Maximum distances from the release location to dissolved hydrocarbon exposure thresholds following a vessel collision at the Petrel riser platform. Results were calculated from 100 spill simulations per season.

Season	Distance and direction travelled	Dissolved hydrocarbon exposure thresholds		
		≥10 ppb	≥50 ppb	≥300 ppb
Summer	Maximum distance travelled (km) by a spill simulation	41	1	-
	Direction of maximum travel	Northeast	-	-
Transitional	Maximum distance travelled (km) by a spill simulation	41	-	-
	Direction of maximum travel	Southwest	-	-
Winter	Maximum distance travelled (km) by a spill simulation	34	1	-
	Direction of maximum travel	Southwest	South	-

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Table 15-6 Receptors predicted to be exposed by dissolved hydrocarbons following a vessel collision at the Petrel riser platform. The results were calculated from 100 spill simulations and represent summer conditions.

Category	Name	Probability (%) of dissolved hydrocarbon exposure at			Minimum time before dissolved hydrocarbon exposure at			Maximum dissolved hydrocarbon concentrations (ppb)	
		≥ 10 ppb	≥ 50 ppb	≥ 300 ppb	≥ 10 ppb	≥ 50 ppb	≥ 300 ppb	averaged over all simulations	for the worst simulation
IMCRA-MESO	Bonaparte Gulf ¹	14	1	NC	1 hour	4 hours	NC	5	54
MR	North (Marine) ¹	14	1	NC	1 hour	4 hours	NC	5	54
	North-west (Marine)	2	NC	NC	5 hours	NC	NC	<1	36

NC: No contact to receptor predicted for specified threshold.

¹Release location falls within the Bonaparte Gulf IMCRA and North (Marine) MR

Table 15-7 Receptors predicted to be exposed by dissolved hydrocarbons following a vessel collision at the Petrel riser platform. The results were calculated from 100 spill simulations and represent transitional conditions.

Category	Name	Probability (%) of dissolved hydrocarbon exposure at			Minimum time before dissolved hydrocarbon exposure at			Maximum dissolved hydrocarbon concentrations (ppb)	
		≥ 10 ppb	≥ 50 ppb	≥ 300 ppb	≥ 10 ppb	≥ 50 ppb	≥ 300 ppb	averaged over all simulations	for the worst simulation
IMCRA-MESO	Bonaparte Gulf ¹	9	NC	NC	1 hour	NC	NC	3	48
MR	North (Marine) ¹	9	NC	NC	1 hour	NC	NC	3	48
	North-west (Marine)	6	NC	NC	4 hours	NC	NC	2	43

NC: No contact to receptor predicted for specified threshold.

¹Release location falls within the Bonaparte Gulf IMCRA and North (Marine) MR

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Table 15-8 Receptors predicted to be exposed by dissolved hydrocarbons following a vessel collision at the Petrel riser platform. The results were calculated from 100 spill simulations and represent winter conditions.

Category	Name	Probability (%) of dissolved hydrocarbon exposure at			Minimum time before dissolved hydrocarbon exposure at			Maximum dissolved hydrocarbon concentrations (ppb)	
		≥ 10 ppb	≥ 50 ppb	≥ 300 ppb	≥ 10 ppb	≥ 50 ppb	≥ 300 ppb	averaged over all simulations	for the worst simulation
IMCRA-MESO	Bonaparte Gulf ¹	27	1	NC	1 hour	2 hours	NC	7	67
MR	North (Marine) ¹	27	1	NC	1 hour	2 hours	NC	7	67
	North-west (Marine)	11	NC	NC	5 hours	NC	NC	3	40

NC: No contact to receptor predicted for specified threshold.

¹Release location falls within the Bonaparte Gulf IMCRA and North (Marine) MR

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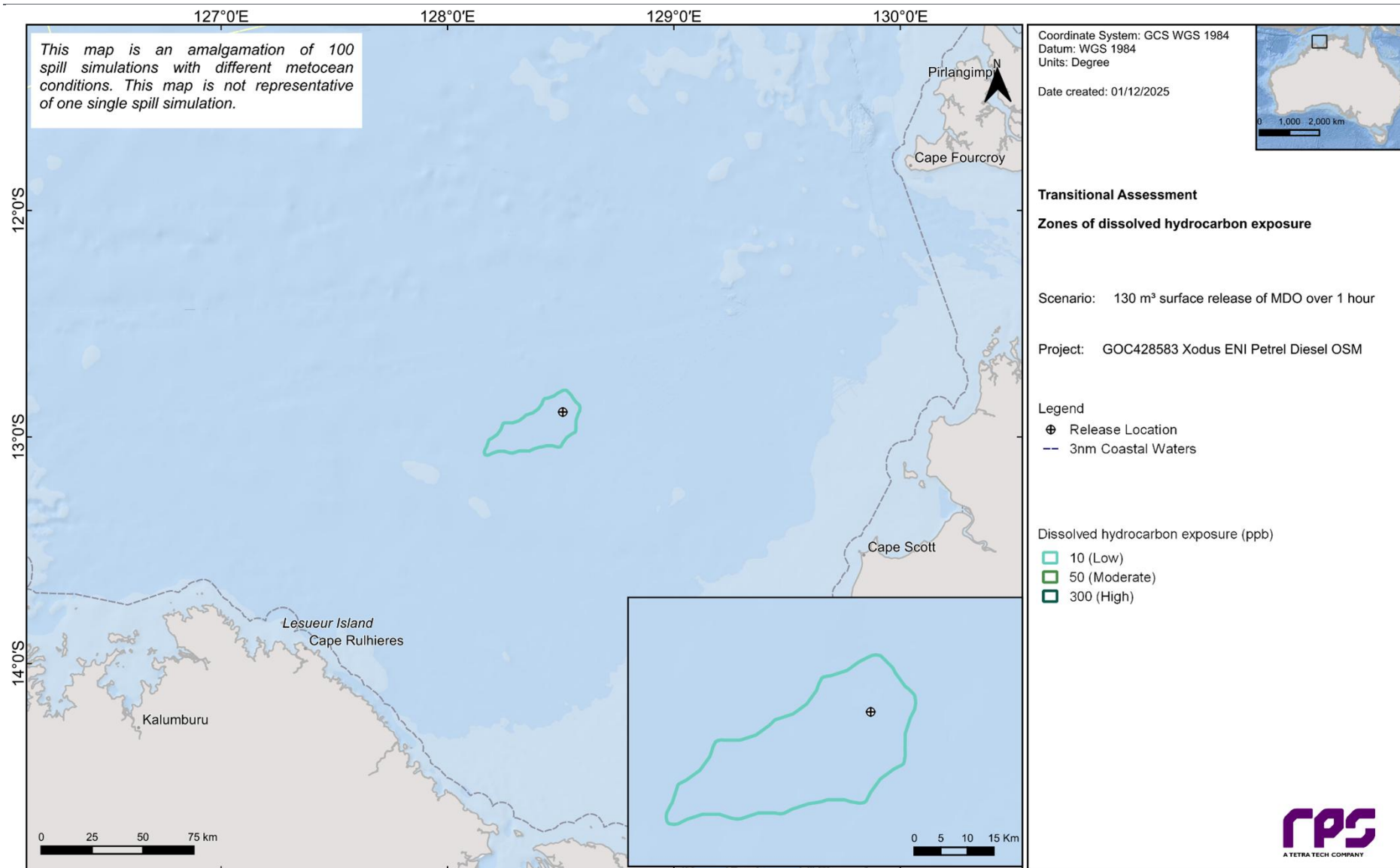


Figure 15-24 Predicted zones of dissolved hydrocarbon exposure following a vessel collision at the Petrel riser platform. The results were calculated from 100 spill simulations and represent transitional conditions.

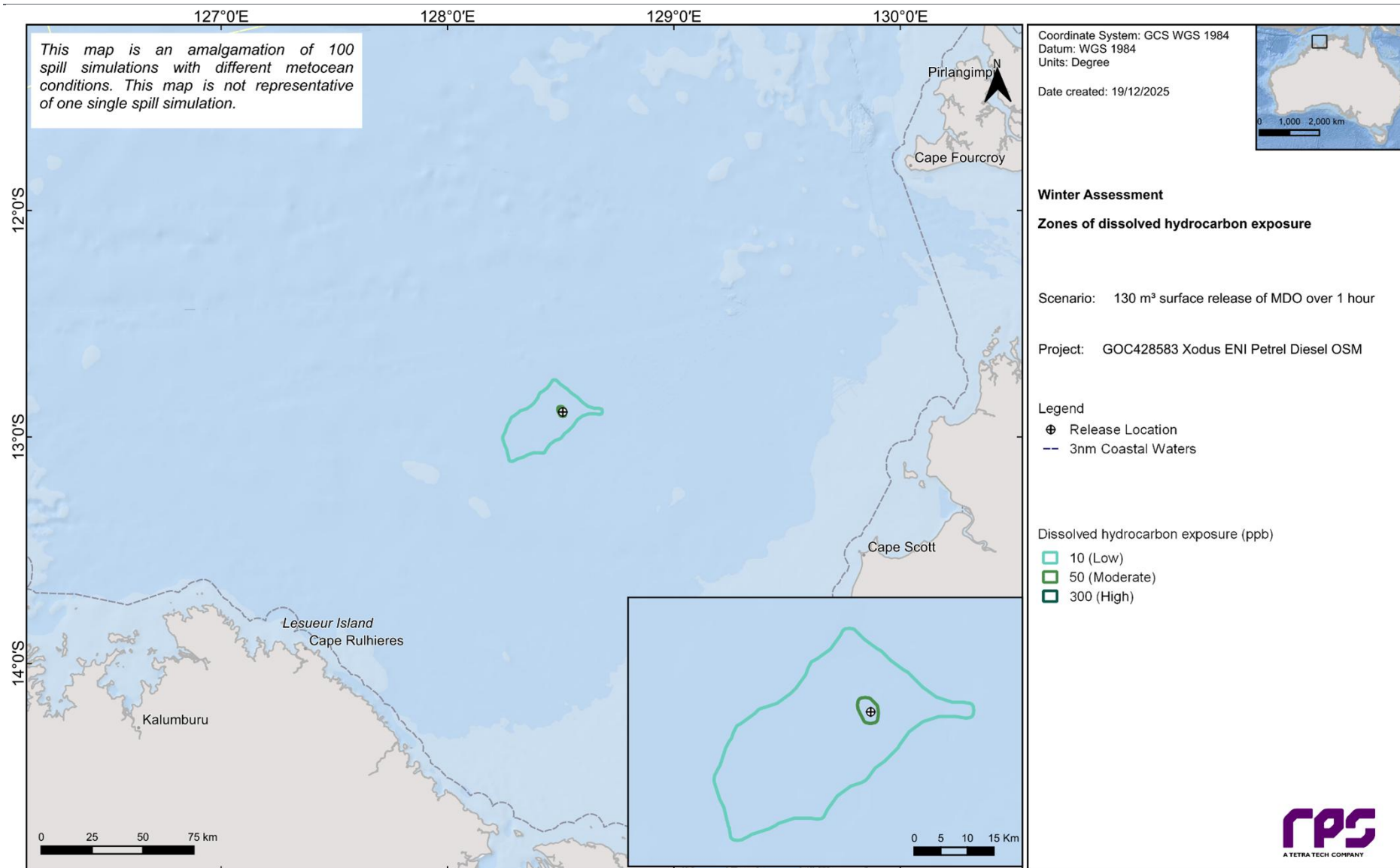


Figure 15-25 Predicted zones of dissolved hydrocarbon exposure following a vessel collision at the Petrel riser platform. The results were calculated from 100 spill simulations and represent winter conditions.

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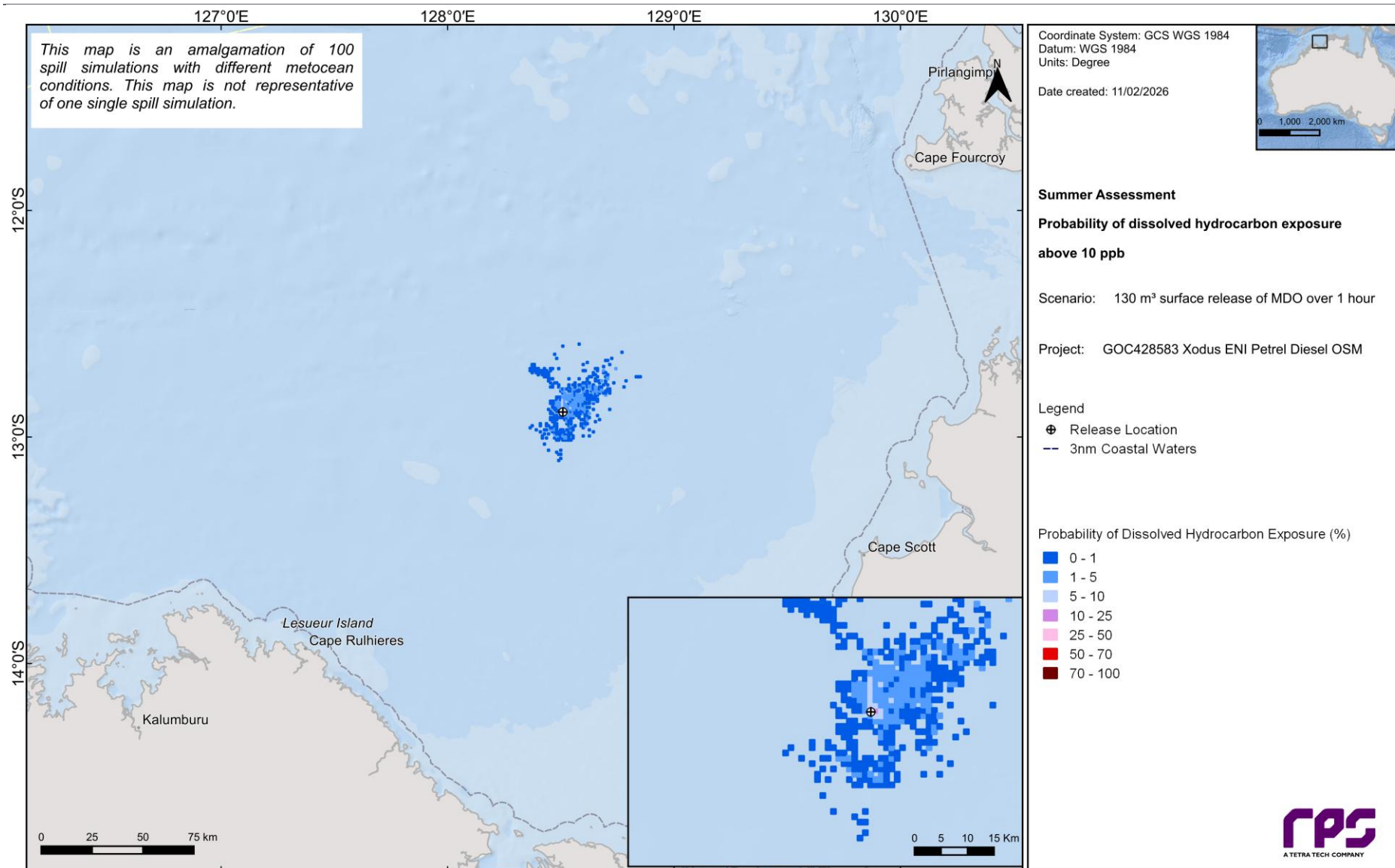


Figure 15-26 Probability of dissolved hydrocarbon exposure at, or above, 10 ppb following a vessel collision at the Petrel riser platform. The results were calculated from 100 spill simulations and represent summer conditions.

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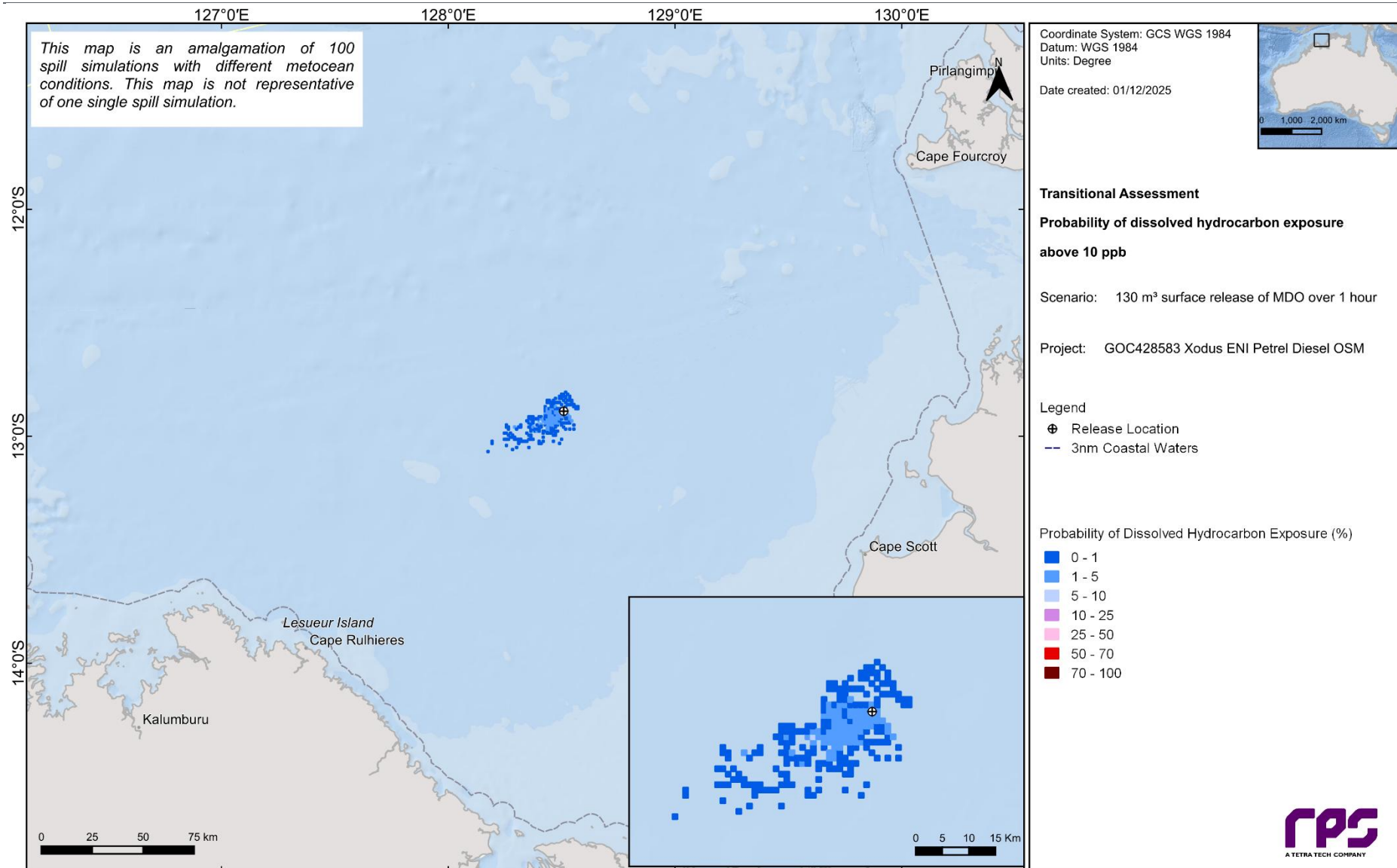


Figure 15-27 Probability of dissolved hydrocarbon exposure at, or above, 10 ppb following a vessel collision at the Petrel riser platform. The results were calculated from 100 spill simulations and represent transitional conditions.

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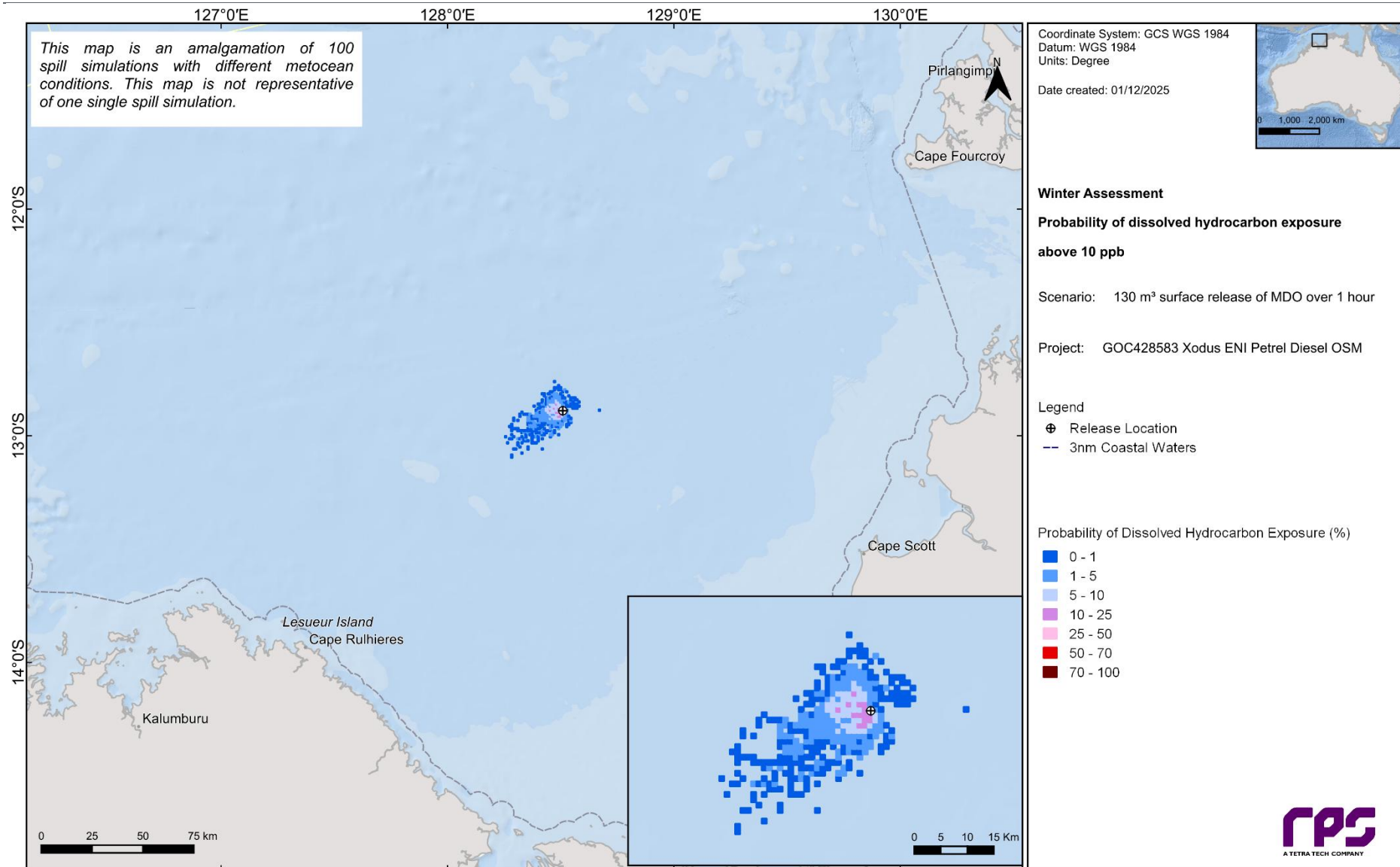


Figure 15-28 Probability of dissolved hydrocarbon exposure at, or above, 10 ppb following a vessel collision at the Petrel riser platform. The results were calculated from 100 spill simulations and represent winter conditions.

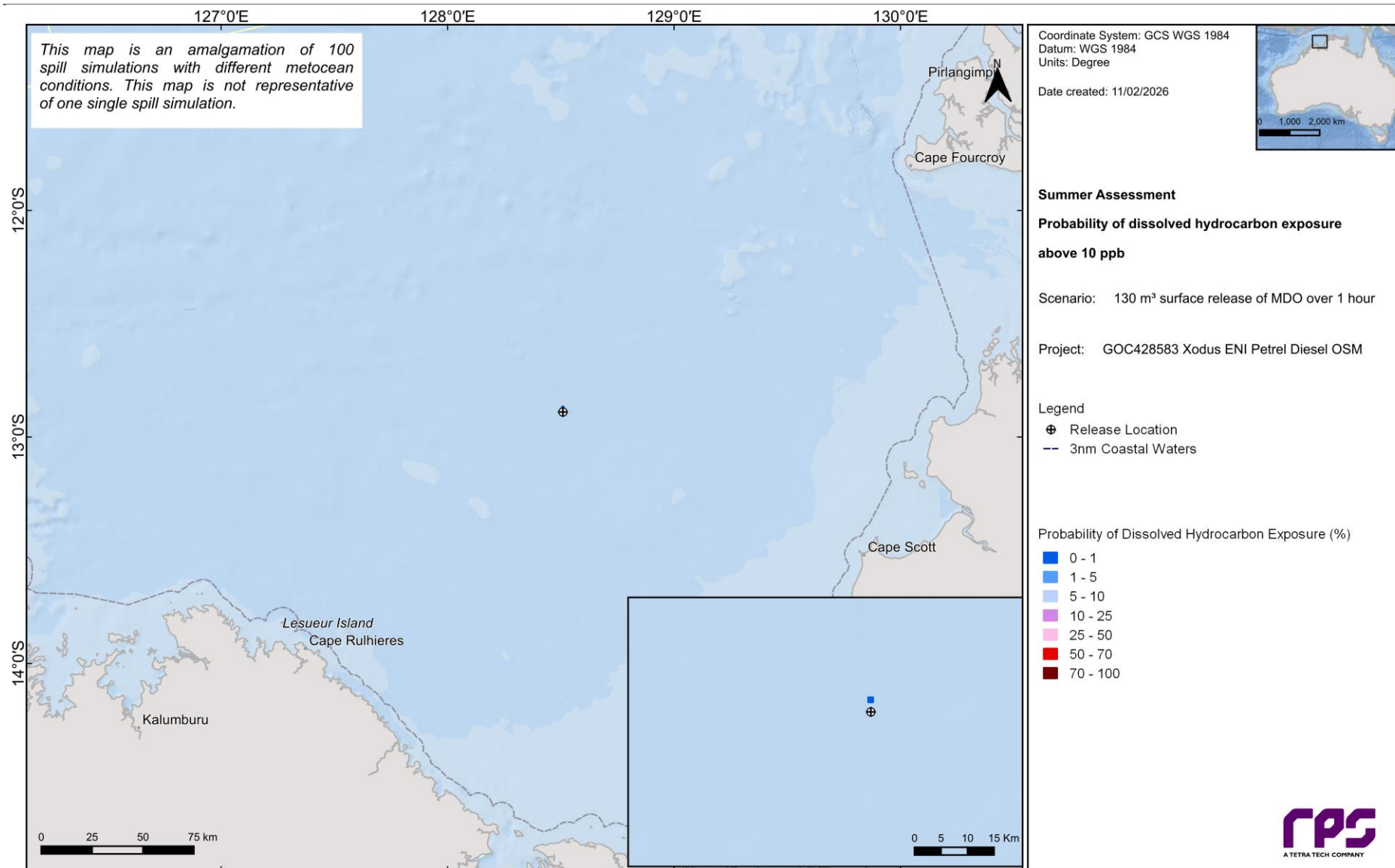


Figure 15-29 Probability of dissolved hydrocarbon exposure at, or above, 50 ppb following a vessel collision at the Petrel riser platform. The results were calculated from 100 spill simulations and represent winter conditions.

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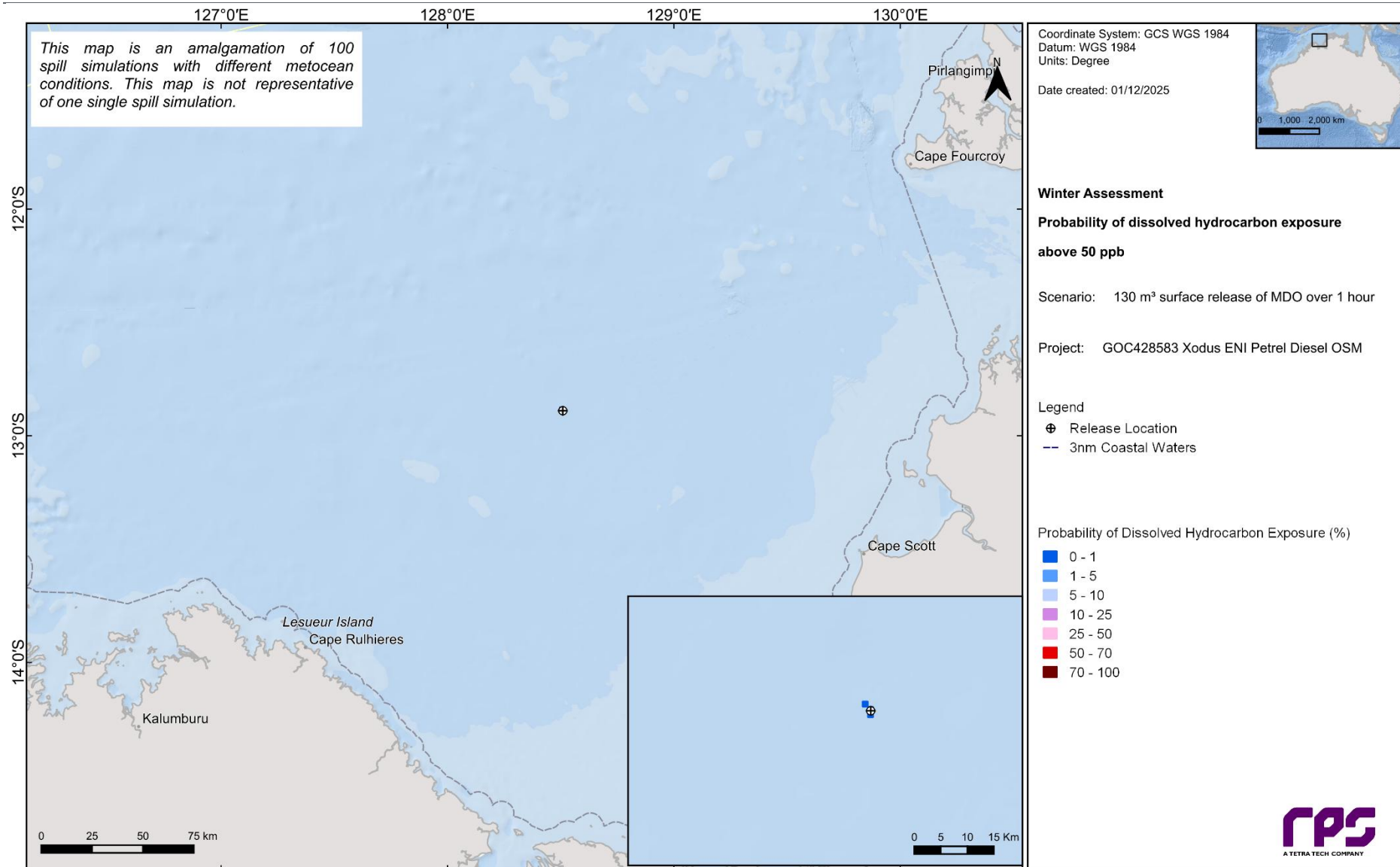


Figure 15-30 Probability of dissolved hydrocarbon exposure at, or above, 50 ppb following a vessel collision at the Petrel riser platform. The results were calculated from 100 spill simulations and represent winter conditions.

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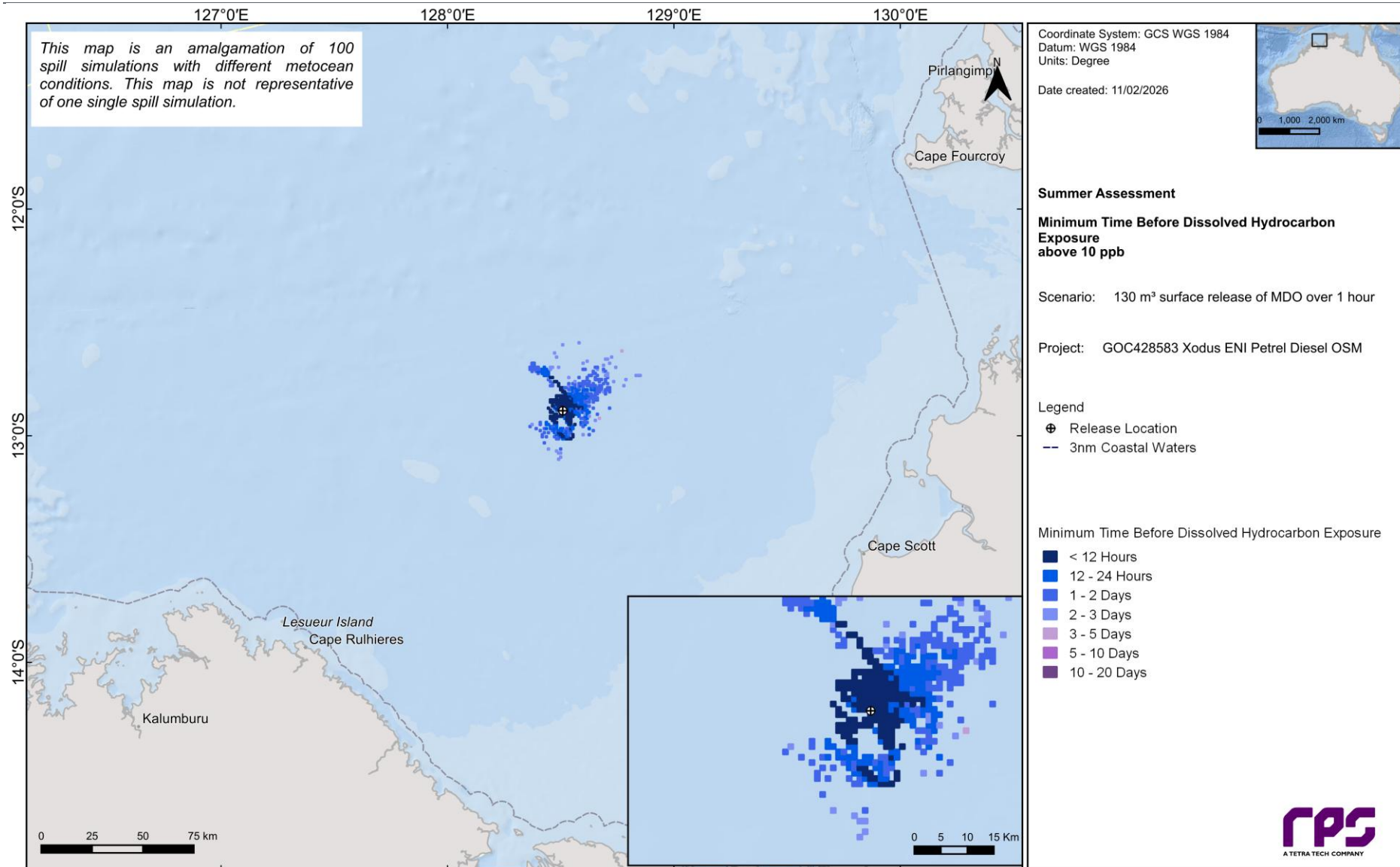


Figure 15-31 Minimum times before dissolved hydrocarbon exposure at, or above, 10 ppb following a vessel collision at the Petrel riser platform. The results were calculated from 100 spill simulations and represent summer conditions.

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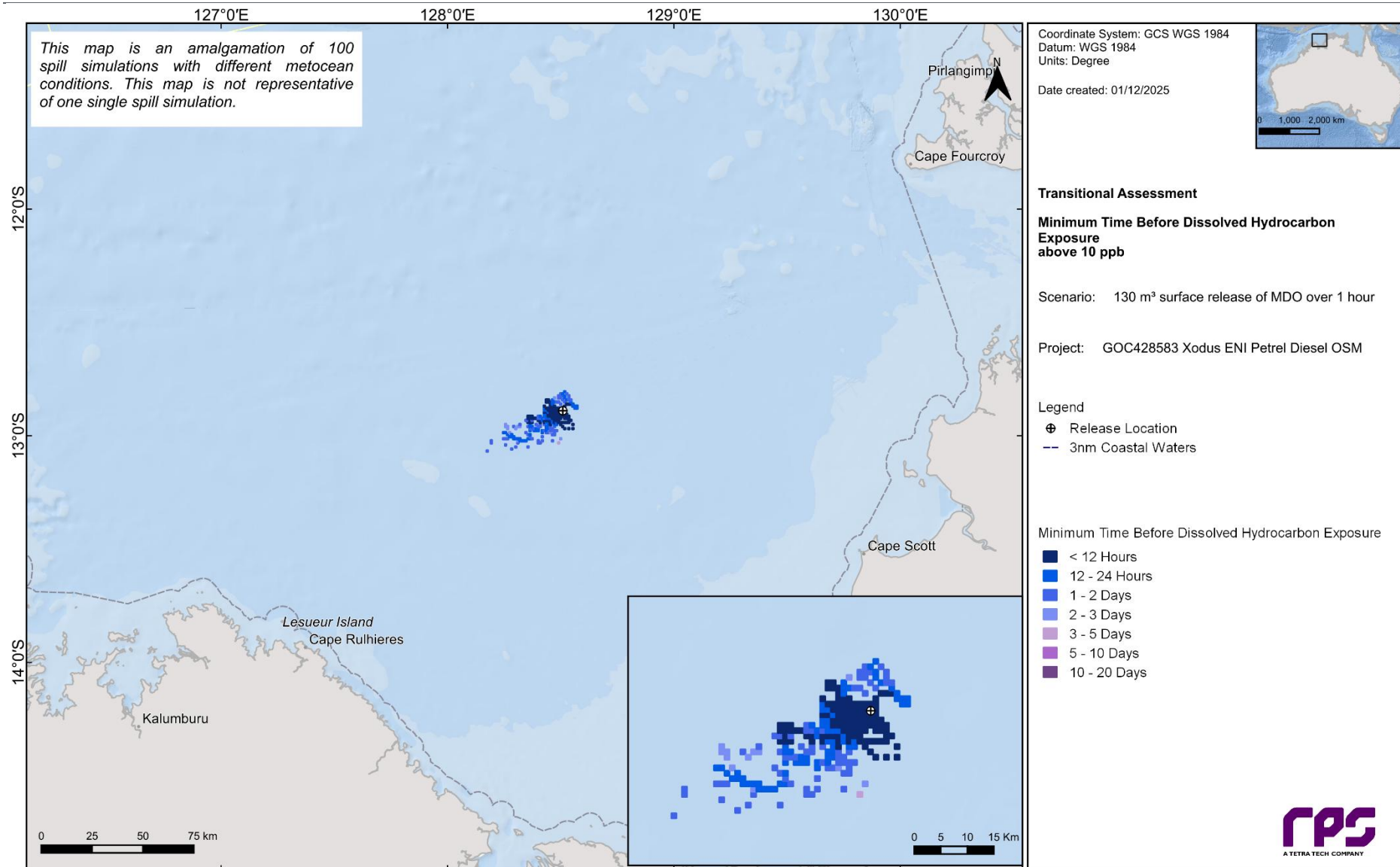


Figure 15-32 Minimum times before dissolved hydrocarbon exposure at, or above, 10 ppb following a vessel collision at the Petrel riser platform. The results were calculated from 100 spill simulations and represent transitional conditions.

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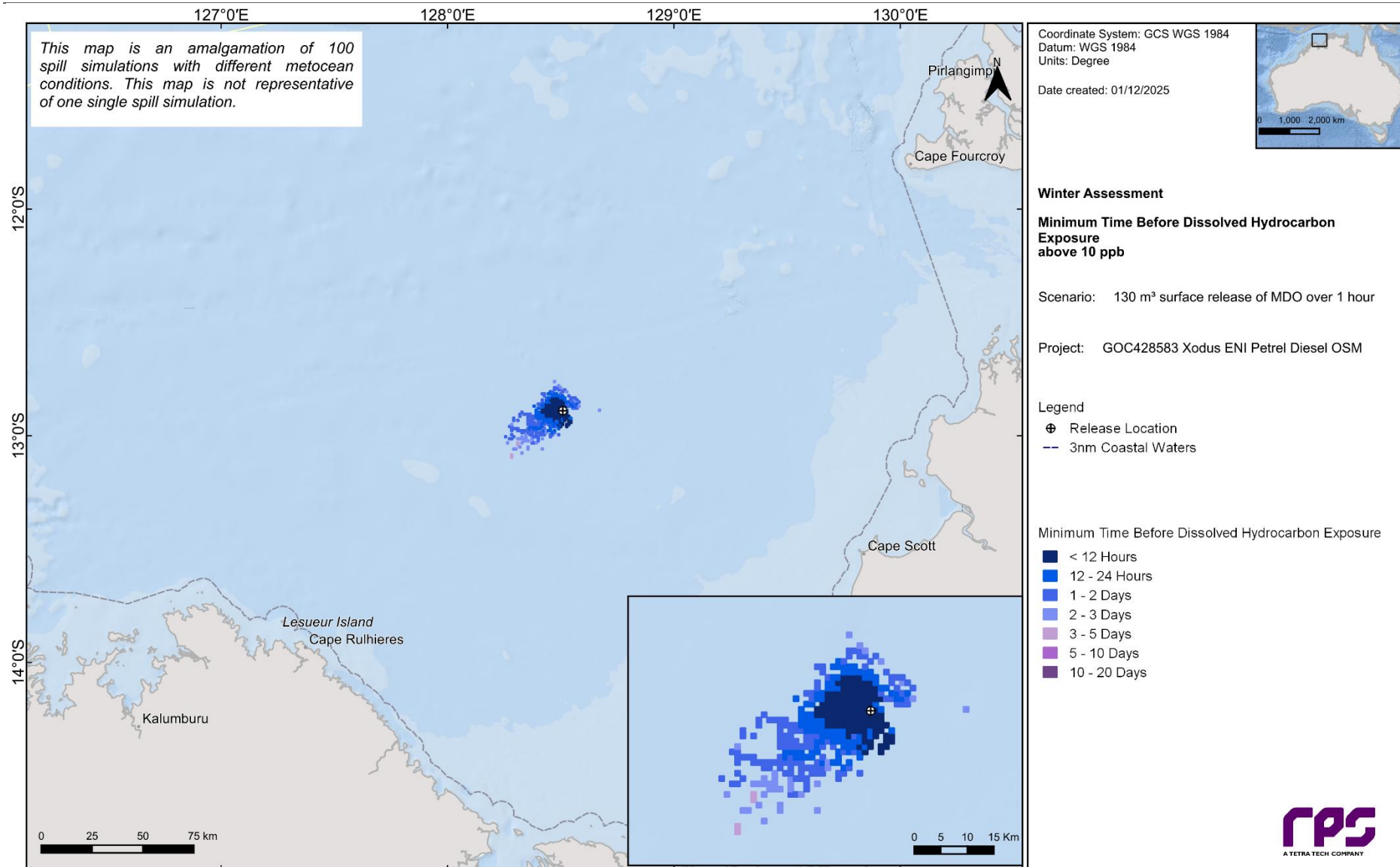


Figure 15-33 Minimum times before dissolved hydrocarbon exposure at, or above, 10 ppb following a vessel collision at the Petrel riser platform. The results were calculated from 100 spill simulations and represent winter conditions.

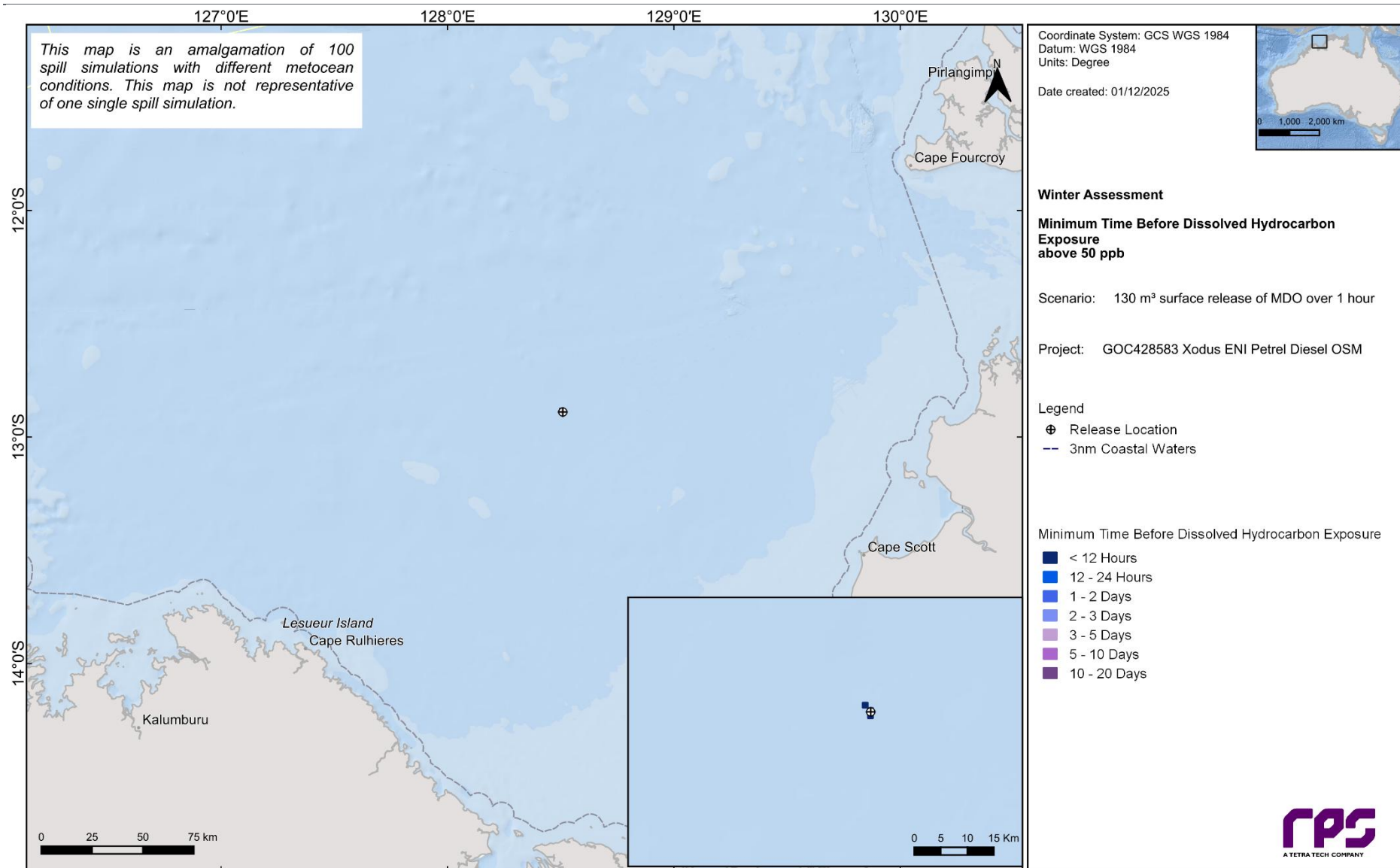


Figure 15-34 Minimum times before dissolved hydrocarbon exposure at, or above, 50 ppb following a vessel collision at the Petrel riser platform. The results were calculated from 100 spill simulations and represent winter conditions.

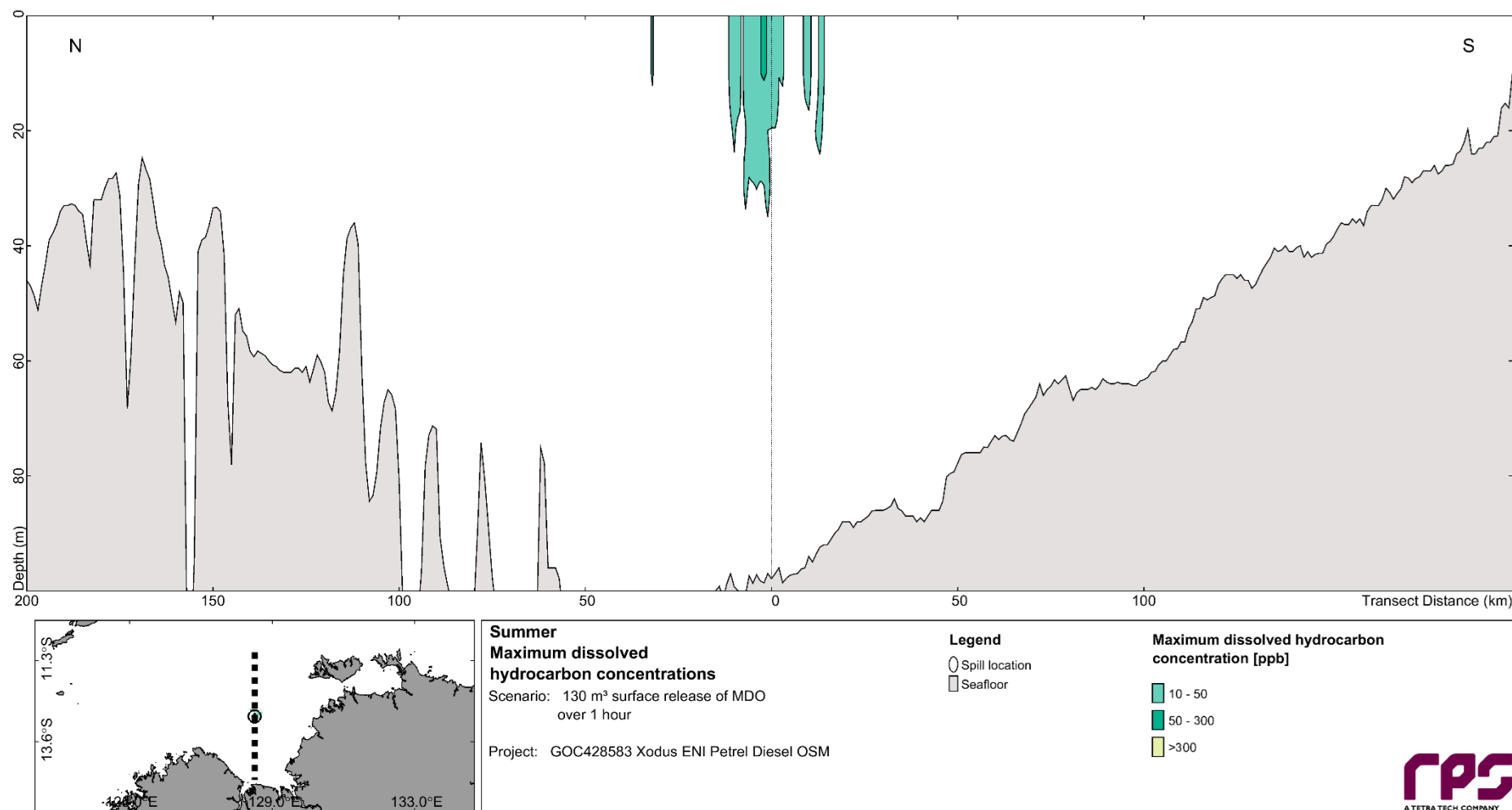


Figure 15-35 North-south cross-section transect of dissolved hydrocarbon concentrations following a vessel collision at the Petrel riser platform. The results were calculated from 100 spill simulations and represent summer conditions.

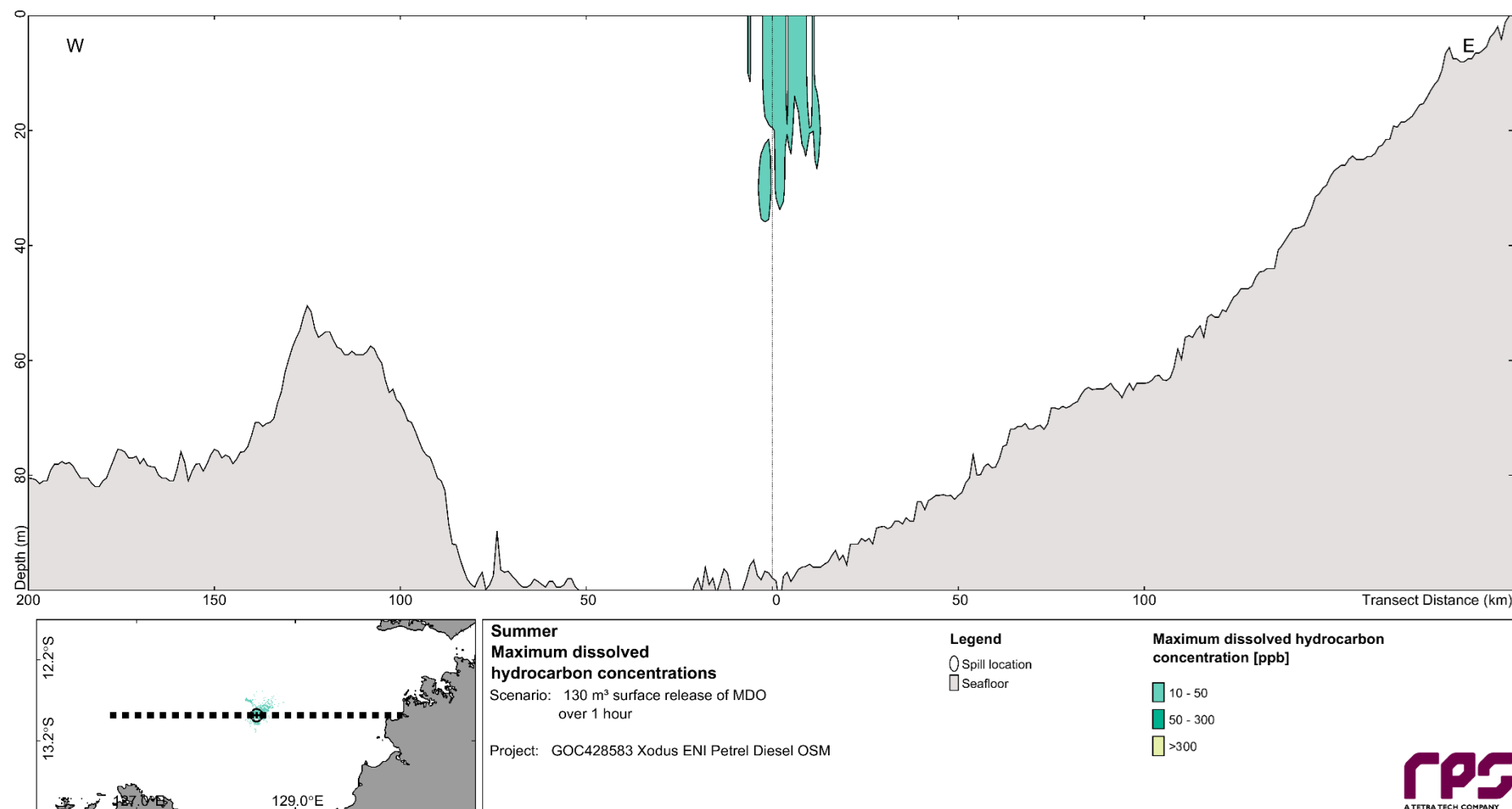


Figure 15-36 East-west cross-section transect of dissolved hydrocarbon concentrations following a vessel collision at the Petrel riser platform. The results were calculated from 100 spill simulations and represent summer conditions.

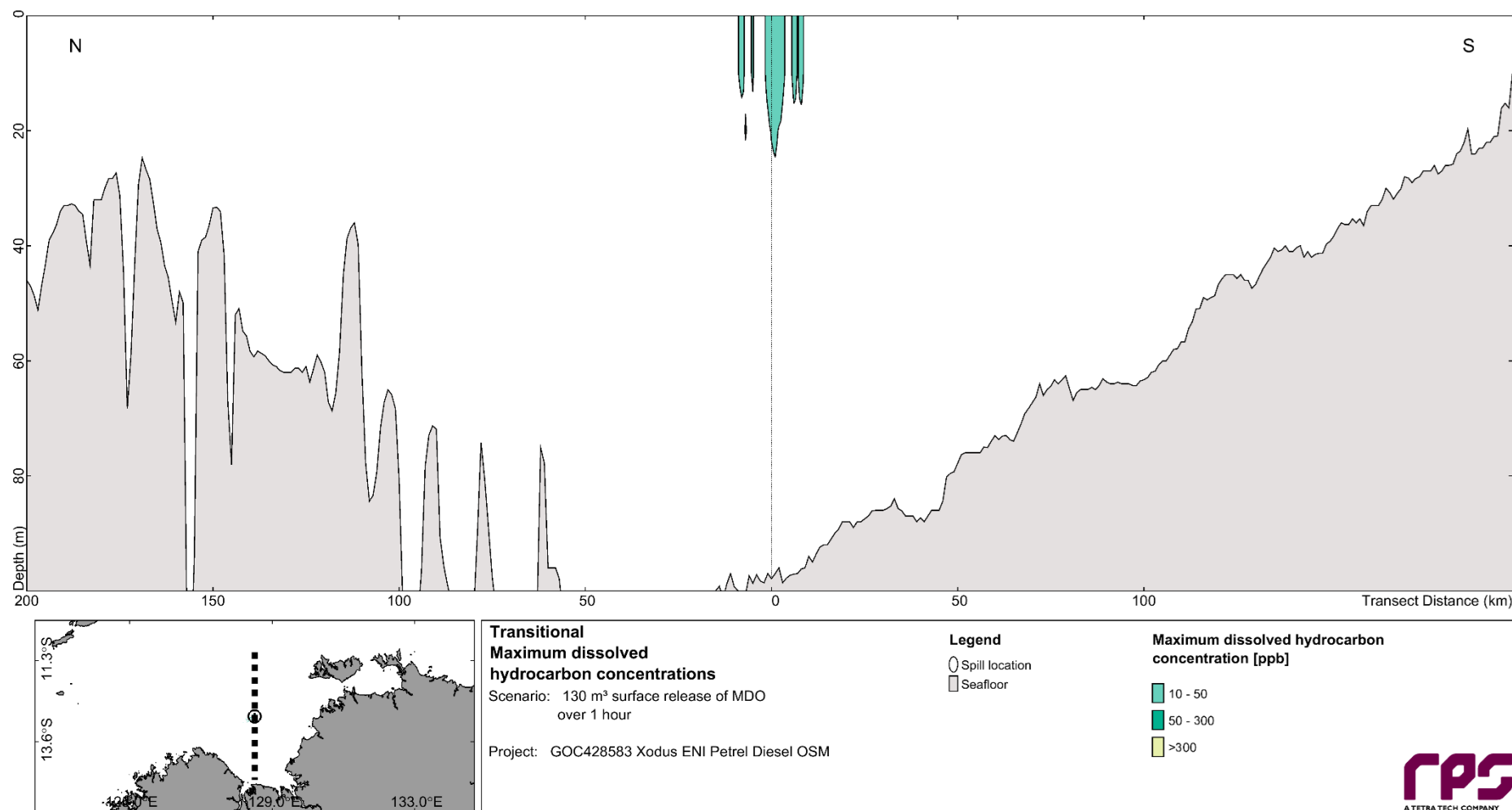


Figure 15-37 North-south cross-section transect of dissolved hydrocarbon concentrations following a vessel collision at the Petrel riser platform. The results were calculated from 100 spill simulations and represent transitional conditions.

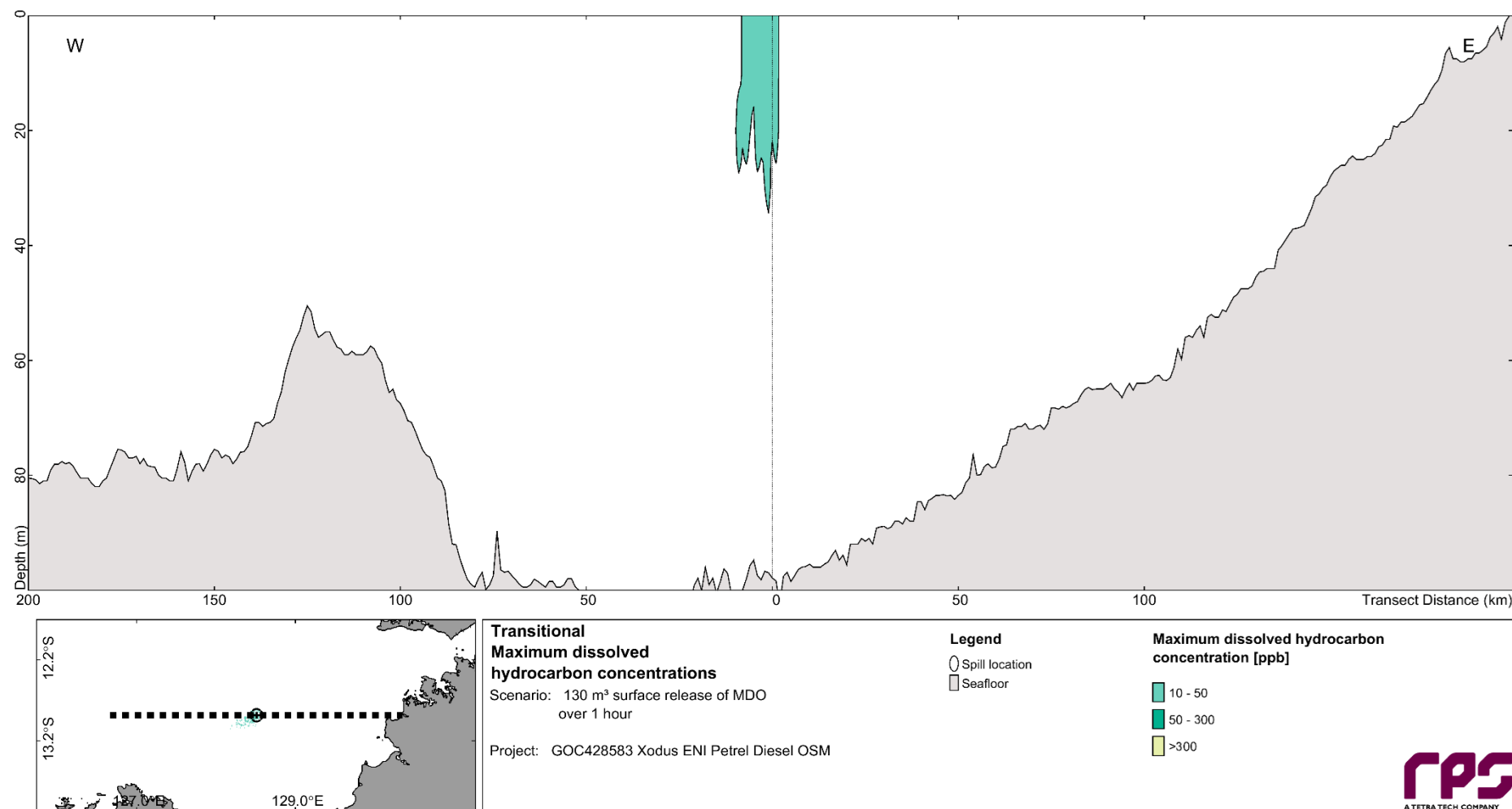


Figure 15-38 East-west cross-section transect of dissolved hydrocarbon concentrations following a vessel collision at the Petrel riser platform. The results were calculated from 100 spill simulations and represent transitional conditions.

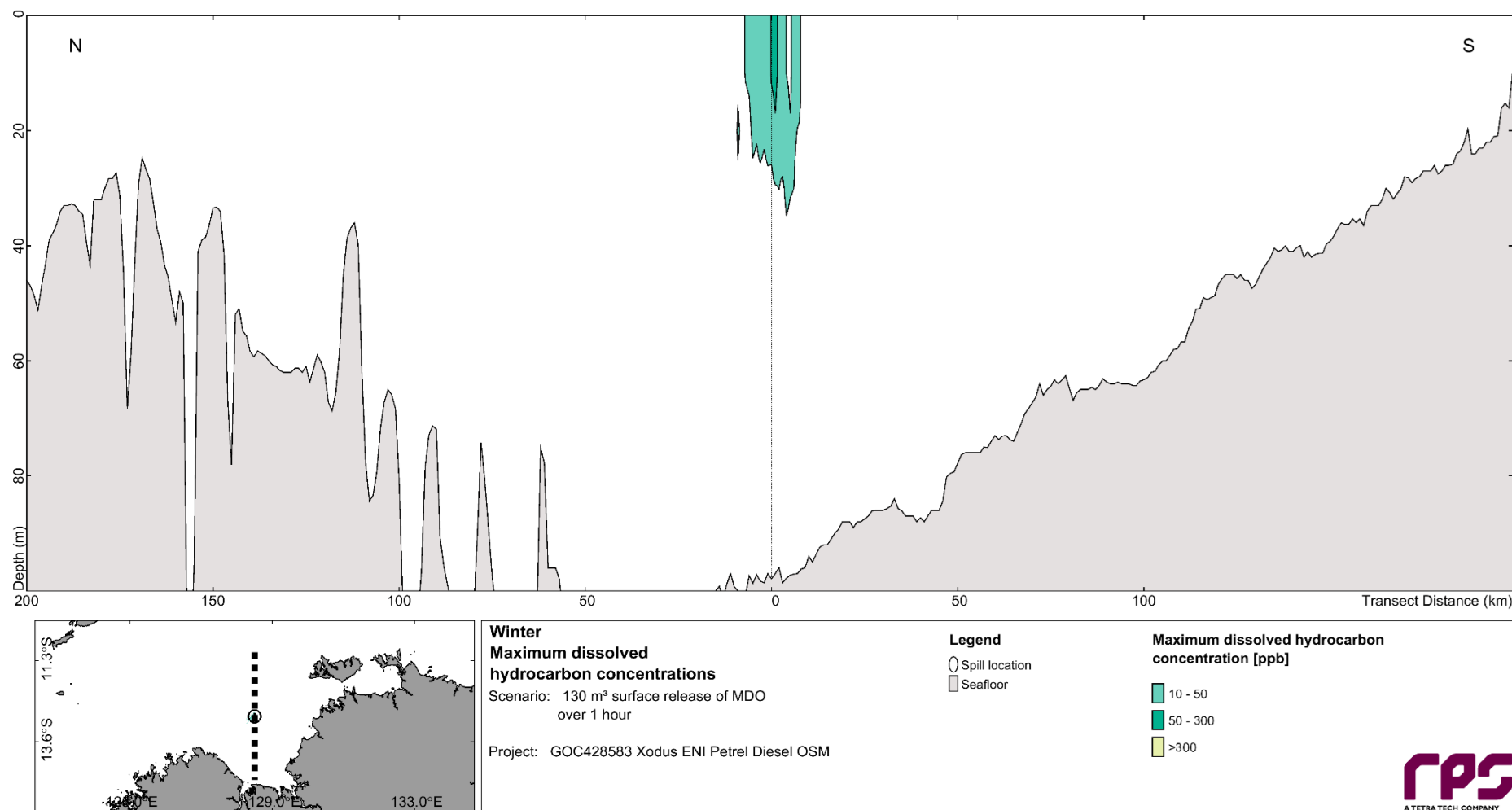


Figure 15-39 North-south cross-section transect of dissolved hydrocarbon concentrations following a vessel collision at the Petrel riser platform. The results were calculated from 100 spill simulations and represent winter conditions.

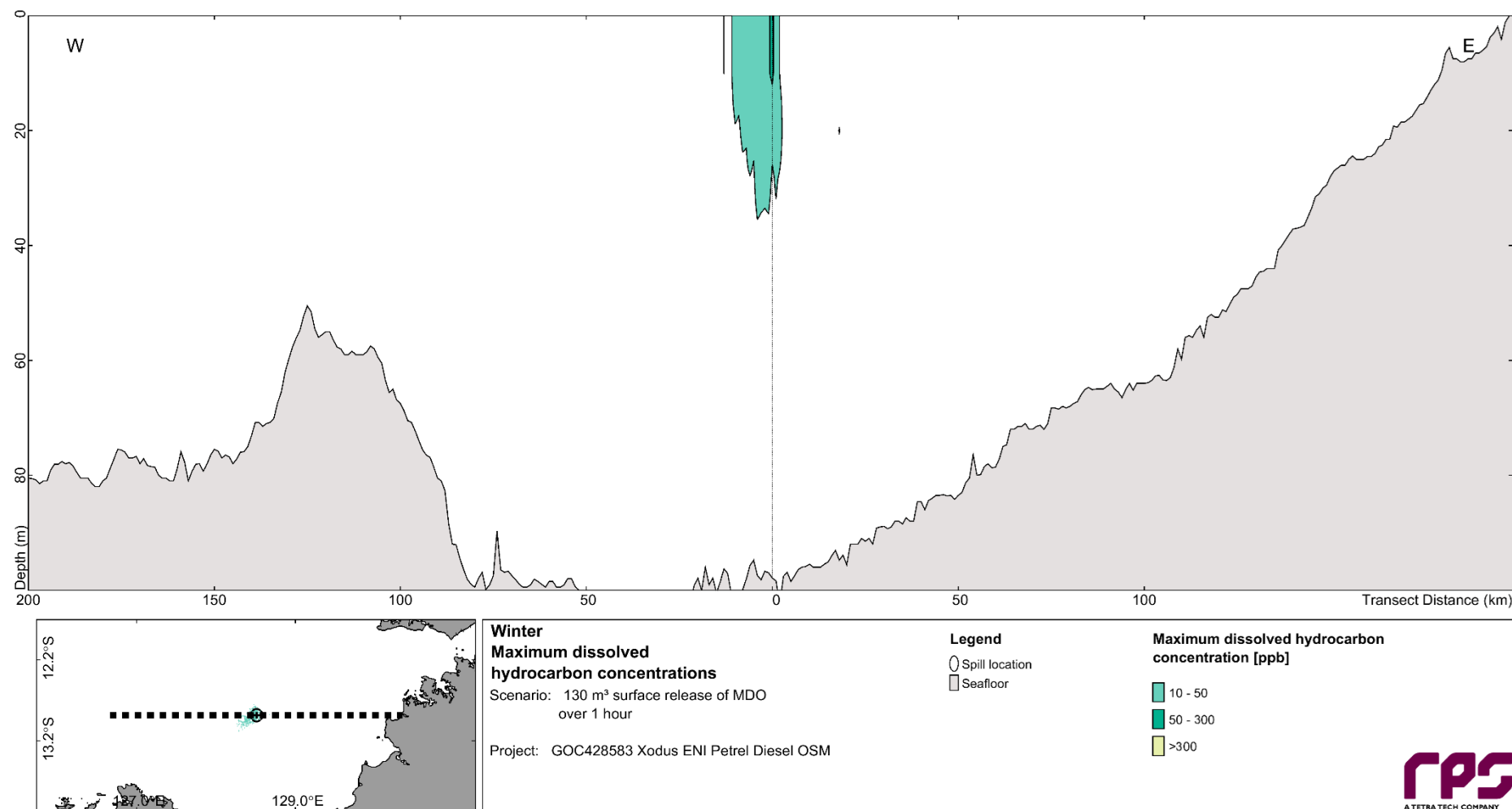


Figure 15-40 East-west cross-section transect of dissolved hydrocarbon concentrations following a vessel collision at the Petrel riser platform. The results were calculated from 100 spill simulations and represent winter conditions.

15.1.4.2 Entrained Hydrocarbons

Table 15-9 summarises the maximum distances from the release location to entrained hydrocarbon thresholds for each season. Concentrations exceeding 10 ppb may potentially extend up to 225 km from the release location. As the threshold increases to 100 ppb and 1,000 ppb, the maximum distance decreases to 70 km and 18 km, respectively.

Table 15-10 to Table 15-12 summarise the receptors exposed to entrained hydrocarbons (either at receptor depth, or above receptors in the overlying water column). Since the release location falls within the Bonaparte Gulf IMCRA and North (Marine) MR, the results commentary for these receptors is omitted; however, the results are included in the table.

The North-west (Marine) MR receptor recorded the highest probability of exposure at, or above, 10 ppb with 67% during winter conditions. During both transitional and winter conditions, the North (Marine) MR receptor recorded the earliest time before exposure at 3 hours after the spill commencement during transitional and winter conditions. Additionally, the same receptor recorded the highest concentration at 3,017 ppb during transitional conditions.

Figure 15-41 to Figure 15-43 illustrate the zones of exposure to entrained hydrocarbons for each season, whilst Figure 15-44 to Figure 15-61 display the probability of exposure and minimum exposure times for each threshold.

Cross-sectional transects (north-south and east-west) of the maximum entrained hydrocarbons in the vicinity of the release site for summer, transitional and winter conditions are presented in Figure 15-62 to Figure 15-67.

Table 15-9 Maximum distance from the release location to entrained hydrocarbon exposure threshold following a vessel collision at the Petrel riser platform. Results were calculated from 100 spill simulations per season.

Season	Distance and direction travelled	Entrained hydrocarbon exposure threshold		
		≥10 ppb	≥100 ppb	≥1,000 ppb
Summer	Maximum distance travelled (km) by a spill simulation	173	65	16
	Direction of maximum travel	Northeast	East	South
Transitional	Maximum distance travelled (km) by a spill simulation	225	70	18
	Direction of maximum travel	West	West	West
Winter	Maximum distance travelled (km) by a spill simulation	197	44	11
	Direction of maximum travel	West	West	North

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Table 15-10 Receptors predicted to be exposed by entrained hydrocarbons following a vessel collision at the Petrel riser platform. The results were calculated from 100 spill simulations and represent summer conditions.

Category	Name	Probability (%) of entrained hydrocarbon exposure at			Minimum time before entrained exposure at			Maximum entrained hydrocarbon concentrations (ppb)	
		≥ 10 ppb	≥ 100 ppb	≥ 1,000 ppb	≥ 10 ppb	≥ 100 ppb	≥ 1,000 ppb	averaged over all simulations	for the worst simulation
AMP	Oceanic Shoals	2	NC	NC	4 days, 15 hours	NC	NC	<1	61
IMCRA-MESO	Bonaparte Gulf ¹	79	60	17	1 hour	1 hour	1 hour	543	6,490
	Oceanic Shoals	7	1	NC	1 days, 1 hours	1 days, 3 hours	NC	3	158
KEF	Carbonate bank and terrace system of the Sahul Shelf	1	NC	NC	6 days, 16 hours	NC	NC	<1	30
	Carbonate bank and terrace system of the Van Diemen Rise	1	NC	NC	12 days, 18 hours	NC	NC	<1	11
	Pinnacles of the Bonaparte Basin	3	NC	NC	2 days, 21 hours	NC	NC	<1	52
MR	North (Marine) ¹	79	60	17	1 hour	1 hour	1 hour	543	6,490
	North-west (Marine)	35	12	2	4 hours	4 hours	5 hours	66	2,140
RSB	Flat Top Bank	6	NC	NC	4 days, 22 hours	NC	NC	2	37
	Newby Shoal	1	NC	NC	9 days, 16 hours	NC	NC	<1	15
TUR	Brace Point to One Tree Point, including all offshore islands. 60km internesting buffer	3	NC	NC	8 days, 21 hours	NC	NC	<1	15

NC: No contact to receptor predicted for specified threshold.

¹Release location falls within the Bonaparte Gulf IMCRA and North (Marine) MR

Table 15-11 Receptors predicted to be exposed by entrained hydrocarbons following a vessel collision at the Petrel riser platform. The results were calculated from 100 spill simulations and represent transitional conditions.

Category	Name	Probability (%) of entrained hydrocarbon exposure at			Minimum time before entrained exposure at			Maximum entrained hydrocarbon concentrations (ppb)	
		≥ 10 ppb	≥ 100 ppb	≥ 1,000 ppb	≥ 10 ppb	≥ 100 ppb	≥ 1,000 ppb	averaged over all simulations	for the worst simulation
AMP	Oceanic Shoals	1	NC	NC	9 days, 22 hours	NC	NC	<1	11
IMCRA-MESO	Bonaparte Gulf ¹	57	35	10	1 hour	1 hour	1 hour	324	5,520
	Kimberley	2	NC	NC	12 days, 9 hours	NC	NC	<1	16
	Oceanic Shoals	4	NC	NC	2 days, 23 hours	NC	NC	<1	40
KEF	Carbonate bank and terrace system of the Sahul Shelf	17	NC	NC	4 days, 7 hours	NC	NC	4	65
	Pinnacles of the Bonaparte Basin	17	NC	NC	3 days, 7 hours	NC	NC	5	73
MR	North (Marine) ¹	57	35	10	1 hour	1 hour	1 hour	324	5,520
	North-west (Marine)	52	35	5	3 hours	3 hours	3 hours	189	3,017
RSB	Flat Top Bank	1	NC	NC	12 days, 6 hours	NC	NC	<1	11

NC: No contact to receptor predicted for specified threshold.

¹Release location falls within the Bonaparte Gulf IMCRA and North (Marine) MR

Table 15-12 Receptors predicted to be exposed by entrained hydrocarbons following a vessel collision at the Petrel riser platform. The results were calculated from 100 spill simulations and represent winter conditions.

Category	Name	Probability (%) of entrained hydrocarbon exposure at			Minimum time before entrained exposure at			Maximum entrained hydrocarbon concentrations (ppb)	
		≥ 10 ppb	≥ 100 ppb	≥ 1,000 ppb	≥ 10 ppb	≥ 100 ppb	≥ 1,000 ppb	averaged over all simulations	for the worst simulation
AMP	Oceanic Shoals	1	NC	NC	7 days, 16 hours	NC	NC	<1	21
IMCRA-MESO	Bonaparte Gulf ¹	71	60	26	1 hours	1 hours	1 hours	766	7,709
	Kimberley	1	NC	NC	17 days, 8 hours	NC	NC	<1	14
	Oceanic Shoals	4	1	NC	2 days, 7 hours	3 days, 8 hours	NC	2	104
KEF	Carbonate bank and terrace system of the Sahul Shelf	15	NC	NC	7 days, 2 hours	NC	NC	4	36
	Pinnacles of the Bonaparte Basin	14	NC	NC	5 days, 9 hours	NC	NC	4	38
MR	North (Marine) ¹	71	60	26	1 hours	1 hours	1 hours	766	7,709
	North-west (Marine)	67	47	9	3 hours	3 hours	4 hours	317	2,935

NC: No contact to receptor predicted for specified threshold.

¹Release location falls within the Bonaparte Gulf IMCRA and North (Marine) MR

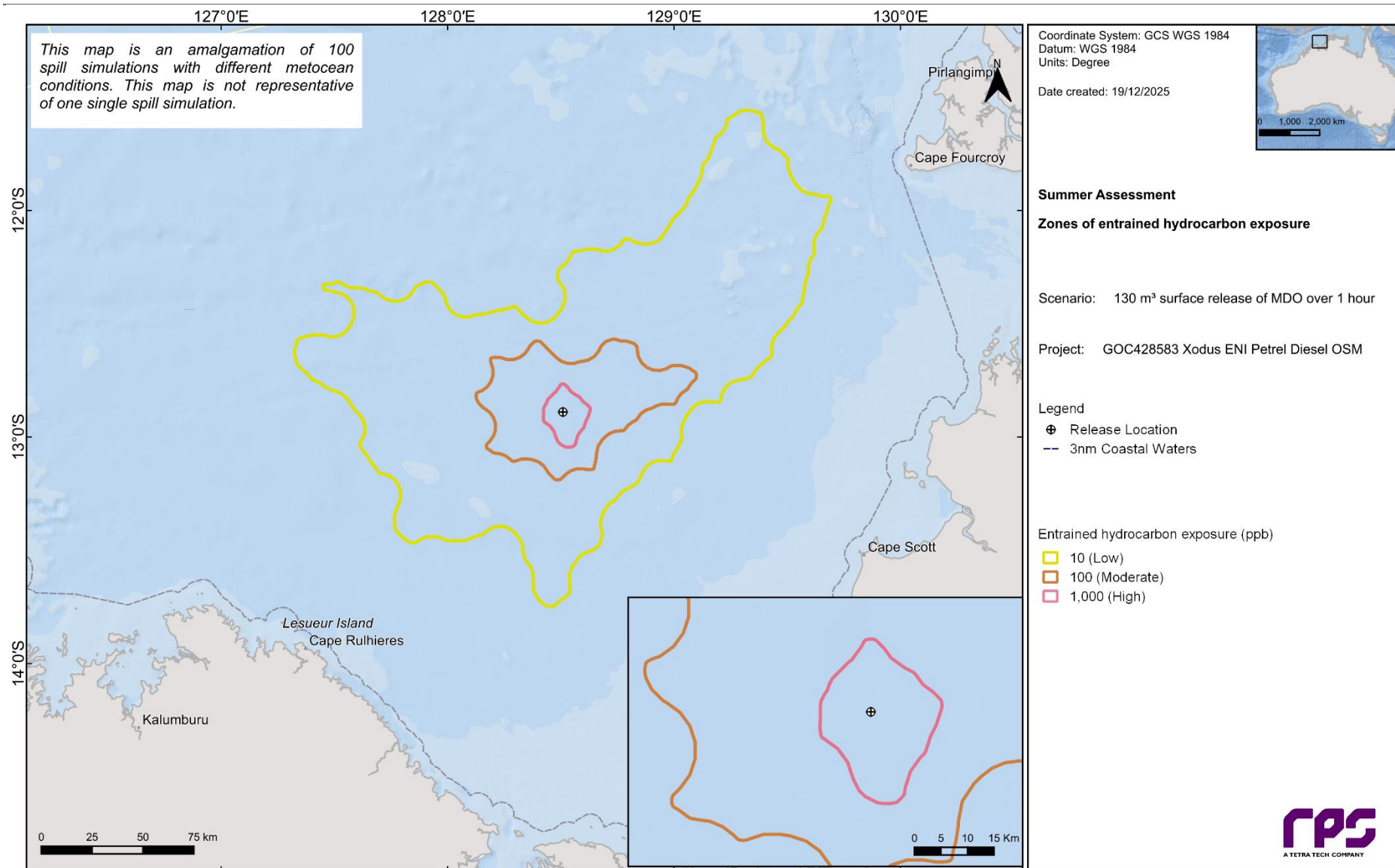


Figure 15-41 Zone of entrained hydrocarbon exposure following a vessel collision at the Petrel riser platform. The results were calculated from 100 spill simulations and represent summer conditions.

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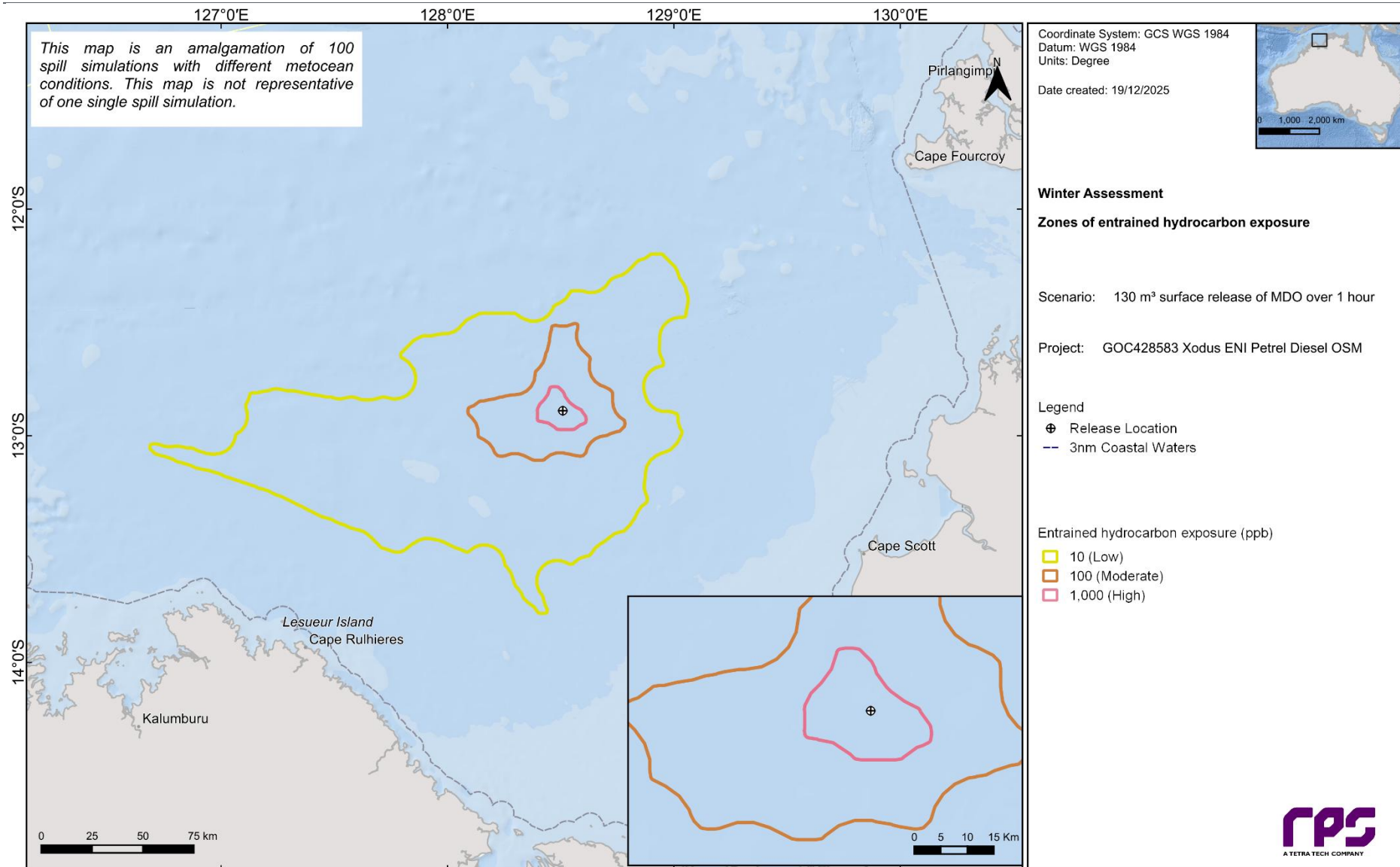


Figure 15-43 Zone of entrained hydrocarbon exposure following a vessel collision at the Petrel riser platform. The results were calculated from 100 spill simulations and represent winter conditions.

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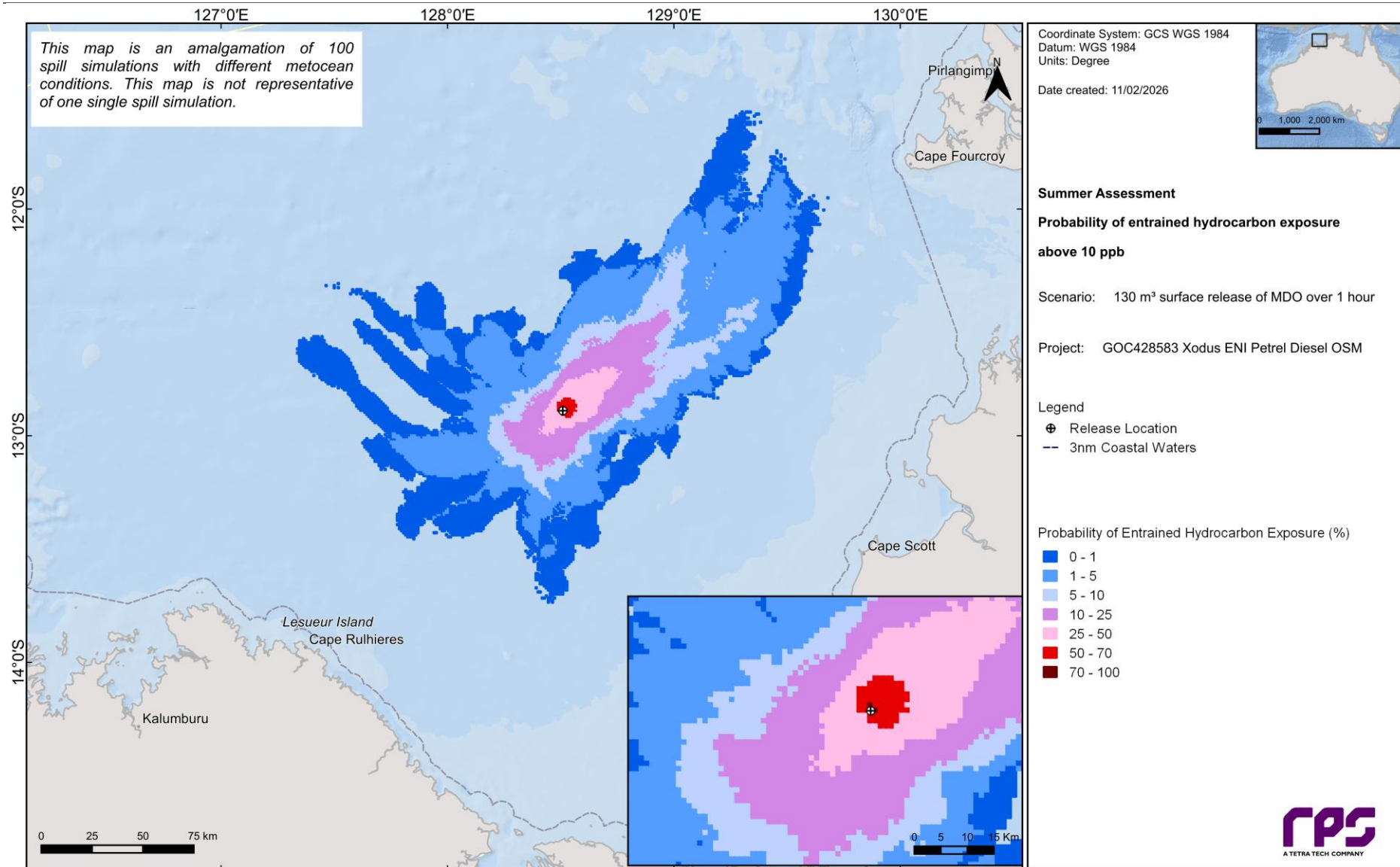


Figure 15-44 Probability of entrained hydrocarbon exposure at, or above, 10 ppb following a vessel collision at the Petrel riser platform. The results were calculated from 100 spill simulations and represent summer conditions.

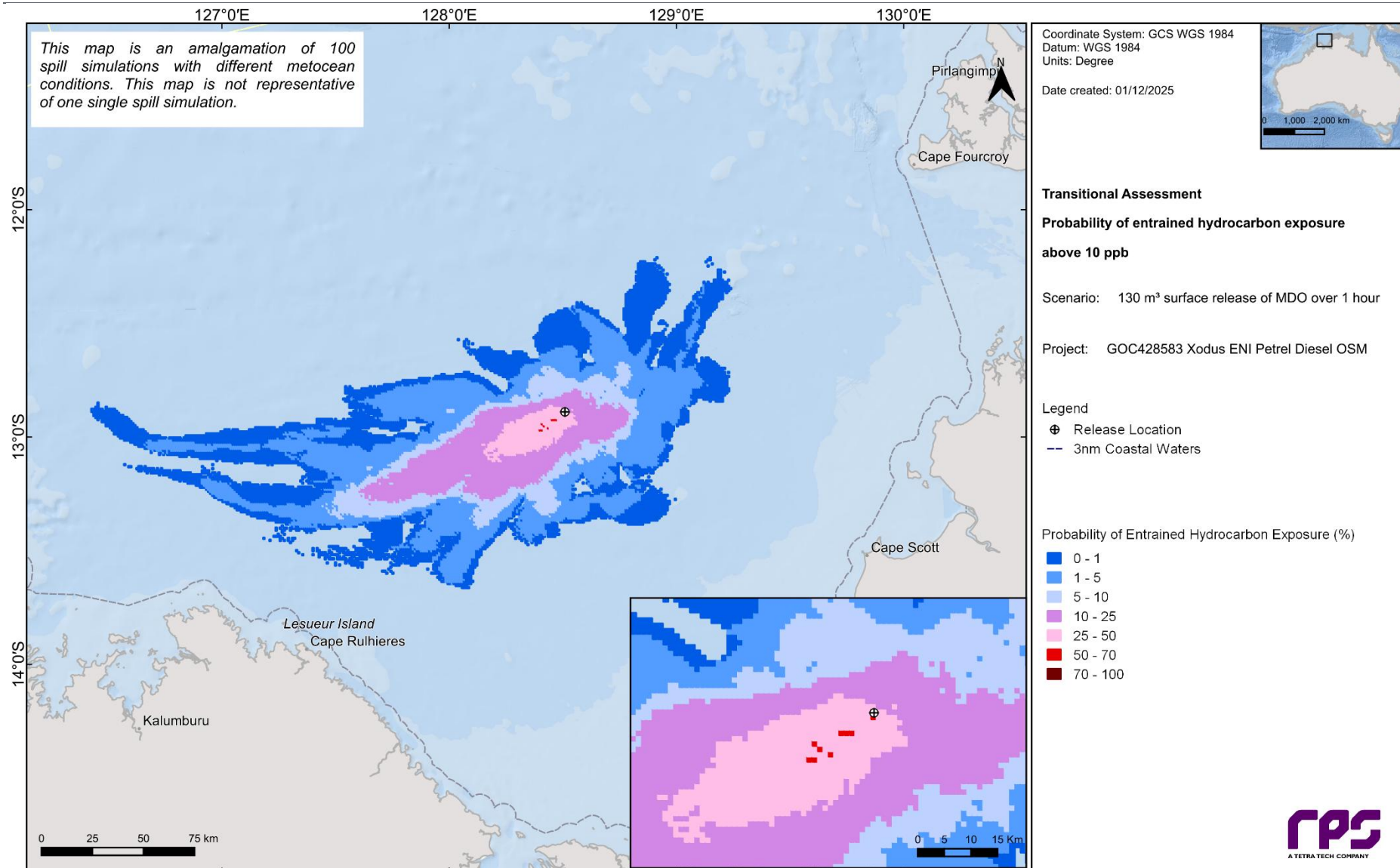


Figure 15-45 Probability of entrained hydrocarbon exposure at, or above, 10 ppb following a vessel collision at the Petrel riser platform. The results were calculated from 100 spill simulations and represent transitional conditions.

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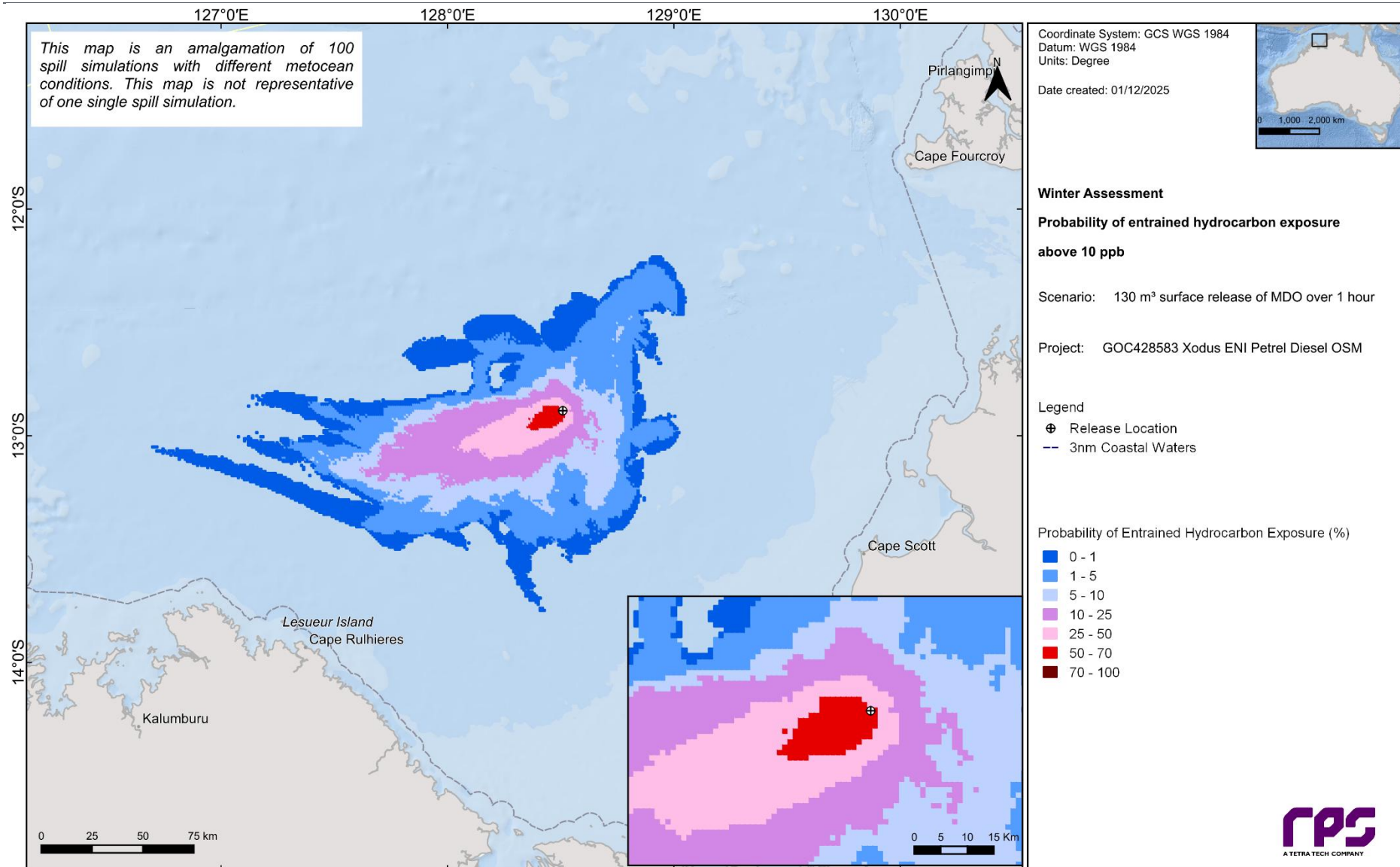


Figure 15-46 Probability of entrained hydrocarbon exposure at, or above, 10 ppb following a vessel collision at the Petrel riser platform. The results were calculated from 100 spill simulations and represent winter conditions.

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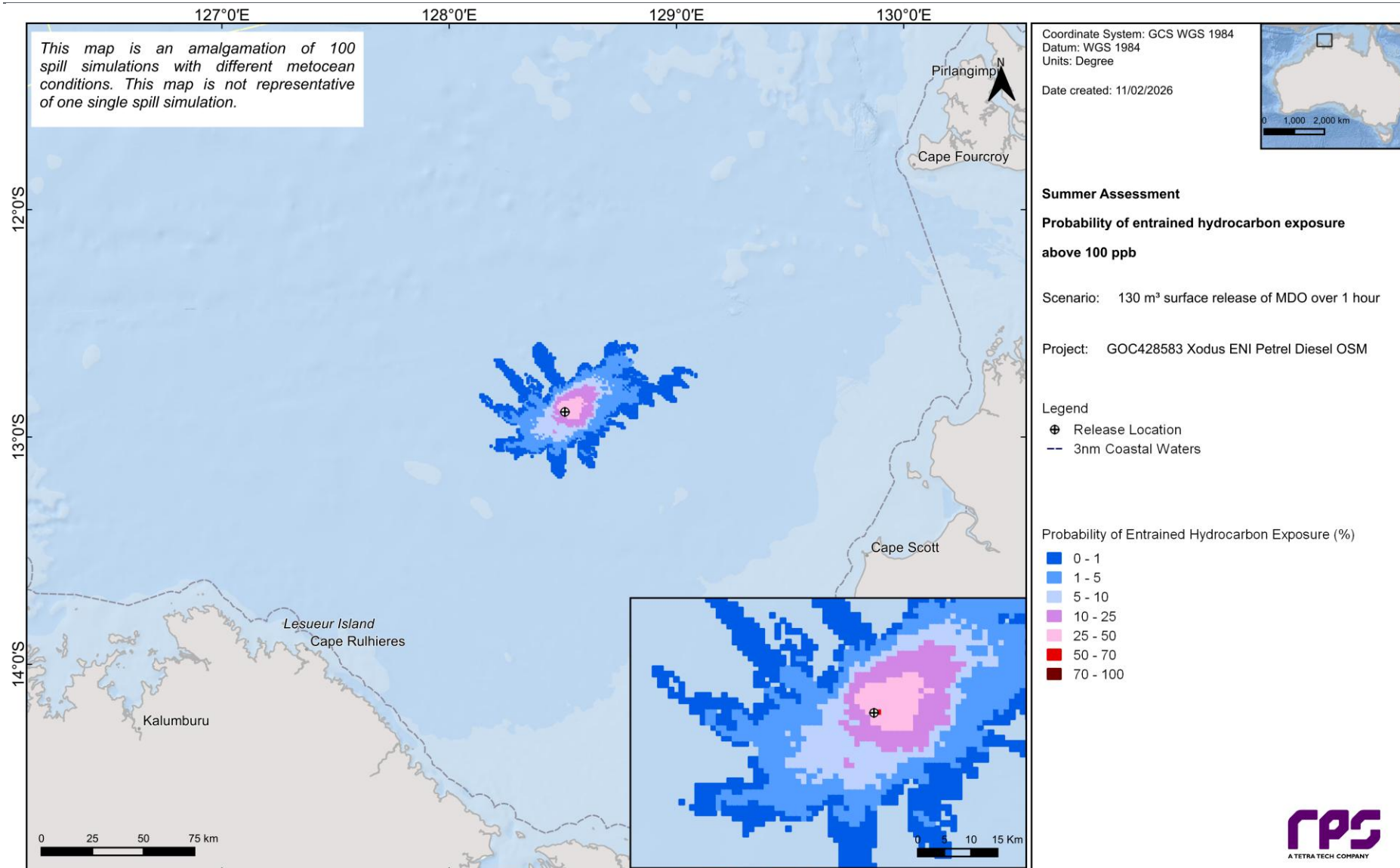


Figure 15-47 Probability of entrained hydrocarbon exposure at, or above, 100 ppb following a vessel collision at the Petrel riser platform. The results were calculated from 100 spill simulations and represent summer conditions.

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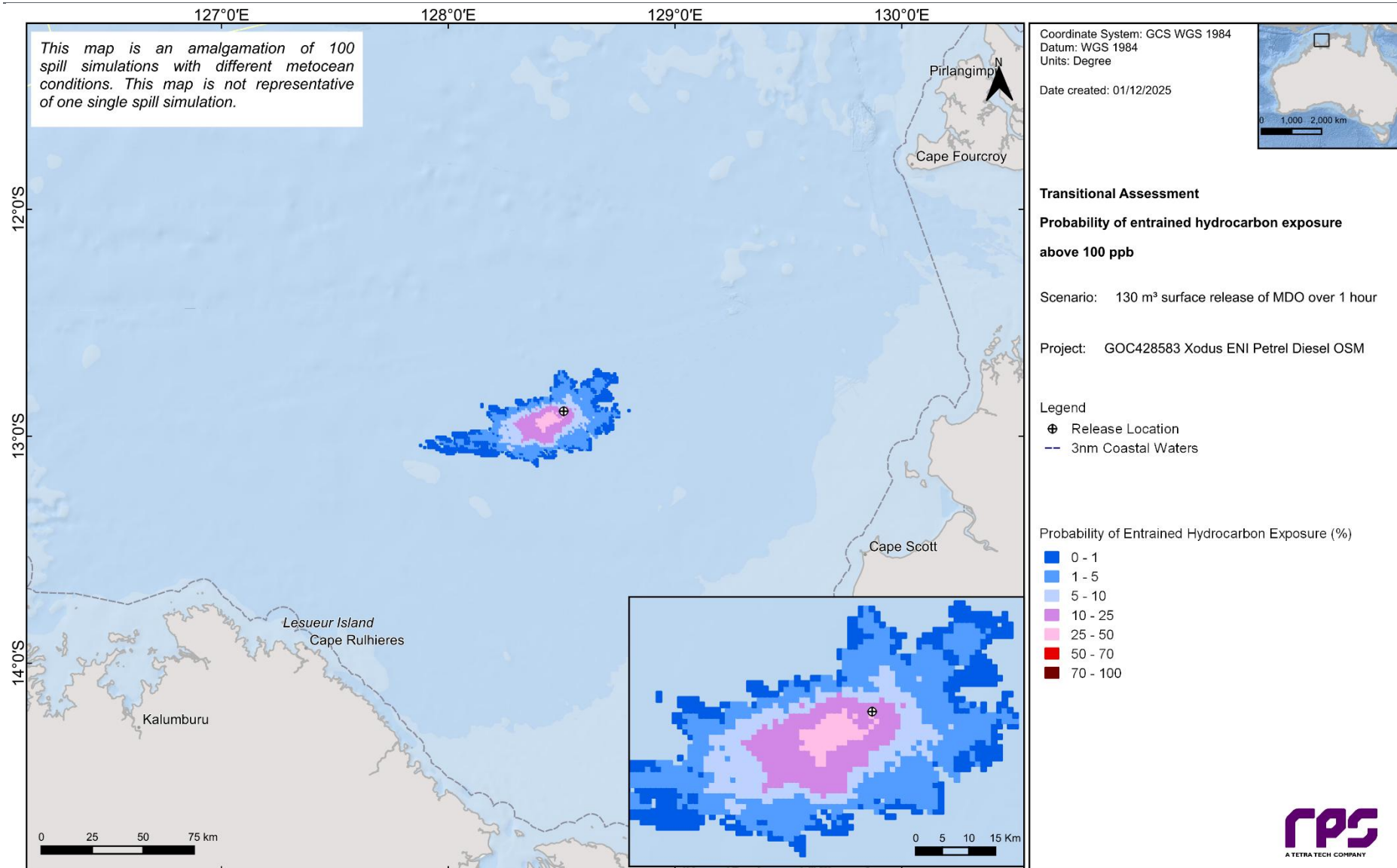


Figure 15-48 Probability of entrained hydrocarbon exposure at, or above, 100 ppb following a vessel collision at the Petrel riser platform. The results were calculated from 100 spill simulations and represent transitional conditions.

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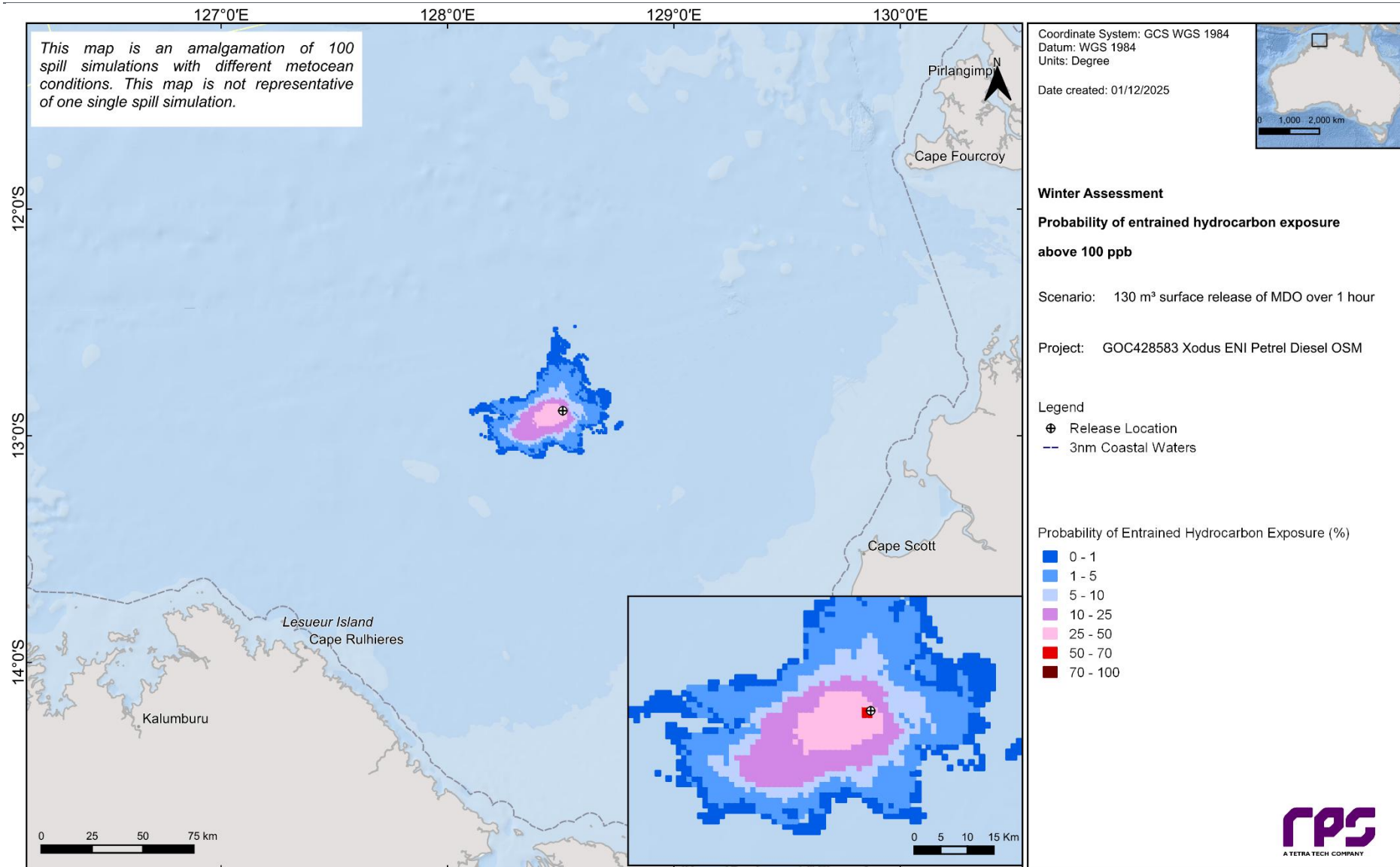


Figure 15-49 Probability of entrained hydrocarbon exposure at, or above, 100 ppb following a vessel collision at the Petrel riser platform. The results were calculated from 100 spill simulations and represent winter conditions.

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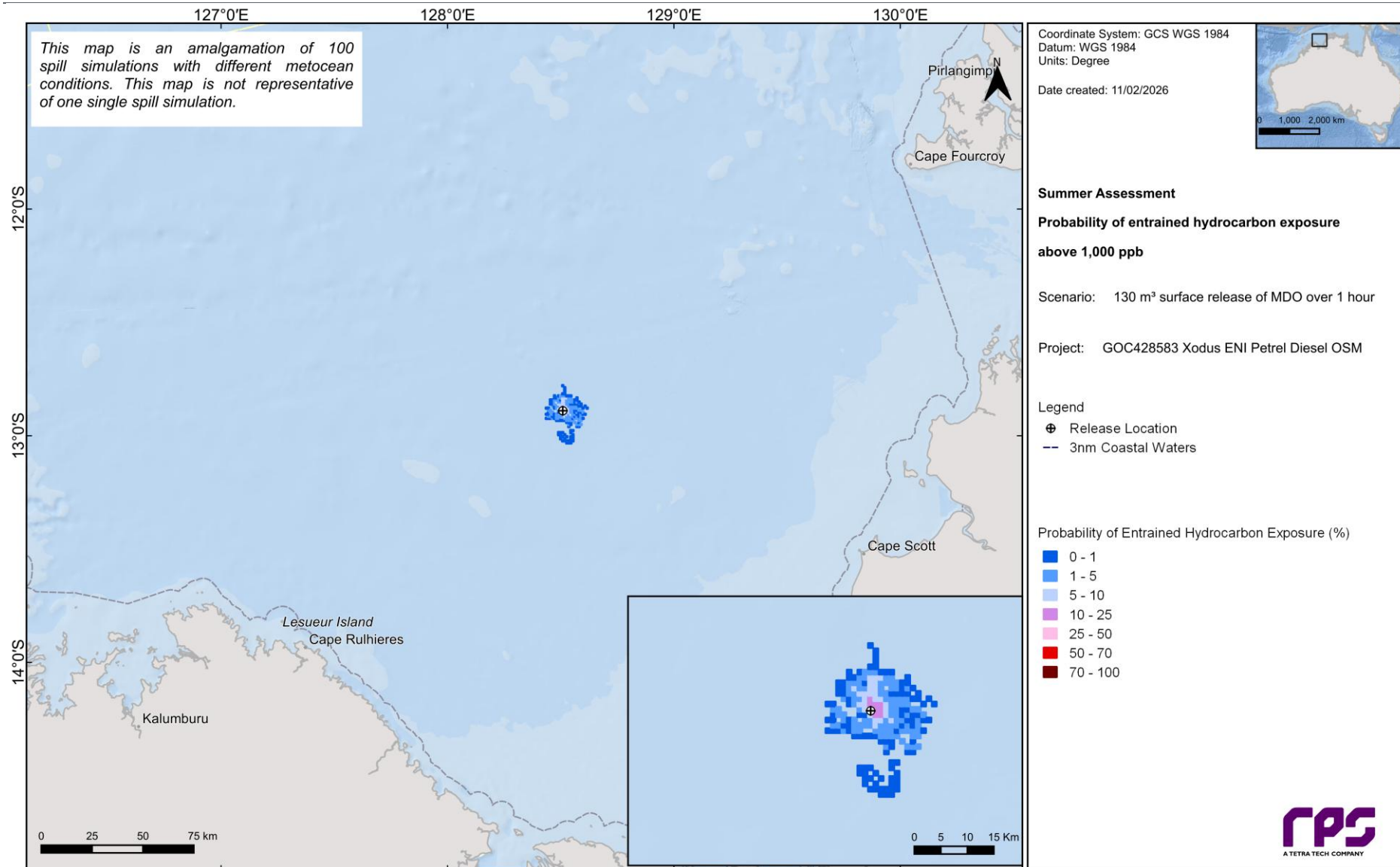


Figure 15-50 Probability of entrained hydrocarbon exposure at, or above, 1,000 ppb following a vessel collision at the Petrel riser platform. The results were calculated from 100 spill simulations and represent summer conditions.

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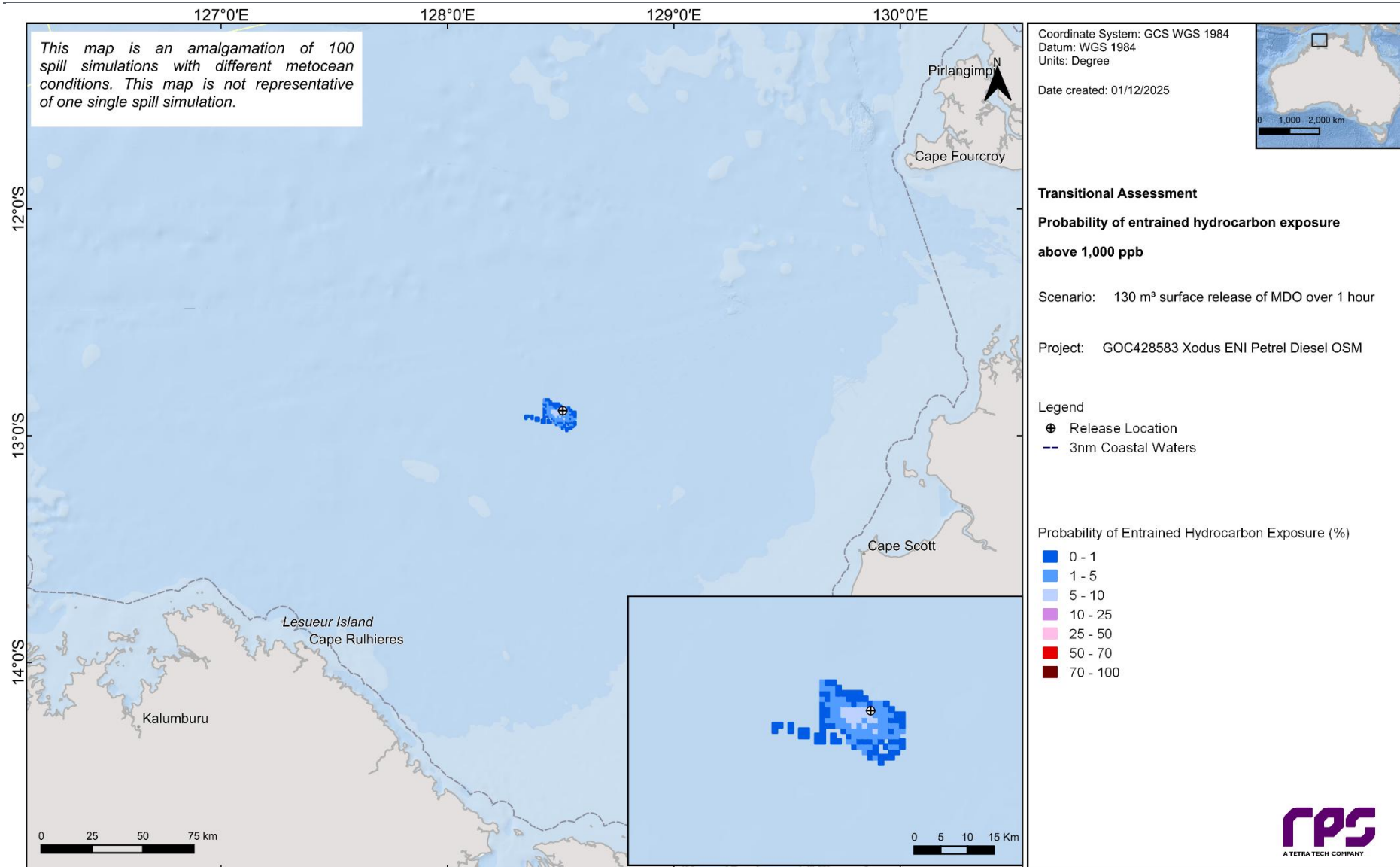


Figure 15-51 Probability of entrained hydrocarbon exposure at, or above, 1,000 ppb following a vessel collision at the Petrel riser platform. The results were calculated from 100 spill simulations and represent transitional conditions.

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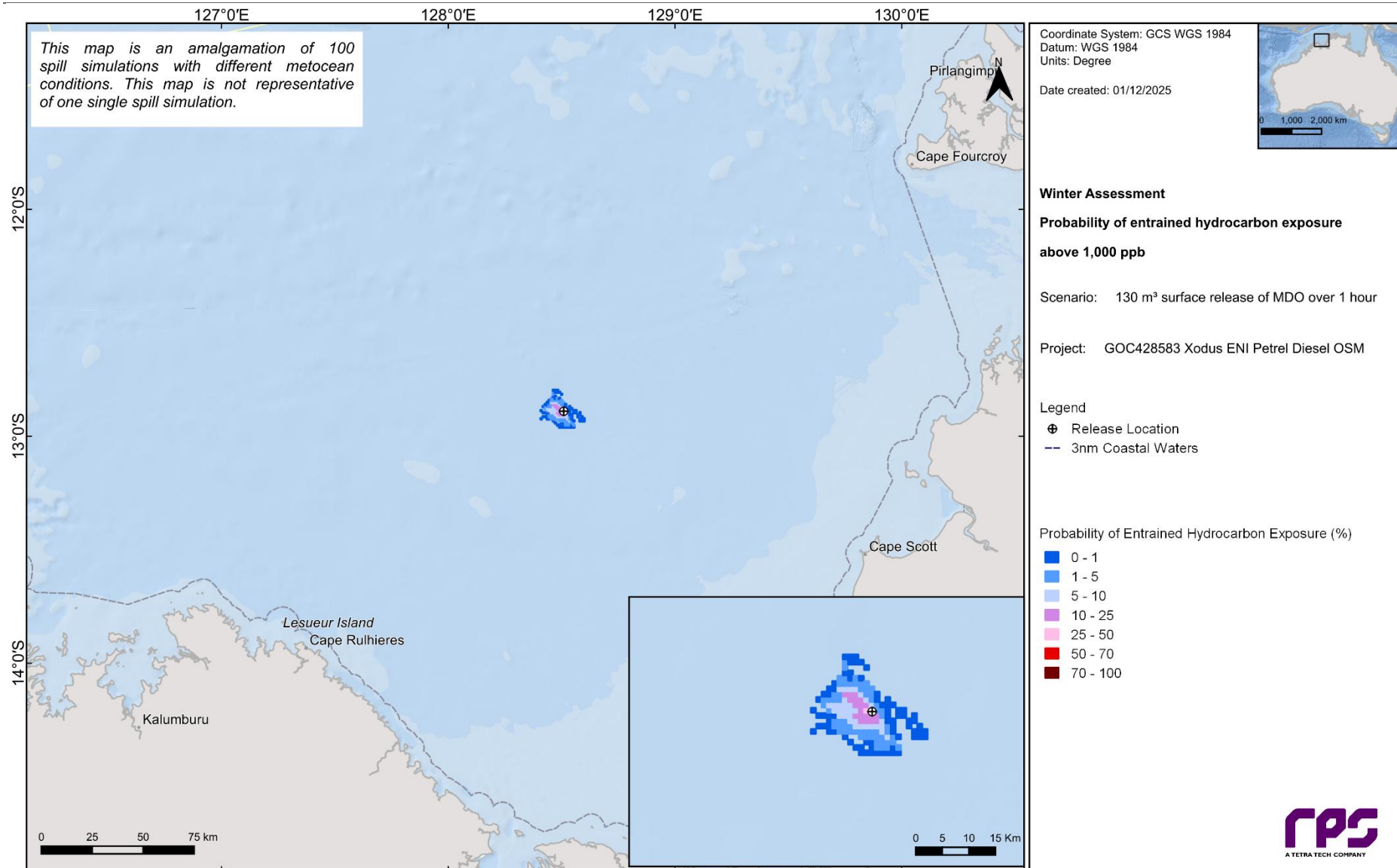


Figure 15-52 Probability of entrained hydrocarbon exposure at, or above, 1,000 ppb following a vessel collision at the Petrel riser platform. The results were calculated from 100 spill simulations and represent winter conditions.

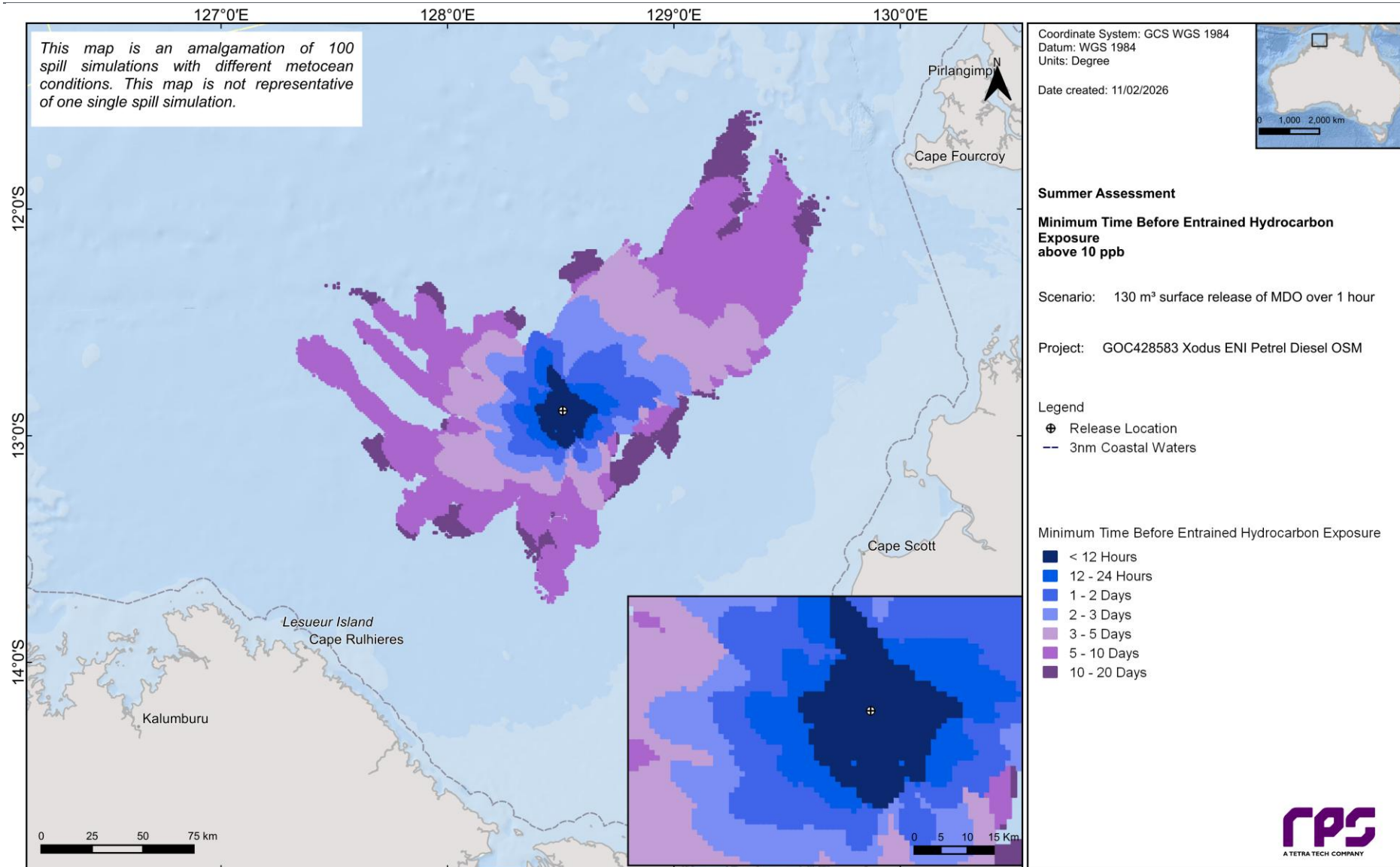


Figure 15-53 Minimum times before entrained hydrocarbon exposure at, or above, 10 ppb following a vessel collision at the Petrel riser platform. The results were calculated from 100 spill simulations and represent summer conditions.

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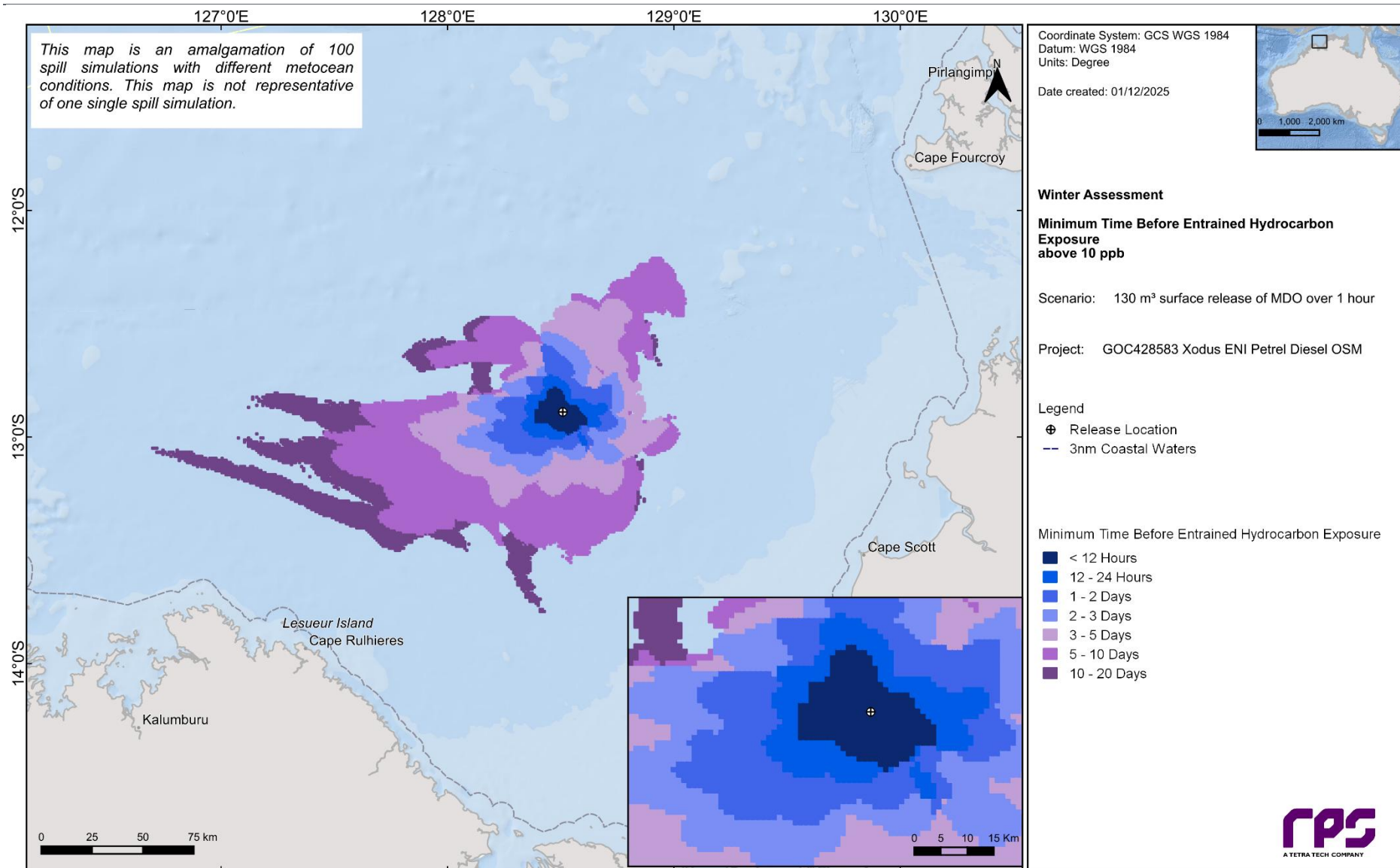


Figure 15-55 Minimum times before entrained hydrocarbon exposure at, or above, 10 ppb following a vessel collision at the Petrel riser platform. The results were calculated from 100 spill simulations and represent winter conditions.

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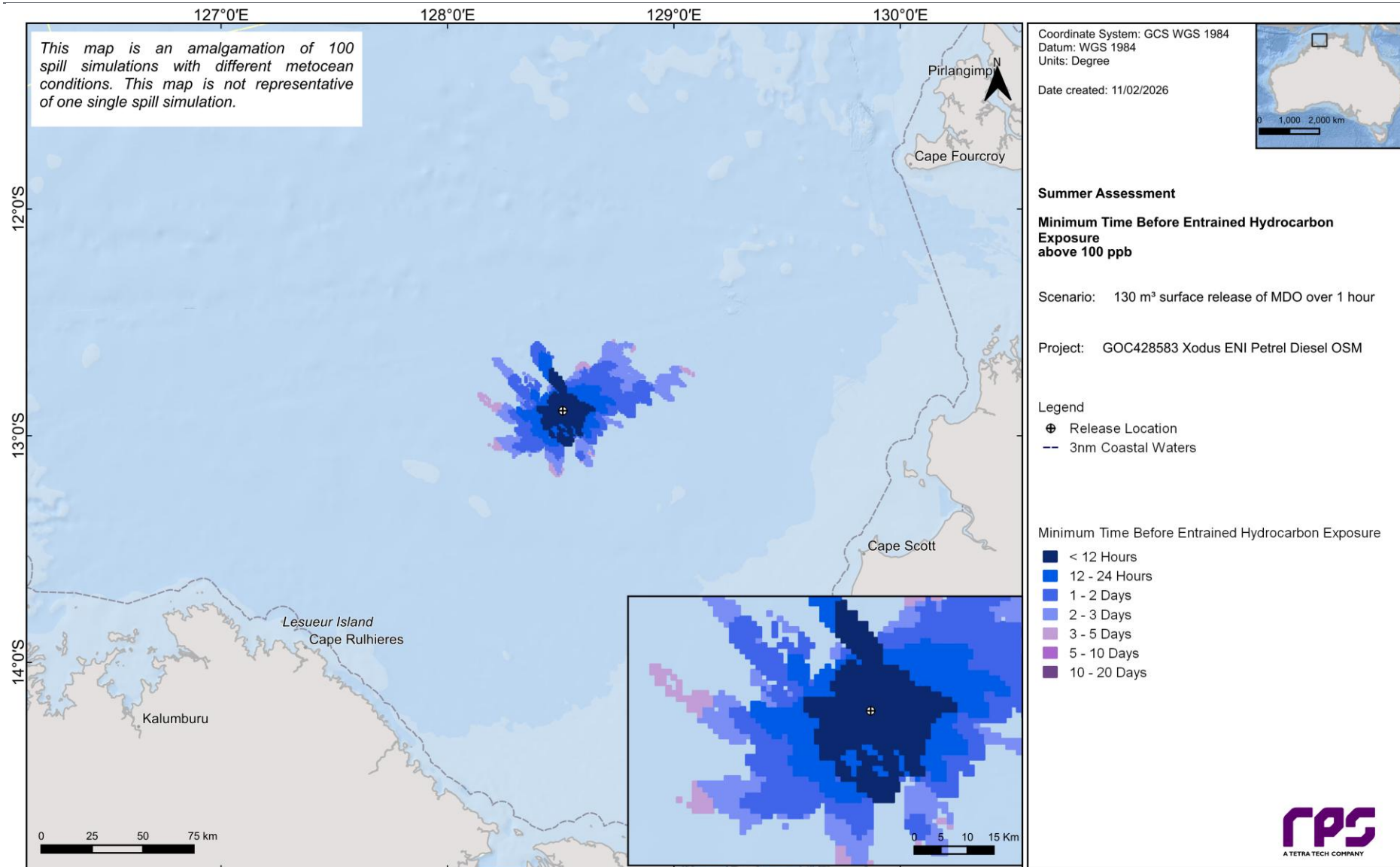


Figure 15-56 Minimum times before entrained hydrocarbon exposure at, or above, 100 ppb following a vessel collision at the Petrel riser platform. The results were calculated from 100 spill simulations and represent summer conditions.

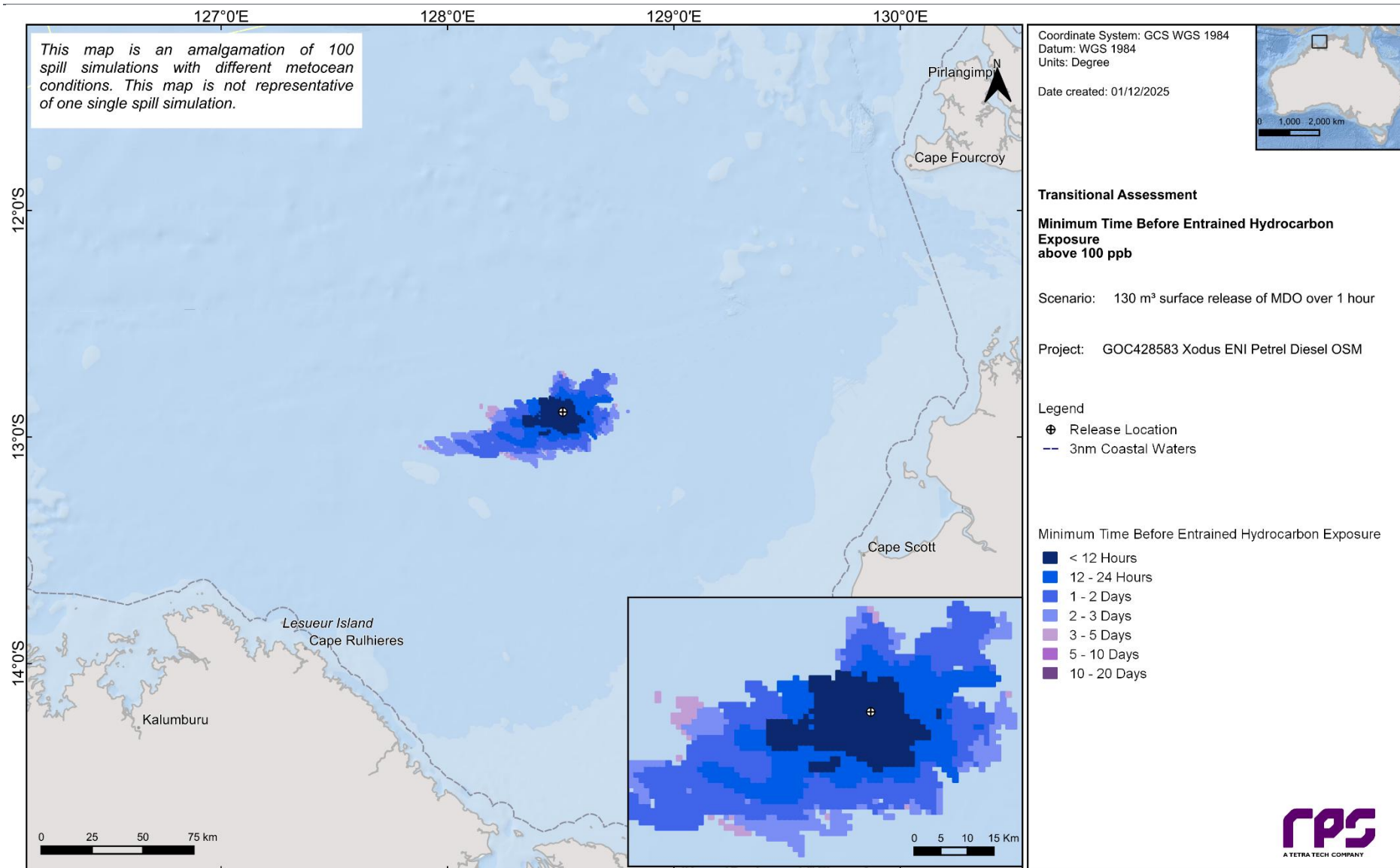


Figure 15-57 Minimum times before entrained hydrocarbon exposure at, or above, 100 ppb following a vessel collision at the Petrel riser platform. The results were calculated from 100 spill simulations and represent transitional conditions.

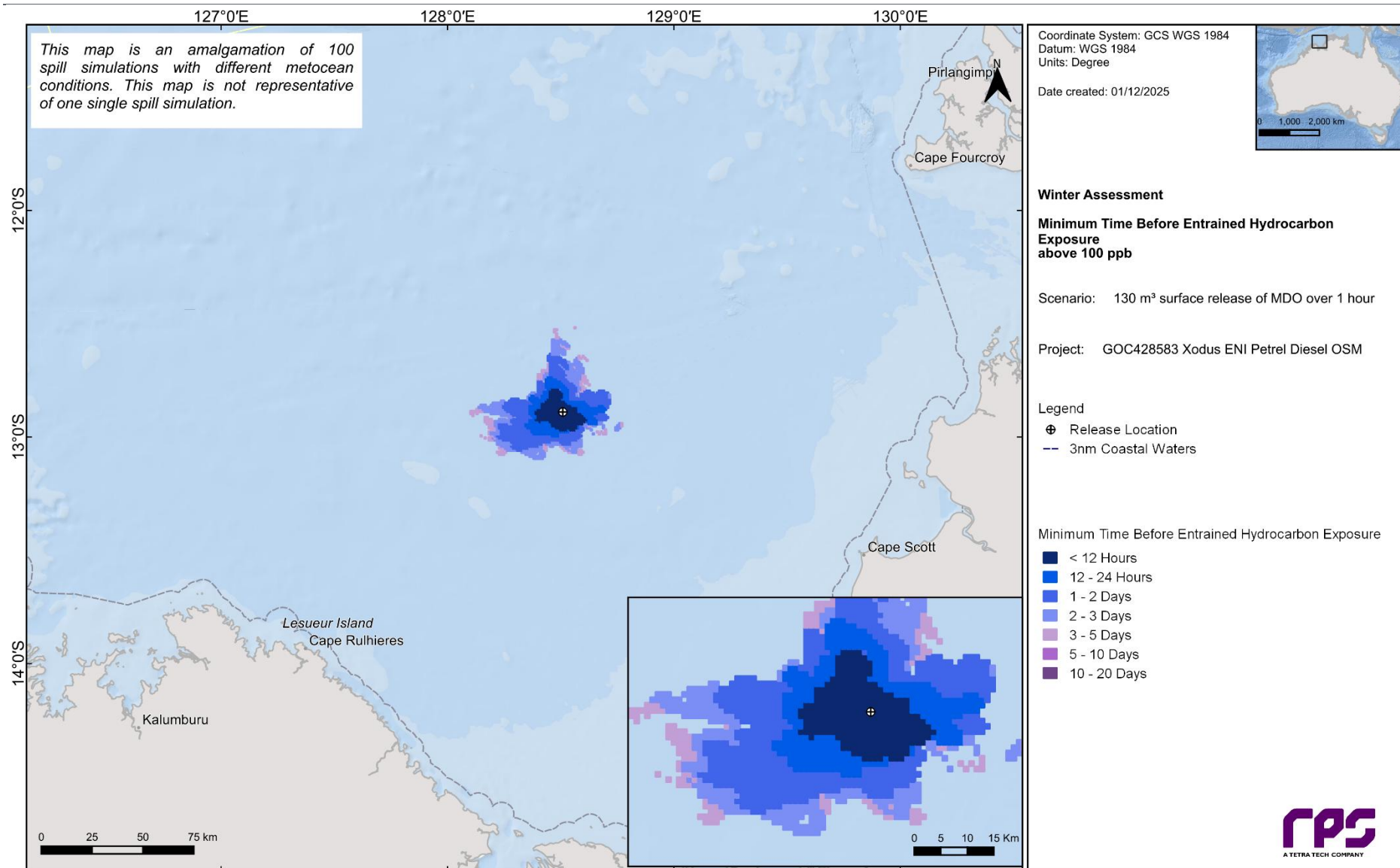


Figure 15-58 Minimum times before entrained hydrocarbon exposure at, or above, 100 ppb following a vessel collision at the Petrel riser platform. The results were calculated from 100 spill simulations and represent winter conditions.

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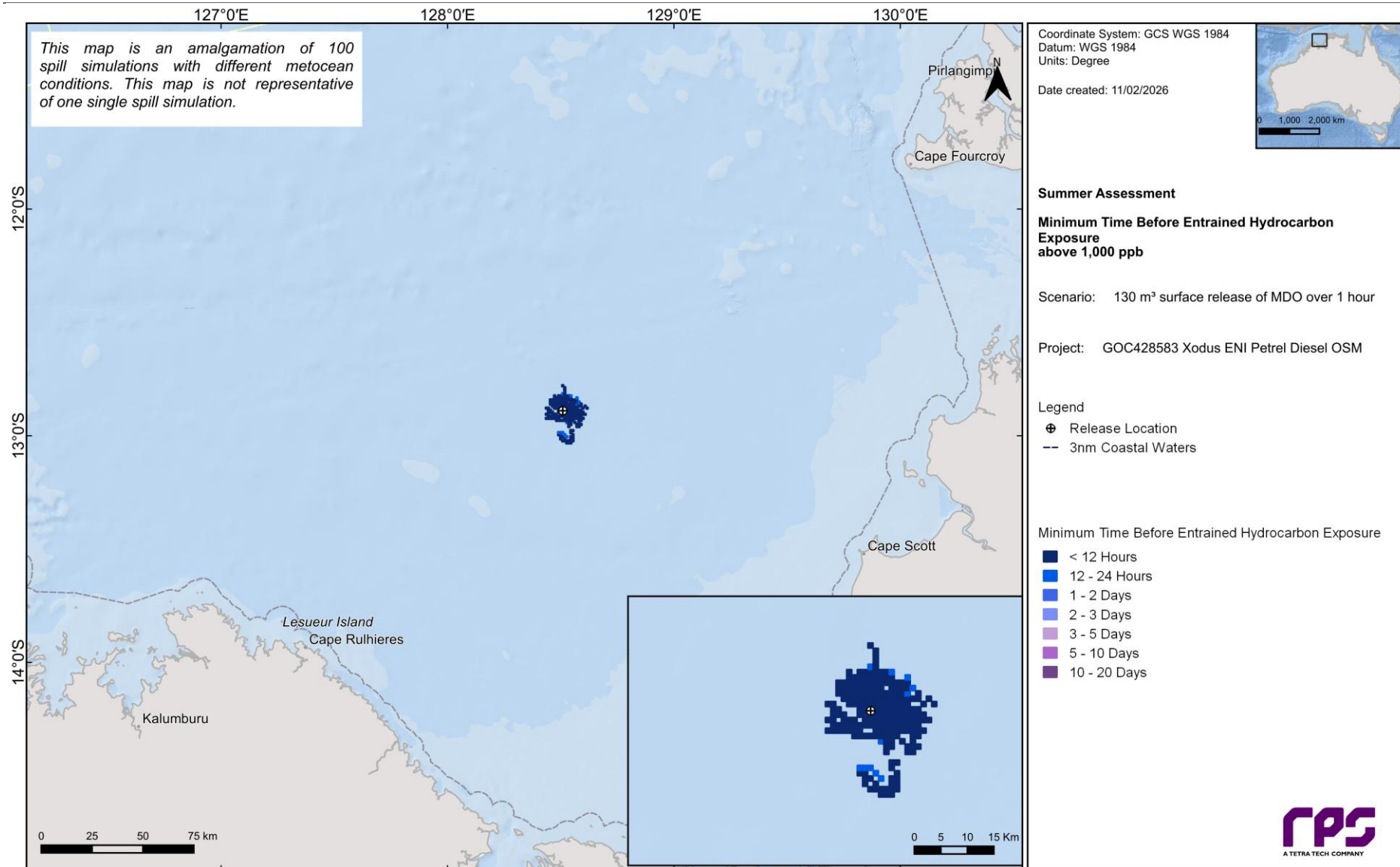


Figure 15-59 Minimum times before entrained hydrocarbon exposure at, or above, 1,000 ppb following a vessel collision at the Petrel riser platform. The results were calculated from 100 spill simulations and represent summer conditions.

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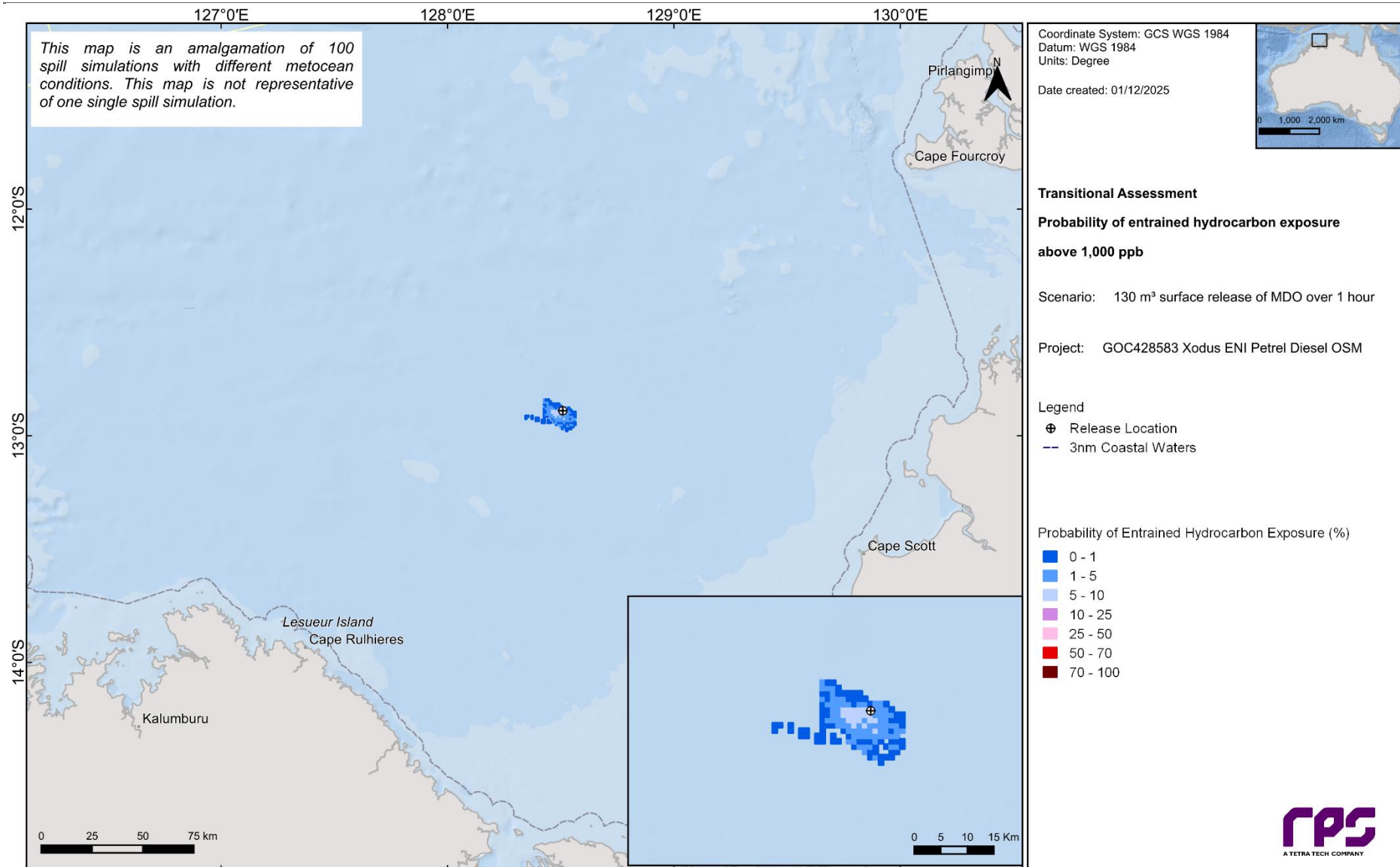


Figure 15-60 Minimum times before entrained hydrocarbon exposure at, or above, 1,000 ppb following a vessel collision at the Petrel riser platform. The results were calculated from 100 spill simulations and represent transitional conditions.

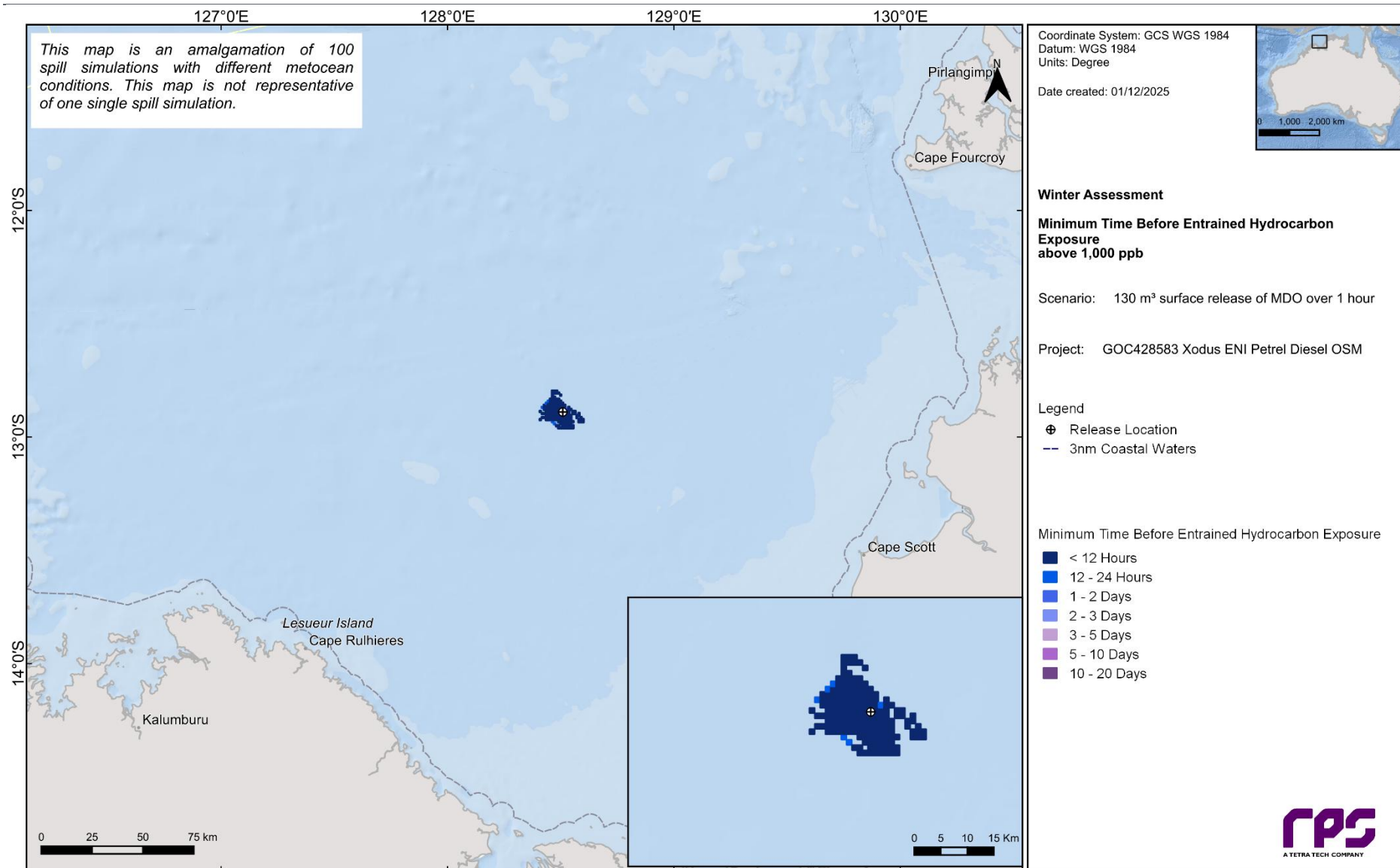


Figure 15-61 Minimum times before entrained hydrocarbon exposure at, or above, 1,000 ppb following a vessel collision at the Petrel riser platform. The results were calculated from 100 spill simulations and represent winter conditions.

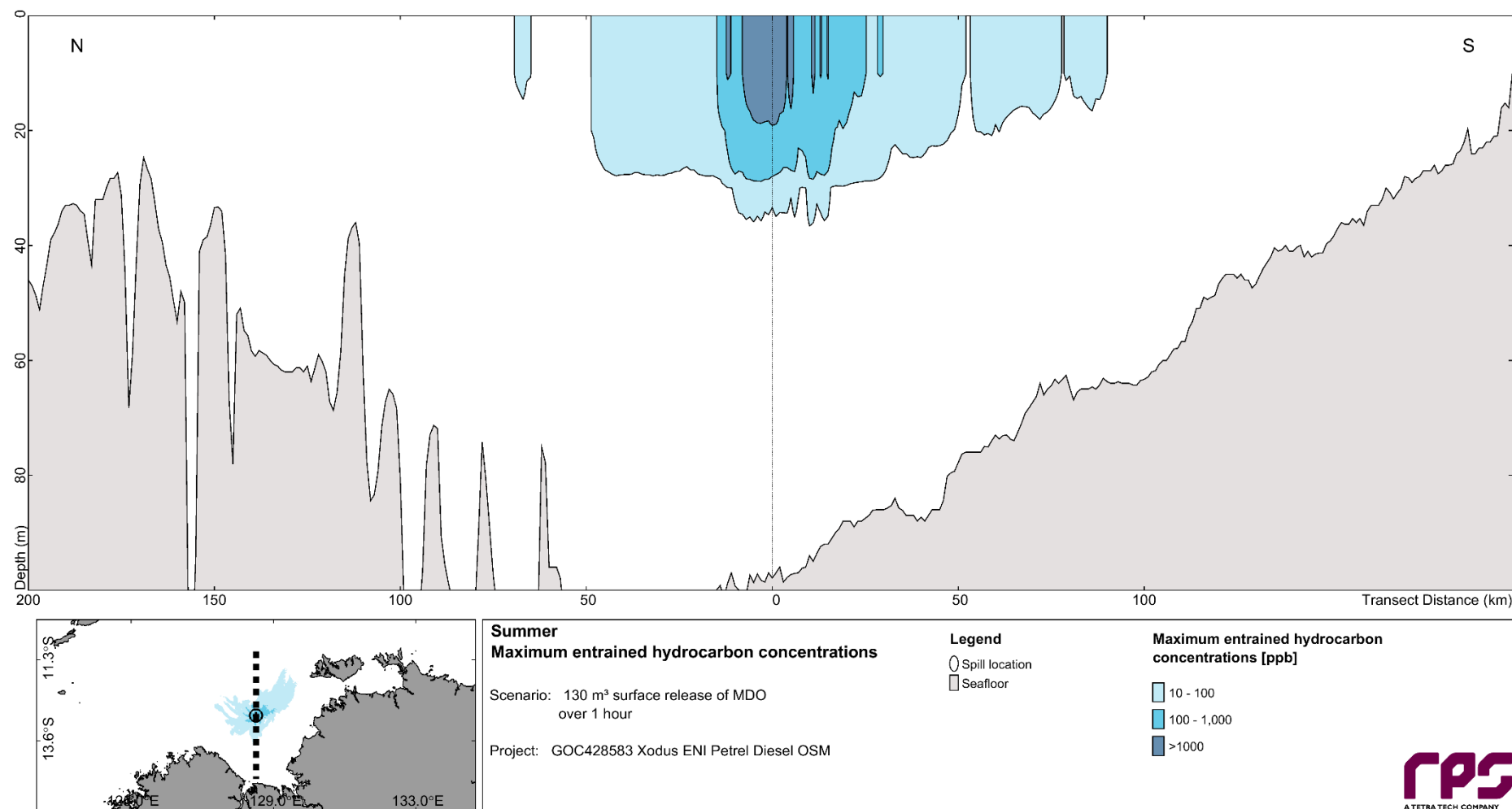


Figure 15-62 North-south cross-section transect of entrained hydrocarbon concentrations following a vessel collision at the Petrel riser platform. The results were calculated from 100 spill simulations and represent summer conditions.

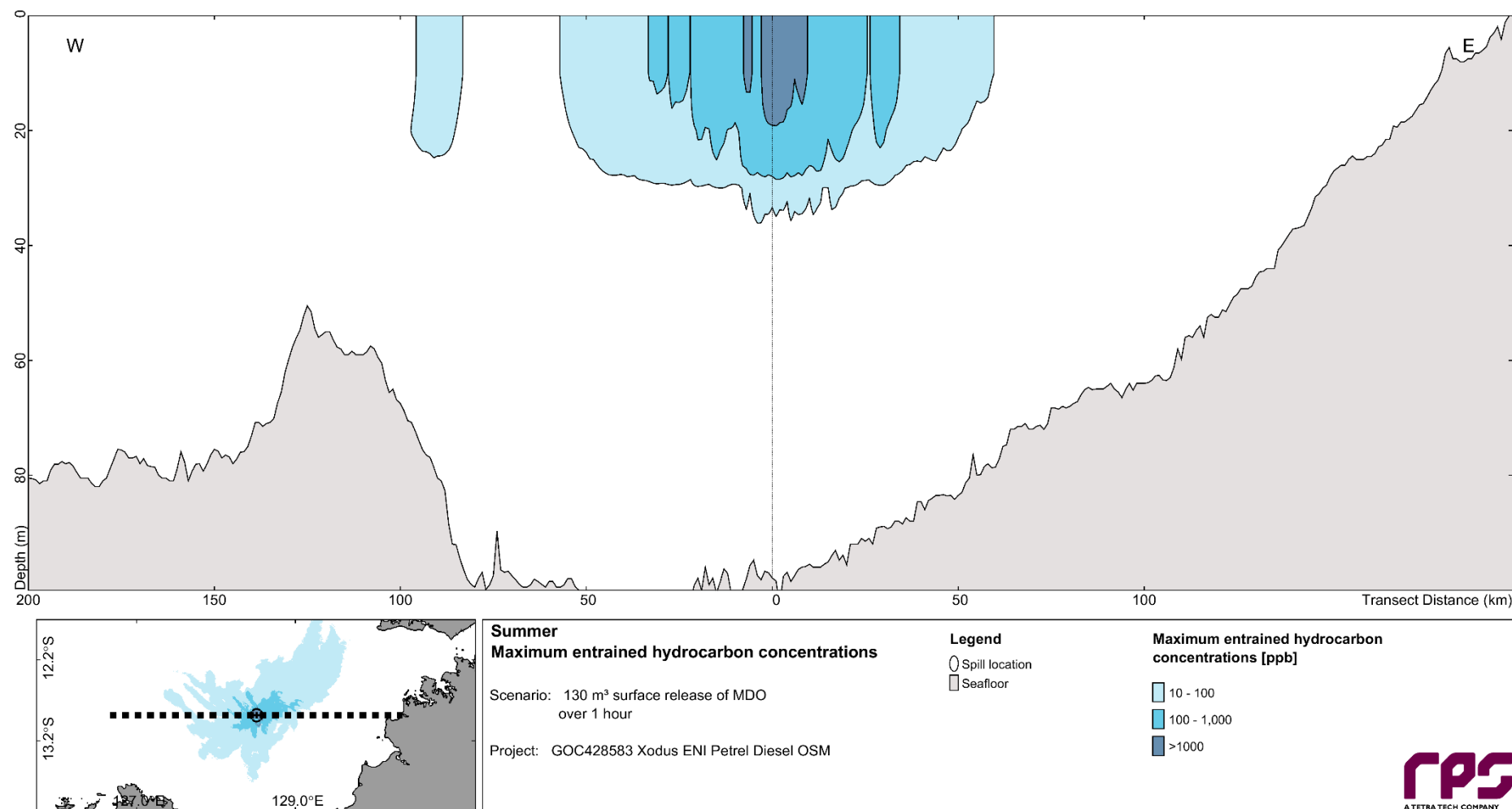


Figure 15-63 East-west cross-section transect of entrained hydrocarbon concentrations following a vessel collision at the Petrel riser platform. The results were calculated from 100 spill simulations and represent summer conditions.

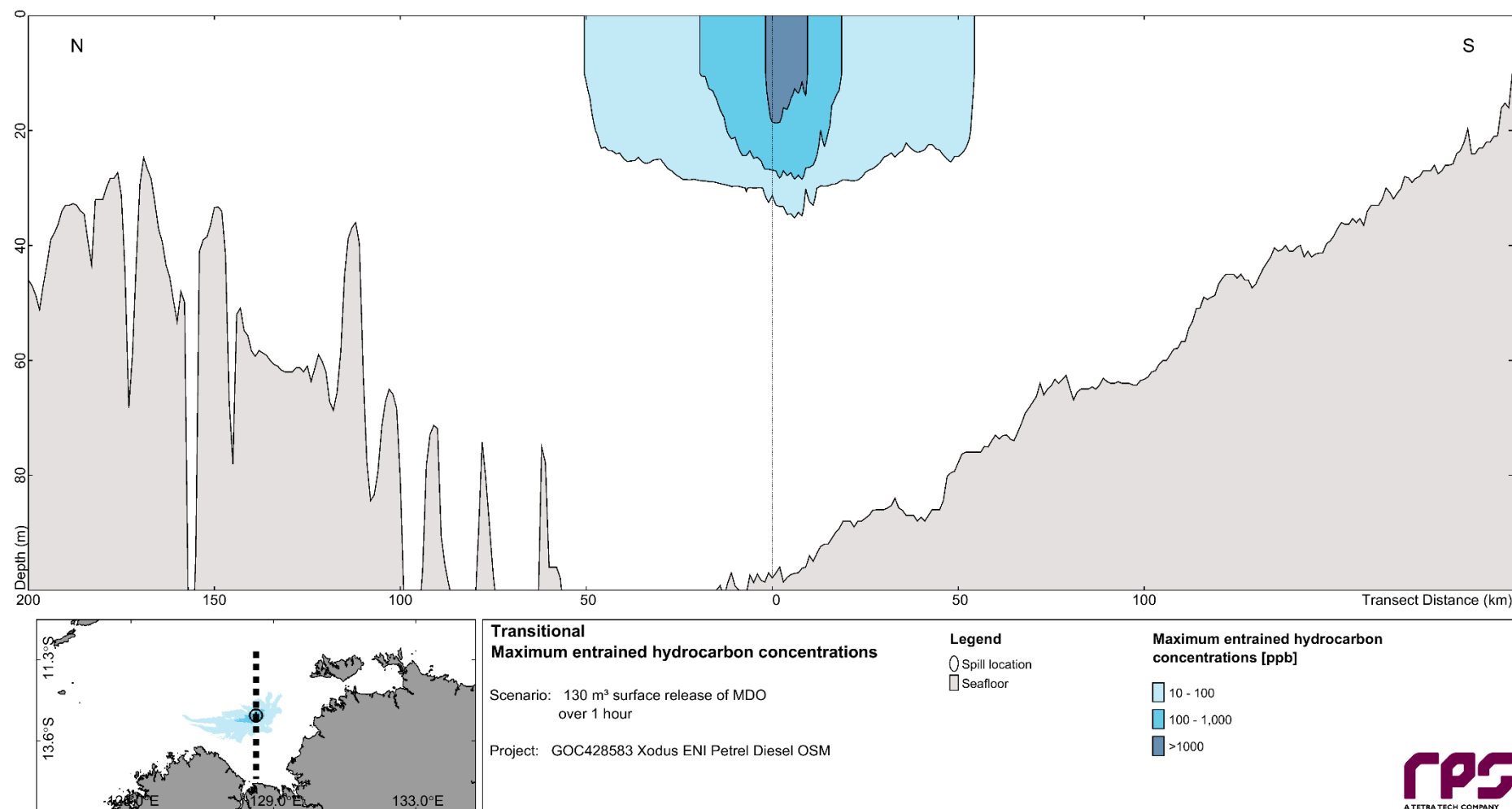


Figure 15-64 North-south cross-section transect of entrained hydrocarbon concentrations following a vessel collision at the Petrel riser platform. The results were calculated from 100 spill simulations and represent transitional conditions.

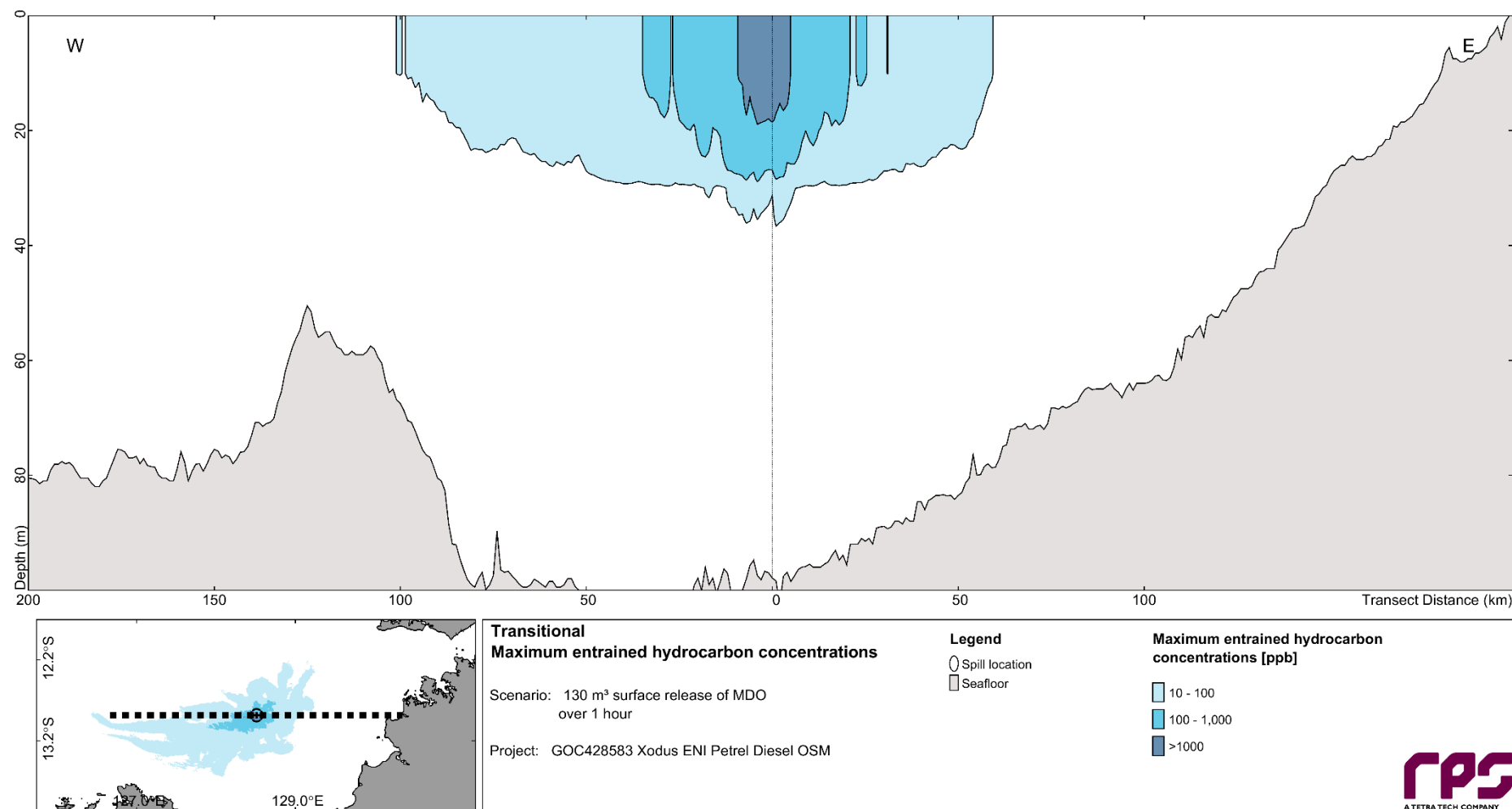


Figure 15-65 East-west cross-section transect of entrained hydrocarbon concentrations following a vessel collision at the Petrel riser platform. The results were calculated from 100 spill simulations and represent transitional conditions.

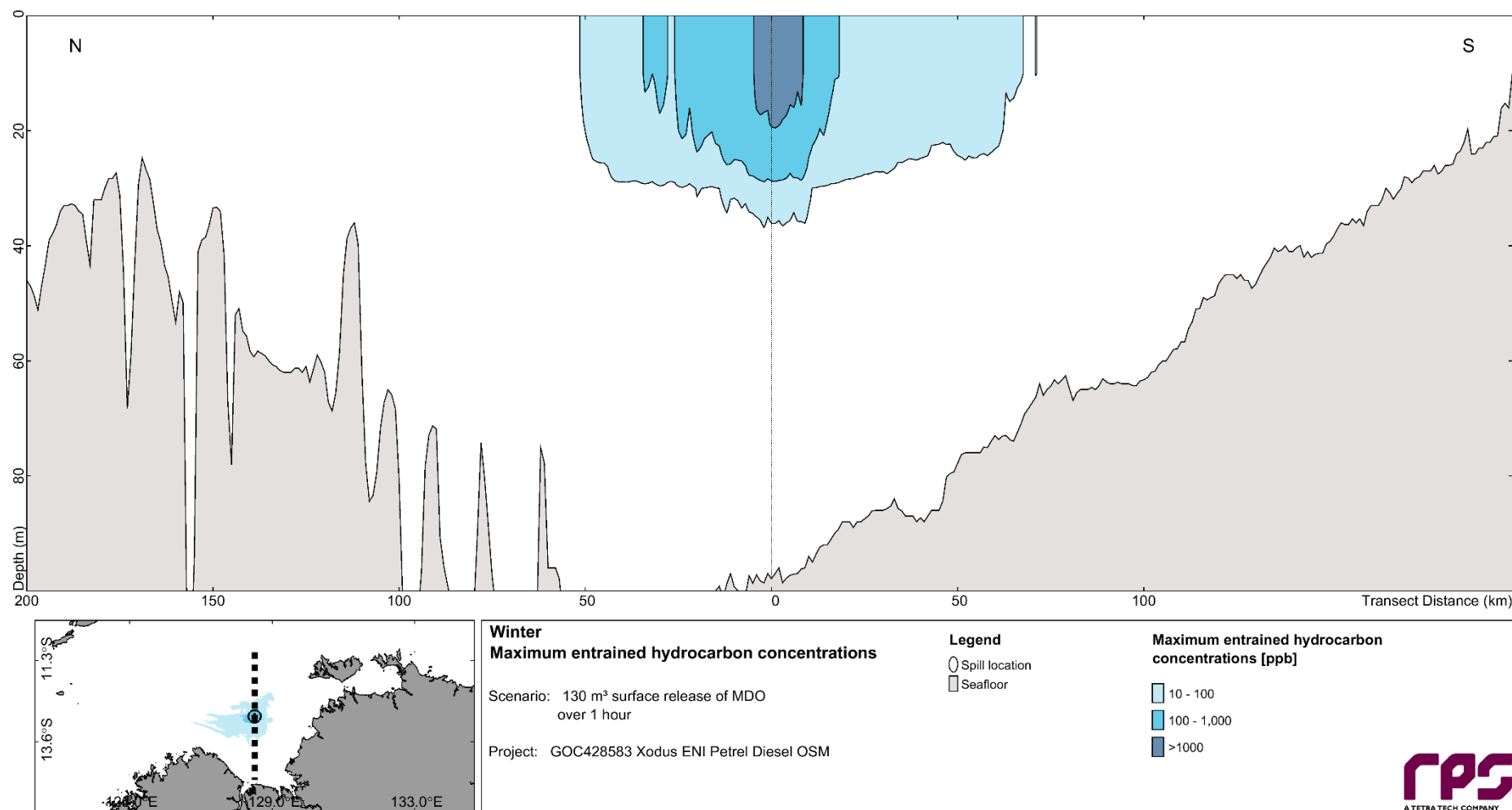


Figure 15-66 North-south cross-section transect of entrained hydrocarbon concentrations following a vessel collision at the Petrel riser platform. The results were calculated from 100 spill simulations and represent winter conditions.

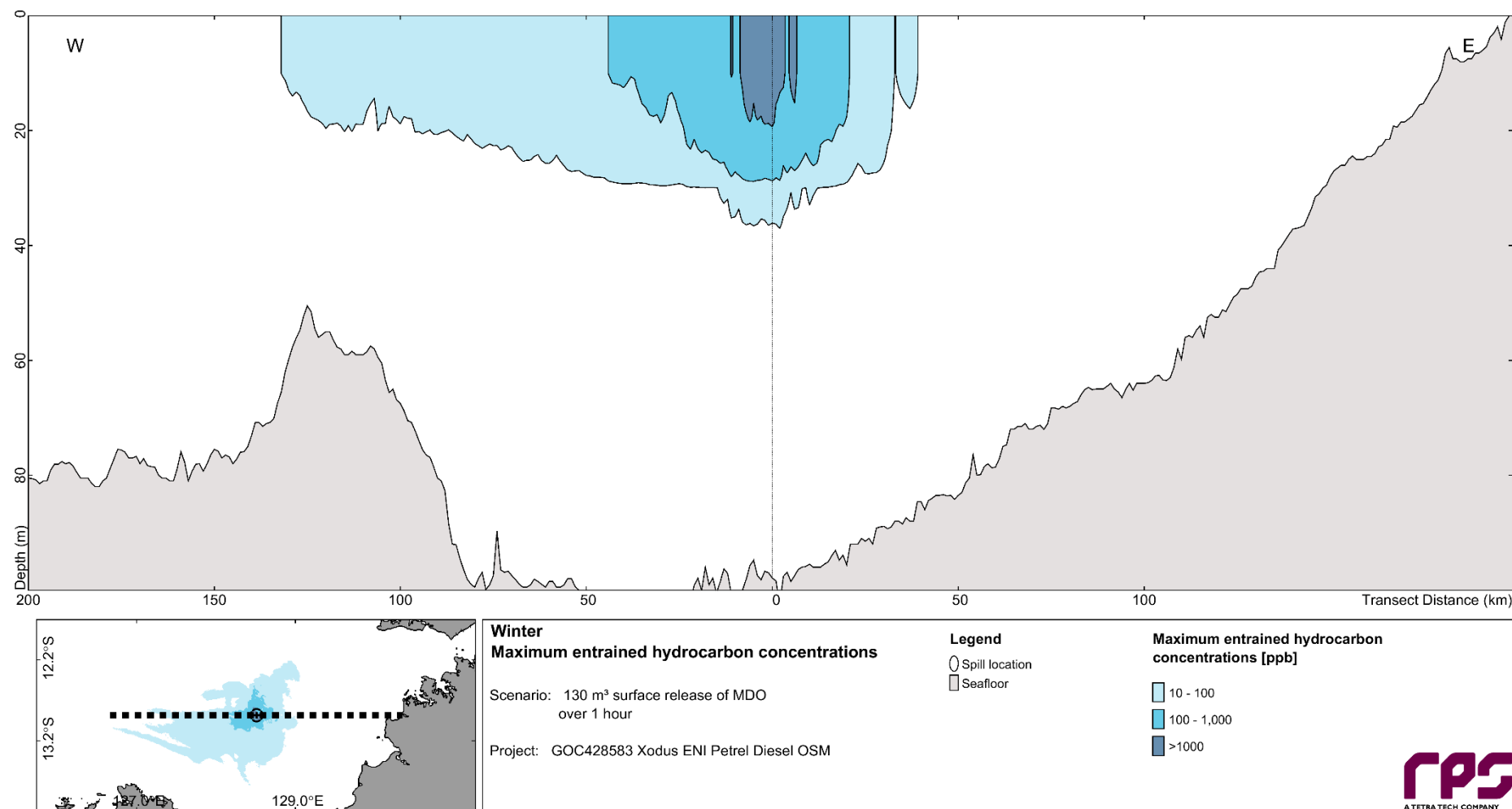


Figure 15-67 East-west cross-section transect of entrained hydrocarbon concentrations following a vessel collision at the Petrel riser platform. The results were calculated from 100 spill simulations and represent winter conditions.

16 MODELLING RESULTS: LOCATION 3 - VESSEL COLLISION AT THE MID-POINT BETWEEN THE WYE AND PETREL RISER PLATFORM

The following section presents the modelling results for a 130 m³ surface release of MDO over 1 hour following a vessel collision at the mid-point between the WYE and Petrel riser platform. The MDO was tracked for a total of 20 days to allow the concentrations to decrease below the lowest reporting thresholds. The modelling assumed no mitigation efforts are undertaken to collect or otherwise affect the natural transport and weathering.

16.1 Stochastic Analysis

16.1.1 Areas of Exposure

Figure 16-1 shows the areas of low, moderate, and high exposure following a vessel collision at the Petrel riser platform. It depicts the largest spatial extent predicted for each threshold, created by combining all 300 spill simulations according to the defined thresholds for each oil phase (see Section 12, Table 12-1).

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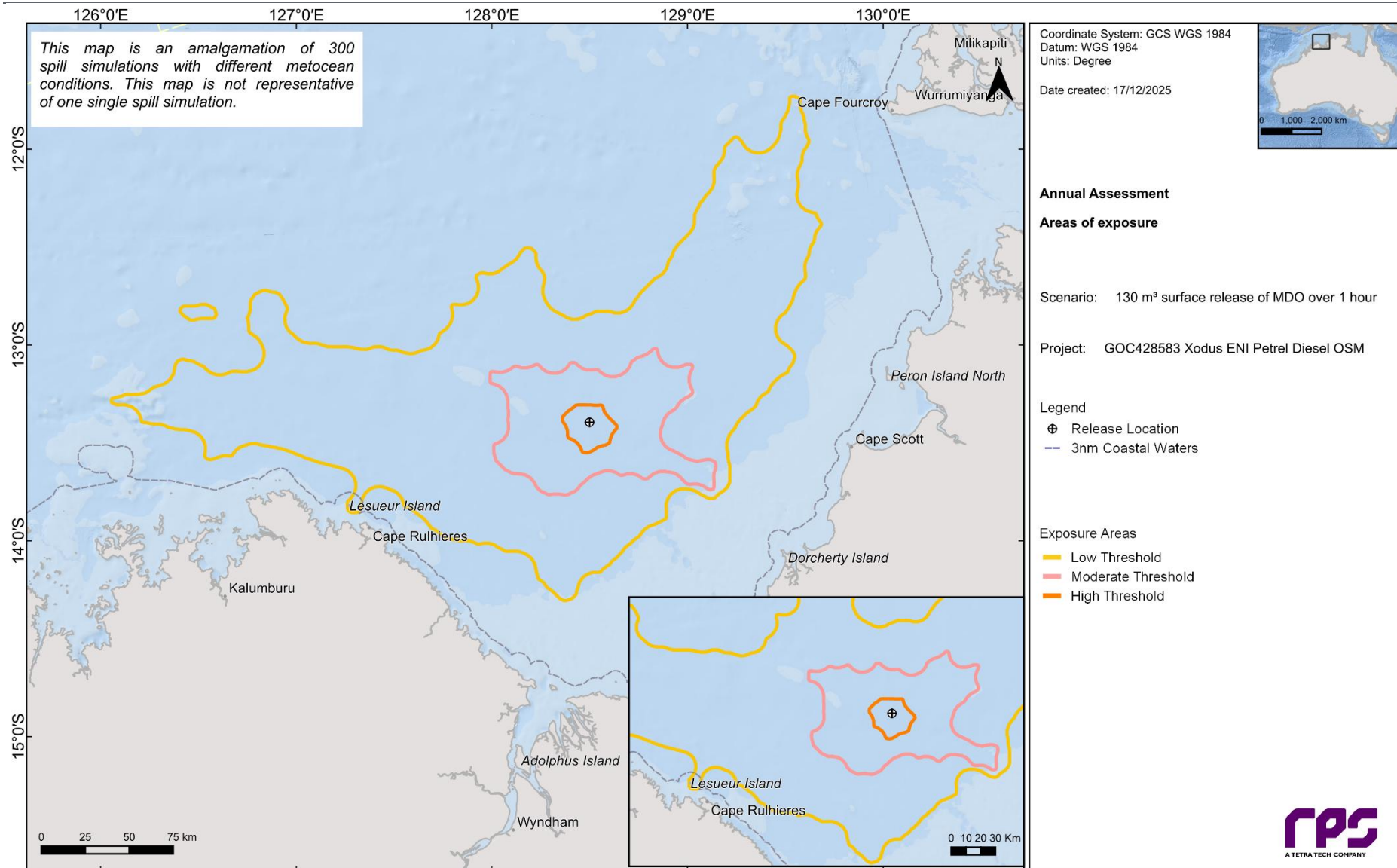


Figure 16-1 Predicted areas of exposure following a vessel collision at the mid-point between the WYE and Petrel riser platform. The results were calculated from all 300 spill simulations and presented as an annual assessment.

16.1.2 Floating Oil Exposure

Table 16-1 shows the maximum distances from the release location to floating oil exposure thresholds for each season. Concentrations exceeding 1 g/m² could extend up to 56 km from the release location, with the distances reducing to 21 km and 7 km as the thresholds increase to 10 g/m² and 50 g/m², respectively.

Table 16-2 to Table 16-4 present the receptors predicted to be exposed by floating oil. Since the release location falls within the Bonaparte Gulf IMCRA and North (Marine) MR, the results commentary for these receptors is omitted; however, the results are included in the table.

The North-west (Marine) MR was the only receptor to record floating oil exposure at, or above, 1 g/m² with the highest probability of exposure of 40% during winter conditions. Additionally, the North-west (Marine) MR receptor also recorded exposure at, or above, 10 g/m² and 50 g/m² with the highest probabilities of 21% during winter and 1% during all seasons, respectively. The fastest time before exposure at, or above, 1 g/m² and 10 g/m² for the North-west (Marine) MR receptor was 1 hour during summer, transitional and winter conditions. At, or above, 50 g/m², the fastest time before exposure was 2 hours during transitional conditions and 5 hours during summer and winter conditions.

Figure 16-2 to Figure 16-4 illustrate the zones of floating oil exposure for each season, while the probabilities and minimum times before exposure for each threshold are presented in Figure 16-5 to Figure 16-22.

Table 16-1 Maximum distances from the release location to floating oil exposure thresholds following a vessel collision at the mid-point between the WYE and Petrel riser platform. Results were calculated from 100 spill simulations per season.

Season	Distance and direction travelled	Floating oil exposure thresholds		
		≥1 g/m ²	≥10 g/m ²	≥50 g/m ²
Summer	Maximum distance travelled (km) by a spill simulation	51	21	3
	Direction of maximum travel	South	South	Southeast
Transitional	Maximum distance travelled (km) by a spill simulation	46	18	7
	Direction of maximum travel	West	East	Southeast
Winter	Maximum distance travelled (km) by a spill simulation	56	19	5
	Direction of maximum travel	Southeast	West	West

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Table 16-2 Receptors predicted to be exposed by floating oil following a vessel collision at the mid-point between the WYE and Petrel riser platform. The results were calculated from 100 spill simulations and represent summer conditions.

Category	Name	Probability (%) of floating oil at			Minimum times before floating oil exposure at		
		≥ 1 g/m ²	≥ 10 g/m ²	≥ 50 g/m ²	≥ 1 g/m ²	≥ 10 g/m ²	≥ 50 g/m ²
IMCRA-MESO	Bonaparte Gulf ¹	100	100	42	1 hour	1 hour	1 hour
MR	North (Marine) ¹	100	100	42	1 hour	1 hour	1 hour
	North-west (Marine)	27	18	1	1 hour	1 hour	5 hours

NC: No contact to receptor predicted for specified threshold.

¹ Release location falls within the Bonaparte Gulf IMCRA and North (Marine) MR

Table 16-3 Receptors predicted to be exposed by floating oil following a vessel collision at the mid-point between the WYE and Petrel riser platform. The results were calculated from 100 spill simulations and represent transitional conditions.

Category	Name	Probability (%) of floating oil at			Minimum times before floating oil exposure at		
		≥ 1 g/m ²	≥ 10 g/m ²	≥ 50 g/m ²	≥ 1 g/m ²	≥ 10 g/m ²	≥ 50 g/m ²
IMCRA-MESO	Bonaparte Gulf ¹	100	100	29	1 hour	1 hour	1 hour
MR	North (Marine) ¹	100	100	29	1 hour	1 hour	1 hour
	North-west (Marine)	31	17	1	1 hour	1 hour	2 hours

NC: No contact to receptor predicted for specified threshold.

¹ Release location falls within the Bonaparte Gulf IMCRA and North (Marine) MR

Table 16-4 Receptors predicted to be exposed by floating oil following a vessel collision at the mid-point between the WYE and Petrel riser platform. The results were calculated from 100 spill simulations and represent winter conditions.

Category	Name	Probability (%) of floating oil at			Minimum times before floating oil exposure at		
		≥ 1 g/m ²	≥ 10 g/m ²	≥ 50 g/m ²	≥ 1 g/m ²	≥ 10 g/m ²	≥ 50 g/m ²
IMCRA-MESO	Bonaparte Gulf ¹	100	100	27	1 hour	1 hour	1 hour
MR	North (Marine) ¹	100	100	27	1 hour	1 hour	1 hour
	North-west (Marine)	40	21	1	1 hour	1 hour	5 hours

NC: No contact to receptor predicted for specified threshold.

¹ Release location falls within the Bonaparte Gulf IMCRA and North (Marine) MR

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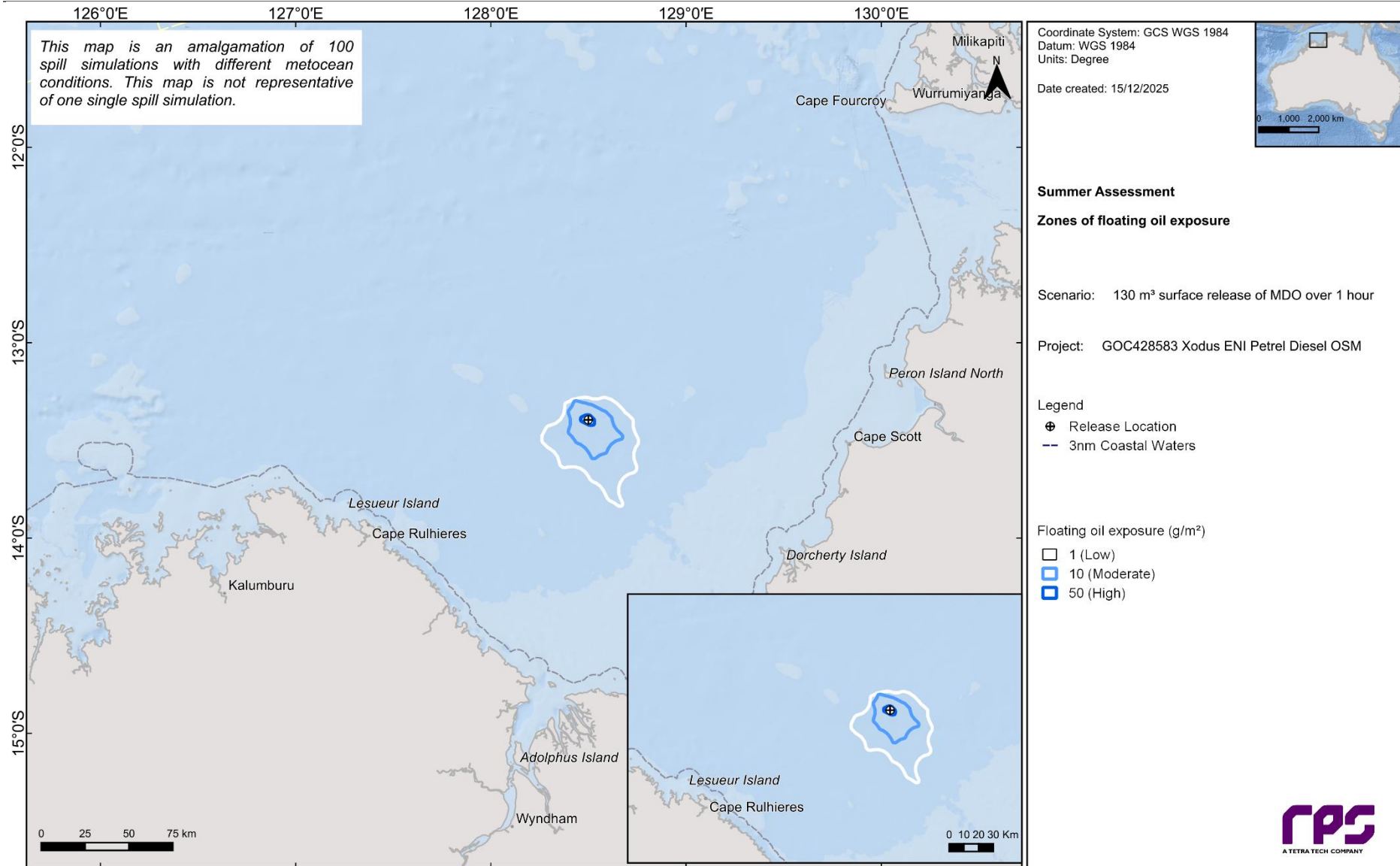


Figure 16-2 Predicted zones of floating oil exposure following a vessel collision at the mid-point between the WYE and Petrel riser platform. The results were calculated from 100 spill simulations and represent summer conditions.

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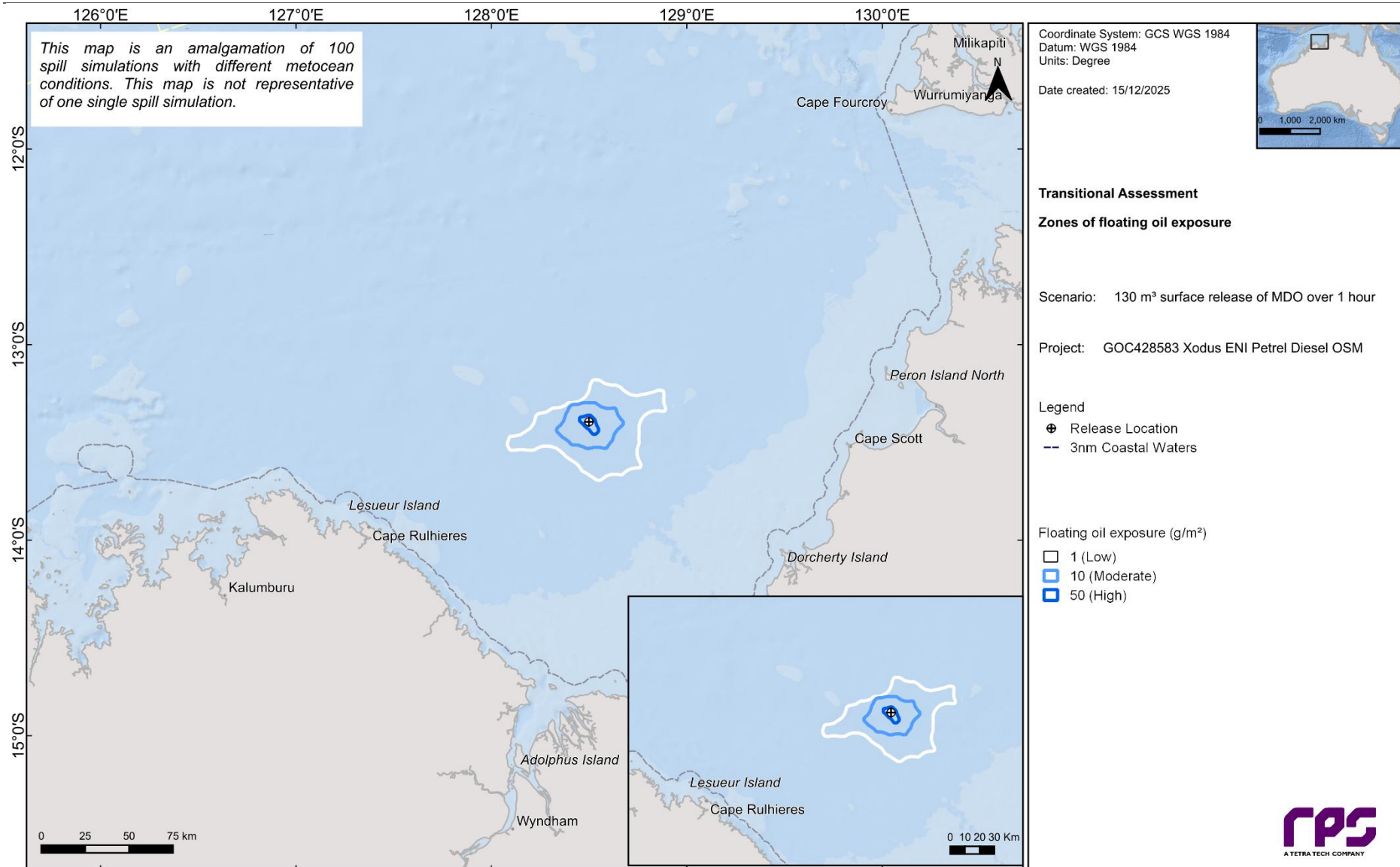


Figure 16-3 Predicted zones of floating oil exposure following a vessel collision at the mid-point between the WYE and Petrel riser platform. The results were calculated from 100 spill simulations and represent transitional conditions.

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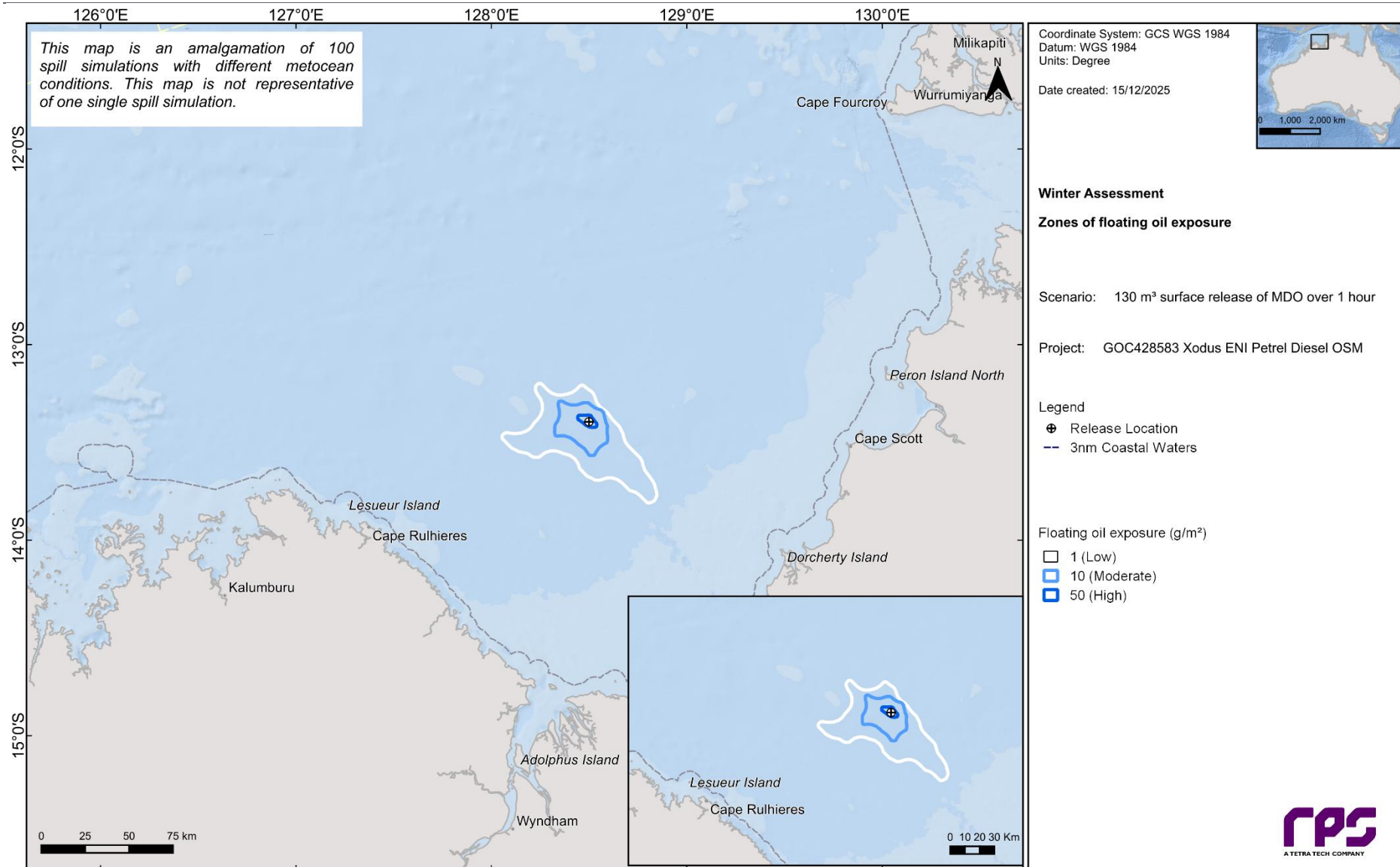


Figure 16-4 Predicted zones of floating oil exposure following a vessel collision at the mid-point between the WYE and Petrel riser platform. The results were calculated from 100 spill simulations and represent winter conditions.

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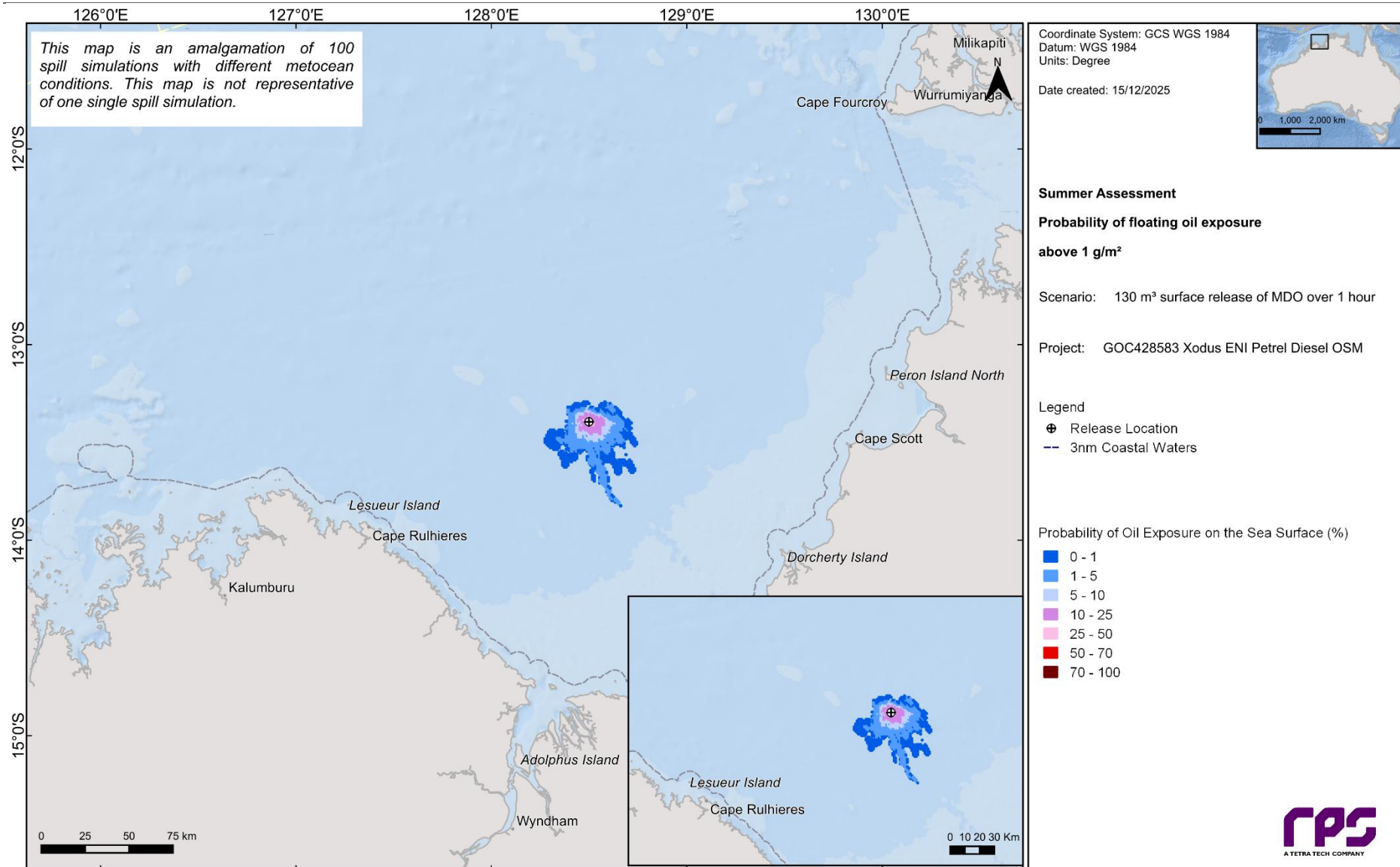


Figure 16-5 Probability of floating oil exposure at, or above, 1 g/m² following a vessel collision at the mid-point between the WYE and Petrel riser platform. The results were calculated from 100 spill simulations and represent summer conditions.

REPORT

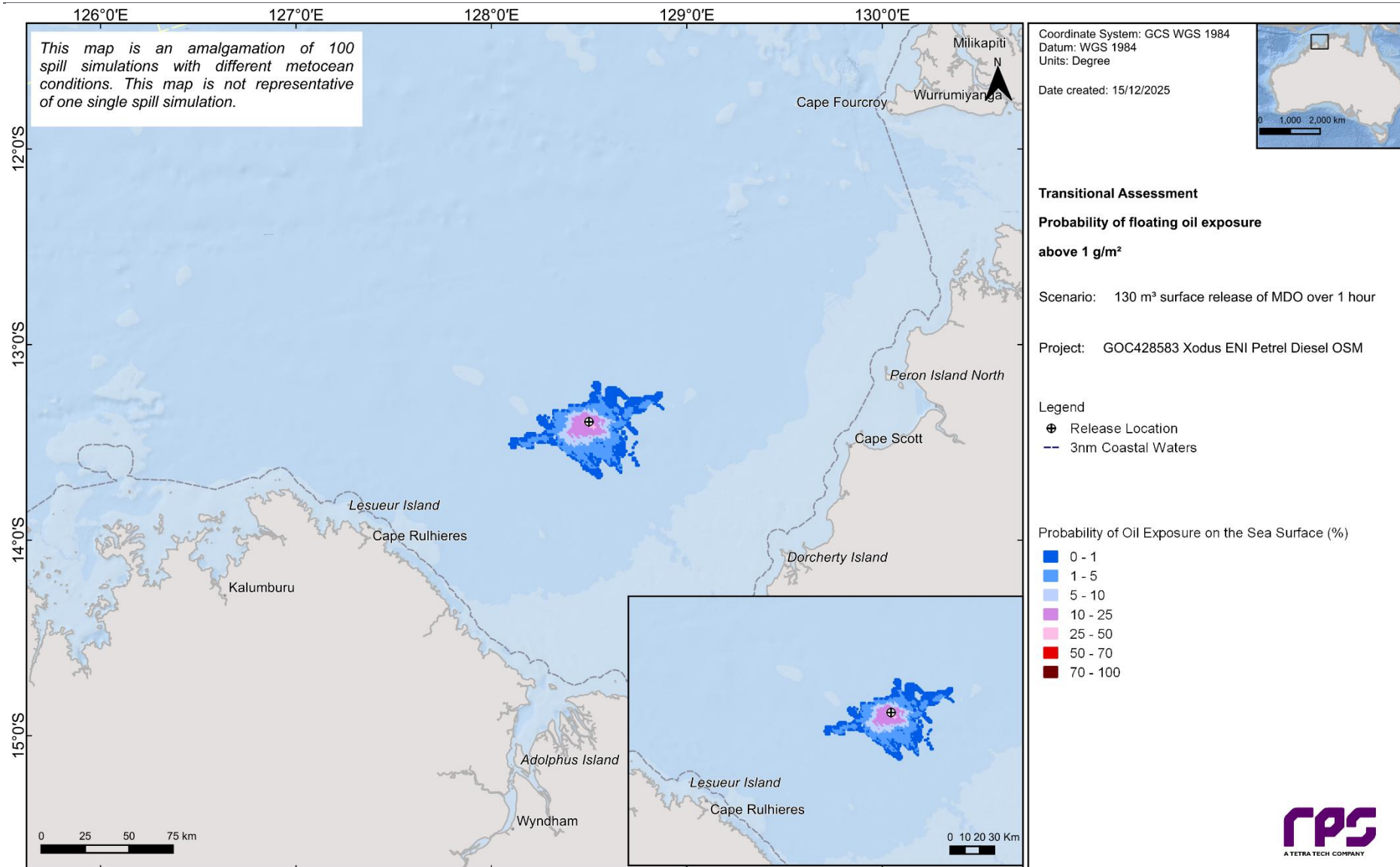


Figure 16-6 Probability of floating oil exposure at, or above, 1 g/m² following a vessel collision at the mid-point between the WYE and Petrel riser platform. The results were calculated from 100 spill simulations and represent transitional conditions.

REPORT

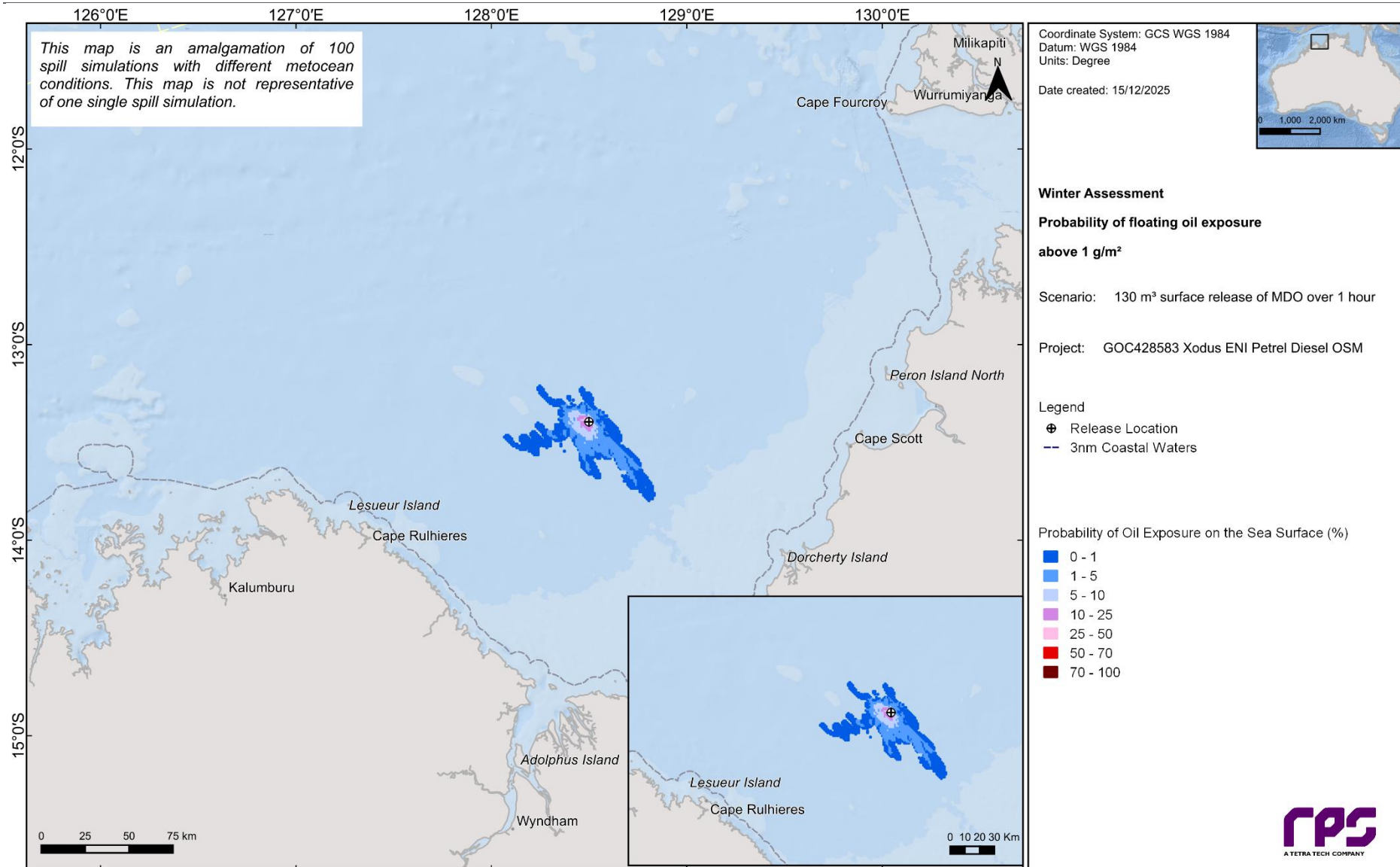


Figure 16-7 Probability of floating oil exposure at, or above, 1 g/m² following a vessel collision at the mid-point between the WYE and Petrel riser platform. The results were calculated from 100 spill simulations and represent winter conditions.

REPORT

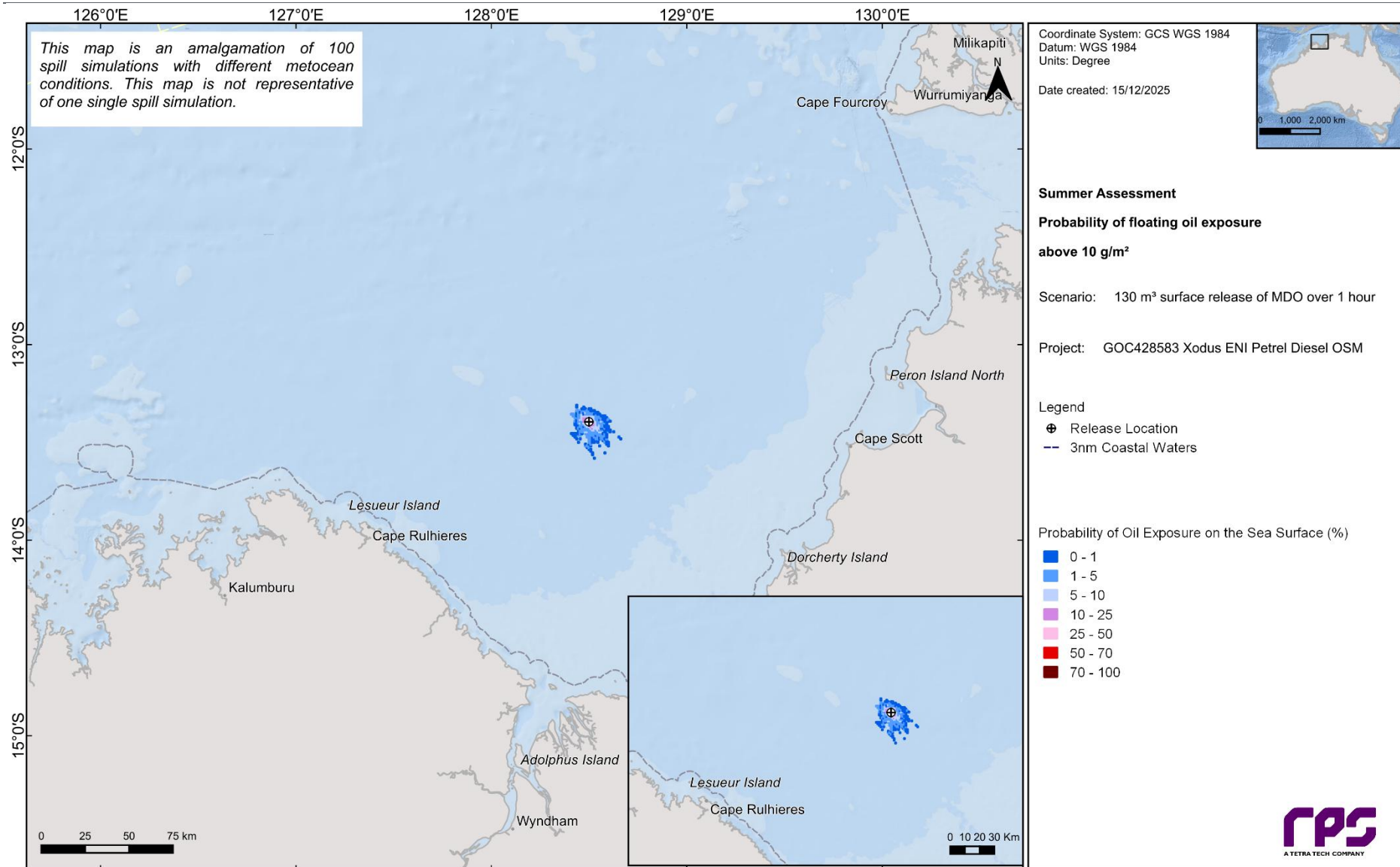


Figure 16-8 Probability of floating oil exposure at, or above, 10 g/m² following a vessel collision at the mid-point between the WYE and Petrel riser platform. The results were calculated from 100 spill simulations and represent summer conditions.

REPORT

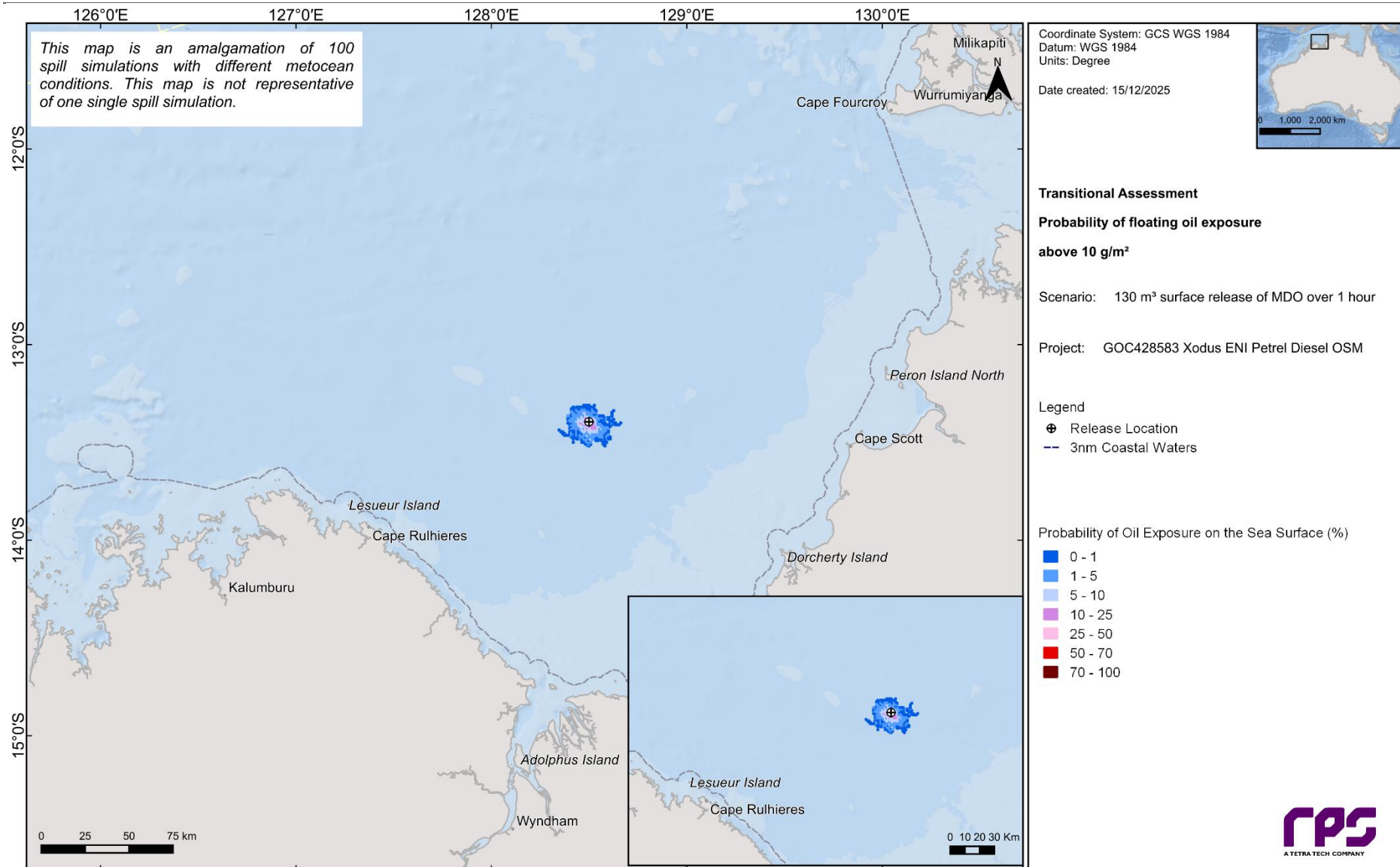


Figure 16-9 Probability of floating oil exposure at, or above, 10 g/m² following a vessel collision at the mid-point between the WYE and Petrel riser platform. The results were calculated from 100 spill simulations and represent transitional conditions.

REPORT

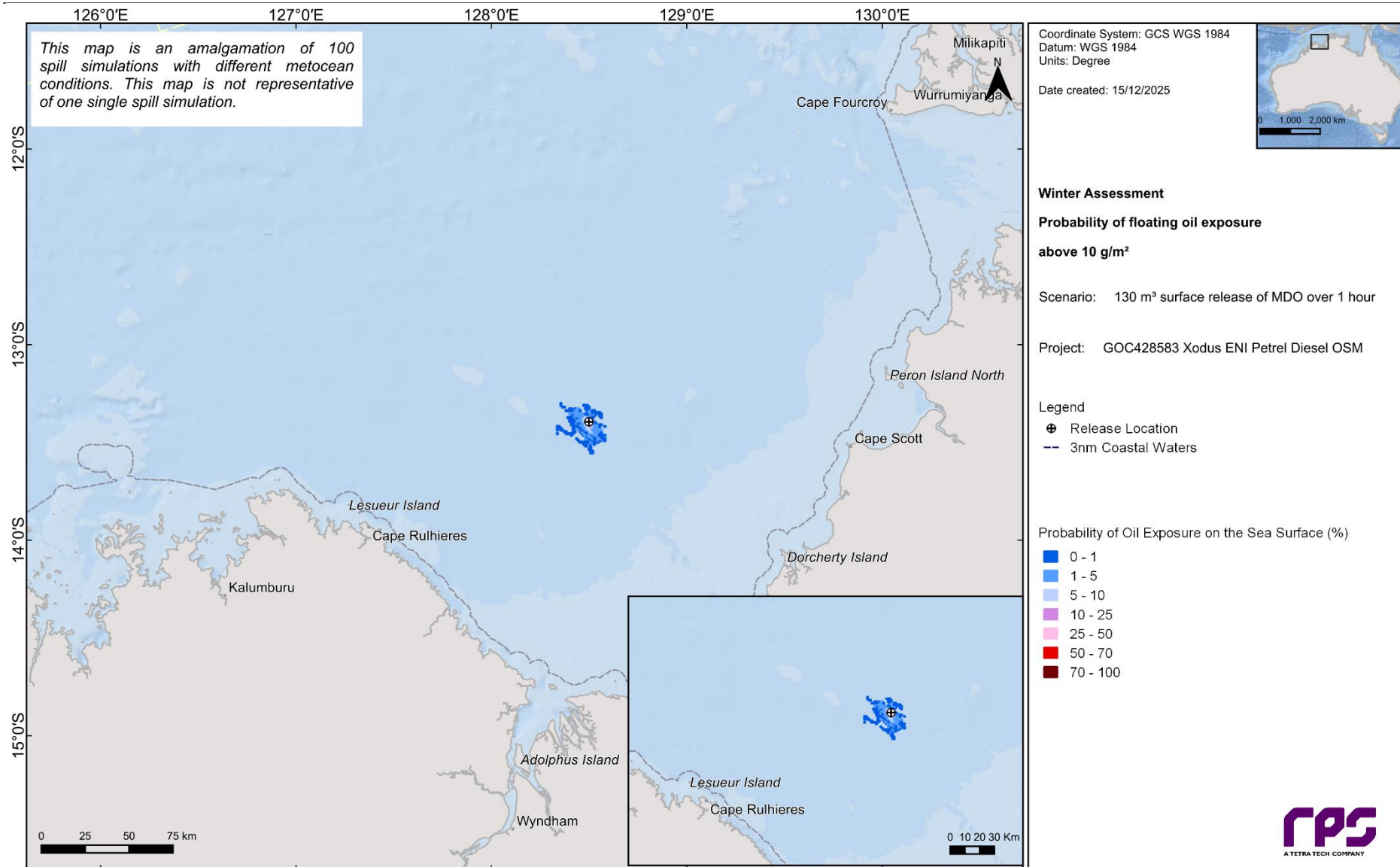


Figure 16-10 Probability of floating oil exposure at, or above, 10 g/m² following a vessel collision at the mid-point between the WYE and Petrel riser platform. The results were calculated from 100 spill simulations and represent winter conditions.

REPORT

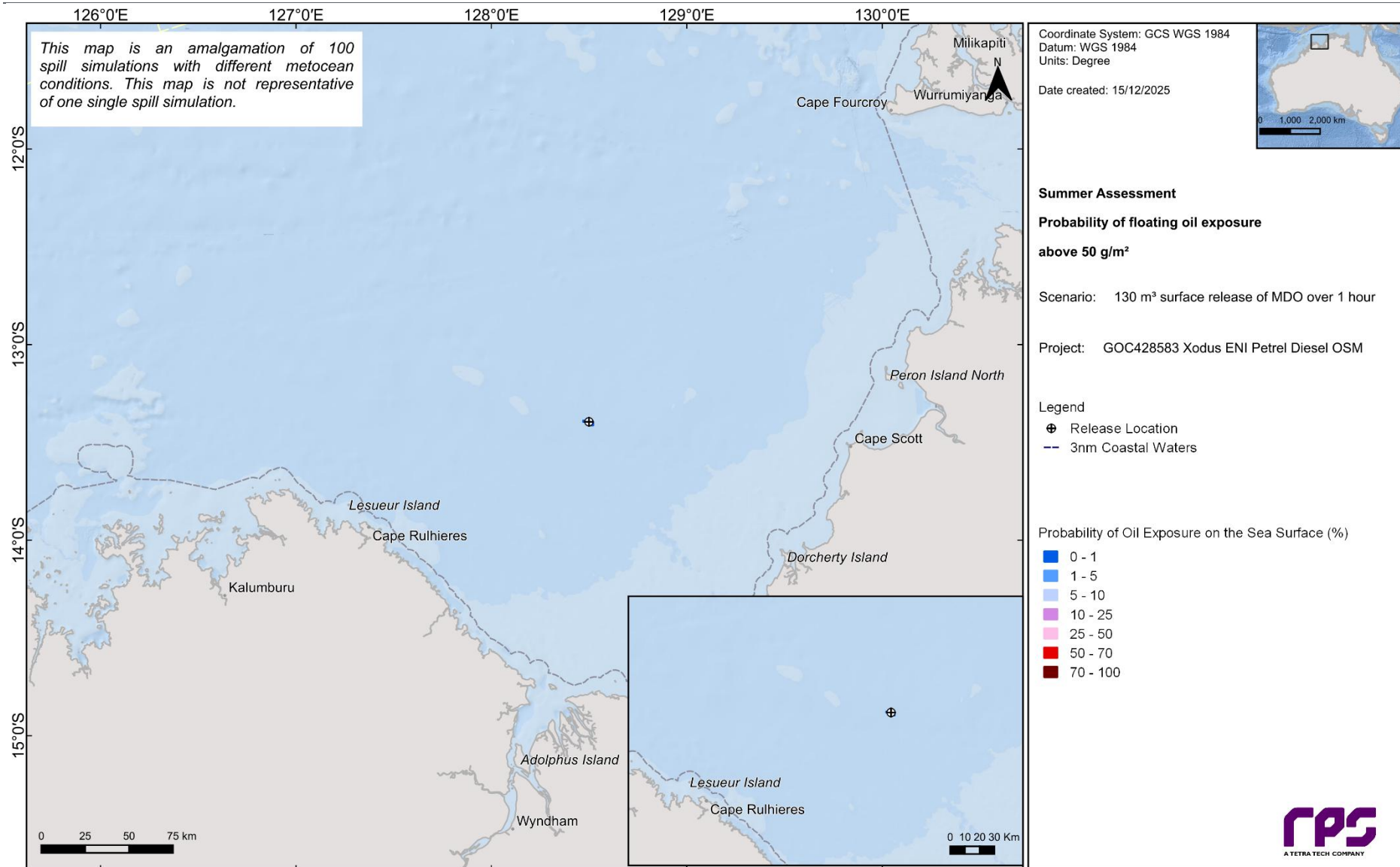


Figure 16-11 Probability of floating oil exposure at, or above, 50 g/m² following a vessel collision at the mid-point between the WYE and Petrel riser platform. The results were calculated from 100 spill simulations and represent summer conditions.

REPORT

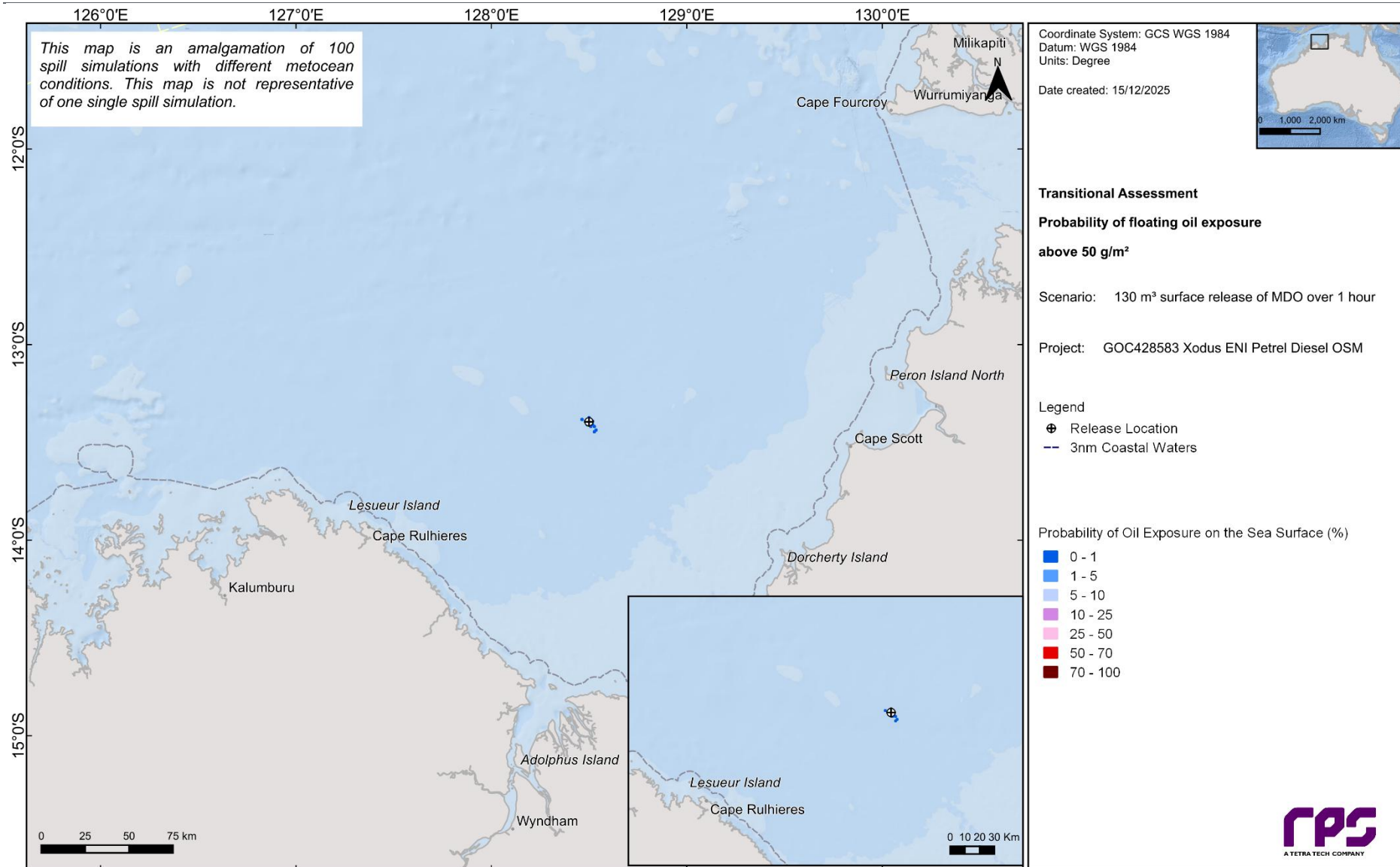


Figure 16-12 Probability of floating oil exposure at, or above, 50 g/m² following a vessel collision at the mid-point between the WYE and Petrel riser platform. The results were calculated from 100 spill simulations and represent transitional conditions.

REPORT

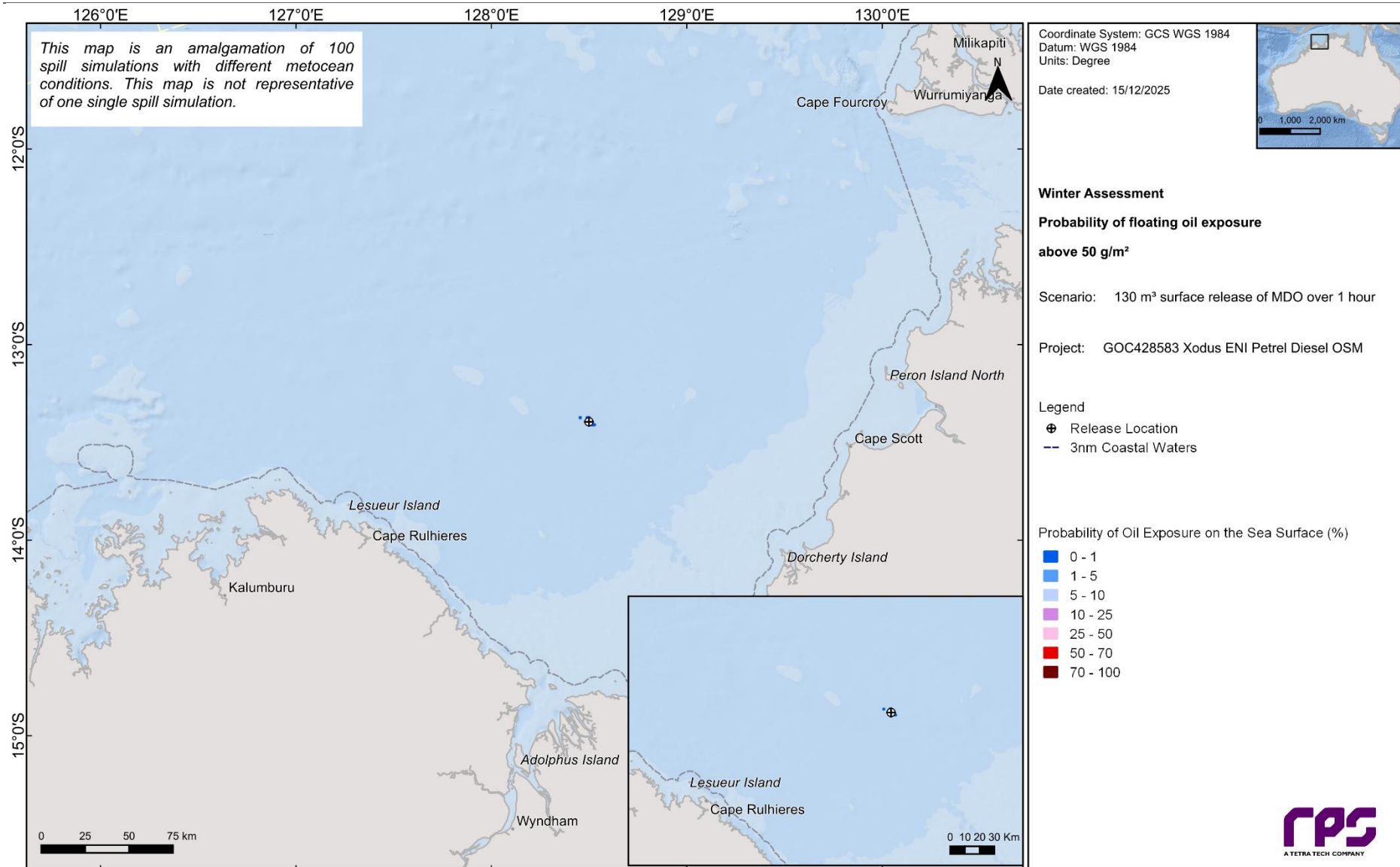


Figure 16-13 Probability of floating oil exposure at, or above, 50 g/m² following a vessel collision at the mid-point between the WYE and Petrel riser platform. The results were calculated from 100 spill simulations and represent winter conditions.

REPORT

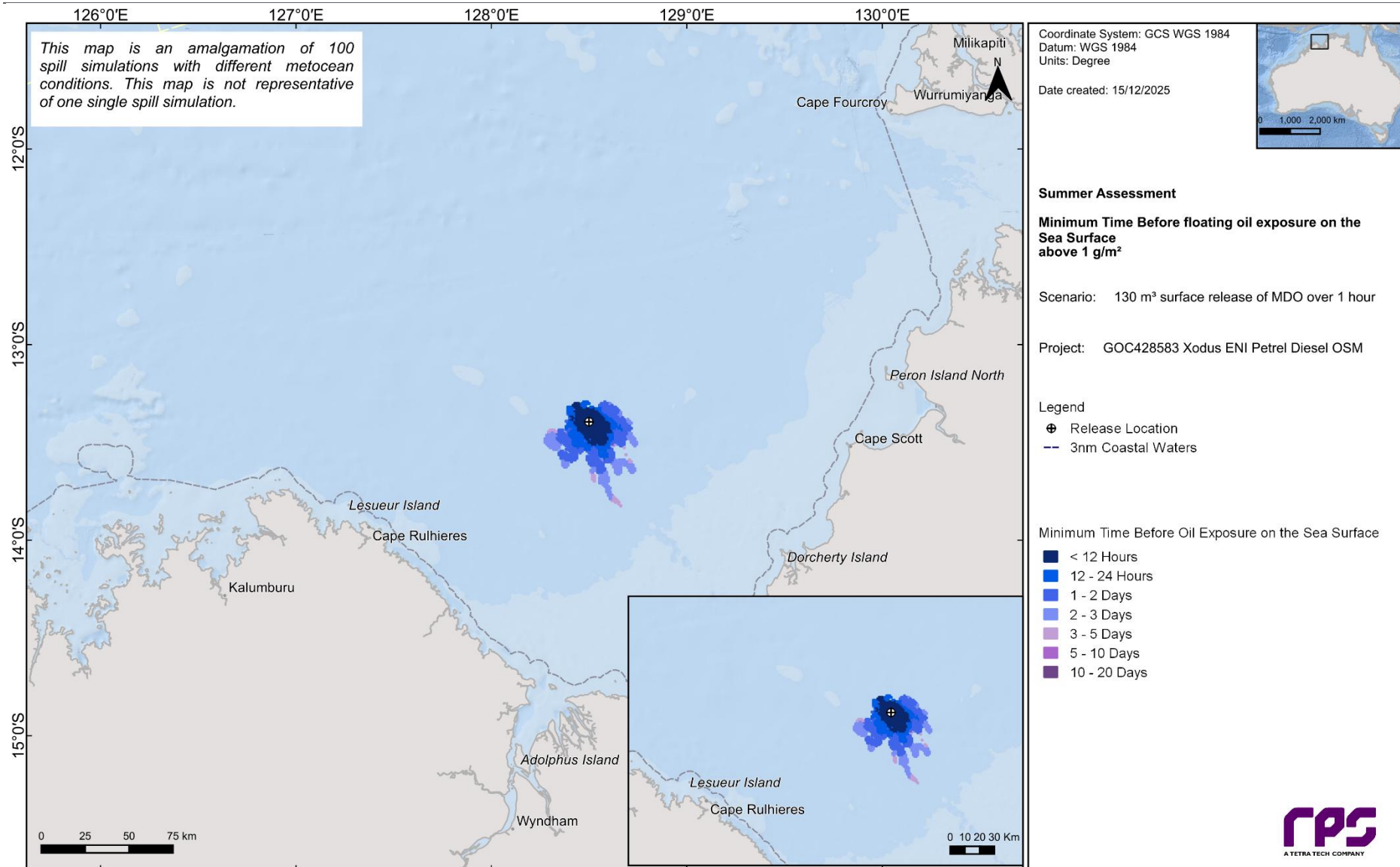


Figure 16-14 Minimum times before floating oil exposure at, or above, 1 g/m² following a vessel collision at the mid-point between the WYE and Petrel riser platform. The results were calculated from 100 spill simulations and represent summer conditions.

REPORT

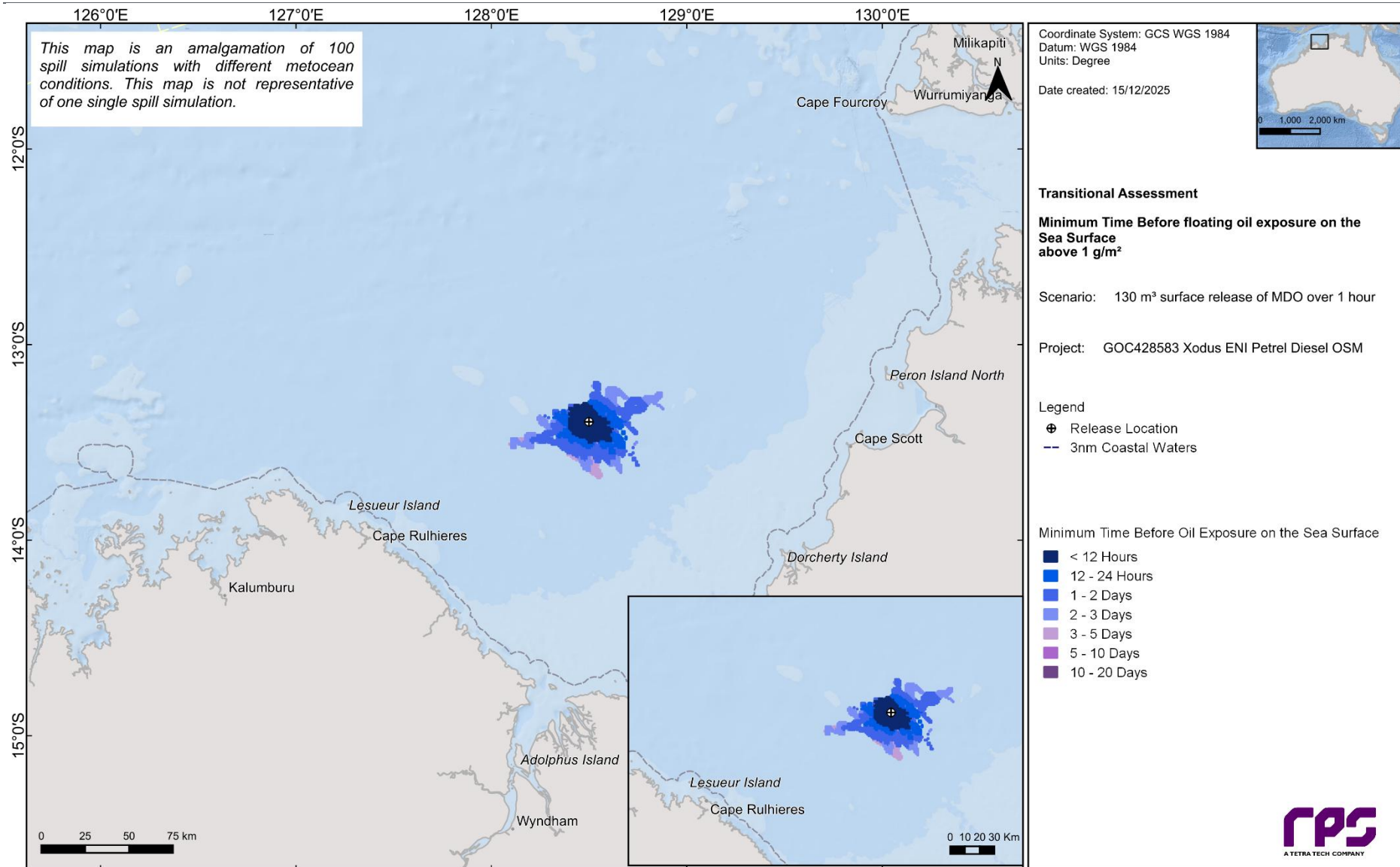


Figure 16-15 Minimum times before floating oil exposure at, or above, 1 g/m² following a vessel collision at the mid-point between the WYE and Petrel riser platform. The results were calculated from 100 spill simulations and represent transitional conditions.

REPORT

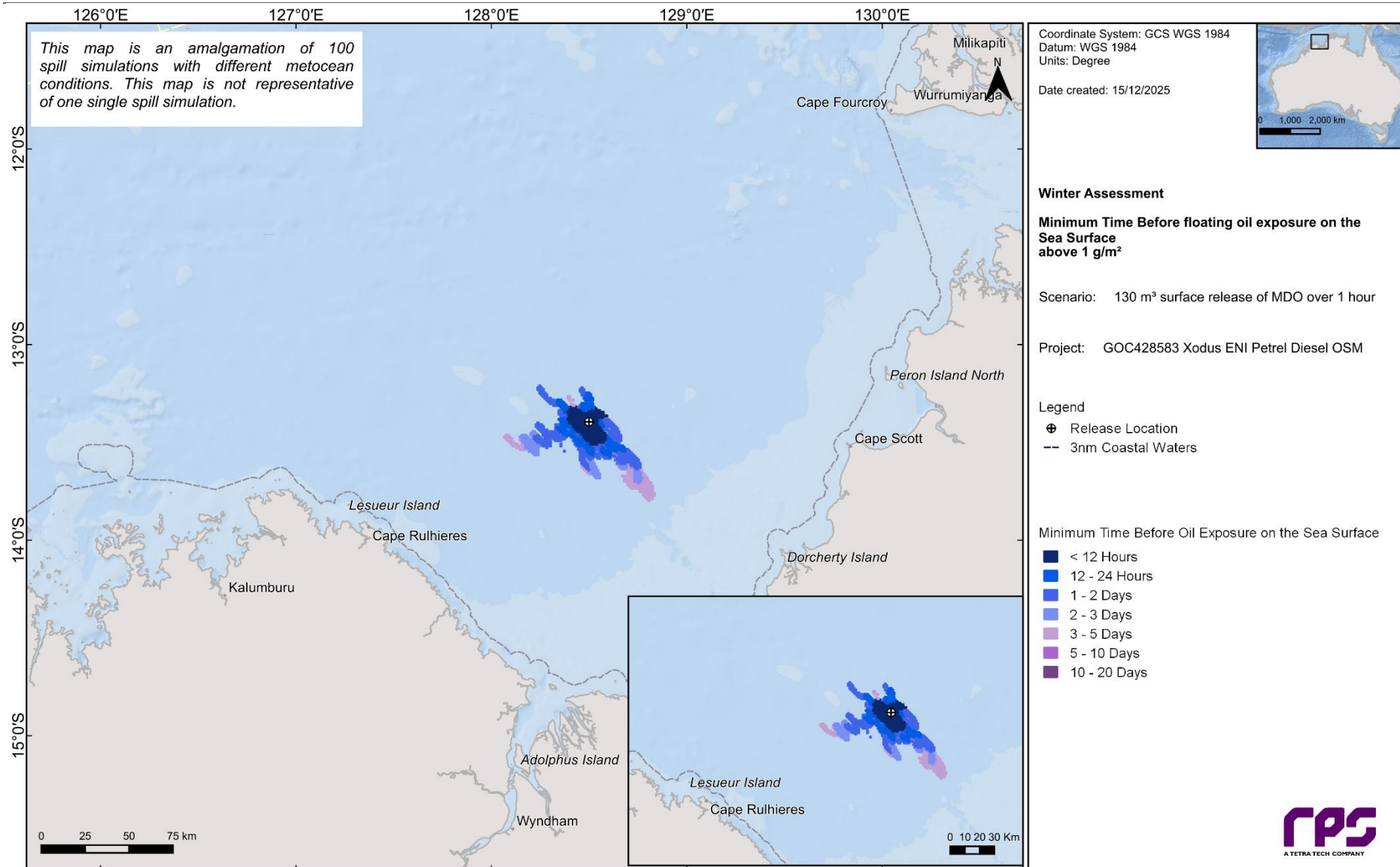


Figure 16-16 Minimum times before floating oil exposure at, or above, 1 g/m² following a vessel collision at the mid-point between the WYE and Petrel riser platform. The results were calculated from 100 spill simulations and represent winter conditions.

REPORT

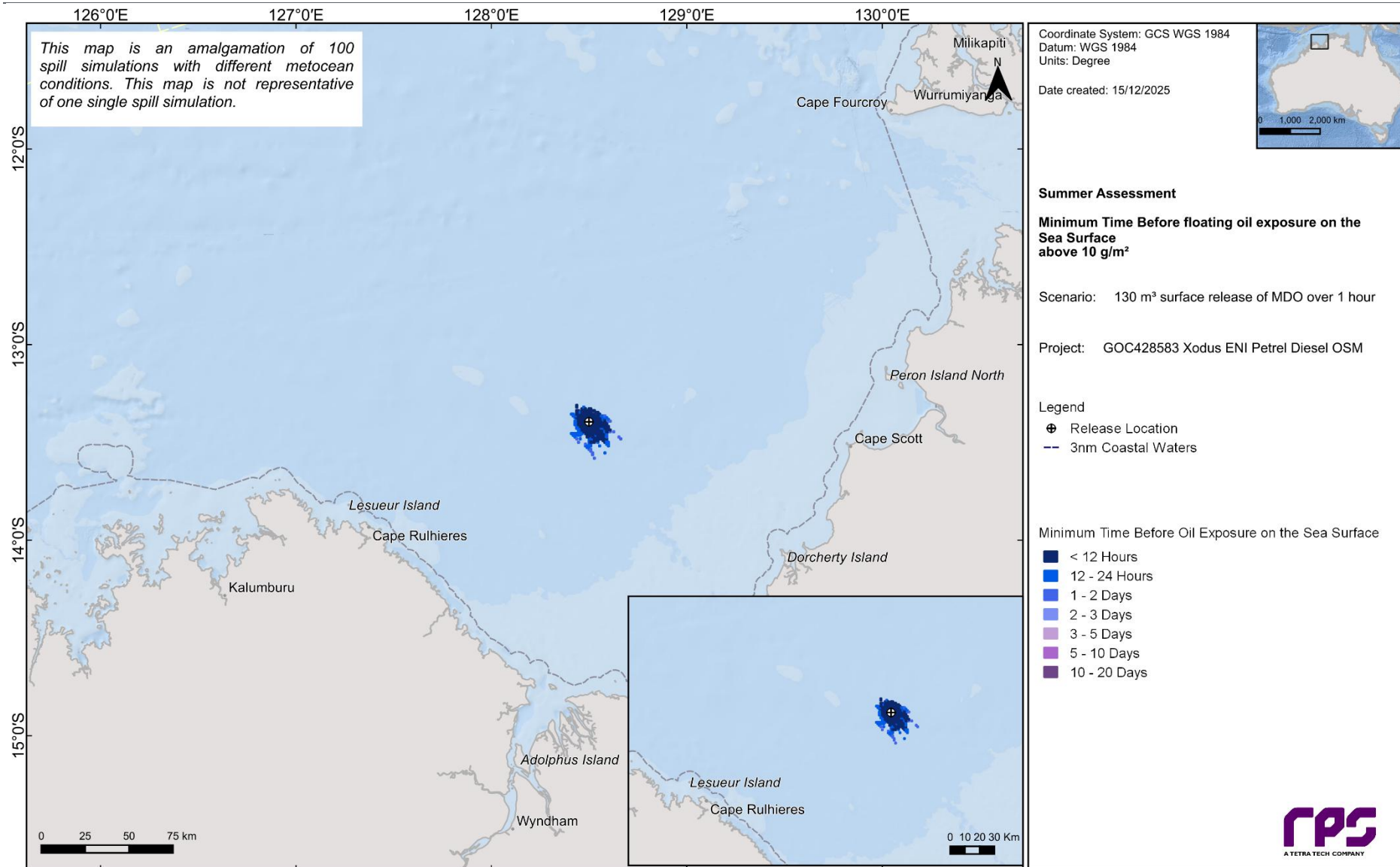


Figure 16-17 Minimum times before floating oil exposure at, or above, 10 g/m² following a vessel collision at the mid-point between the WYE and Petrel riser platform. The results were calculated from 100 spill simulations and represent summer conditions.

REPORT

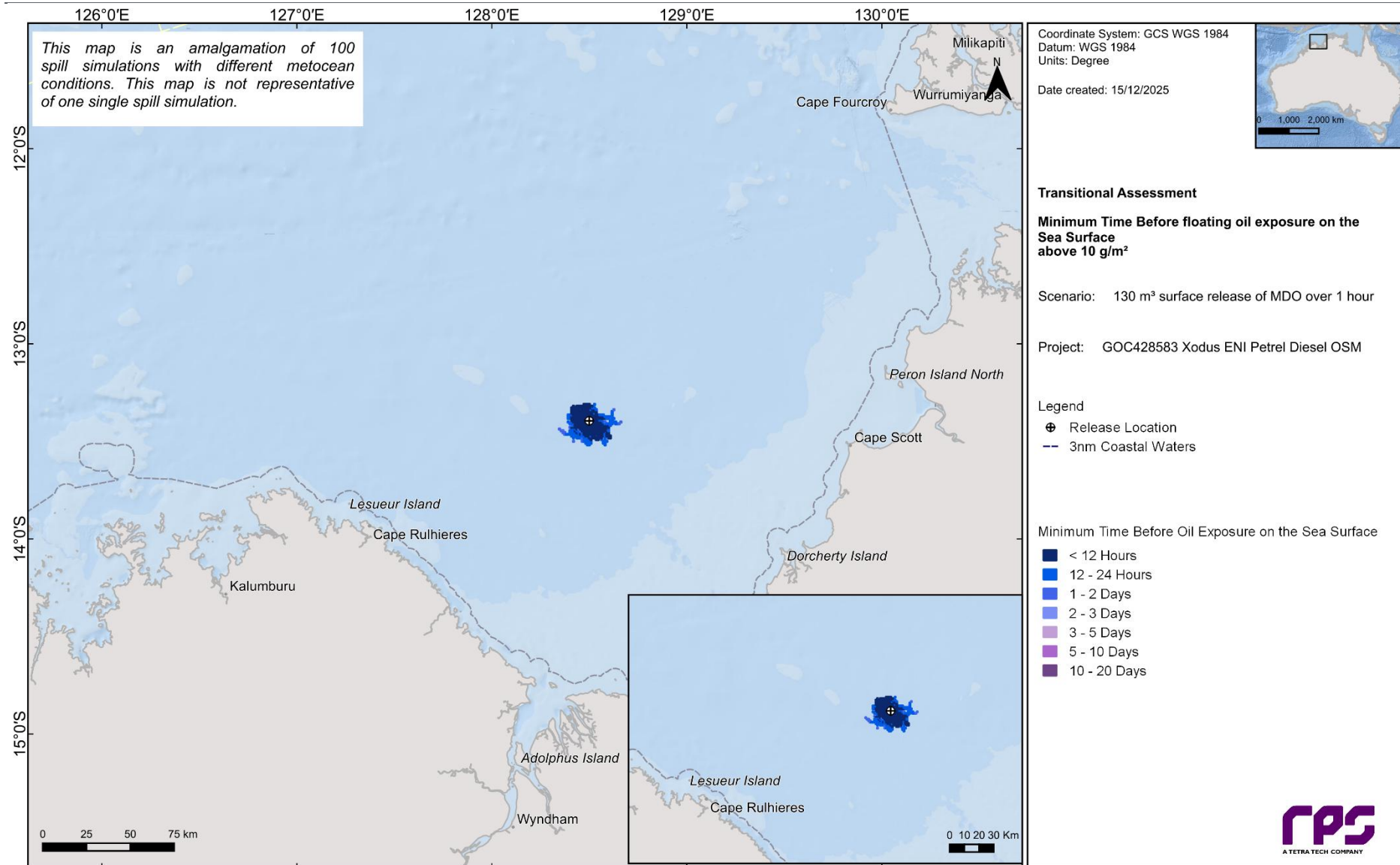


Figure 16-18 Minimum times before floating oil exposure at, or above, 10 g/m² following a vessel collision at the mid-point between the WYE and Petrel riser platform. The results were calculated from 100 spill simulations and represent transitional conditions.

REPORT

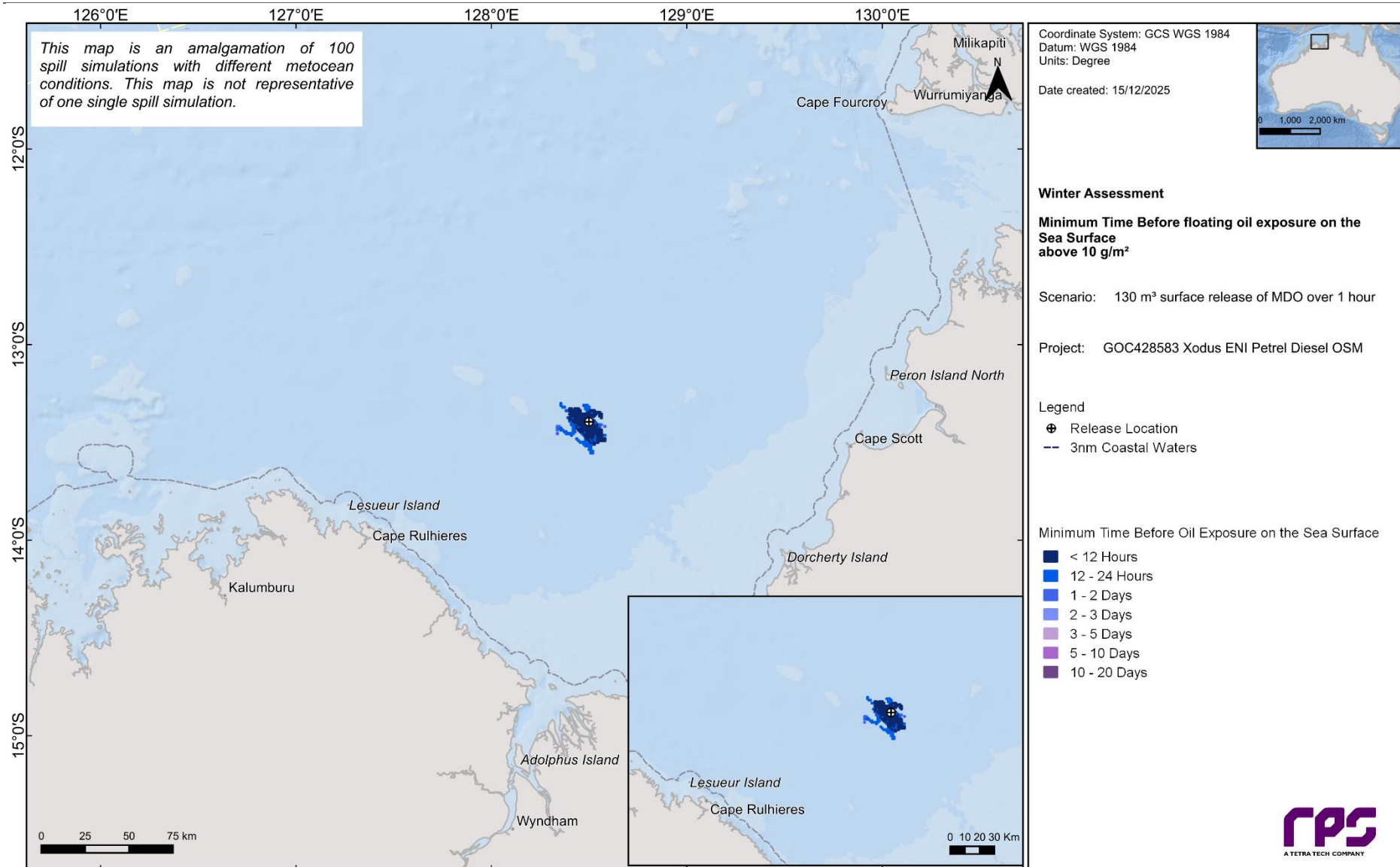


Figure 16-19 Minimum times before floating oil exposure at, or above, 10 g/m² following a vessel collision at the mid-point between the WYE and Petrel riser platform. The results were calculated from 100 spill simulations and represent winter conditions.

This map is an amalgamation of 100 spill simulations with different metocean conditions. This map is not representative of one single spill simulation.

Coordinate System: GCS WGS 1984
Datum: WGS 1984
Units: Degree

Date created: 15/12/2025

Summer Assessment

Minimum Time Before floating oil exposure on the Sea Surface above 50 g/m²

Scenario: 130 m³ surface release of MDO over 1 hour

Project: GOC428583 Xodus ENI Petrel Diesel OSM

Legend

- ⊕ Release Location
- - - 3nm Coastal Waters

Minimum Time Before Oil Exposure on the Sea Surface

- < 12 Hours
- 12 - 24 Hours
- 1 - 2 Days
- 2 - 3 Days
- 3 - 5 Days
- 5 - 10 Days
- 10 - 20 Days

0 25 50 75 km

0 10 20 30 Km

0 1,000 2,000 km

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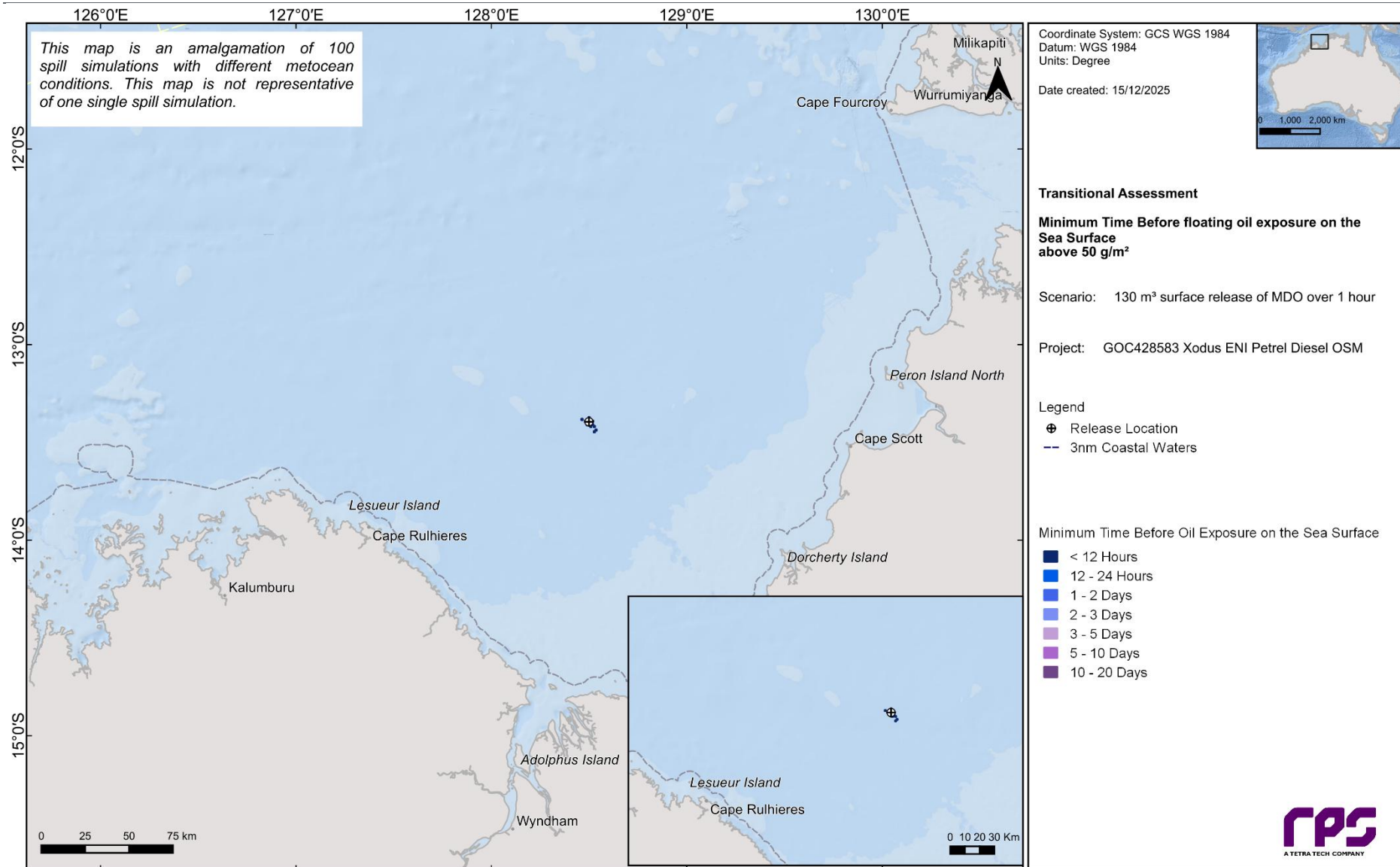


Figure 16-21 Minimum times before floating oil exposure at, or above, 50 g/m² following a vessel collision at the mid-point between the WYE and Petrel riser platform. The results were calculated from 100 spill simulations and represent transitional conditions.

REPORT

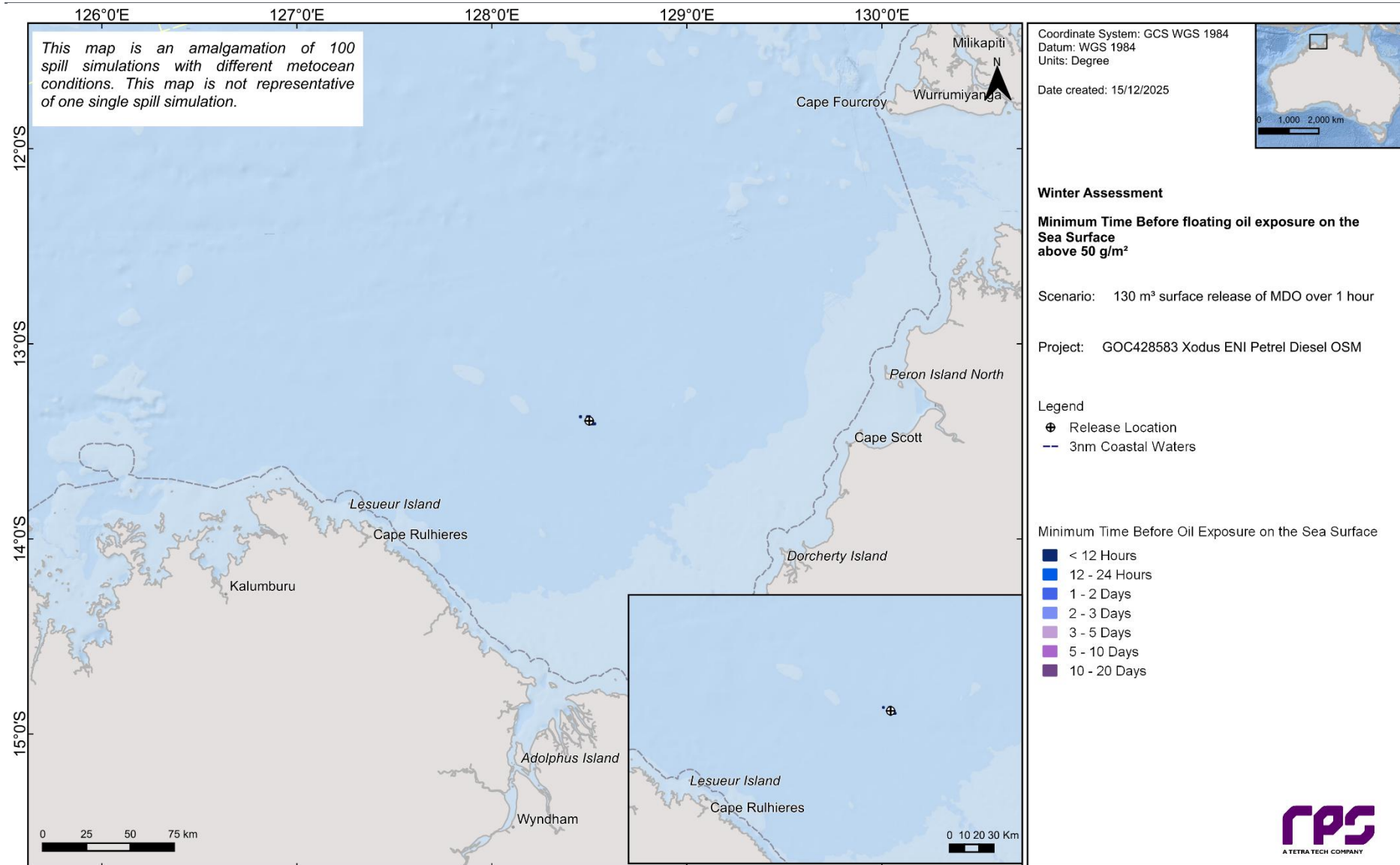


Figure 16-22 Minimum times before floating oil exposure at, or above, 50 g/m² following a vessel collision at the mid-point between the WYE and Petrel riser platform. The results were calculated from 100 spill simulations and represent winter conditions.

16.1.3 Shoreline Oil Accumulation

No oil accumulation on any shorelines was predicted to occur at, or above, the low threshold of 10 g/m² from the 300 spill simulations, and consequently, no results are reported.

16.1.4 Water Column Exposure

16.1.4.1 Dissolved Hydrocarbons

Table 16-5 summarises the maximum distances from the release location to dissolved hydrocarbon exposure thresholds for each season. Concentrations exceeding 10 ppb may potentially extend up to 51 km from the release location, decreasing to 4 km for concentrations exceeding 50 ppb. No exposure was predicted at, or above, 300 ppb.

Table 16-6 to Table 16-8 summarise the predicted dissolved hydrocarbon exposure to receptors (either at receptor depth, or above receptors in the overlying water column). Since the release location falls within the Bonaparte Gulf IMCRA and North (Marine) MR, the results commentary for these receptors is omitted; however, the results are included in the table.

The North-west (Marine) MR was the only receptor to record floating oil exposure at, or above, the 10 ppb threshold with the highest probability of exposure of 18% during winter conditions. The same receptor recorded the quickest time before exposure at 2 hours during all seasons modelled and the highest concentration of 51 ppb was predicted during transitional conditions.

Figure 16-23 to Figure 16-25 present the zones of dissolved hydrocarbon exposure for each season, while the probabilities and minimum times before exposure are presented in Figure 16-26 to Figure 16-37.

Cross-sectional transects (north-south and east-west) of the maximum dissolved hydrocarbons in the vicinity of the release site for summer, transitional and winter conditions are presented in Figure 16-38 to Figure 16-43.

Table 16-5 Maximum distances from the release location to dissolved hydrocarbon exposure thresholds following a vessel collision at the mid-point between the WYE and Petrel riser platform. Results were calculated from 100 spill simulations per season.

Season	Distance and direction travelled	Dissolved hydrocarbon exposure thresholds		
		≥10 ppb	≥50 ppb	≥300 ppb
Summer	Maximum distance travelled (km) by a spill simulation	51	3	-
	Direction of maximum travel	Northwest	North	-
Transitional	Maximum distance travelled (km) by a spill simulation	45	4	-
	Direction of maximum travel	Southwest	Northwest	-
Winter	Maximum distance travelled (km) by a spill simulation	38	1	-
	Direction of maximum travel	Northwest	Southeast	-

REPORT

Table 16-6 Receptors predicted to be exposed by dissolved hydrocarbons following a vessel collision at the mid-point between the WYE and Petrel riser platform. The results were calculated from 100 spill simulations and represent summer conditions.

Category	Name	Probability (%) of dissolved hydrocarbon exposure at			Minimum time before dissolved hydrocarbon exposure at			Maximum dissolved hydrocarbon concentrations (ppb)	
		≥ 10 ppb	≥ 50 ppb	≥ 300 ppb	≥ 10 ppb	≥ 50 ppb	≥ 300 ppb	averaged over all simulations	for the worst simulation
IMCRA-MESO	Bonaparte Gulf ¹	15	1	NC	1 hour	6 hours	NC	5	58
MR	North (Marine) ¹	15	1	NC	1 hour	6 hours	NC	5	58
	North-west (Marine)	3	NC	NC	2 hours	NC	NC	2	50

NC: No contact to receptor predicted for specified threshold.

¹Release location falls within the Bonaparte Gulf IMCRA and North (Marine) MR

Table 16-7 Receptors predicted to be exposed by dissolved hydrocarbons following a vessel collision at the mid-point between the WYE and Petrel riser platform. The results were calculated from 100 spill simulations and represent transitional conditions.

Category	Name	Probability (%) of dissolved hydrocarbon exposure at			Minimum time before dissolved hydrocarbon exposure at			Maximum dissolved hydrocarbon concentrations (ppb)	
		≥ 10 ppb	≥ 50 ppb	≥ 300 ppb	≥ 10 ppb	≥ 50 ppb	≥ 300 ppb	averaged over all simulations	for the worst simulation
IMCRA-MESO	Bonaparte Gulf ¹	7	NC	NC	1 hour	NC	NC	3	49
MR	North (Marine) ¹	7	NC	NC	1 hour	NC	NC	3	49
	North-west (Marine)	4	1	NC	2 hours	5 hours	NC	2	51

NC: No contact to receptor predicted for specified threshold.

¹Release location falls within the Bonaparte Gulf IMCRA and North (Marine) MR

REPORT

Table 16-8 Receptors predicted to be exposed by dissolved hydrocarbons following a vessel collision at the mid-point between the WYE and Petrel riser platform. The results were calculated from 100 spill simulations and represent winter conditions.

Category	Name	Probability (%) of dissolved hydrocarbon exposure at			Minimum time before dissolved hydrocarbon exposure at			Maximum dissolved hydrocarbon concentrations (ppb)	
		≥ 10 ppb	≥ 50 ppb	≥ 300 ppb	≥ 10 ppb	≥ 50 ppb	≥ 300 ppb	averaged over all simulations	for the worst simulation
IMCRA-MESO	Bonaparte Gulf ¹	22	1	NC	1 hour	1 hour	NC	7	62
MR	North (Marine) ¹	22	1	NC	1 hour	1 hour	NC	7	62
	North-west (Marine)	18	NC	NC	2 hours	NC	NC	5	50

NC: No contact to receptor predicted for specified threshold.

¹Release location falls within the Bonaparte Gulf IMCRA and North (Marine) MR

REPORT

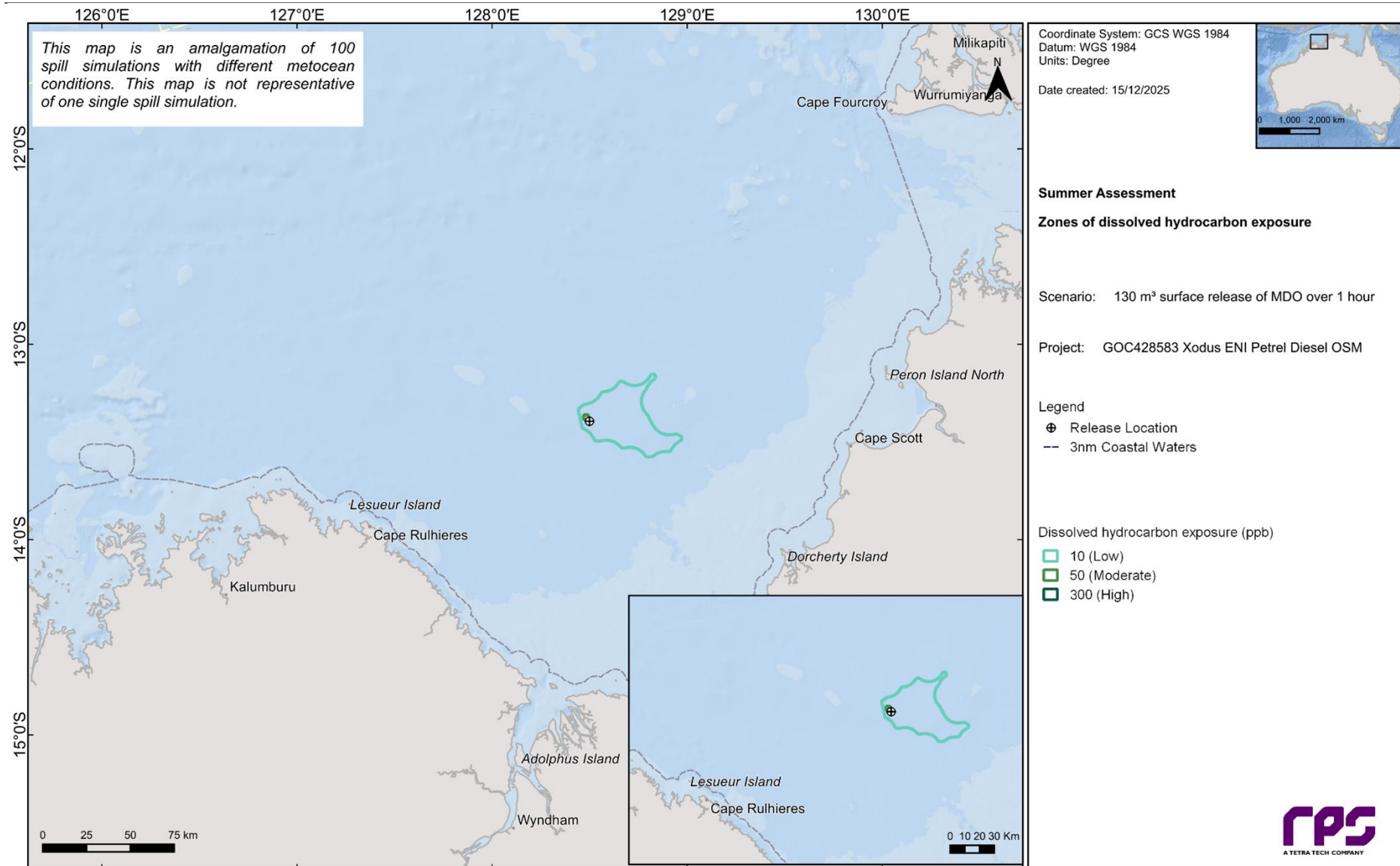


Figure 16-23 Predicted zones of dissolved hydrocarbon exposure following a vessel collision at the mid-point between the WYE and Petrel riser platform. The results were calculated from 100 spill simulations and represent summer conditions.

REPORT

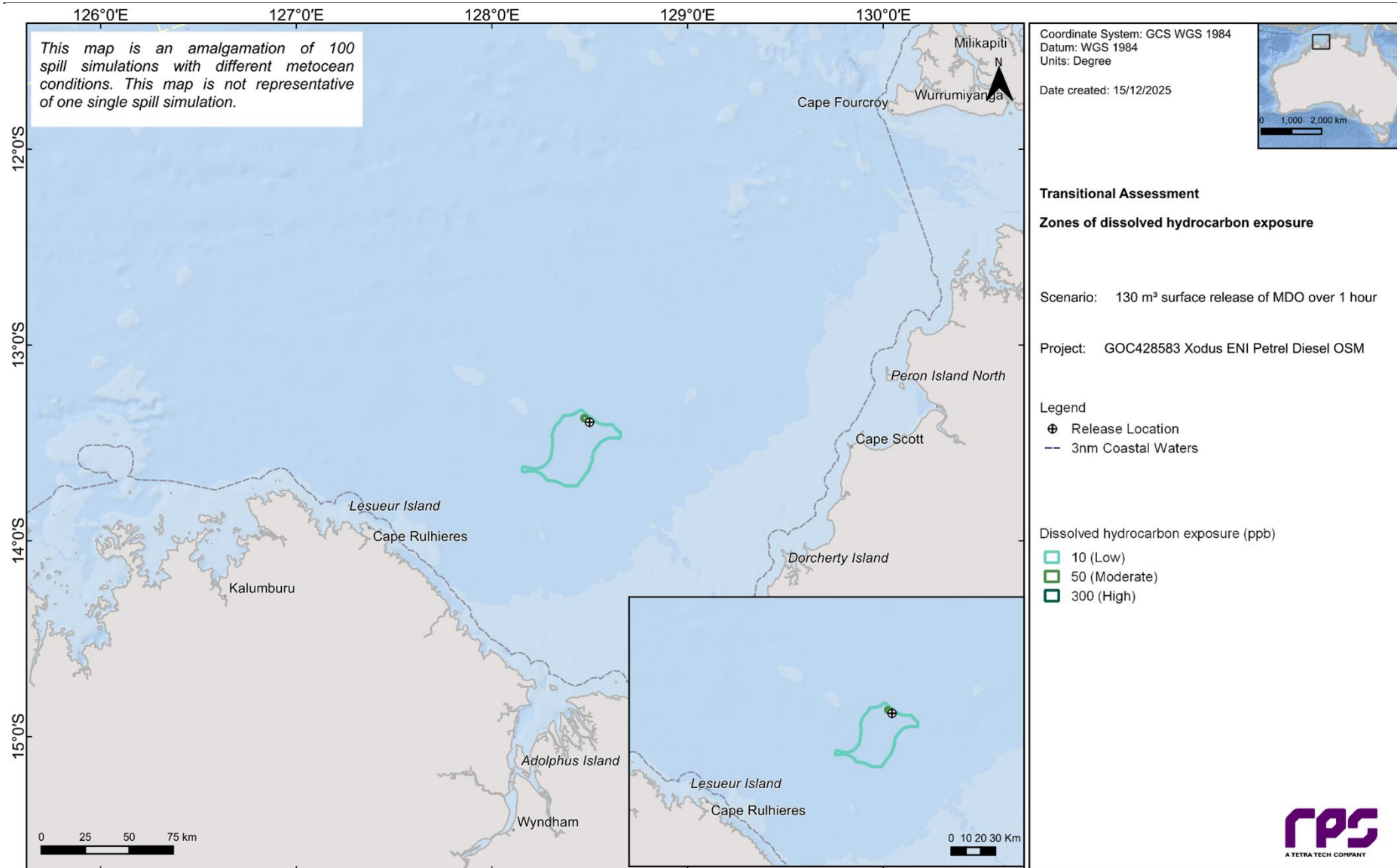


Figure 16-24 Predicted zones of dissolved hydrocarbon exposure following a vessel collision at the mid-point between the WYE and Petrel riser platform. The results were calculated from 100 spill simulations and represent transitional conditions.

REPORT

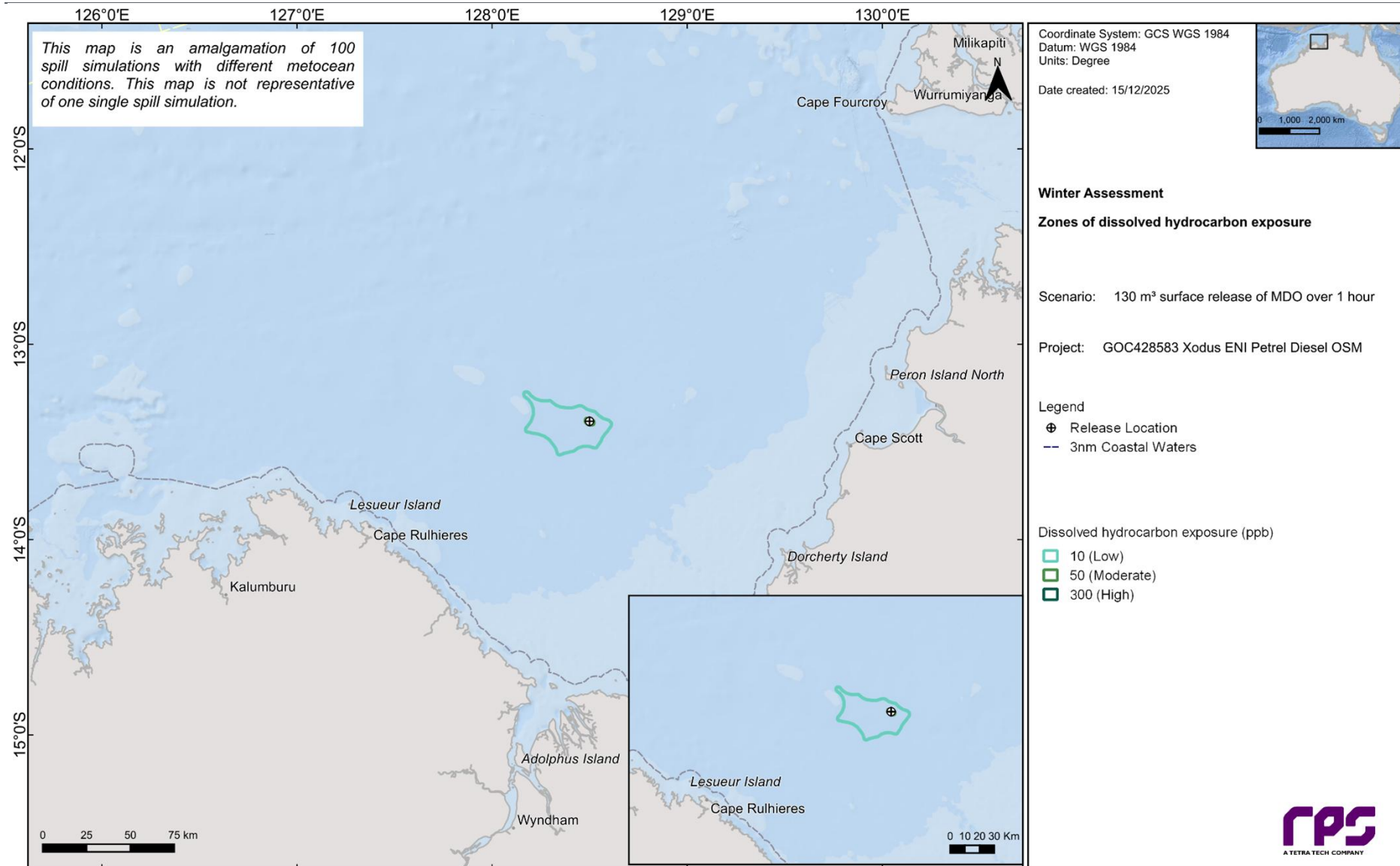


Figure 16-25 Predicted zones of dissolved hydrocarbon exposure following a vessel collision at the mid-point between the WYE and Petrel riser platform. The results were calculated from 100 spill simulations and represent winter conditions.

This map is an amalgamation of 100 spill simulations with different meteorological conditions. This map is not representative of one single spill simulation.

Coordinate System: GCS WGS 1984
Datum: WGS 1984
Units: Degree

Date created: 15/12/2025

Summer Assessment

Probability of dissolved hydrocarbon exposure above 10 ppb

Scenario: 130 m³ surface release of MDO over 1 hour

Project: GOC428583 Xodus ENI Petrel Diesel OSM

Legend

- ⊕ Release Location
- - - 3nm Coastal Waters

Probability of Dissolved Hydrocarbon Exposure (%)

- 0 - 1
- 1 - 5
- 5 - 10
- 10 - 25
- 25 - 50
- 50 - 70
- 70 - 100

Geographical labels: Milikapiti, Wurrumiyanga, Cape Fourcroy, Peron Island North, Cape Scott, Lesueur Island, Cape Rulhieres, Kalumburu, Adolphus Island, Wyndham, Dorcherty Island.

Scale: 0 25 50 75 km

Inset map scale: 0 1,000 2,000 km

Inset map scale: 0 10 20 30 Km

Logo: rps A TETRA TECH COMPANY

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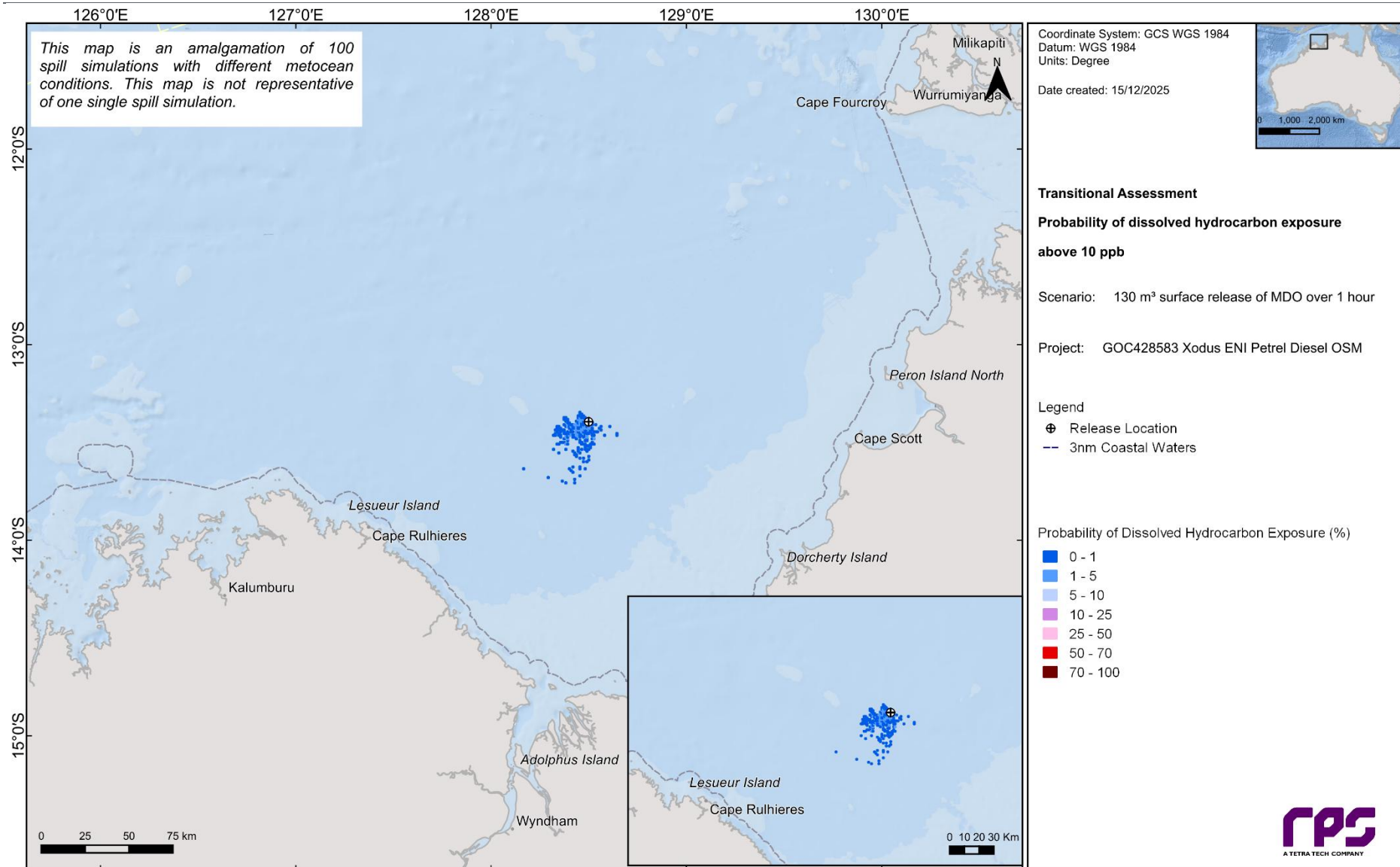


Figure 16-27 Probability of dissolved hydrocarbon exposure at, or above, 10 ppb following a vessel collision at the mid-point between the WYE and Petrel riser platform. The results were calculated from 100 spill simulations and represent transitional conditions.

REPORT

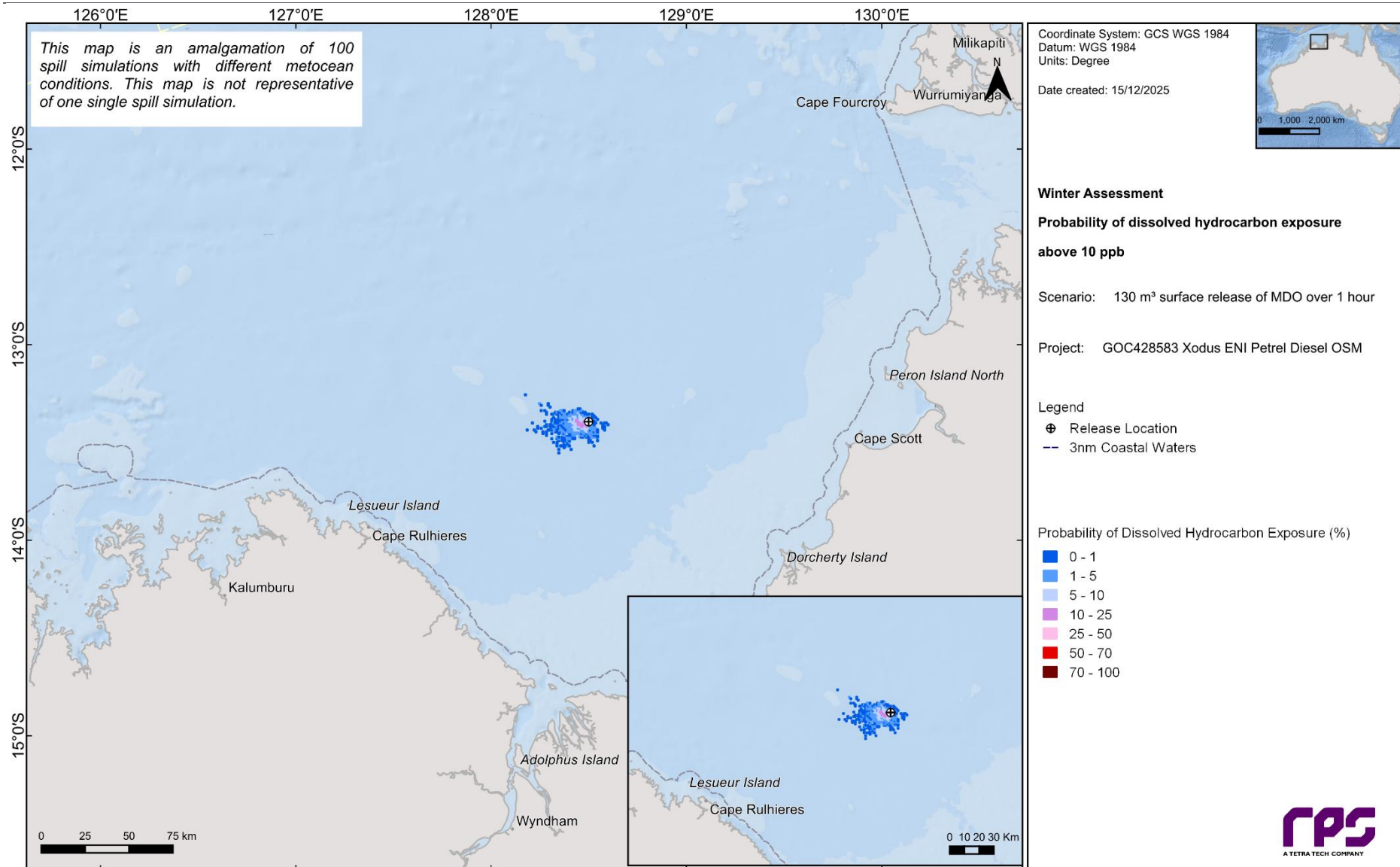


Figure 16-28 Probability of dissolved hydrocarbon exposure at, or above, 10 ppb following a vessel collision at the mid-point between the WYE and Petrel riser platform. The results were calculated from 100 spill simulations and represent winter conditions.

REPORT

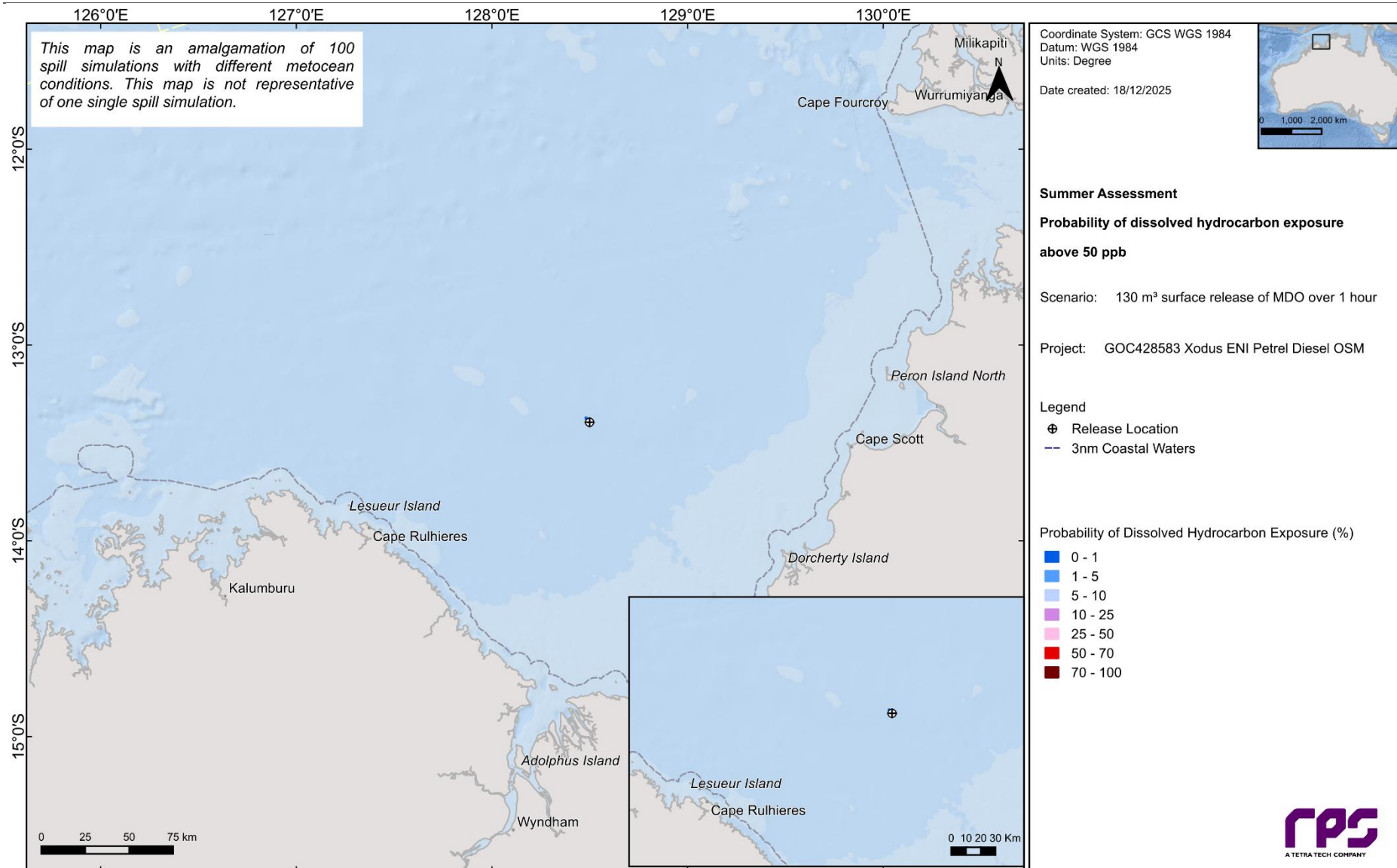


Figure 16-29 Probability of dissolved hydrocarbon exposure at, or above, 50 ppb following a vessel collision at the mid-point between the WYE and Petrel riser platform. The results were calculated from 100 spill simulations and represent summer conditions. Note the exposure is immediately adjacent to the release location.

REPORT

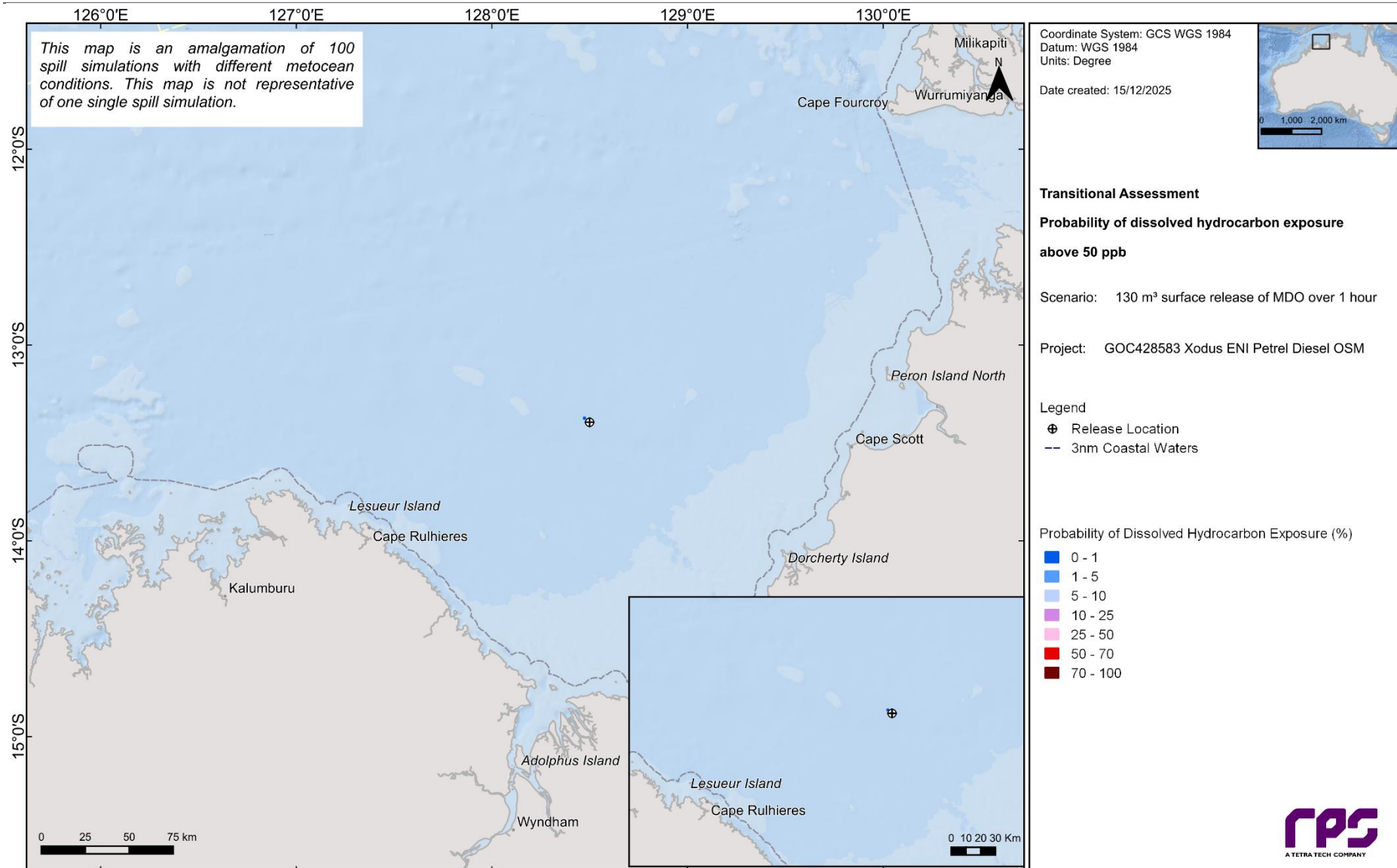


Figure 16-30 Probability of dissolved hydrocarbon exposure at, or above, 50 ppb following a vessel collision at the mid-point between the WYE and Petrel riser platform. The results were calculated from 100spill simulations and represent transitional conditions. Note the exposure is immediately adjacent to the release location.

REPORT

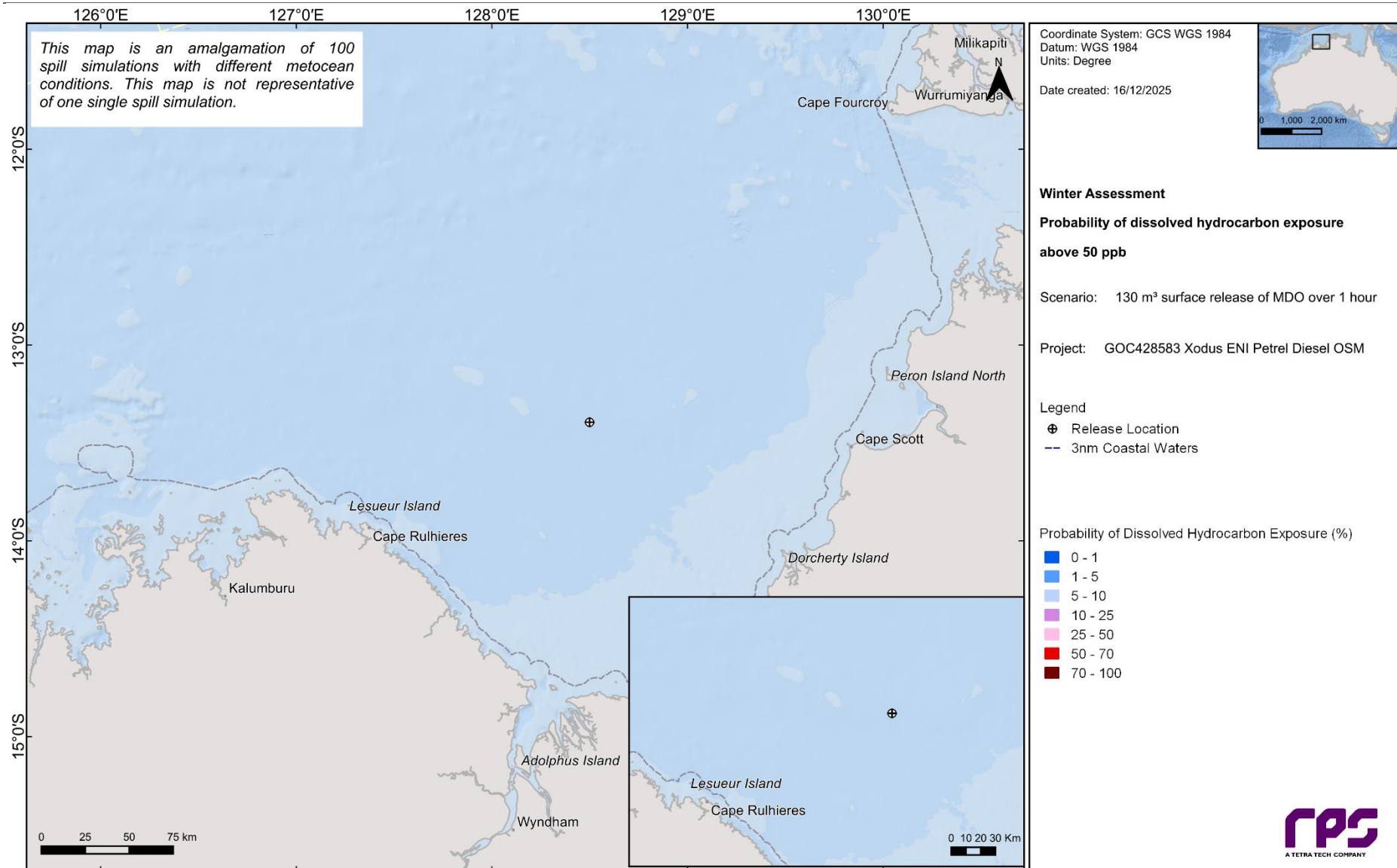


Figure 16-31 Probability of dissolved hydrocarbon exposure at, or above, 50 ppb following a vessel collision at the mid-point between the WYE and Petrel riser platform. The results were calculated from 100 spill simulations and represent winter conditions. Note the exposure is immediately adjacent to the release location.

REPORT

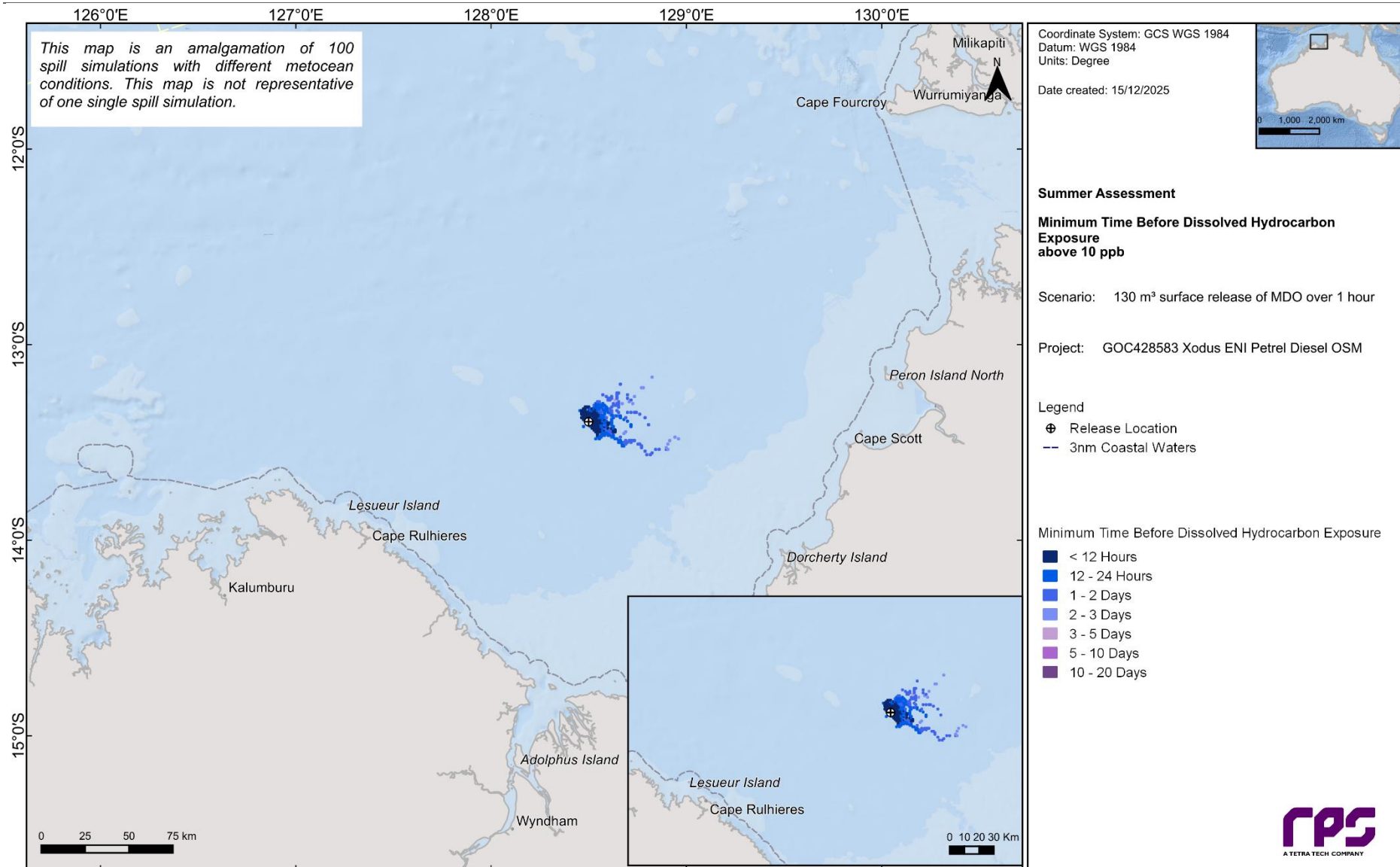


Figure 16-32 Minimum times before dissolved hydrocarbon exposure at, or above, 10 ppb following a vessel collision at the mid-point between the WYE and Petrel riser platform. The results were calculated from 100 spill simulations and represent summer conditions.

REPORT

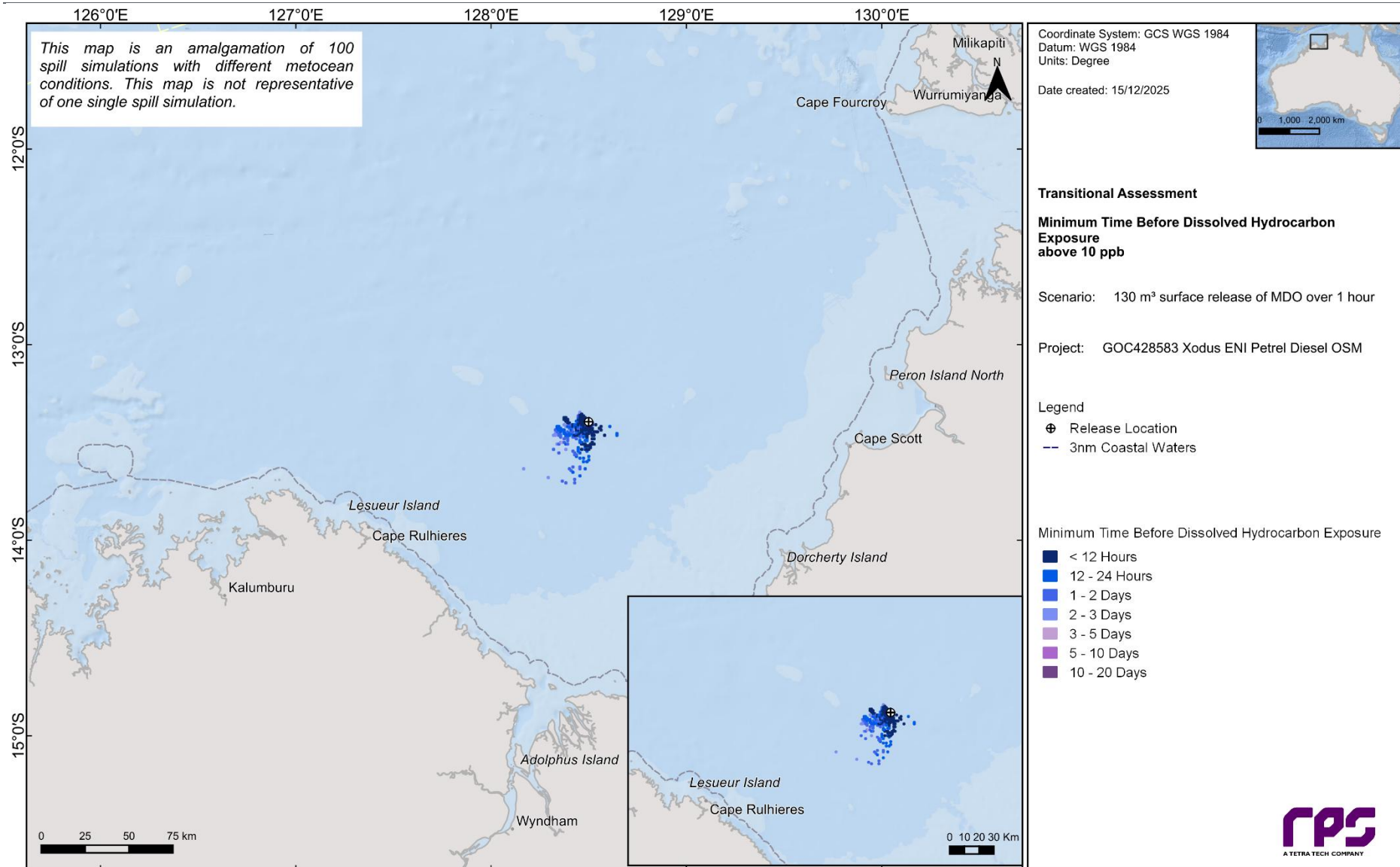


Figure 16-33 Minimum times before dissolved hydrocarbon exposure at, or above, 10 ppb following a vessel collision at the mid-point between the WYE and Petrel riser platform. The results were calculated from 100 spill simulations and represent transitional conditions.

REPORT

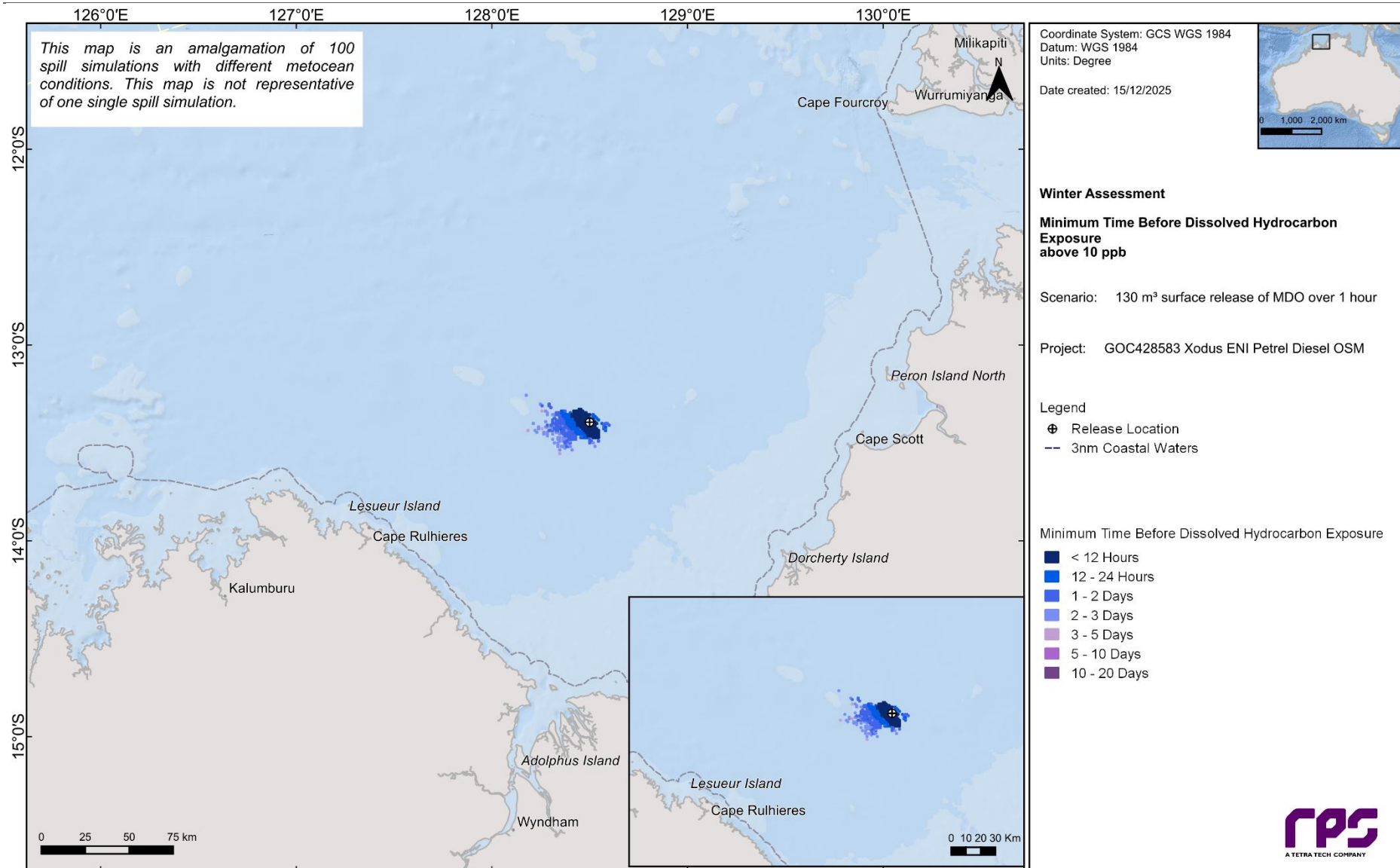


Figure 16-34 Minimum times before dissolved hydrocarbon exposure at, or above, 10 ppb following a vessel collision at the mid-point between the WYE and Petrel riser platform. The results were calculated from 100 spill simulations and represent winter conditions.

REPORT

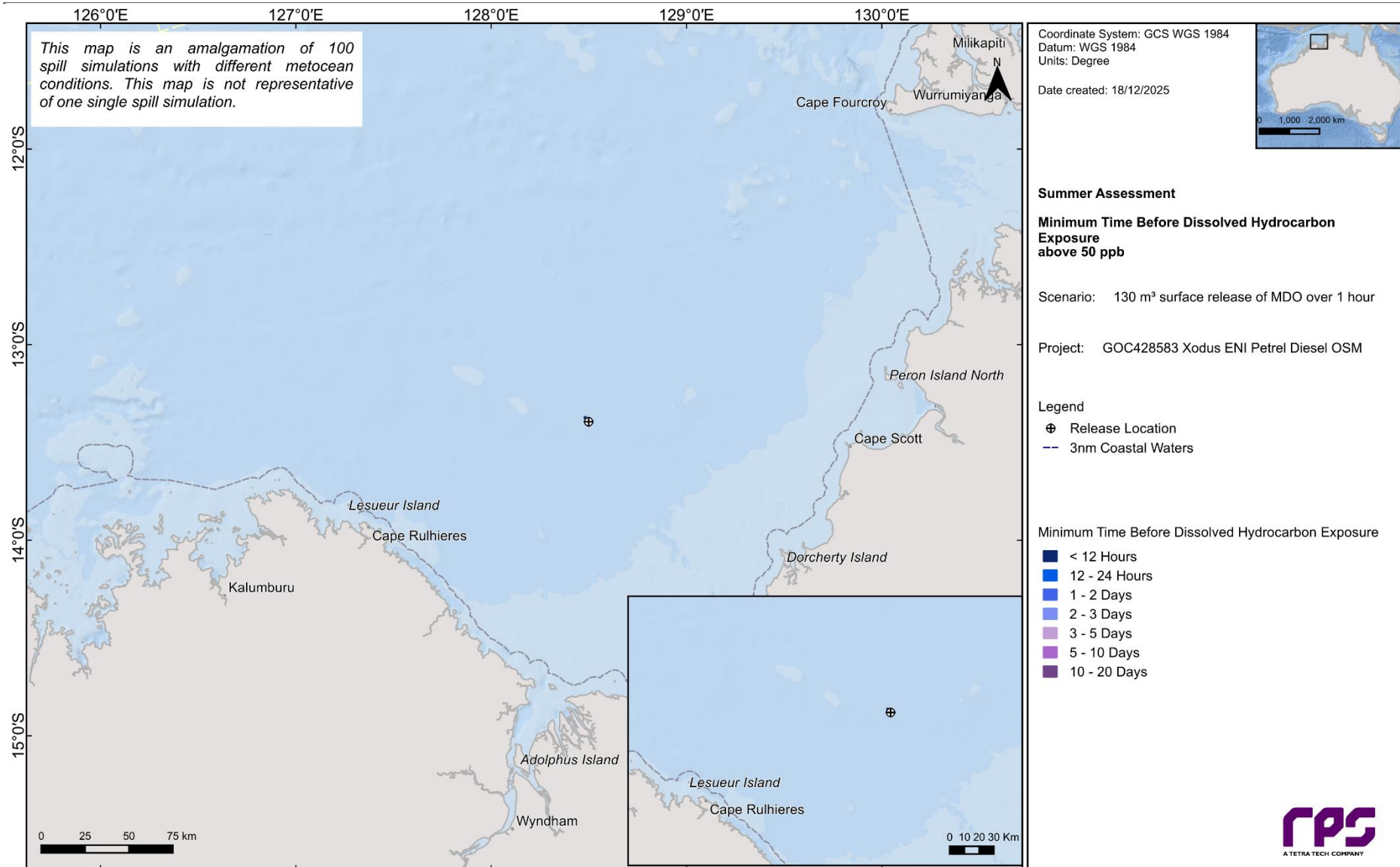


Figure 16-35 Minimum times before dissolved hydrocarbon exposure at, or above, 50 ppb following a vessel collision at the mid-point between the WYE and Petrel riser platform. The results were calculated from 100 spill simulations and represent summer conditions. Note the exposure is immediately adjacent to the release location.

REPORT

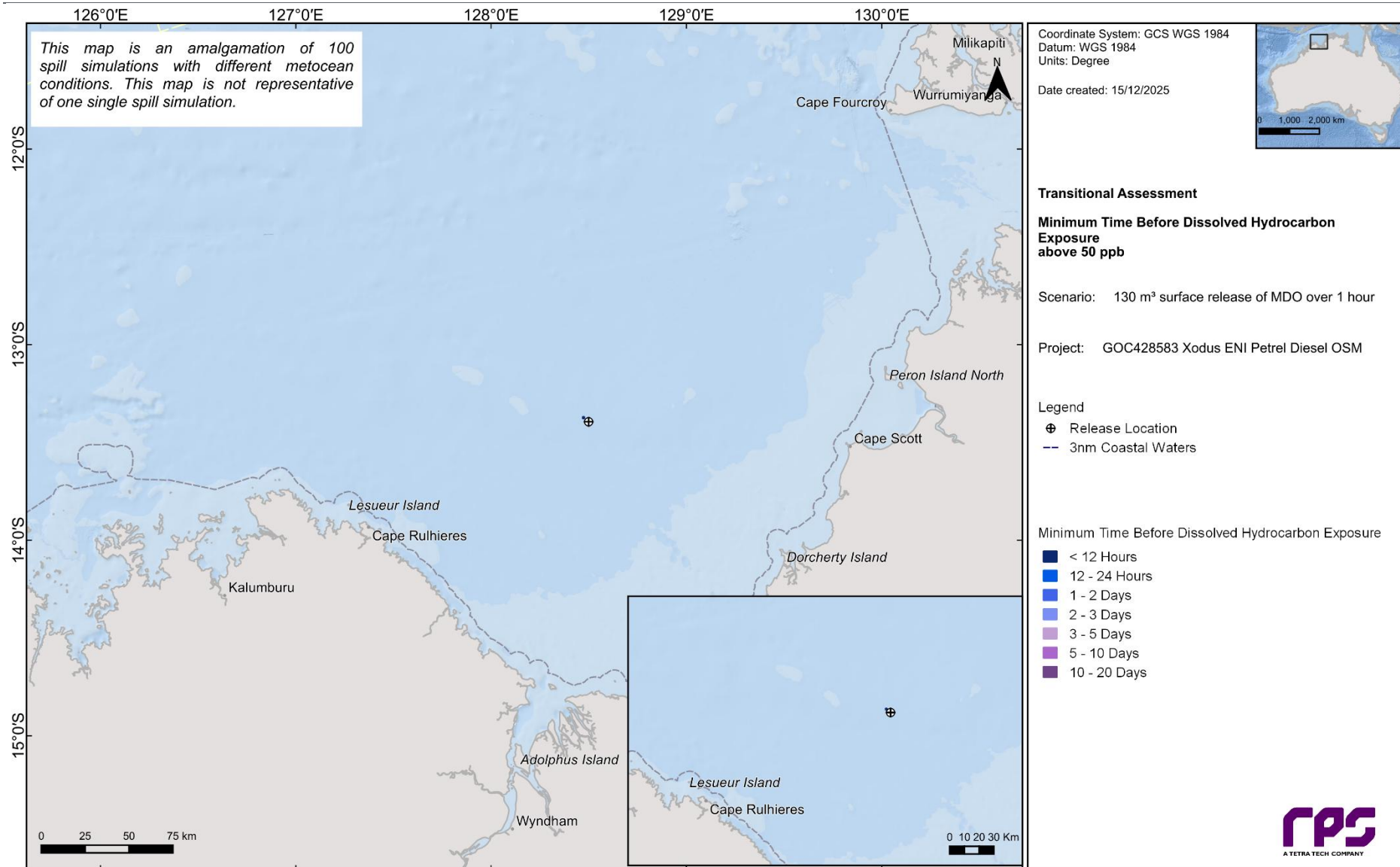


Figure 16-36 Minimum times before dissolved hydrocarbon exposure at, or above, 50 ppb following a vessel collision at the mid-point between the WYE and Petrel riser platform. The results were calculated from 100 spill simulations and represent transitional conditions. Note the exposure is immediately adjacent to the release location.

REPORT

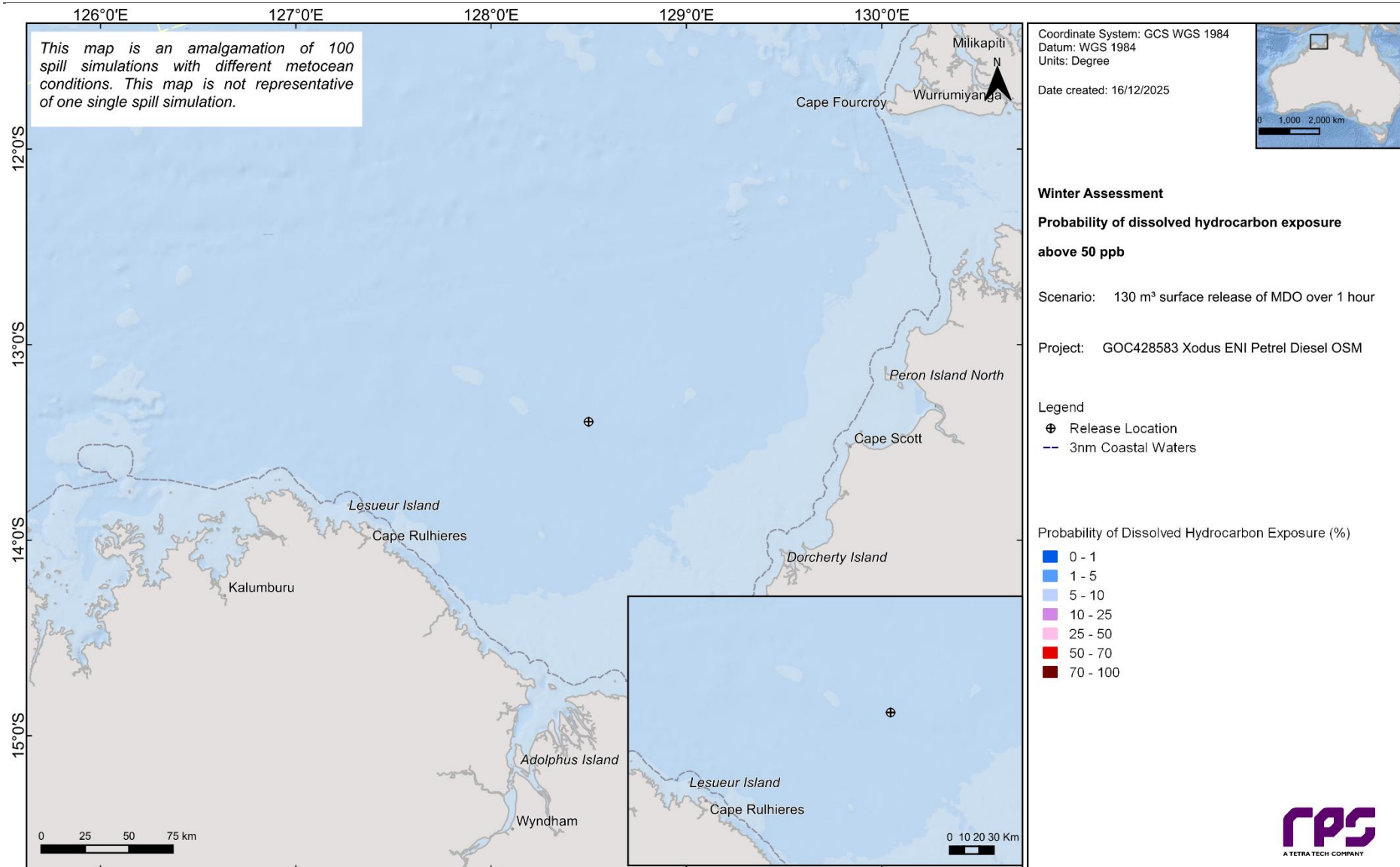


Figure 16-37 Minimum times before dissolved hydrocarbon exposure at, or above, 50 ppb following a vessel collision at the mid-point between the WYE and Petrel riser platform. The results were calculated from 100 spill simulations and represent winter conditions. Note the exposure is immediately adjacent to the release location.

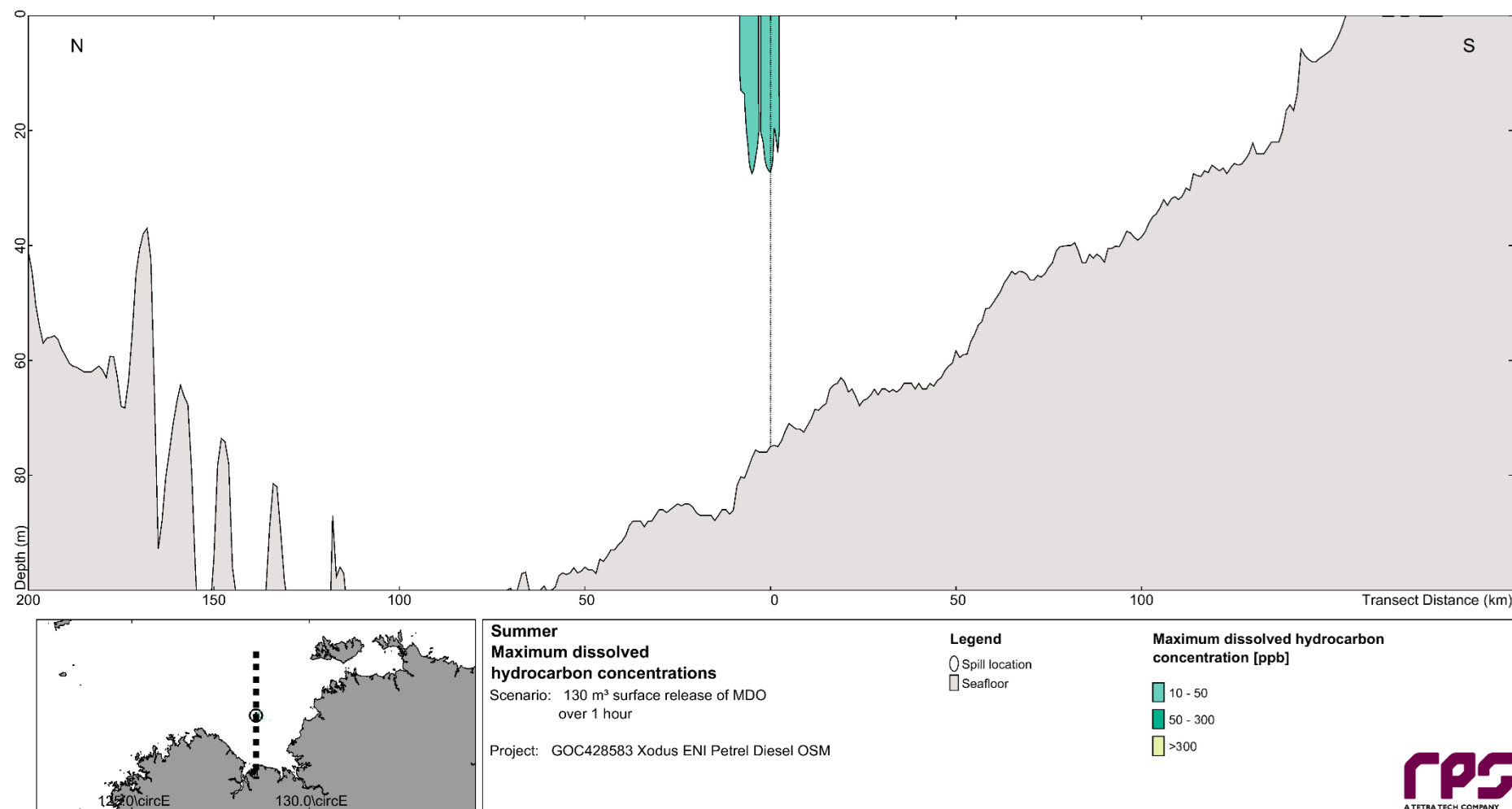


Figure 16-38 North-south cross-section transect of dissolved hydrocarbon concentrations following a vessel collision at the mid-point between the WYE and Petrel riser platform. The results were calculated from 100 spill simulations and represent summer conditions.

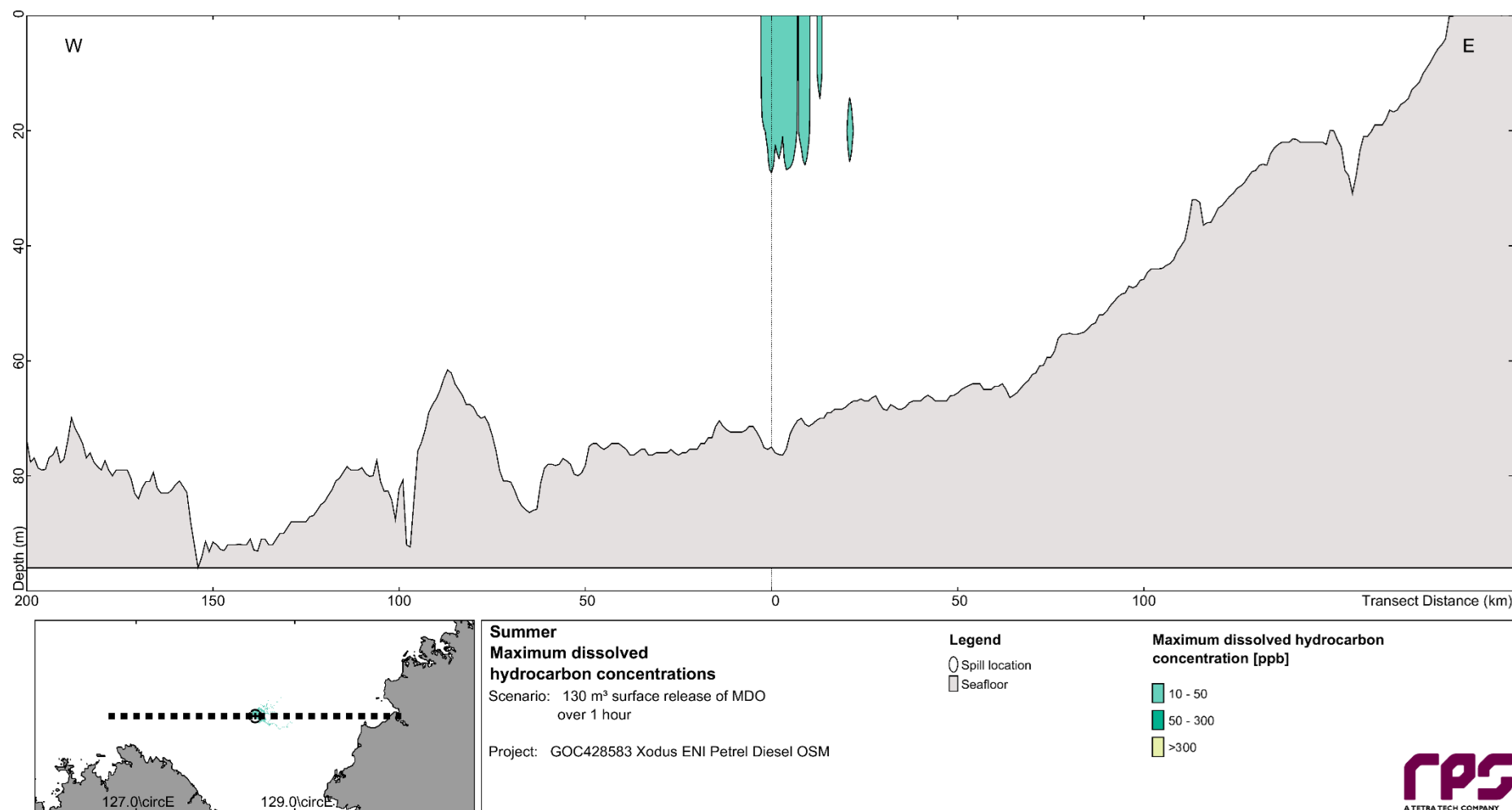


Figure 16-39 East-west cross-section transect of dissolved hydrocarbon concentrations following a vessel collision at the mid-point between the WYE and Petrel riser platform. The results were calculated from 100 spill simulations and represent summer conditions.

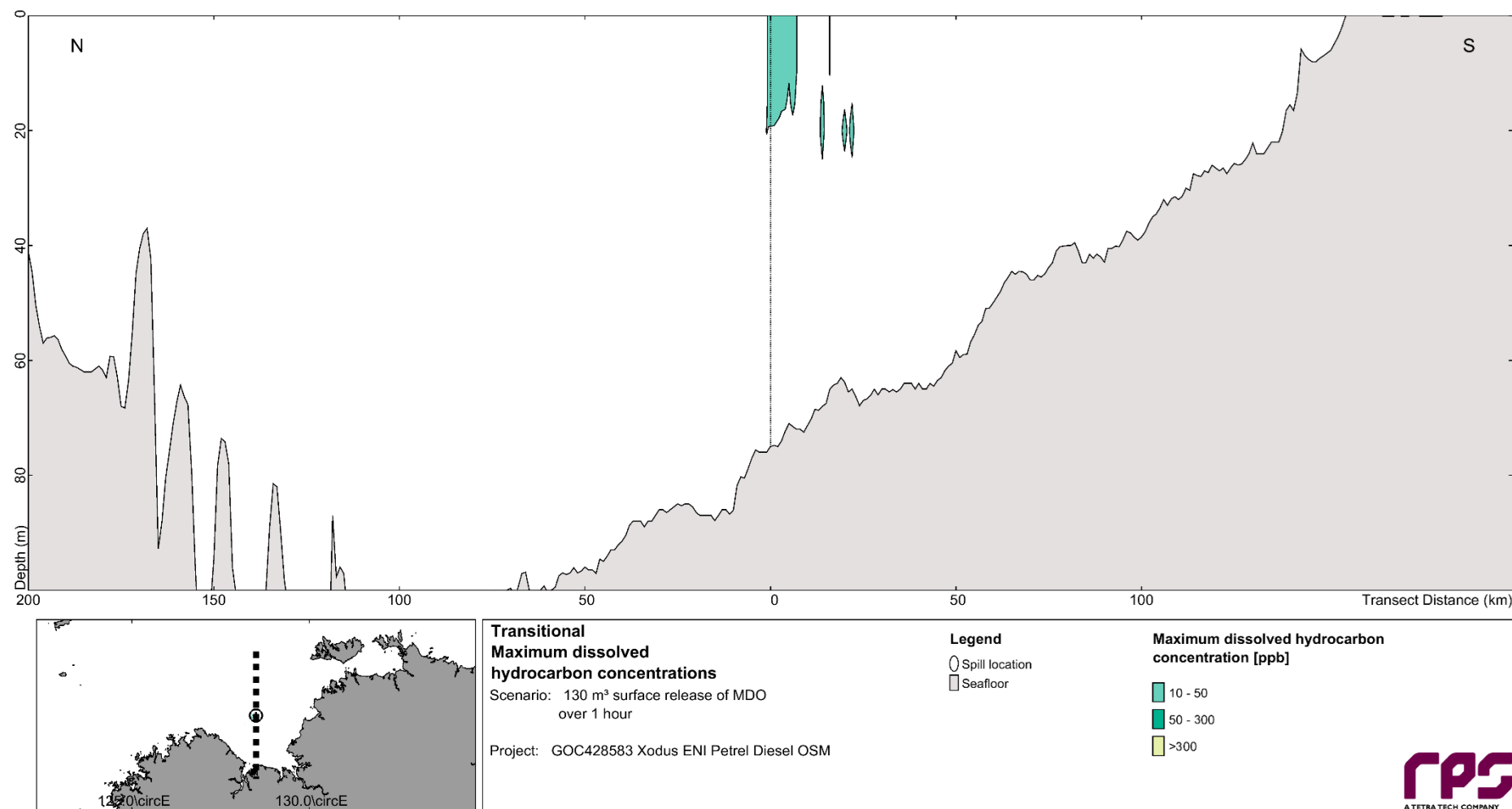


Figure 16-40 North-south cross-section transect of dissolved hydrocarbon concentrations following a vessel collision at the mid-point between the WYE and Petrel riser platform. The results were calculated from 100 spill simulations and represent transitional conditions.

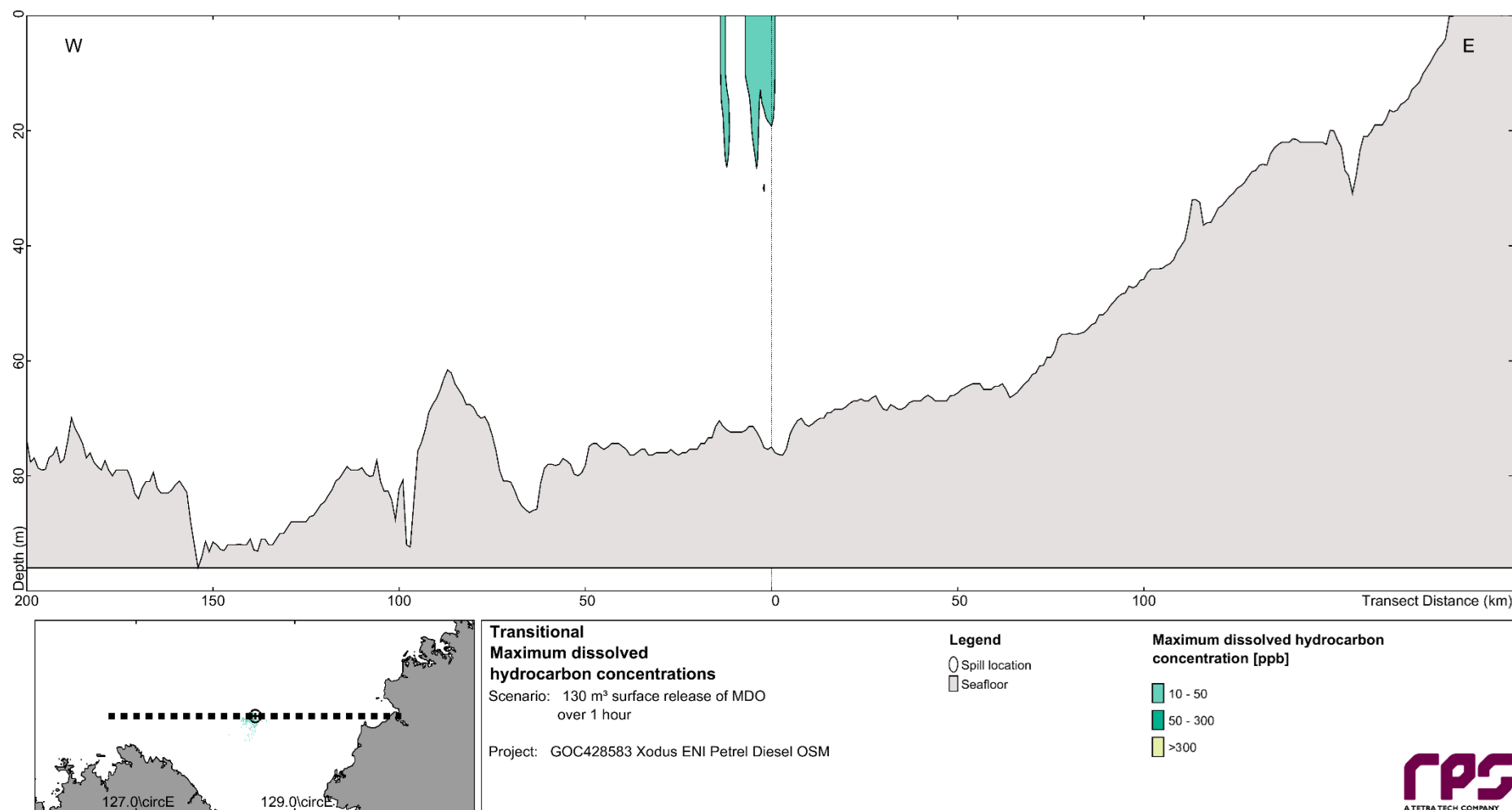


Figure 16-41 East-west cross-section transect of dissolved hydrocarbon concentrations following a vessel collision at the mid-point between the WYE and Petrel riser platform. The results were calculated from 100 spill simulations and represent transitional conditions.

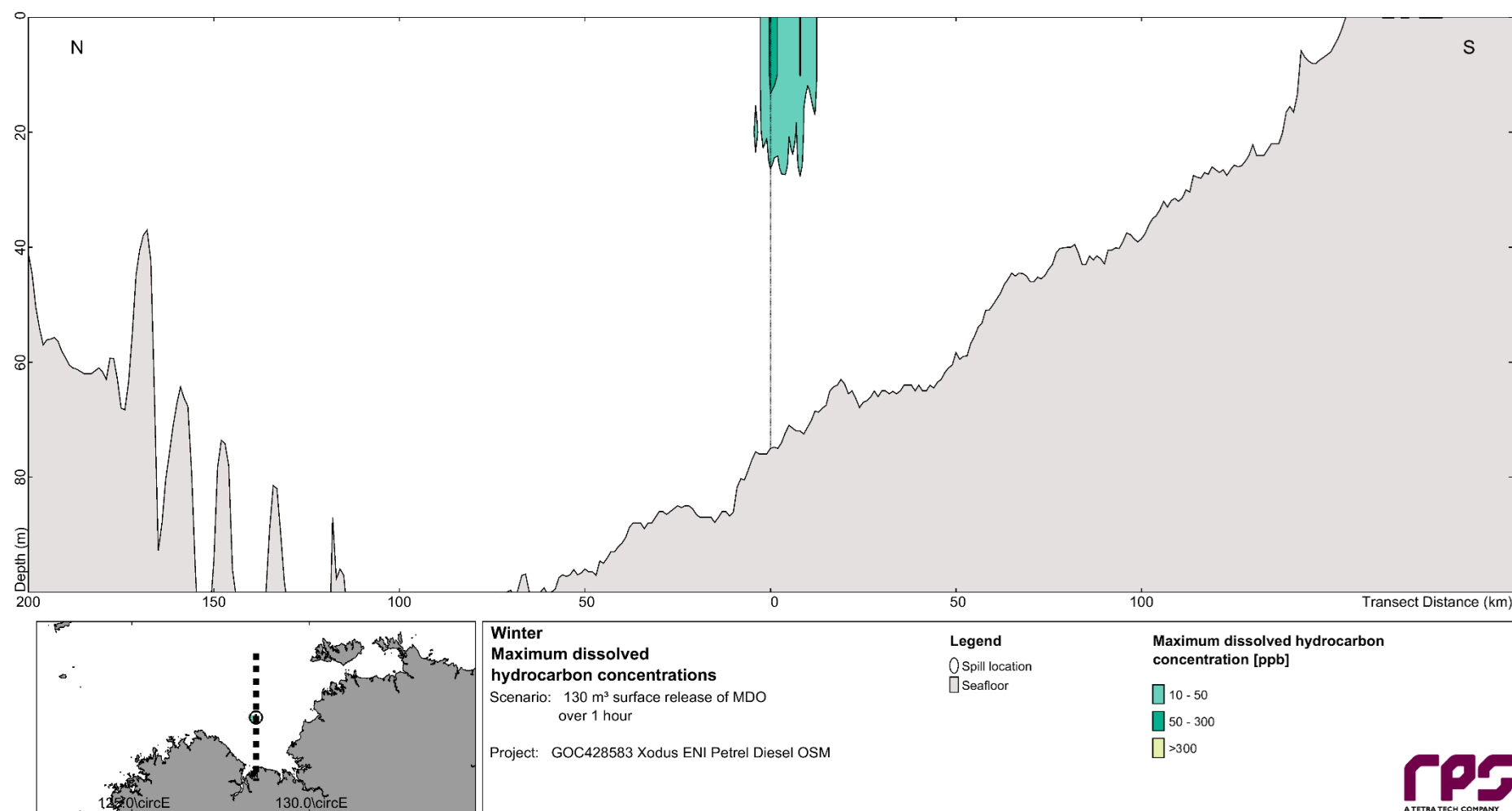


Figure 16-42 North-south cross-section transect of dissolved hydrocarbon concentrations following a vessel collision at the mid-point between the WYE and Petrel riser platform. The results were calculated from 100 spill simulations and represent winter conditions.

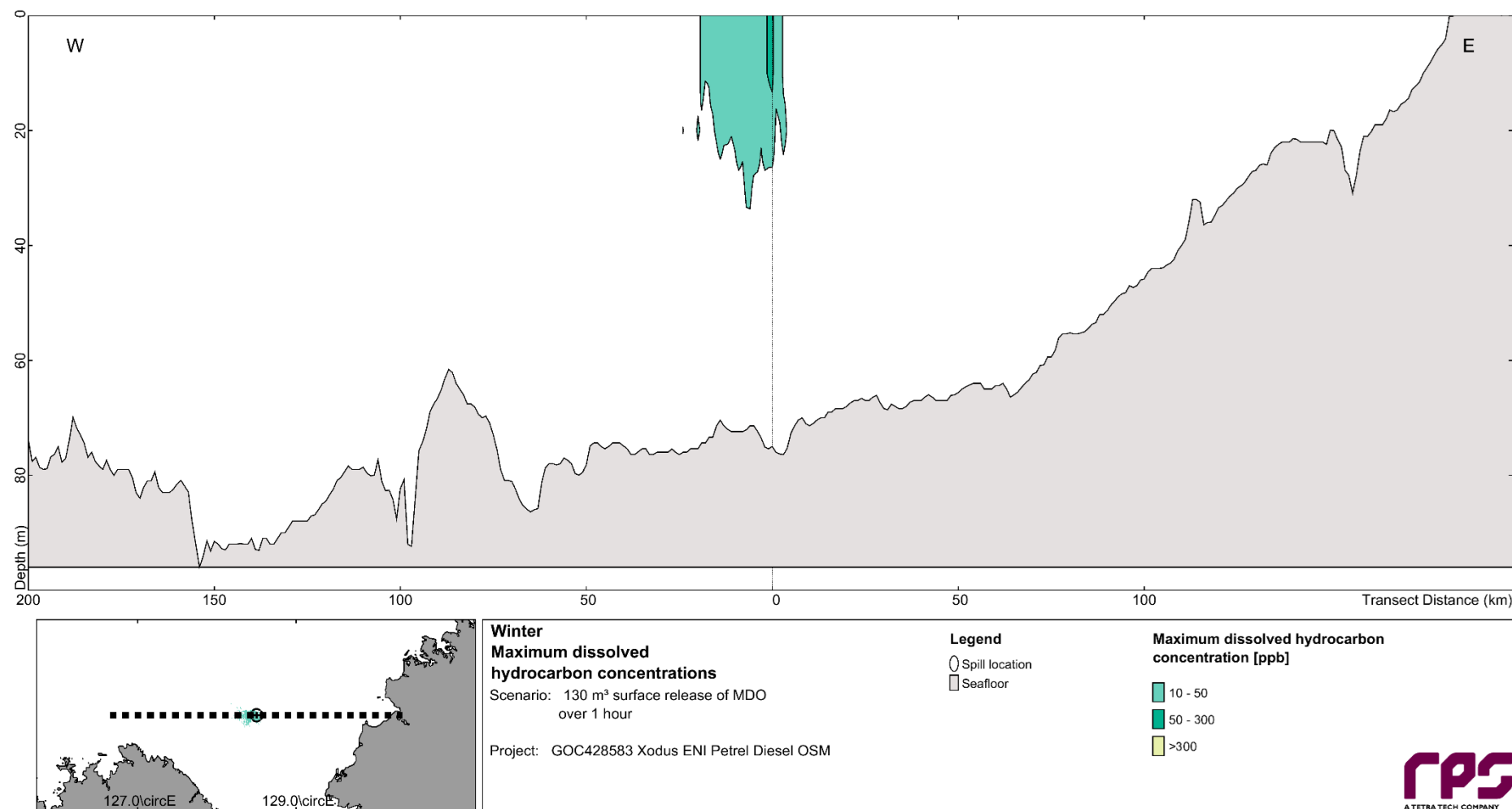


Figure 16-43 East-west cross-section transect of dissolved hydrocarbon concentrations following a vessel collision at the mid-point between the WYE and Petrel riser platform. The results were calculated from 100 spill simulations and represent winter conditions.

16.1.4.2 Entrained Hydrocarbons

Table 16-9 summarises the maximum distances from the release location to entrained hydrocarbon thresholds for each season. Concentrations exceeding 10 ppb may potentially extend up to 263 km from the release location. As the threshold increases to 100 ppb and 1,000 ppb, the maximum distance decreases to 77 km and 16 km, respectively.

Table 16-10 to Table 16-12 summarise the receptors exposed to entrained hydrocarbons (either at receptor depth, or above receptors in the overlying water column). Since the release location falls within the Bonaparte Gulf IMCRA and North (Marine) MR, the results commentary for these receptors is omitted; however, the results are included in the table.

The North-west (Marine) MR receptor recorded the highest probability of exposure at, or above, 10 ppb with 77% during winter conditions. During all seasonal conditions modelled, the same receptor recorded the earliest time before exposure at 1 hour after the spill commencement. Additionally, the same receptor recorded the highest concentration at 5,739 ppb during winter conditions.

Figure 16-44 to Figure 16-46 illustrate the zones of exposure to entrained hydrocarbons for each season, whilst Figure 16-47 to Figure 16-64 display the probability of exposure and minimum exposure times for each threshold.

Cross-sectional transects (north-south and east-west) of the maximum entrained hydrocarbons in the vicinity of the release site for summer, transitional and winter conditions are presented in Figure 16-65 to Figure 16-70.

Table 16-9 Maximum distance from the release location to entrained hydrocarbon exposure threshold following a vessel collision at the mid-point between the WYE and Petrel riser platform. Results were calculated from 100 spill simulations per season.

Season	Distance and direction travelled	Entrained hydrocarbon exposure threshold		
		≥10 ppb	≥100 ppb	≥1,000 ppb
Summer	Maximum distance travelled (km) by a spill simulation	216	77	15
	Direction of maximum travel	Northeast	Southeast	Southeast
Transitional	Maximum distance travelled (km) by a spill simulation	263	55	16
	Direction of maximum travel	West	Southwest	South
Winter	Maximum distance travelled (km) by a spill simulation	234	60	13
	Direction of maximum travel	West	Northwest	West

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Table 16-10 Receptors predicted to be exposed by entrained hydrocarbons following a vessel collision at the mid-point between the WYE and Petrel riser platform. The results were calculated from 100 spill simulations and represent summer conditions.

Category	Name	Probability (%) of entrained hydrocarbon exposure at			Minimum time before entrained exposure at			Maximum entrained hydrocarbon concentrations (ppb)	
		≥ 10 ppb	≥ 100 ppb	≥ 1,000 ppb	≥ 10 ppb	≥ 100 ppb	≥ 1,000 ppb	averaged over all simulations	for the worst simulation
AMP	Oceanic Shoals	1	NC	NC	11 days, 7 hours	NC	NC	<1	12
	Joseph Bonaparte Gulf	1	NC	NC	1 days, 14 hours	NC	NC	<1	93
IMCRA-MESO	Anson Beagle	1	NC	NC	1 days, 16 hours	NC	NC	<1	15
	Bonaparte Gulf ¹	75	54	18	1 hours	1 hours	1 hours	573	5,277
	Oceanic Shoals	1	NC	NC	7 days, 4 hours	NC	NC	<1	12
KEF	Carbonate bank and terrace system of the Sahul Shelf	8	NC	NC	7 days, 10 hours	NC	NC	2	24
MR	North (Marine) ¹	75	54	18	1 hour	1 hour	1 hours	573	5,277
	North-west (Marine)	50	35	8	1 hour	1 hour	2 hours	246	4,686
RSB	Flat Top Bank	2	NC	NC	9 days, 23 hours	NC	NC	<1	14
TUR	Brace Point to One Tree Point, including all offshore islands. 60km internesting buffer	1	NC	NC	12 days, 11 hours	NC	NC	<1	14

NC: No contact to receptor predicted for specified threshold.

¹Release location falls within the Bonaparte Gulf IMCRA and North (Marine) MR

REPORT

Table 16-11 Receptors predicted to be exposed by entrained hydrocarbons following a vessel collision at the mid-point between the WYE and Petrel riser platform. The results were calculated from 100 spill simulations and represent transitional conditions.

Category	Name	Probability (%) of entrained hydrocarbon exposure at			Minimum time before entrained exposure at			Maximum entrained hydrocarbon concentrations (ppb)	
		≥ 10 ppb	≥ 100 ppb	≥ 1,000 ppb	≥ 10 ppb	≥ 100 ppb	≥ 1,000 ppb	averaged over all simulations	for the worst simulation
AMP	Kimberley	2	NC	NC	10 days, 16 hours	NC	NC	<1	14
IMCRA-MESO	Bonaparte Gulf ¹	59	42	12	1 hour	1 hour	1 hour	427	5,928
	Kimberley	7	NC	NC	8 days, 15 hours	NC	NC	2	20
	Oceanic Shoals	2	NC	NC	9 days, 13 hours	NC	NC	<1	14
KEF	Carbonate bank and terrace system of the Sahul Shelf	23	NC	NC	3 days, 21 hours	NC	NC	6	52
	Pinnacles of the Bonaparte Basin	1	NC	NC	8 days, 2 hours	NC	NC	<1	13
MR	North (Marine) ¹	59	42	12	1 hour	1 hour	1 hour	427	5,928
	North-west (Marine)	51	39	9	1 hour	1 hour	2 hours	284	4,111
RSB	Holothuria Banks	1	NC	NC	12 days, 9 hours	NC	NC	<1	12

NC: No contact to receptor predicted for specified threshold.

¹Release location falls within the Bonaparte Gulf IMCRA and North (Marine) MR

REPORT

Table 16-12 Receptors predicted to be exposed by entrained hydrocarbons following a vessel collision at the mid-point between the WYE and Petrel riser platform. The results were calculated from 100 spill simulations and represent winter conditions.

Category	Name	Probability (%) of entrained hydrocarbon exposure at			Minimum time before entrained exposure at			Maximum entrained hydrocarbon concentrations (ppb)	
		≥ 10 ppb	≥ 100 ppb	≥ 1,000 ppb	≥ 10 ppb	≥ 100 ppb	≥ 1,000 ppb	averaged over all simulations	for the worst simulation
AMP	Oceanic Shoals	1	NC	NC	16 days, 2 hours	NC	NC	<1	13
IMCRA-MESO	Bonaparte Gulf ¹	78	65	24	1 hour	1 hour	1 hour	785	6,485
	Cambridge-Bonaparte	1	NC	NC	13 days, 6 hours	NC	NC	<1	11
	Kimberley	2	NC	NC	11 days, 19 hours	NC	NC	<1	16
	Oceanic Shoals	2	NC	NC	9 days, 1 hours	NC	NC	<1	18
KEF	Carbonate bank and terrace system of the Sahul Shelf	16	NC	NC	4 days, 8 hours	NC	NC	4	57
	Pinnacles of the Bonaparte Basin	3	NC	NC	4 days, 18 hours	NC	NC	2	72
MP	North Kimberley	1	NC	NC	13 days, 7 hours	NC	NC	<1	16
MR	North (Marine) ¹	78	63	24	1 hour	1 hour	1 hour	785	6,485
	North-west (Marine)	77	65	20	1 hour	1 hour	1 hour	619	5,739
NHPN	The West Kimberley	1	NC	NC	13 days, 7 hours	NC	NC	<1	16
State Waters	Western Australia	1	NC	NC	13 days, 7 hours	NC	NC	<1	16
TUR	Cape Domett and Lacrosse Island in the Cambridge Gulf. 60km internersting buffer	3	NC	NC	11 days, 2 hours	NC	NC	<1	18

NC: No contact to receptor predicted for specified threshold.

¹Release location falls within the Bonaparte Gulf IMCRA and North (Marine) MR

REPORT

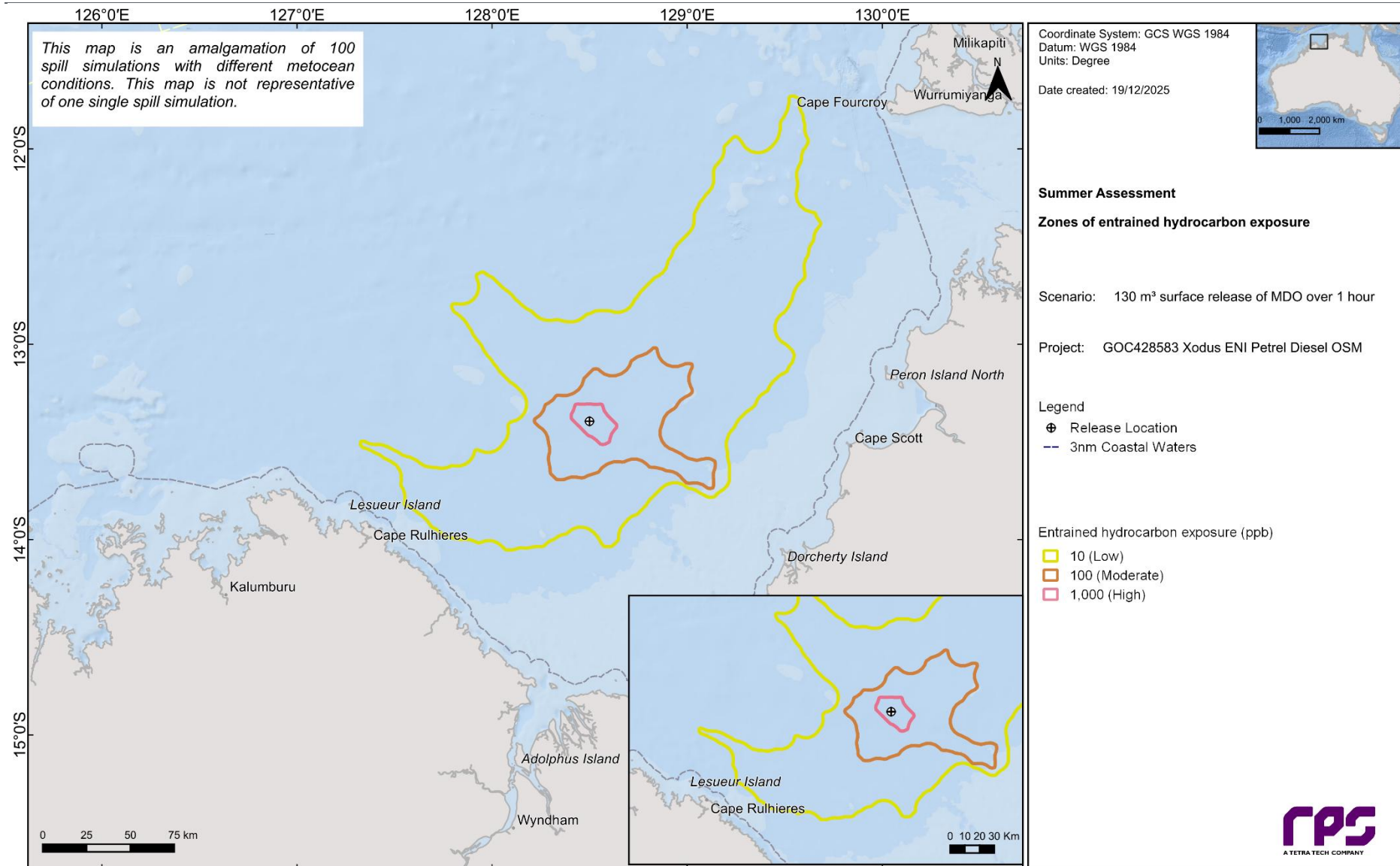


Figure 16-44 Zone of entrained hydrocarbon exposure following a vessel collision at the mid-point between the WYE and Petrel riser platform. The results were calculated from 100 spill simulations and represent summer conditions.

REPORT

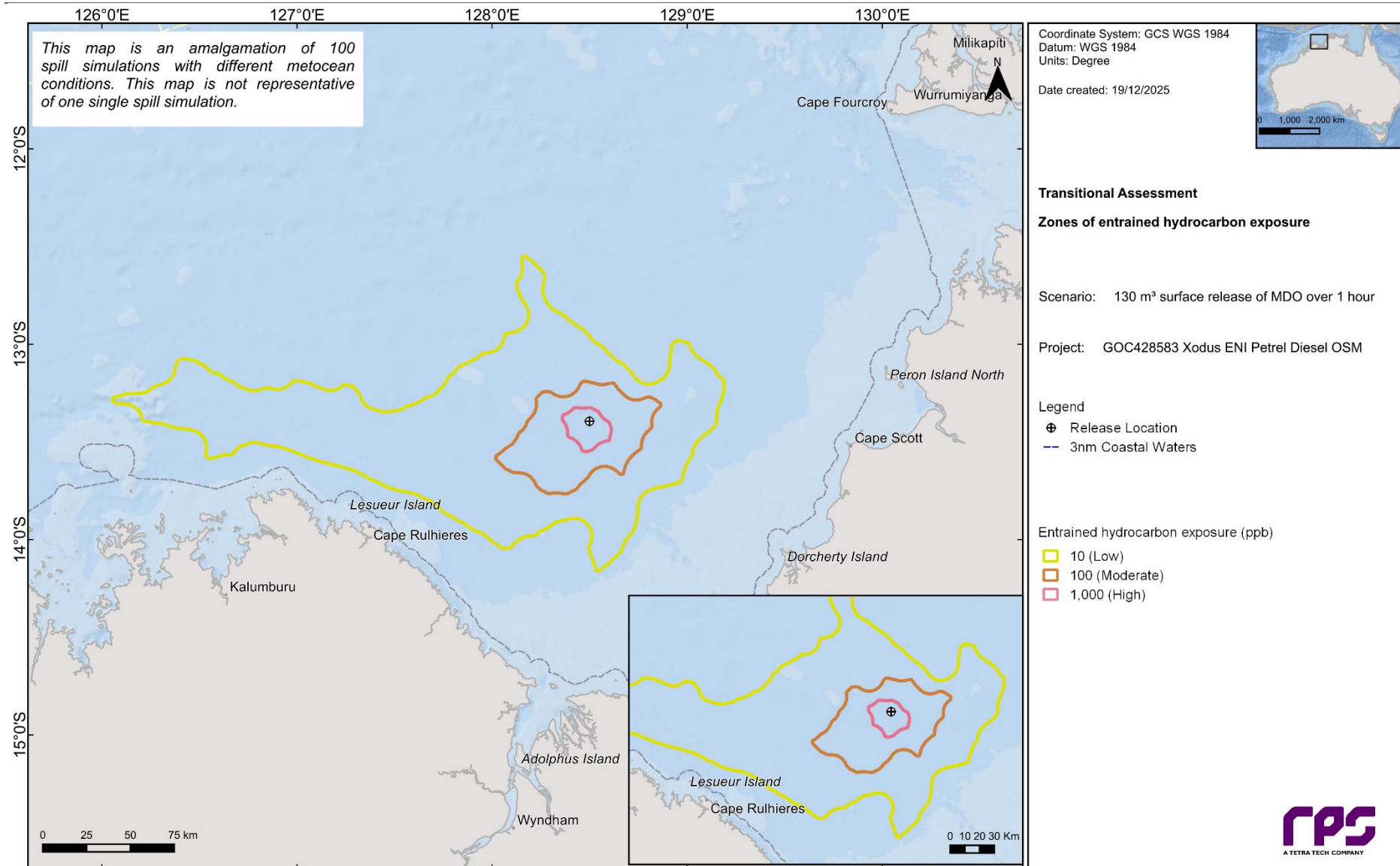


Figure 16-45 Zone of entrained hydrocarbon exposure following a vessel collision at the mid-point between the WYE and Petrel riser platform. The results were calculated from 100 spill simulations and represent transitional conditions.

REPORT

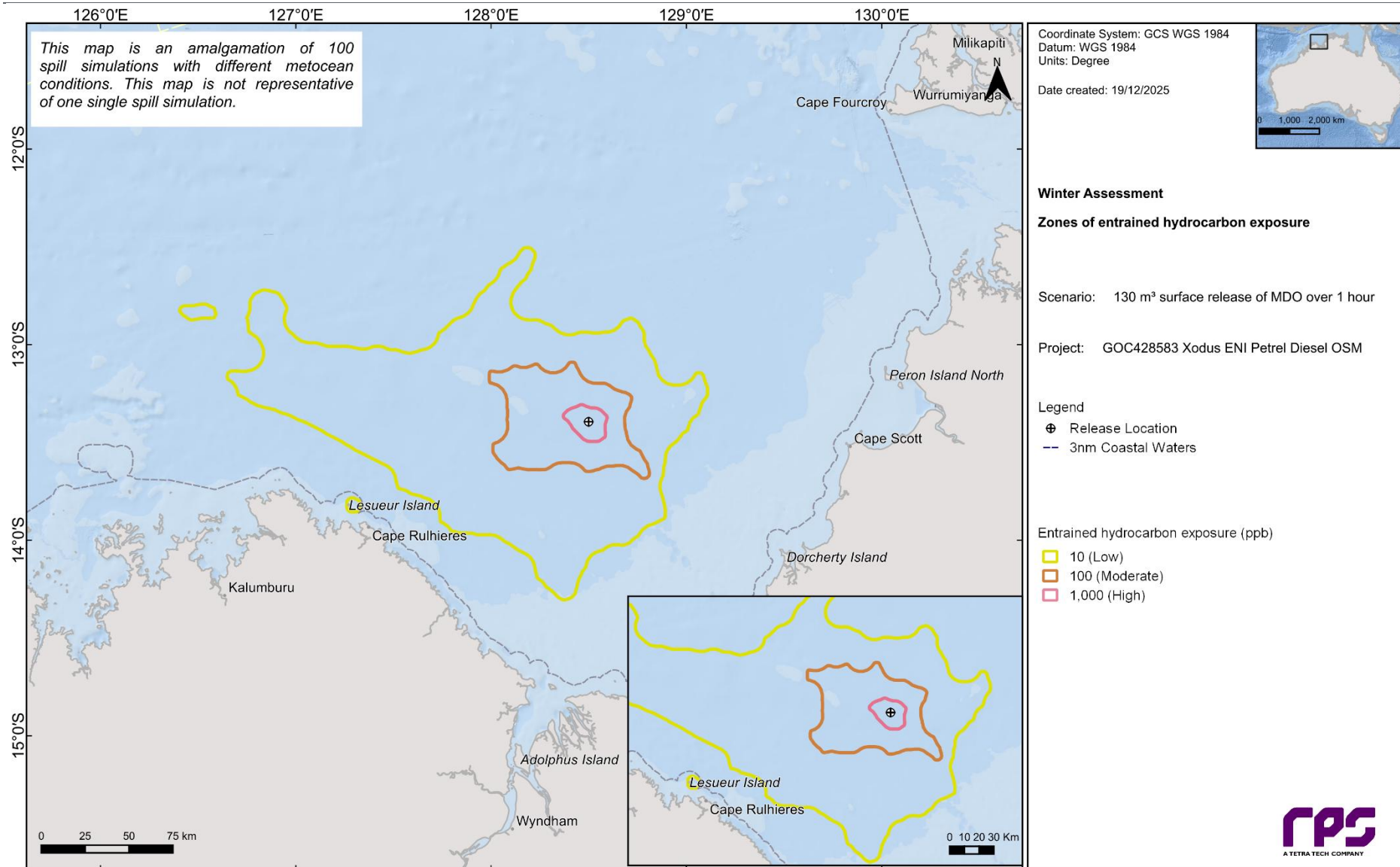


Figure 16-46 Zone of entrained hydrocarbon exposure following a vessel collision at the mid-point between the WYE and Petrel riser platform. The results were calculated from 100 spill simulations and represent winter conditions.

REPORT

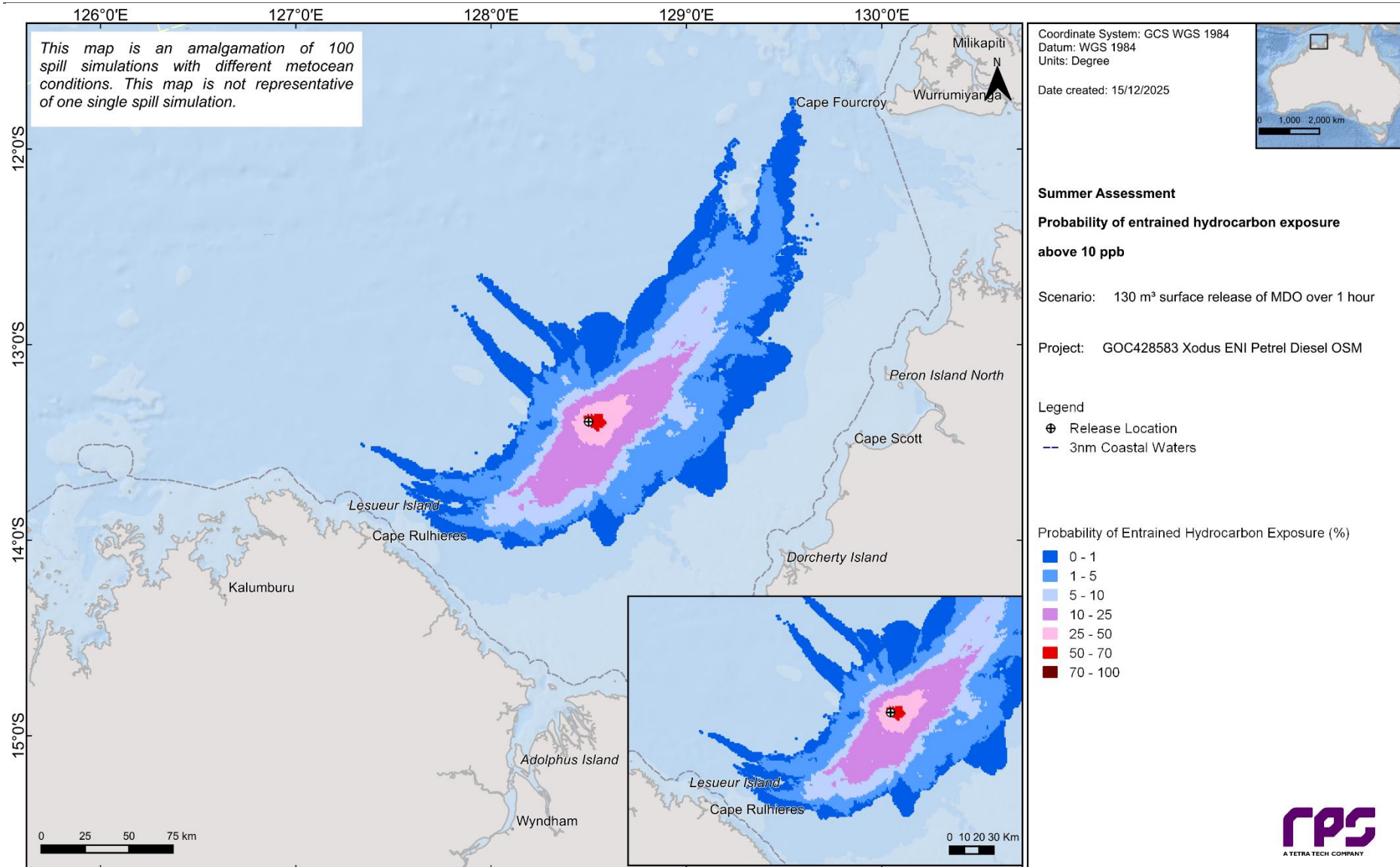


Figure 16-47 Probability of entrained hydrocarbon exposure at, or above, 10 ppb following a vessel collision at the mid-point between the WYE and Petrel riser platform. The results were calculated from 100 spill simulations and represent summer conditions.

REPORT

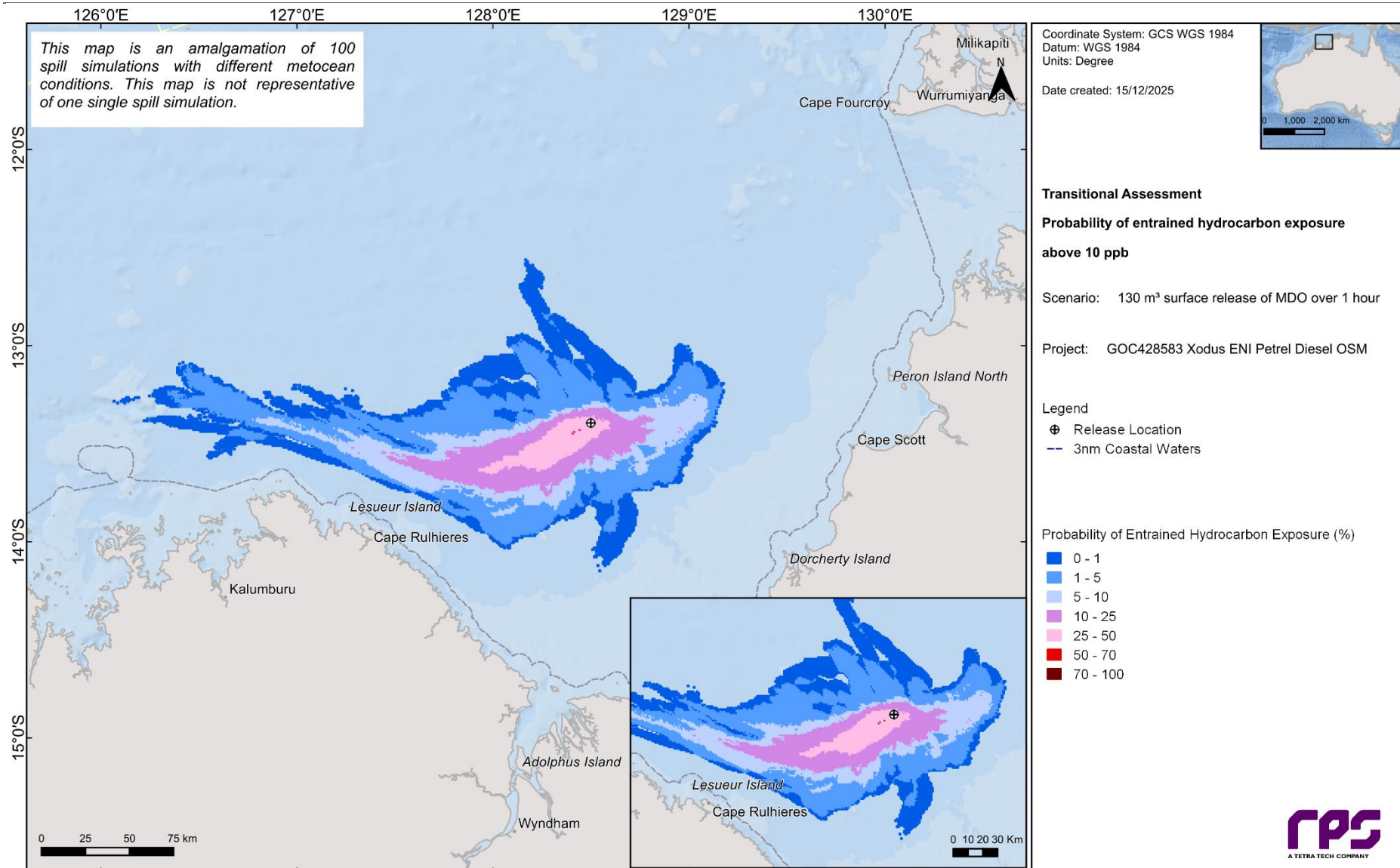


Figure 16-48 Probability of entrained hydrocarbon exposure at, or above, 10 ppb following a vessel collision at the mid-point between the WYE and Petrel riser platform. The results were calculated from 100 spill simulations and represent transitional conditions.

REPORT

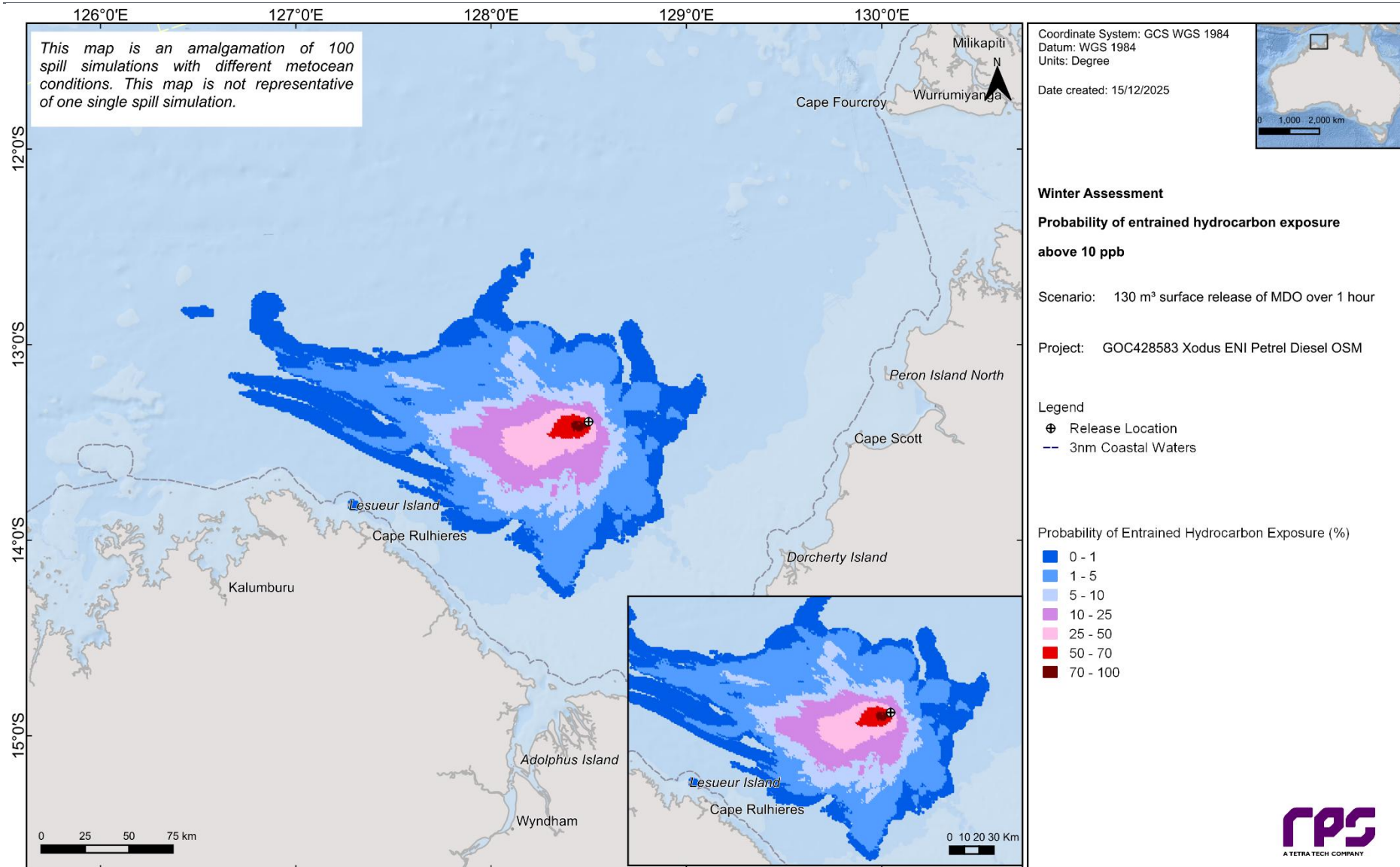


Figure 16-49 Probability of entrained hydrocarbon exposure at, or above, 10 ppb following a vessel collision at the mid-point between the WYE and Petrel riser platform. The results were calculated from 100 spill simulations and represent winter conditions.

REPORT

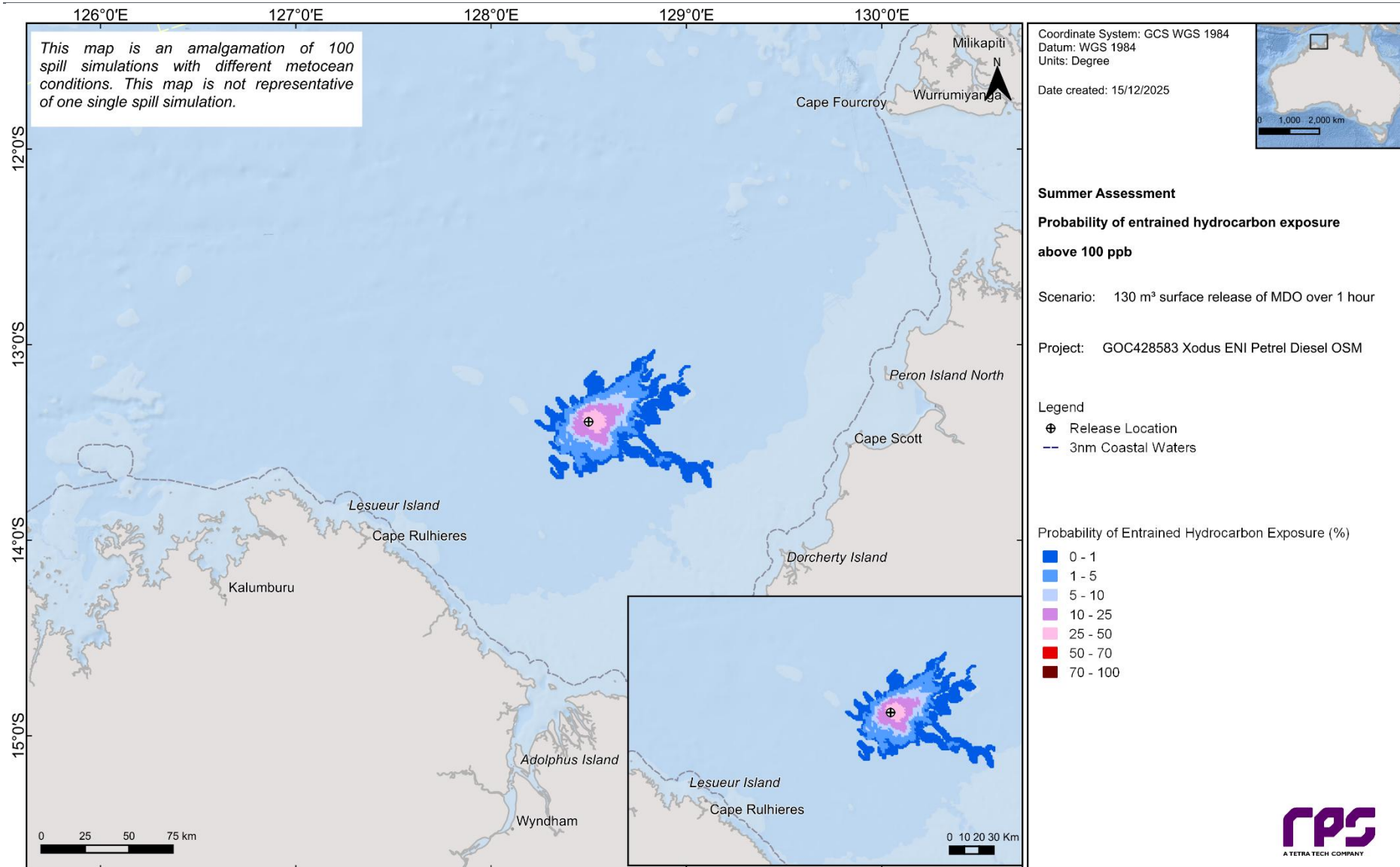


Figure 16-50 Probability of entrained hydrocarbon exposure at, or above, 100 ppb following a vessel collision at the mid-point between the WYE and Petrel riser platform. The results were calculated from 100 spill simulations and represent summer conditions.

REPORT

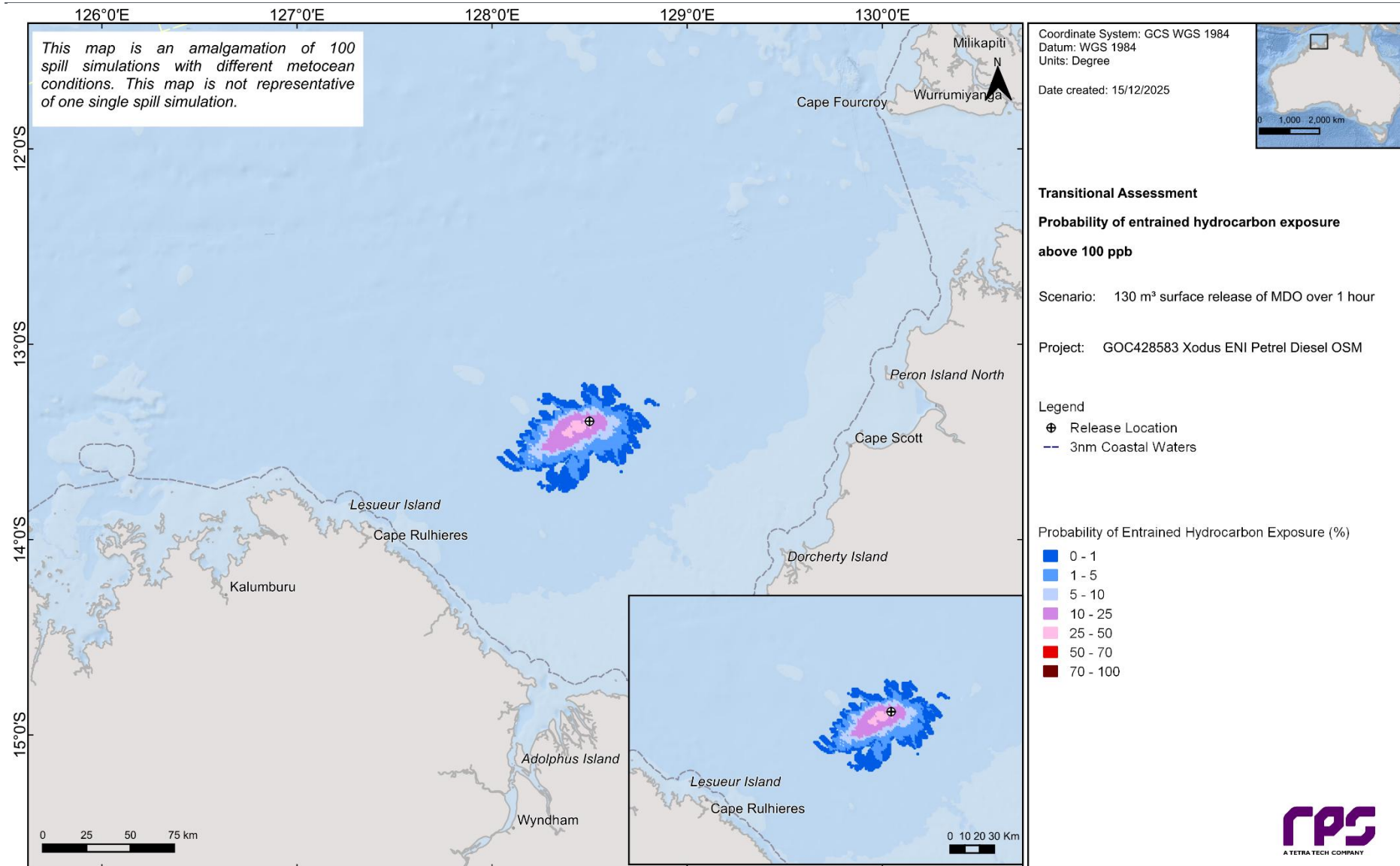


Figure 16-51 Probability of entrained hydrocarbon exposure at, or above, 100 ppb following a vessel collision at the mid-point between the WYE and Petrel riser platform. The results were calculated from 100 spill simulations and represent transitional conditions.

REPORT

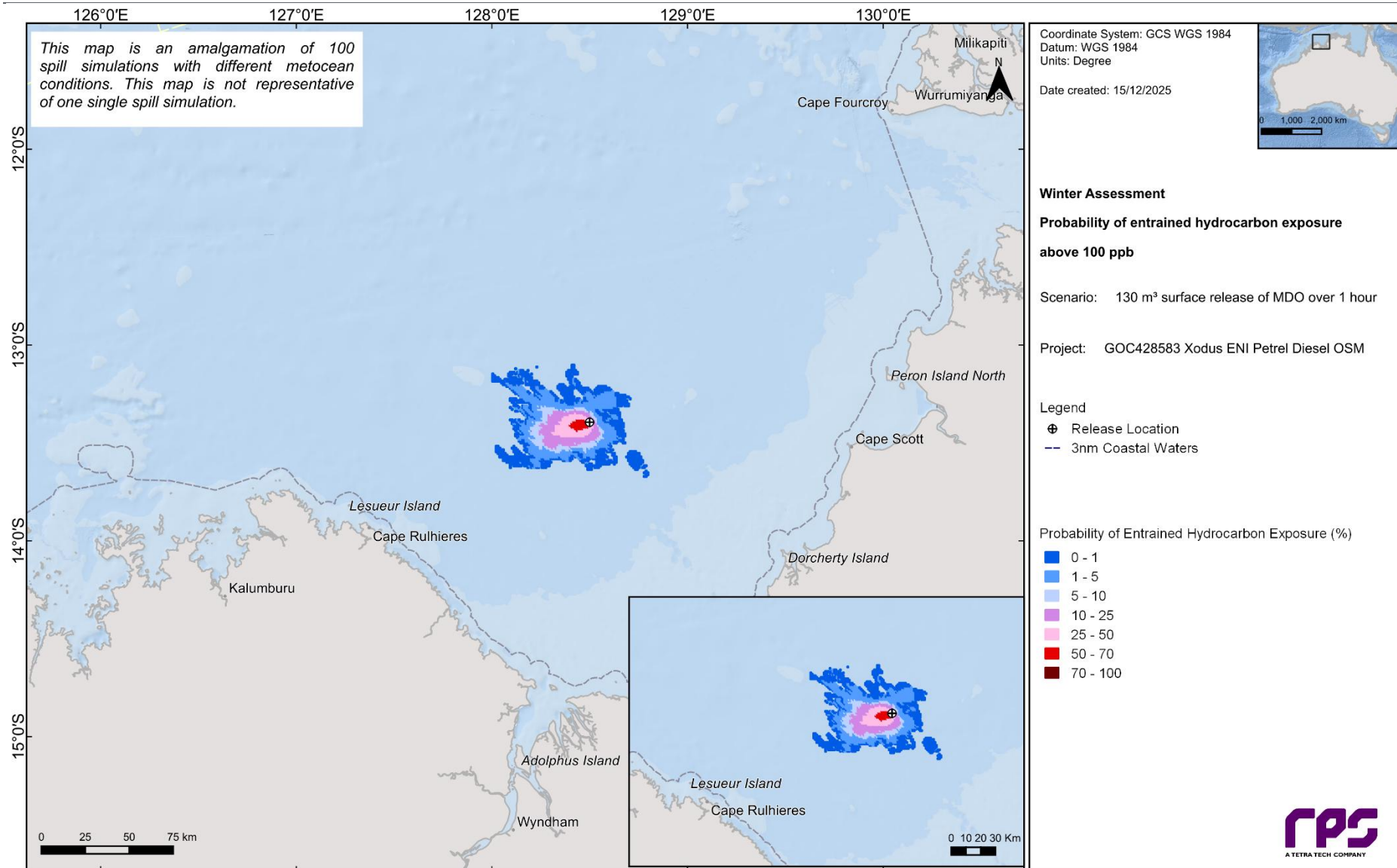


Figure 16-52 Probability of entrained hydrocarbon exposure at, or above, 100 ppb following a vessel collision at the mid-point between the WYE and Petrel riser platform. The results were calculated from 100 spill simulations and represent winter conditions.

REPORT

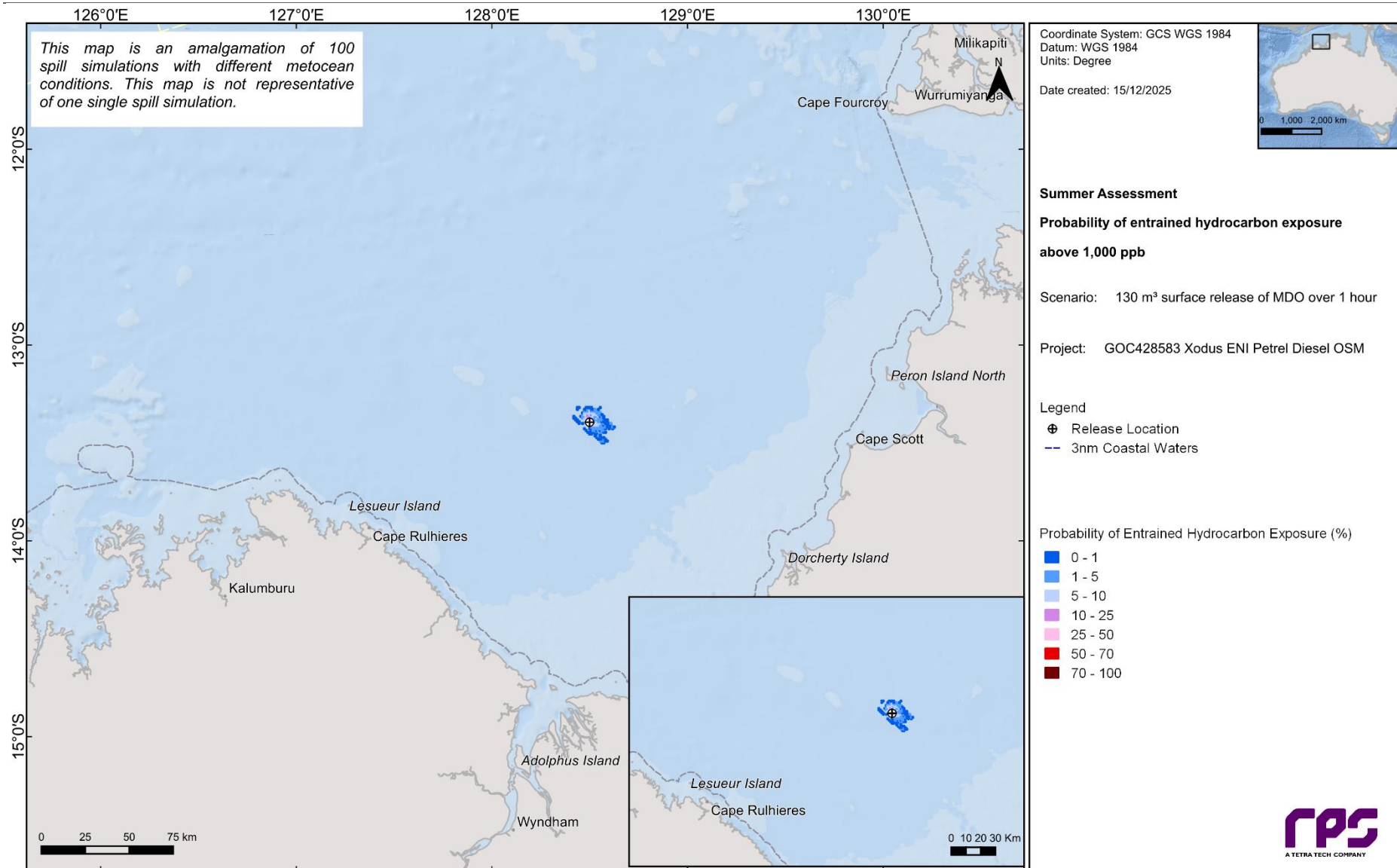


Figure 16-53 Probability of entrained hydrocarbon exposure at, or above, 1,000 ppb following a vessel collision at the mid-point between the WYE and Petrel riser platform. The results were calculated from 100 spill simulations and represent summer conditions.

REPORT

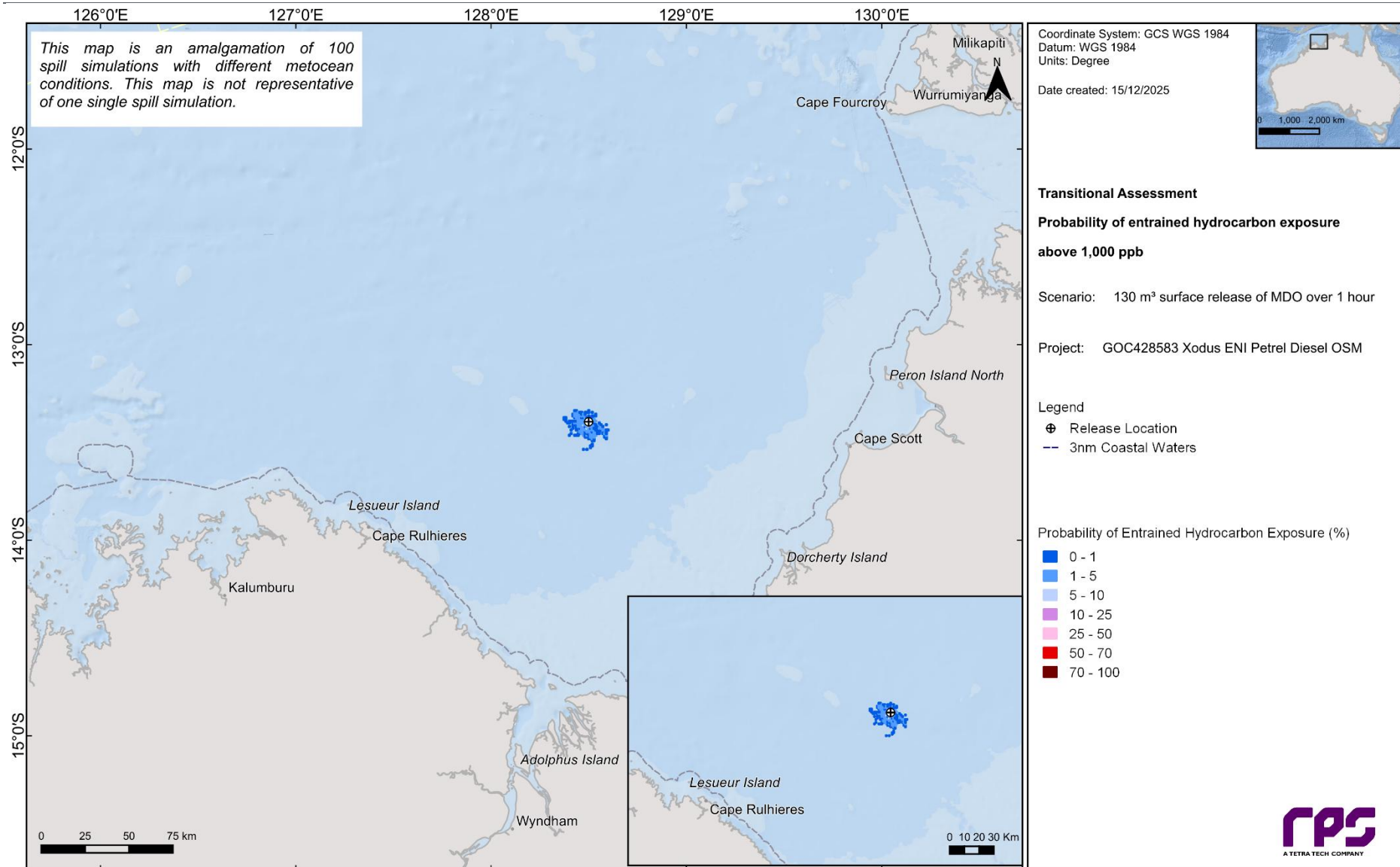


Figure 16-54 Probability of entrained hydrocarbon exposure at, or above, 1,000 ppb following a vessel collision at the mid-point between the WYE and Petrel riser platform. The results were calculated from 100 spill simulations and represent transitional conditions.

REPORT

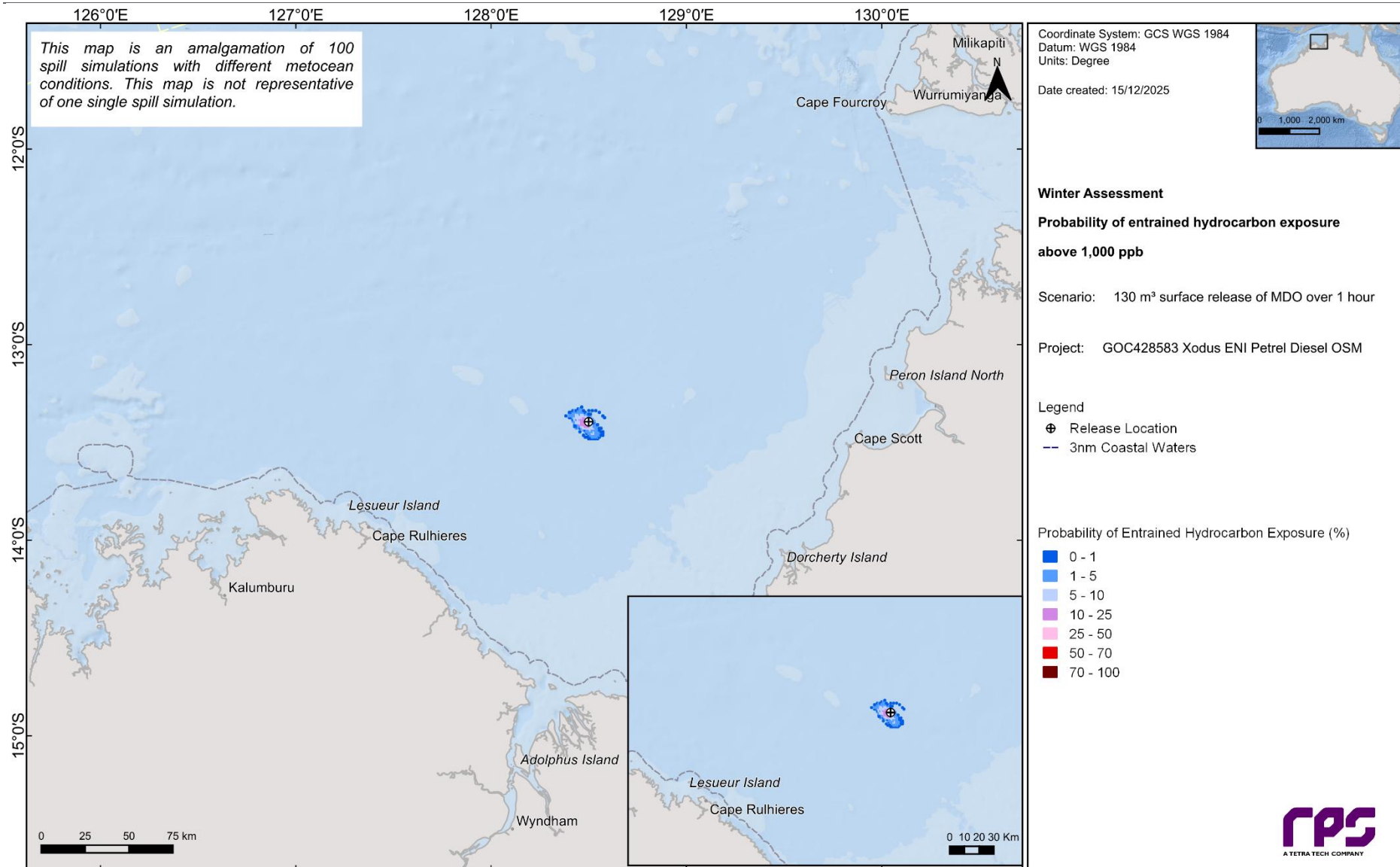


Figure 16-55 Probability of entrained hydrocarbon exposure at, or above, 1,000 ppb following a vessel collision at the mid-point between the WYE and Petrel riser platform. The results were calculated from 100 spill simulations and represent winter conditions.

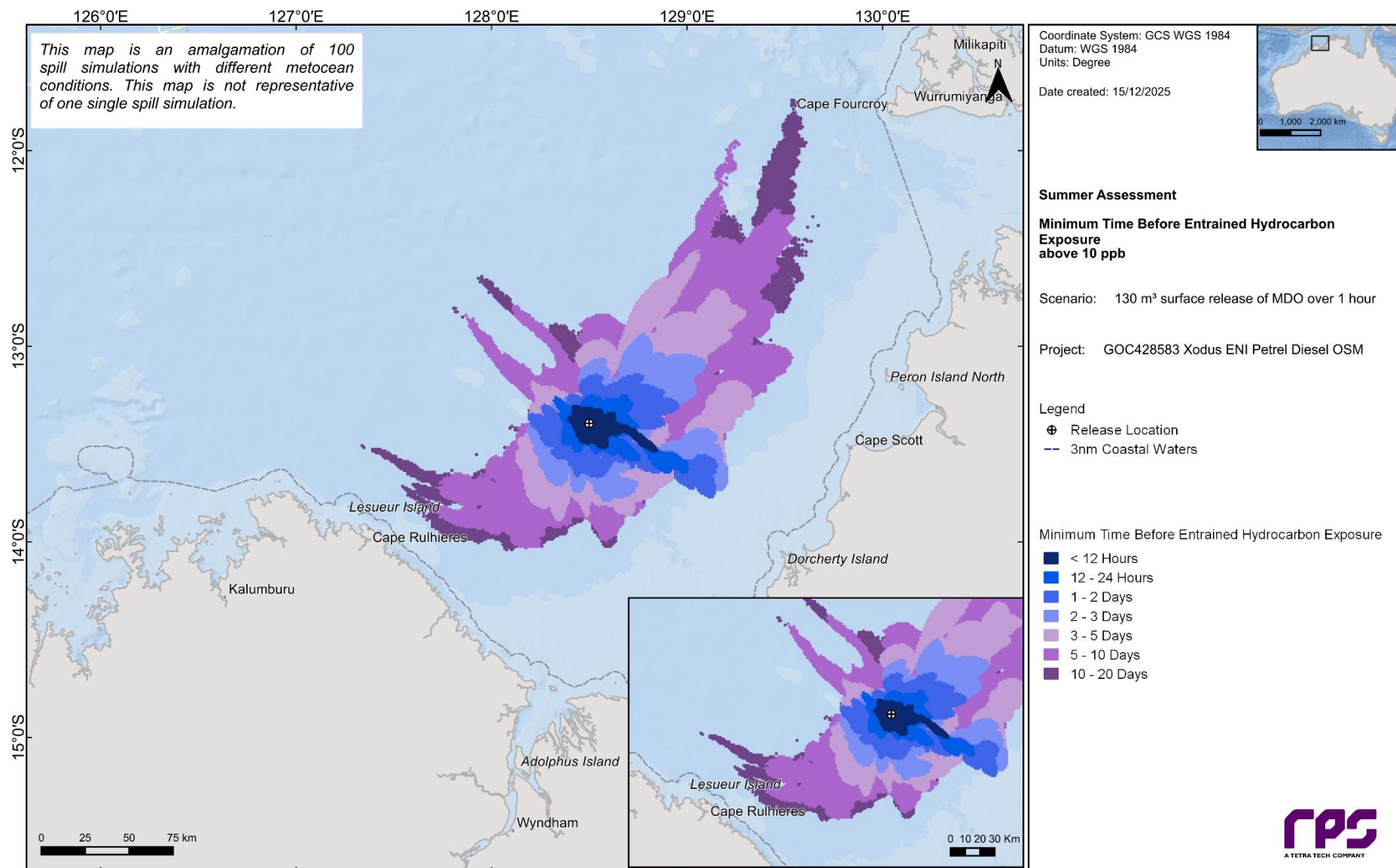


Figure 16-56 Minimum times before entrained hydrocarbon exposure at, or above, 10 ppb following a vessel collision at the mid-point between the WYE and Petrel riser platform. The results were calculated from 100 spill simulations and represent summer conditions.

REPORT

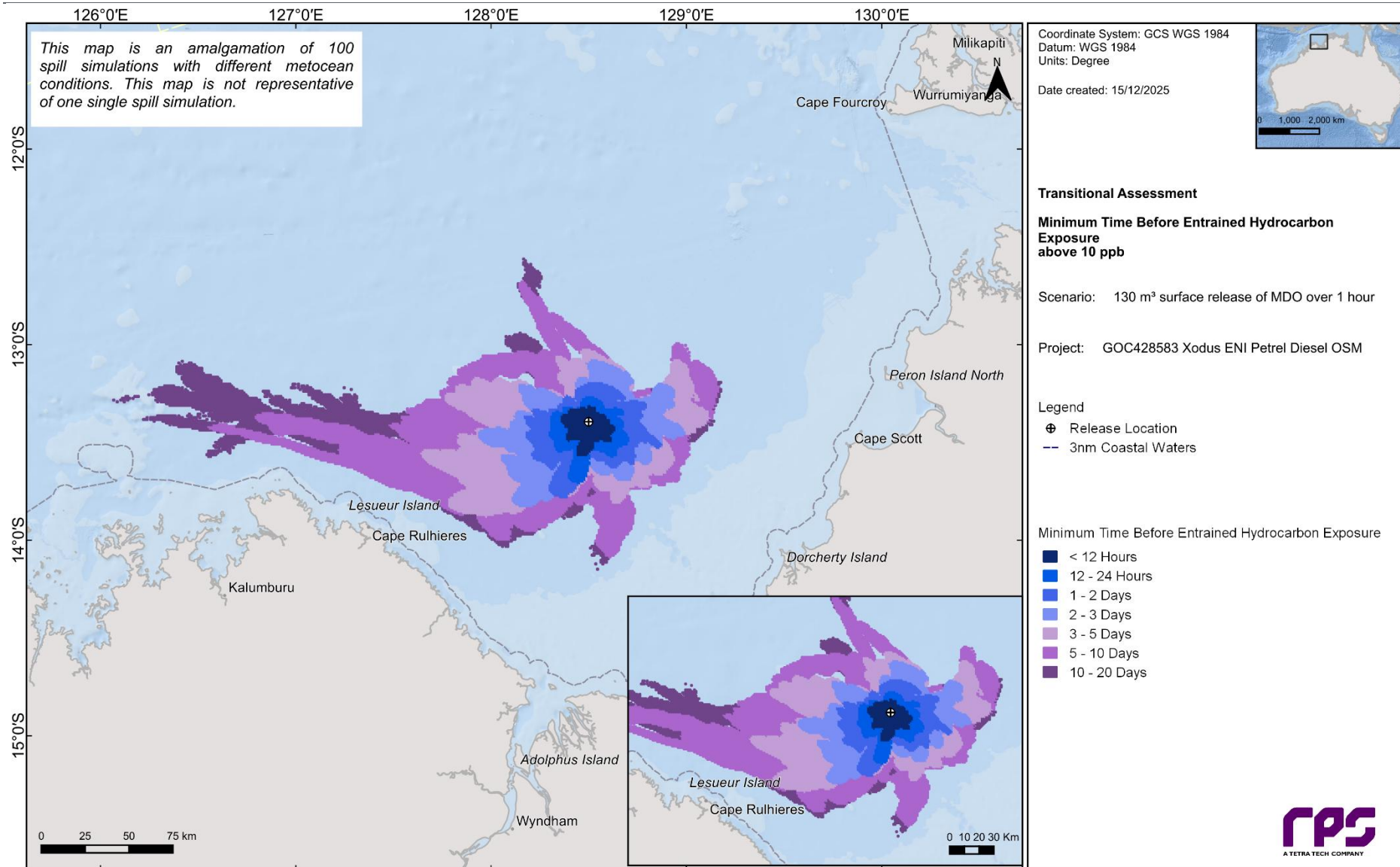


Figure 16-57 Minimum times before entrained hydrocarbon exposure at, or above, 10 ppb following a vessel collision at the mid-point between the WYE and Petrel riser platform. The results were calculated from 100 spill simulations and represent transitional conditions.

REPORT

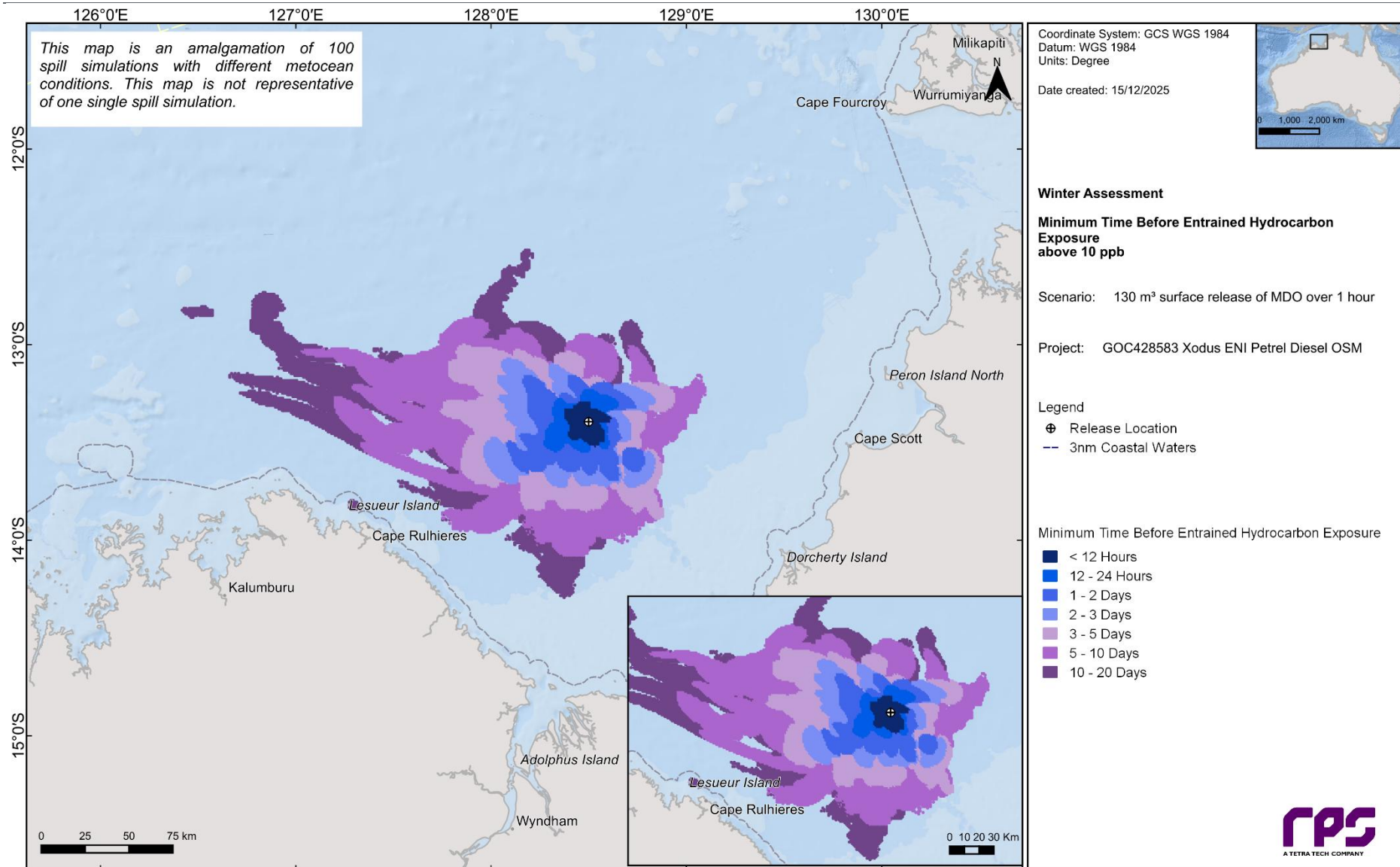


Figure 16-58 Minimum times before entrained hydrocarbon exposure at, or above, 10 ppb following a vessel collision at the mid-point between the WYE and Petrel riser platform. The results were calculated from 100 spill simulations and represent winter conditions.

REPORT

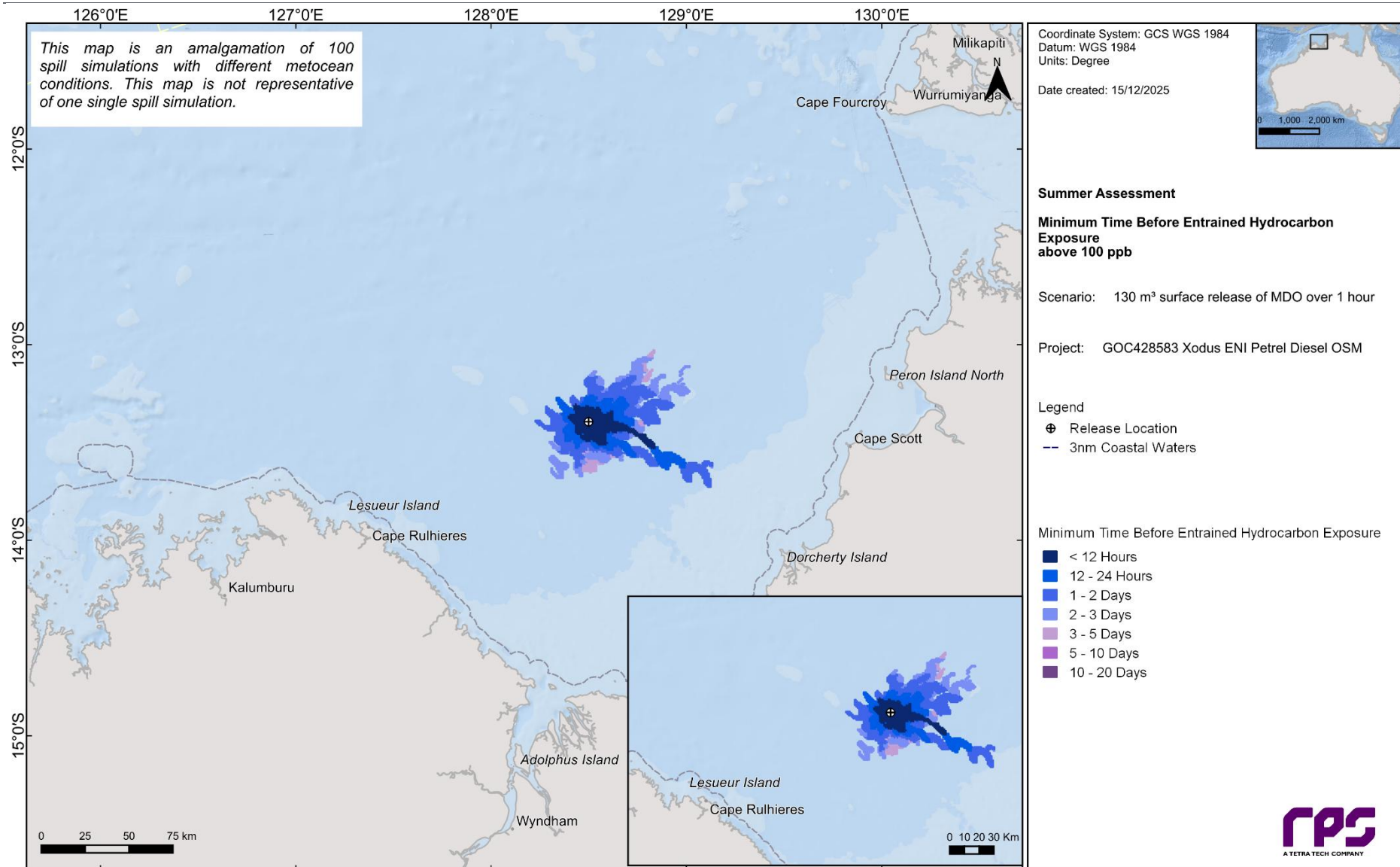


Figure 16-59 Minimum times before entrained hydrocarbon exposure at, or above, 100 ppb following a vessel collision at the mid-point between the WYE and Petrel riser platform. The results were calculated from 100 spill simulations and represent summer conditions.

REPORT

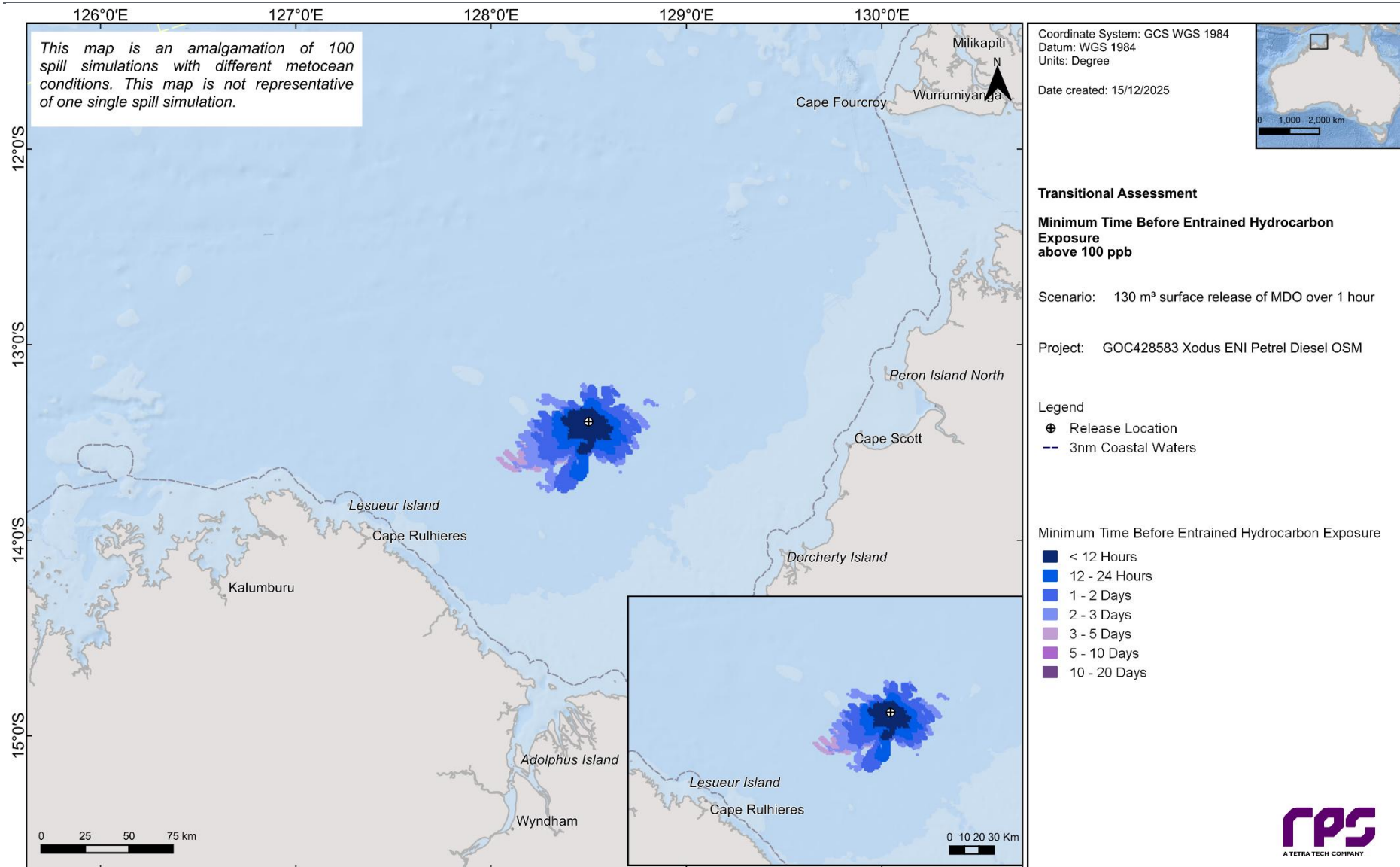


Figure 16-60 Minimum times before entrained hydrocarbon exposure at, or above, 100 ppb following a vessel collision at the mid-point between the WYE and Petrel riser platform. The results were calculated from 100 spill simulations and represent transitional conditions.

REPORT

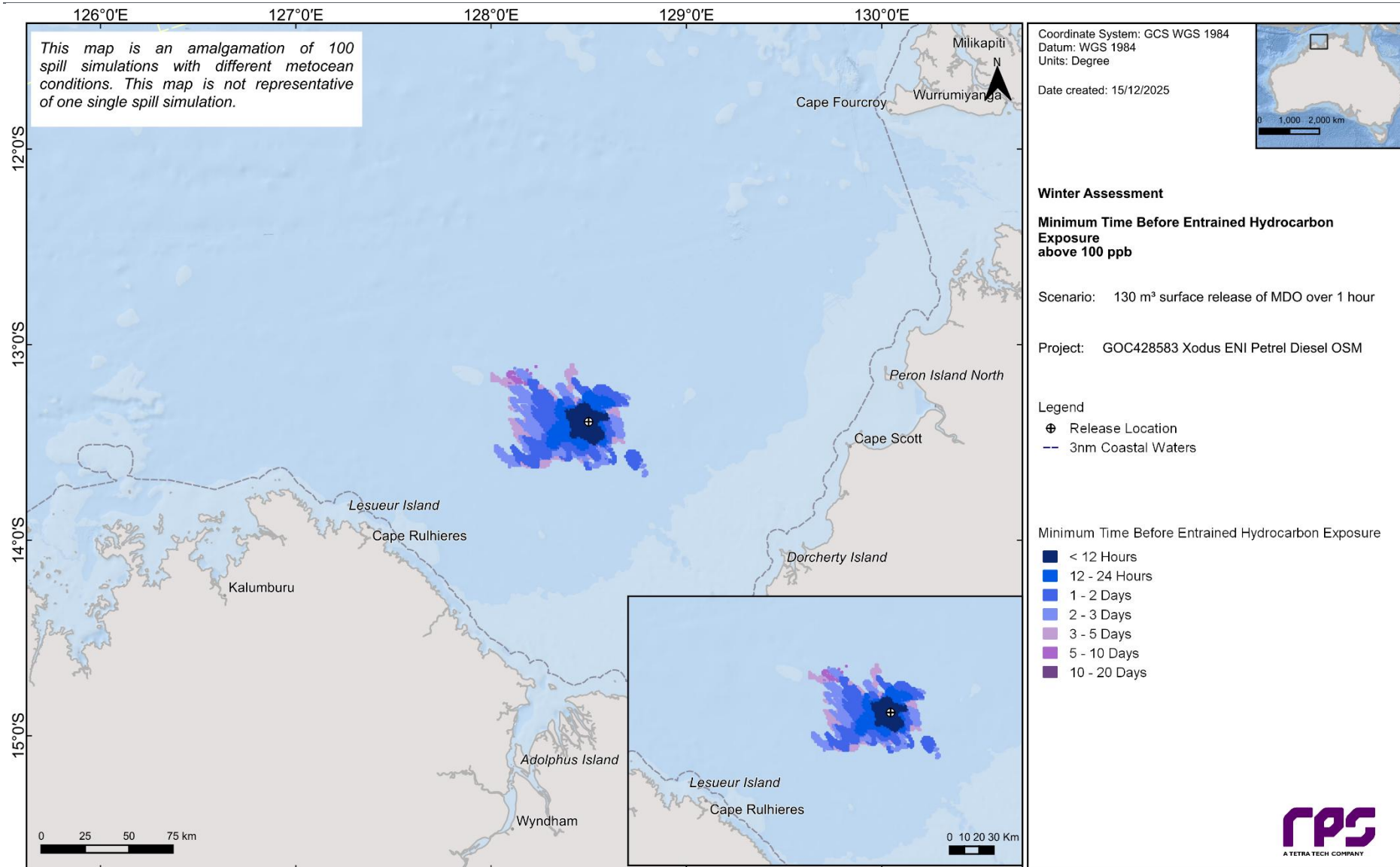


Figure 16-61 Minimum times before entrained hydrocarbon exposure at, or above, 100 ppb following a vessel collision at the mid-point between the WYE and Petrel riser platform. The results were calculated from 100 spill simulations and represent winter conditions.

REPORT

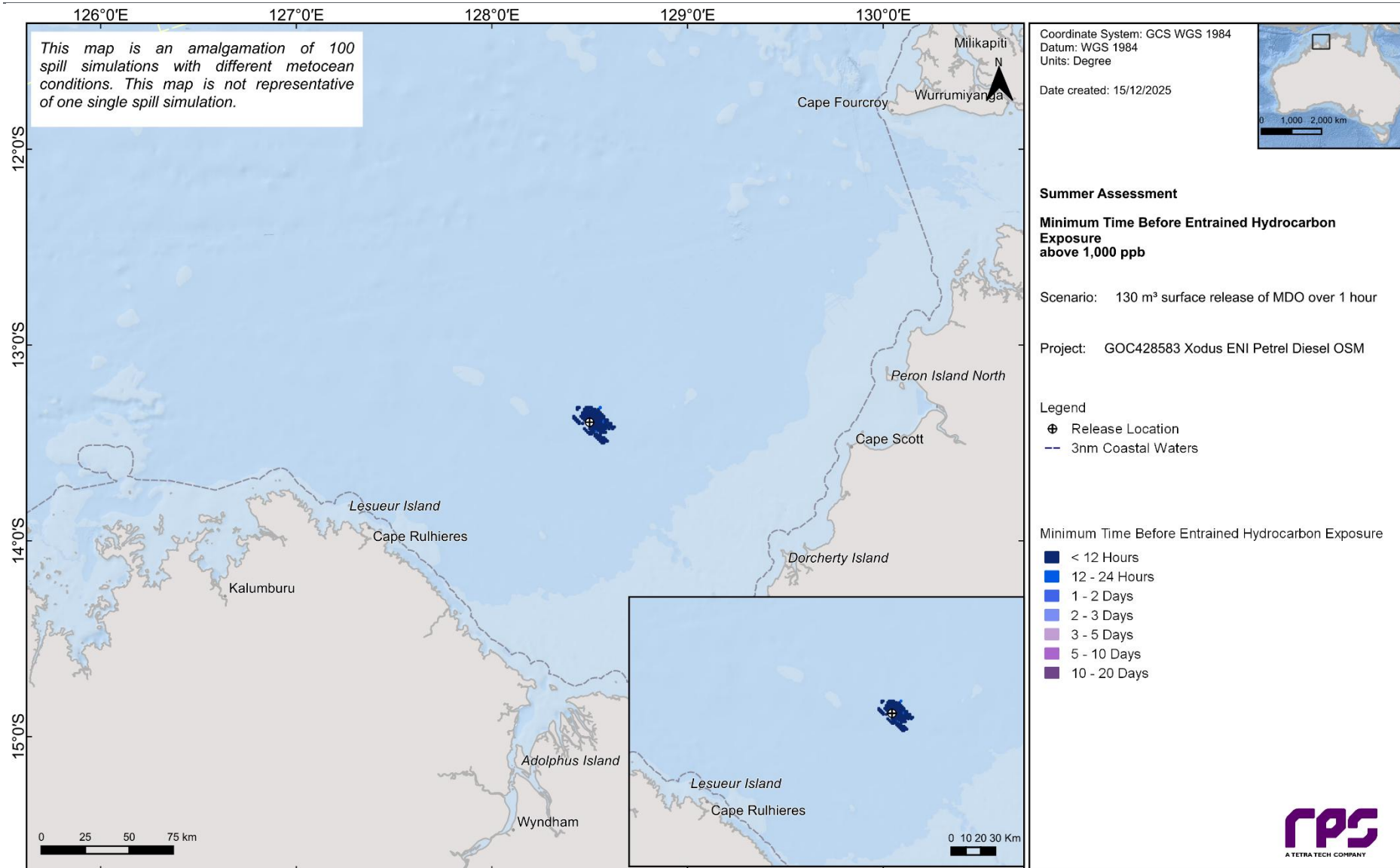


Figure 16-62 Minimum times before entrained hydrocarbon exposure at, or above, 1,000 ppb following a vessel collision at the mid-point between the WYE and Petrel riser platform. The results were calculated from 100 spill simulations and represent summer conditions.

REPORT

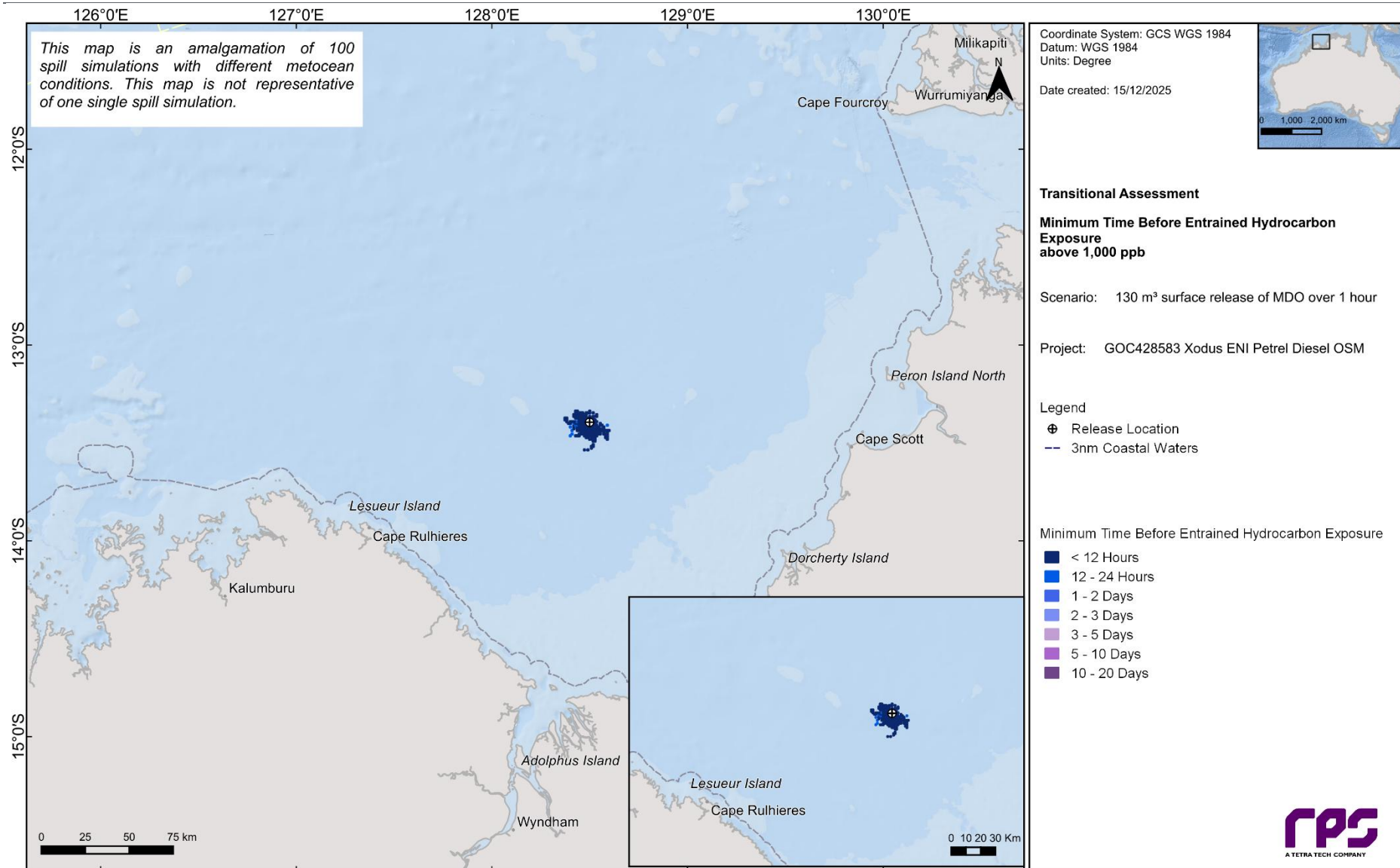


Figure 16-63 Minimum times before entrained hydrocarbon exposure at, or above, 1,000 ppb following a vessel collision at the mid-point between the WYE and Petrel riser platform. The results were calculated from 100 spill simulations and represent transitional conditions.

REPORT

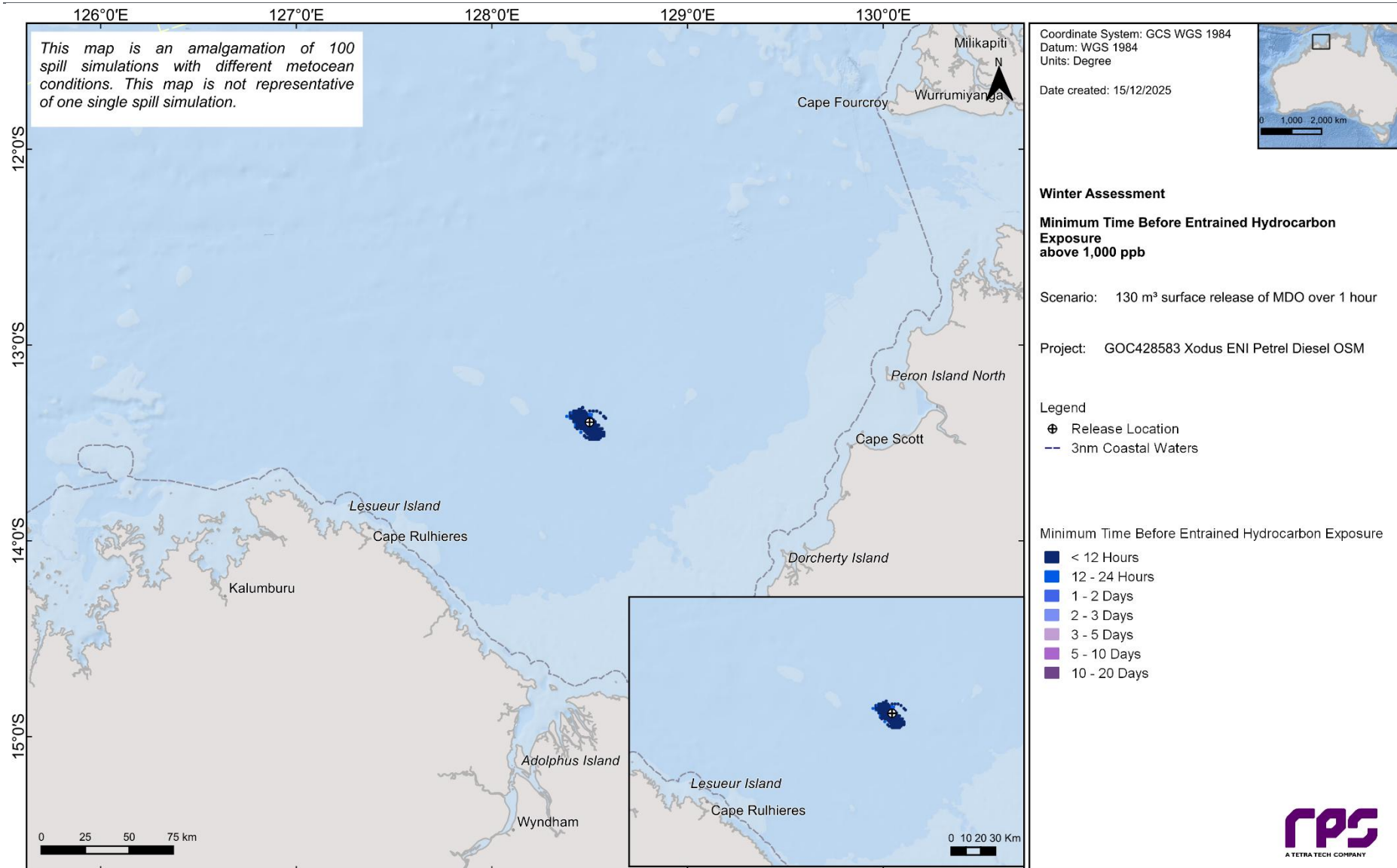


Figure 16-64 Minimum times before entrained hydrocarbon exposure at, or above, 1,000 ppb following a vessel collision at the mid-point between the WYE and Petrel riser platform. The results were calculated from 100 spill simulations and represent winter conditions.

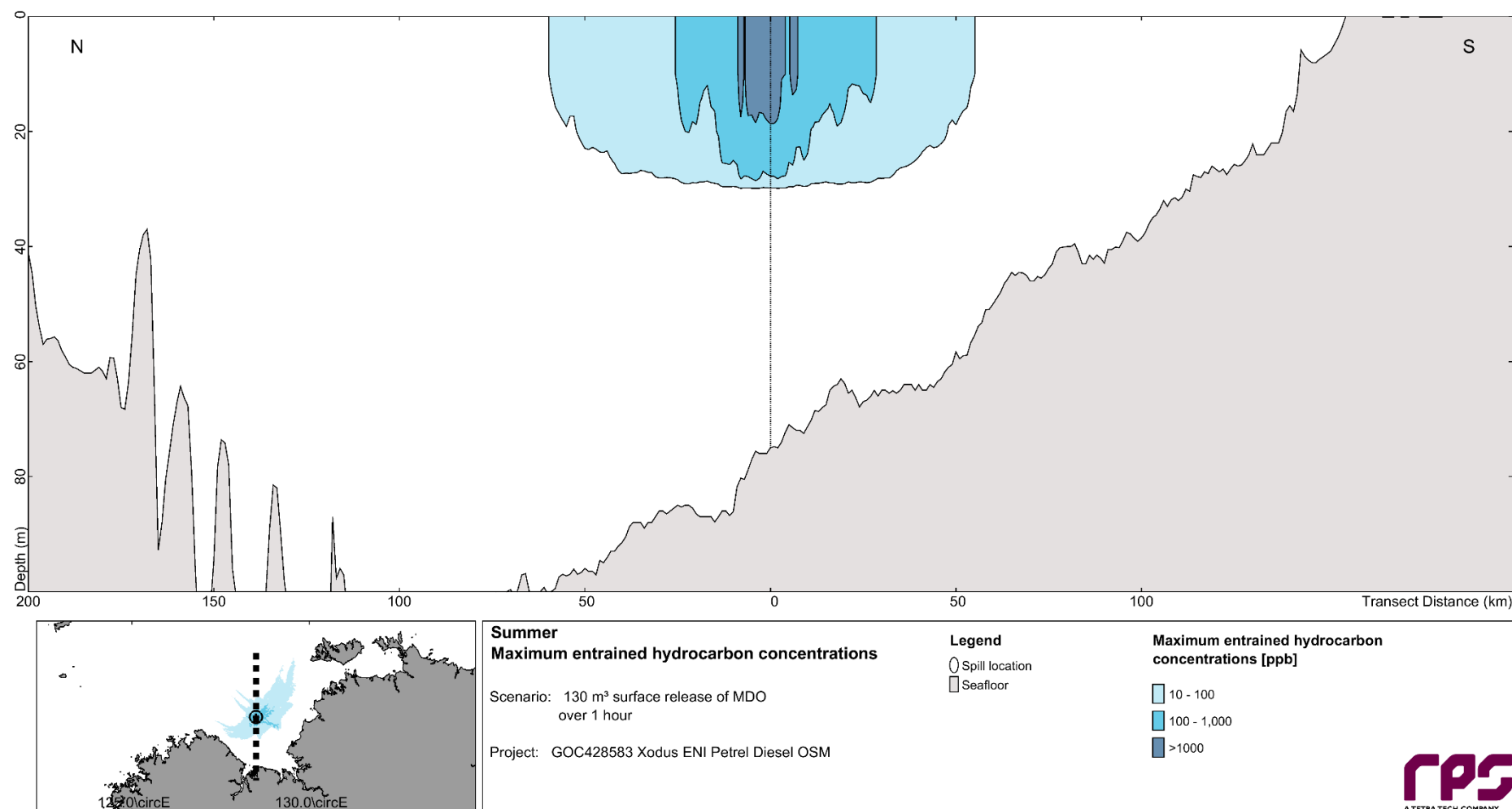


Figure 16-65 North-south cross-section transect of entrained hydrocarbon concentrations following a vessel collision at the mid-point between the WYE and Petrel riser platform. The results were calculated from 100 spill simulations and represent summer conditions.

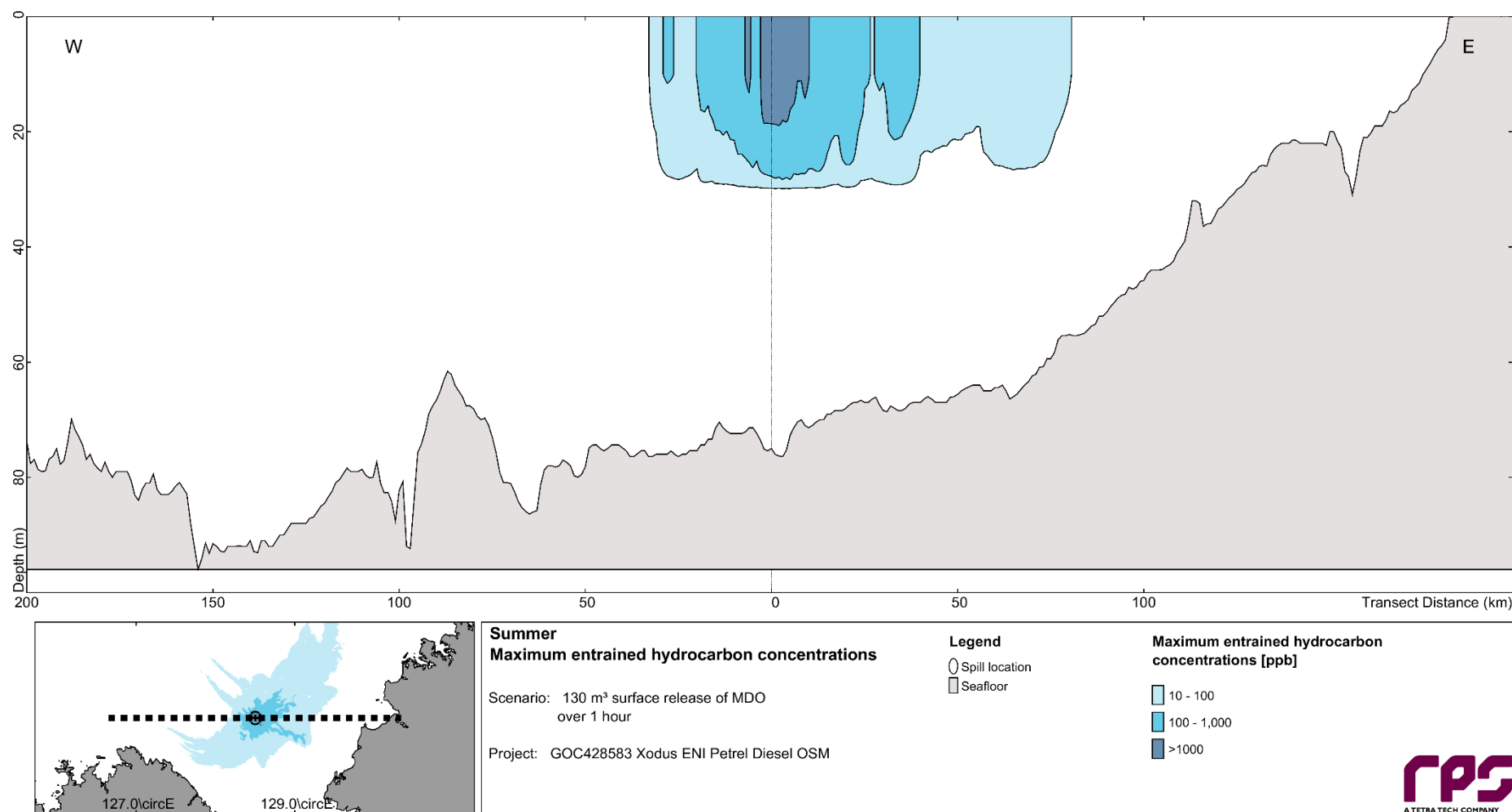


Figure 16-66 East-west cross-section transect of entrained hydrocarbon concentrations following a vessel collision at the mid-point between the WYE and Petrel riser platform. The results were calculated from 100 spill simulations and represent summer conditions.

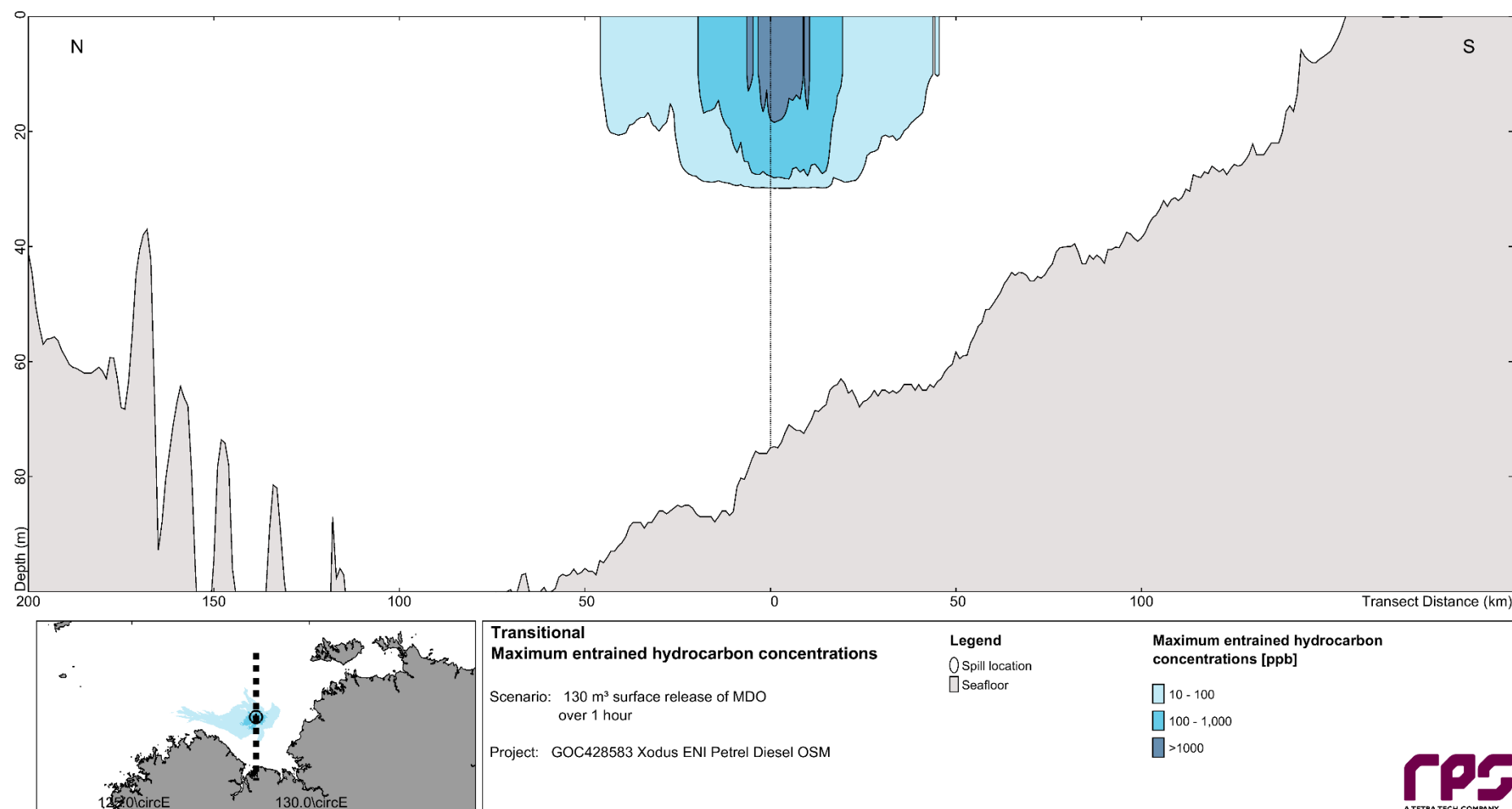


Figure 16-67 North-south cross-section transect of entrained hydrocarbon concentrations following a vessel collision at the mid-point between the WYE and Petrel riser platform. The results were calculated from 100 spill simulations and represent transitional conditions.

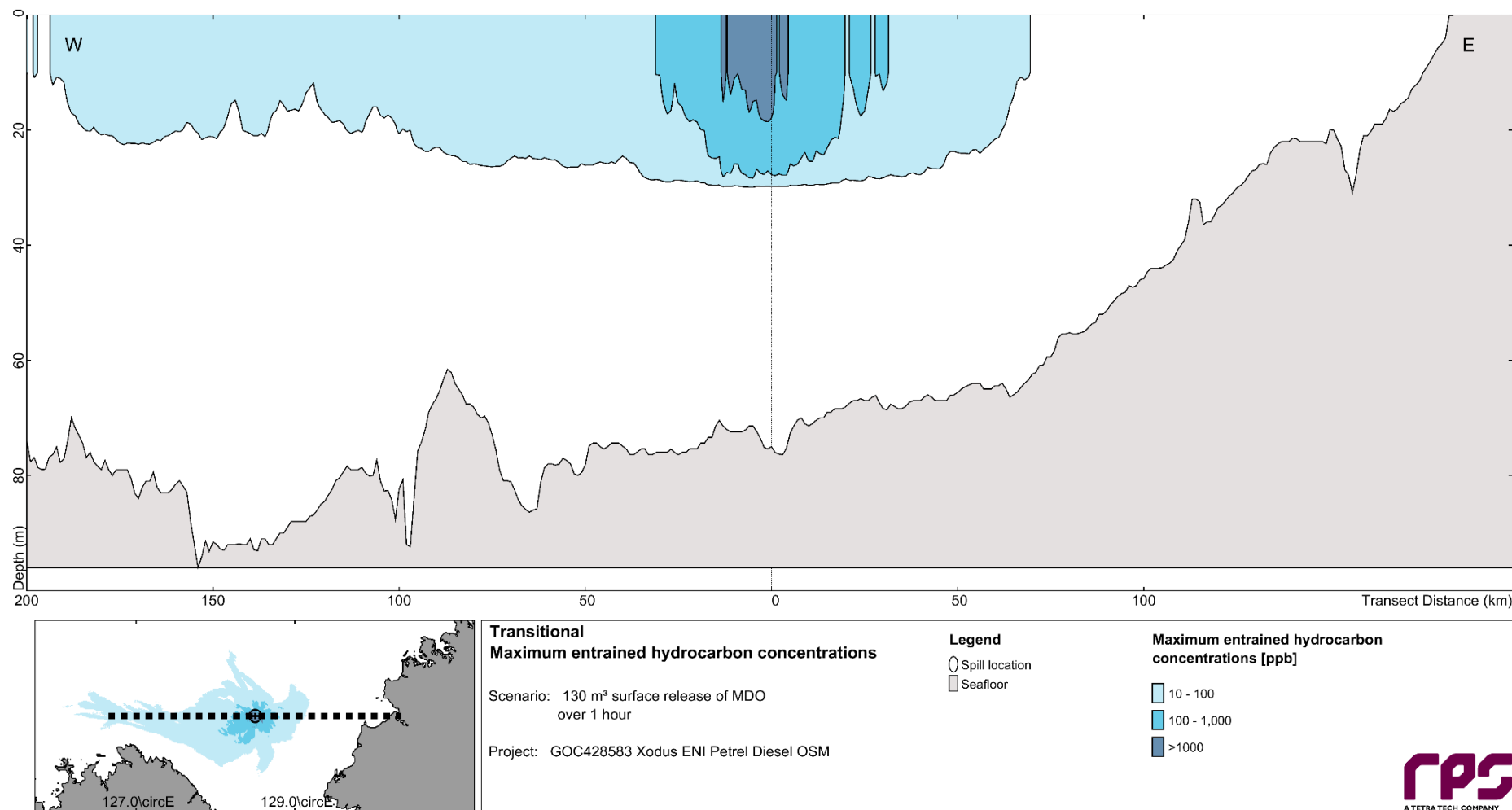


Figure 16-68 East-west cross-section transect of entrained hydrocarbon concentrations following a vessel collision at the mid-point between the WYE and Petrel riser platform. The results were calculated from 100 spill simulations and represent transitional conditions.

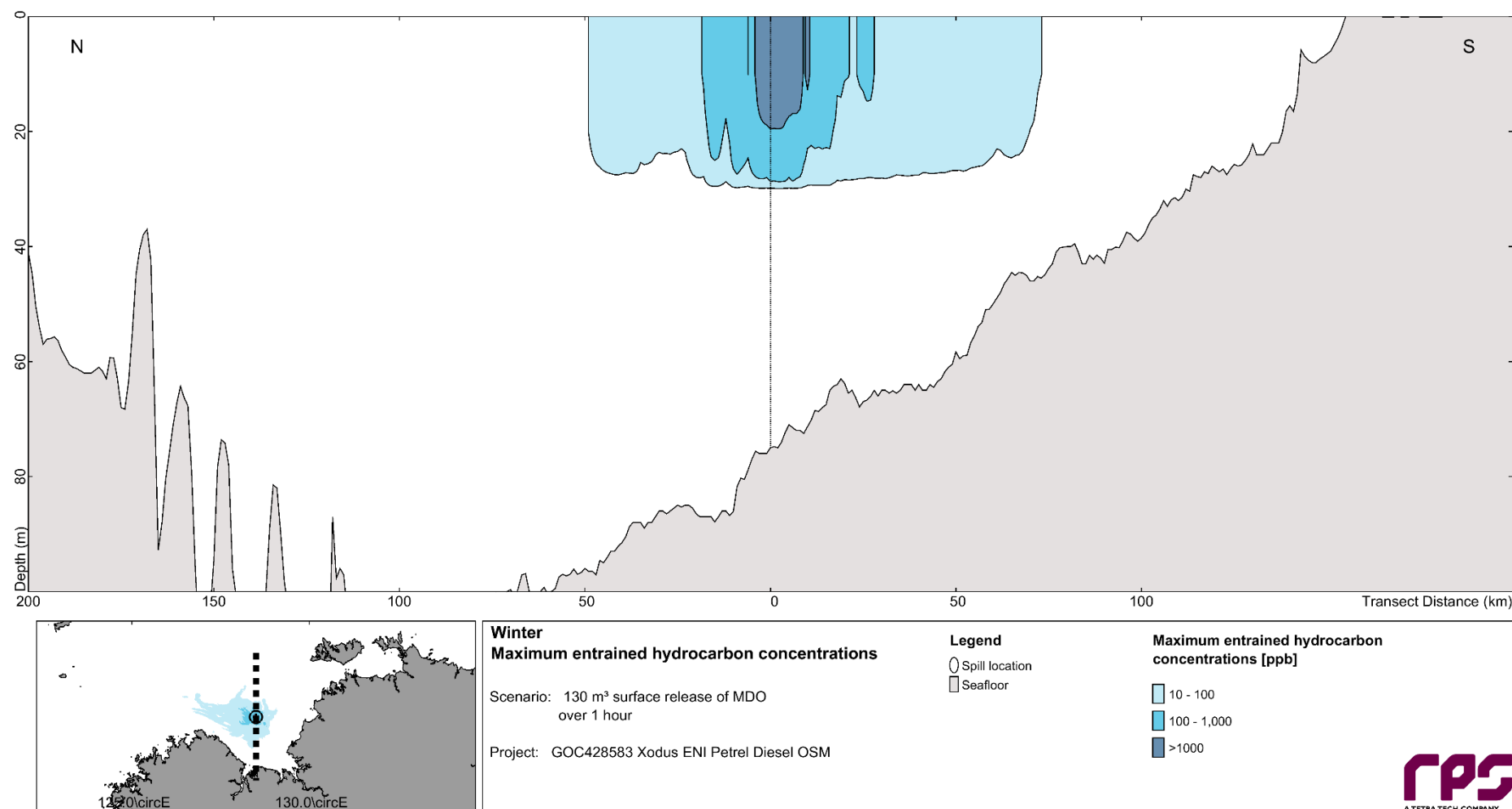


Figure 16-69 North-south cross-section transect of entrained hydrocarbon concentrations following a vessel collision at the mid-point between the WYE and Petrel riser platform. The results were calculated from 100 spill simulations and represent winter conditions.

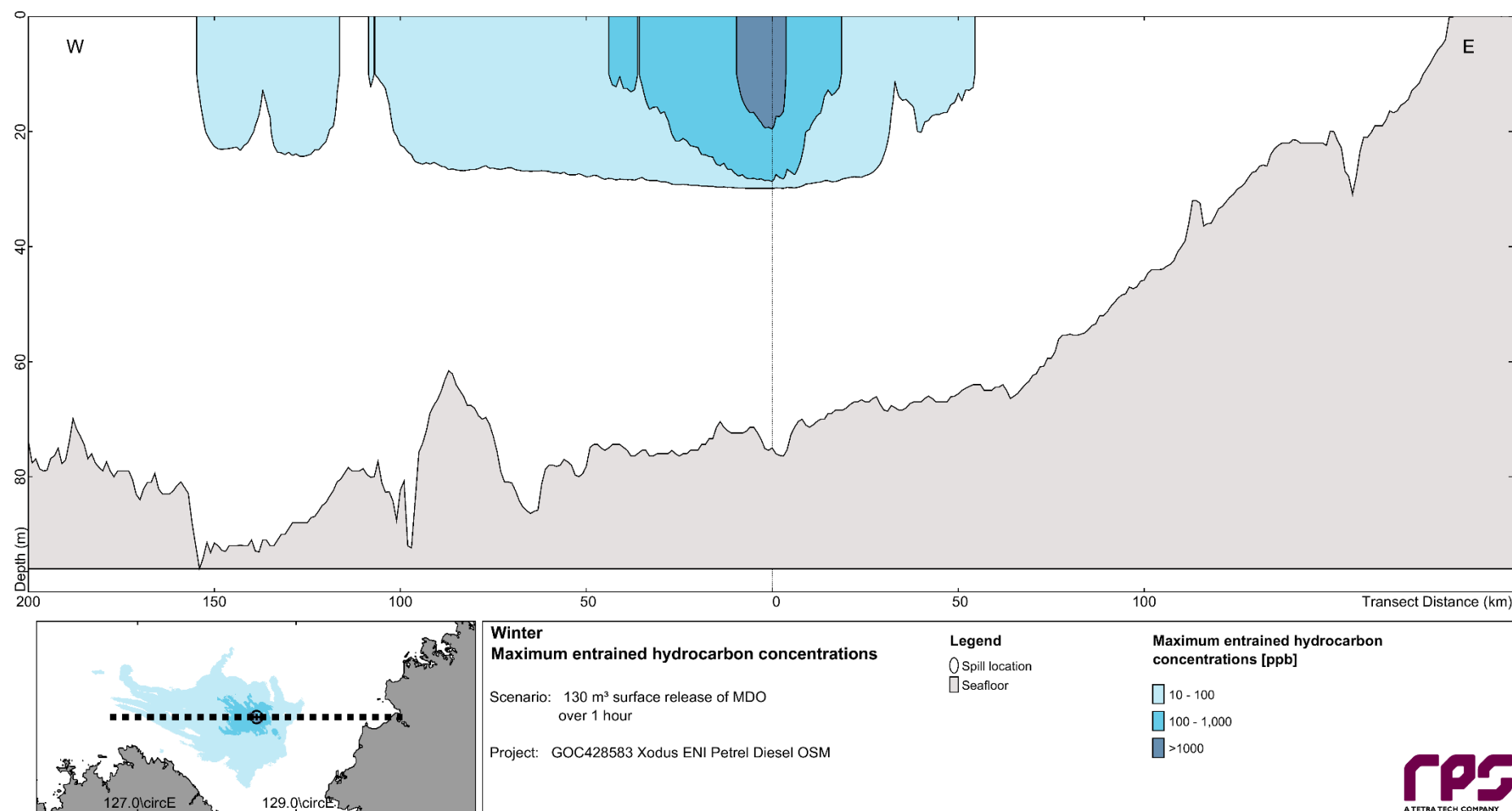


Figure 16-70 East-west cross-section transect of entrained hydrocarbon concentrations following a vessel collision at the mid-point between the WYE and Petrel riser platform. The results were calculated from 100 spill simulations and represent winter conditions.

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